

The Pluralism of the Sciences

The sciences themselves can be distinguished in terms of their differing subject matters. This difference in subject matters is based on differences in evidence. There would be only one science or perhaps we would need only the natural sciences if reality evidentially presented itself to us in one way. For better or worse, however, reality directly presents itself to us in multiple ways. A plurality of sciences, then, is required. For example, psychological reality presents itself to us in the events of psychological life, such as loving and hating, friendly conversations, and arguments. These occurrences differ markedly from those through which mitochondria present themselves to us. In order for psychologists to remain faithful to the given, they must understand and interpret the meaning of the emotionally charged words and expressions involved in arguments and friendly conversations. Even a strict behaviorist must do so. Behavioral investigations of an argument or a friendly conversation must recognize their emotional tone, however much this tone may be ignored in behavioral accounts. The physiologist, however, need not worry about the emotional charge of mitochondria. The physiologist has no such worry because there is no evidence at all that mitochondria experience emotions. There is ample evidence, however, that people interacting with one another experience emotions. The emotions of individuals are evidenced in the words they utter and the actions they perform. If science, then, is fidelity to the evidence, one must concede that reality differs and must be conceived differently when the evidence differs. The multiplicity of the sciences, each based on evidence, proves that reality is multifaceted: each science with its own distinctive concepts and theories discloses a facet of the world that differs from the other facets of the same world. Reductions that attempt to set aside one kind of evidence in favor of another only violate the fundamental requirement of science to respect the direct givenness of things.

The General Distinction between the Pure and Practical Sciences

The many sciences we now possess can be classified as either pure or practical. The pure sciences aim at the *truth* regarding their chosen subject matters. All practical goals or uses remain extraneous to these disciplines because they strive simply to *know* the features of reality and their interconnections. The practical sciences, on the other hand, are defined in terms of their practical aims and pursuits. Concepts, theories, techniques, and approaches belong to these sciences only insofar as they contribute in some manner to the achievement of these practical goals.

Medicine as a Practical Science

Insofar as medicine is based on evidence, it is a science. Yet it is a practical, not a pure, science. Medicine never aims merely at knowing the truth about human health and illness. It rather aims at the practical goals of promoting health and treating illness in human life. However, the practice of medicine remains scientific to the extent that its concepts, theories, techniques, and procedures are grounded in evidence.

Many of these tools of medicine are drawn from the pure sciences. Medicine selects those components of the pure sciences, such as biology or psychology, that can play some

effective role in the accomplishment of its practical ends. Hence medicine's relationship to the various pure sciences is determined by a *particular criterion of relevance*: medicine chooses those concepts and techniques from the pure sciences that are likely to prove relevant to promoting health and ameliorating illness in human beings. Those aspects of the pure sciences that fail to contribute to the actualization of these goals remain irrelevant to medicine. Medicine, like all the practical sciences, is free to pick and choose from the wealth of the pure sciences those items of knowledge that accord with its criterion of goal-relevance.

Because the practical sciences, like medicine and engineering, pursue *practical* goals, they remain closely tied to the practical world par excellence: the everyday lifeworld. In most cases the very goals of the practical disciplines are dictated by the lifeworld. The aims of medicine, consequently, do not arise from science but rather from the pre-scientific lifeworld. Patients do not come to physicians because they have scientific—that is, conceptual and theoretical -- problems. Patients seek out doctors because the patients suffer in their everyday lives. Health and illness are issues that pervade the pre-scientific lifeworld. Scientific knowledge then provides the conceptual and technical tools for approaching these realities. Moreover, patients do not usually speak the technical language of medical science. They speak the natural language of their society. For this reason, the physician must always draw on his pre-scientific familiarity with people. But in drawing on this familiarity with the lifeworld, the physician remains guided by the practical goals of his profession. Only those features of the patient's everyday life that bear on health and illness become relevant for the physician. Hence the doctor converses with the patient in a way quite similar to ordinary conversations in the lifeworld. Yet, in the physician's mind the conversation is guided by his criterion of goal-relevance: Is this bit of information relevant to the patient's health or illness? Medical science thus draws on the pre-scientific knowledge the physician already possesses because he participates with the patient in a social lifeworld. But medicine also goes beyond this pre-scientific knowledge by availing itself of the theories and methods of the pure sciences. And in both cases, the principle guiding this selection of knowledge from the lifeworld and the sciences arises from the practical aims of medicine.

Genesis of Science out of the Lifeworld

All science, pure and practical, arises out of the pre-scientific experience of everyday life. This pre-scientific knowledge of reality is never erased by science and replaced with the latter's "improved" view. Scientific thinking rather draws on this foundation of pre-given meaning in order to reach beyond it [5].

Pre-scientific experience, we have said, consists primarily in our sensory perception of and bodily action on concrete things in the lifeworld. The typifications that inform and structure this experience, however, draw no precise boundaries around things. The cultural objects of the lifeworld blend and interweave with one another in inexact and indefinite ways. The paper on which I am writing, for example, is conjoined in my experience with the pencil I am using and also with the desk and chair.

Out of such vague typifications arises natural language. This language, as we utilize it in everyday communication, goes beyond perception and action by generating a realm of

pure meanings. Liberated from their embeddedness in concrete things, the meanings of language can now move, develop, and change in a conceptual realm of their own.

The technical language of science grows out of this liberation of meanings from perception and action. And scientific thinking goes beyond natural language by carefully defining, redefining, criticizing, and revising its concepts and assertions. In its movement away from the immediacy of perception and action, scientific language grows more and more abstract. At the level of the lifeworld, properties of things are always conjoined with features of other things: the writing paper makes sense only in relation to the pencil. Scientific thought, as it reaches higher and higher levels of abstraction, draws increasingly more exact boundaries around things and precisely distinguishes their properties from one another, thus capturing single and separate aspects of things while ignoring or excluding all others. By referring to single aspects of things, abstract concepts are assured of univocal definitions: they express a single meaning. At their highest levels of abstraction, then, scientific concepts can be precise and exact by distinguishing each item of reality from every other [5]

Yet such precision and univocity can be secured only by abstracting from many facets of reality. In the natural sciences, for example, physics remains our most exact science. But such precision arises only when much of reality has been set aside. The physicist must abstract from human meanings, values, intentions, and feelings. All of the social world, most of the human world, and even part of the living world must be systematically disregarded in order to isolate that portion of physical reality on which the physicist concentrates. Physics, in other words, delimits its subject matter and determines evidence for it only *after* performing a quite elaborate abstraction. The gain is significant: physical reality admits of exact description and, therefore, of precise prediction. Exactitude and precision entail the absence of ambiguity: the concepts of physics for the most part are so defined that they refer to only a few selected elements of reality. As a result, the concepts are univocal in meaning.

The human sciences, on the other hand, are closer to the lifeworld and hence less abstract. They must take into account those facets of reality that fail to deliver exact evidence. The social world, for example, provides no exact evidence, and yet it does provide evidence. Scientific use of this evidence must remain faithful to all its ambiguity and indefiniteness. Here, then, concepts must capture the manifold possibilities inherent in social life. These concepts cannot be univocal because they must express many meanings at once: they must depict a reality that embodies many meanings at once. The indefiniteness of social reality arises from the complexity of this reality. Of course, we may seek to penetrate this complexity by offering many different interpretations of the same social reality. Thus its inherent ambiguity -- the fact that it means many things at once -- is unpacked in differing accounts. Yet these different interpretations of the same event only prove its inherent ambiguity: the event could have one meaning, but it could just as well have a different one [29].

This complexity and ambiguity of social life persists because of the experiential closeness of this life to the lifeworld. In order for sociologists to delimit their area of study and the evidence for it, they need not abstract very far from the everyday lifeworld. Sociologists may try to set aside economic institutions and relations and leave them to economics. But they soon find that they cannot really perform such an abstraction. In

explaining social events, sociologists must repeatedly refer to economic institutions and values. They experience a similar failure when they try to abstract from political reality. Sociology' turns out to imply political science as well as economics. Moreover, it implies psychology and even philosophy. At the level of the human sciences, subject matters spill over into one another and admit of no precise delimitation. In the human world facets of one reality mix and interweave in ambiguous ways with facets of another.

The ambiguity of the evidence of the human world thus generates what Paul Ricoeur has termed "the conflict of interpretations" [29]. The same evidence can ground different interpretations; and yet we cannot often adjudicate among these competing interpretations of the same reality precisely because each can display its scientific credentials by referring to the evidence in its favor. Consequently, schools of interpretation multiply and proliferate. Each may claim to possess the sole truth of the human world, but for better or for worse there exists no such thing. Those who take up human science enter a realm populated with manifold theories, each thriving in its own restricted province and capable of proving its "truth" when challenged. Those who long deeply for a single truth of reality would be well advised to devote themselves to the natural sciences.

This conflict of interpretations need not engender intellectual anarchy, however, for not just any position is defensible in the face of the evidence. There is at least one rule governing the conflict: each claim must be based on evidence. If this rule were stringently invoked in the human sciences, many competing theories and even whole schools would collapse. The human sciences are rampant with ad hoc hypotheses and purely speculative notions. Summoning all theories into the court of real evidence would help clear the field (and the bookshelves) of scientifically spurious views. The predicament of the human sciences, then, is not anarchy but rather a healthy pluralism that accepts the ambiguity of its evidence without despairing of proving truth and falsity.

Thomas Kuhn has described a conflict of interpretations in the natural sciences [27]. This conflict of interpretations, however, is eventually resolved in a revolution that overthrows an earlier paradigm and established a new, single paradigm for scientific research. One interpretation of natural reality is replaced by another unified view of reality. Such orderliness and simplicity in revolutions characterize only the natural sciences, however. In the human sciences, the conflicts among different interpretations remain interminable and constant. A "revolution" in the human sciences -- the introduction of a novel paradigm -- rarely overthrows old, accepted paradigms. Such revolutions simply add another perspective to a field that is already diverse and complex [30]. The ambiguity of the human evidence admits of many different interpretations simultaneously. Hence, each of the different paradigms plays an important role in illuminating particular aspects of the multifaceted whole that is human reality.

Exactitude and Precision in the Sciences

Those facets of reality studied by the natural sciences lend themselves to precise and exact distinctions, and those facets examined by the human sciences do not. The basic requirement of scientific ideas, as we have said, is fidelity to the evidence. In some cases this warrants precisely defined notions; in other cases, more ambiguously defined ones.

Contrary to what many think, exactitude and precision are not necessary ingredients of genuine science. The primary requirement of conceptualization is that our concepts represent as accurately as possible what is disclosed in evidence. If what is given in evidence leads away from exactitude, exactitude remains unimportant. Indeed, forcing imprecise evidence to fit into some exact or even measurable mold violates the fundamental demand of science. The determination to measure everything can only distort much of the evidence. At best, then, exactitude and precision remain of secondary importance to genuine science.

And yet no one can specify in advance those regions of reality that may prove amenable to mathematical description. Future research discoveries may show that many aspects of the human world can be subsumed, at a high level of abstraction, under mathematical formulas. After abstracting from many other features of human reality, certain of its features may indeed lend themselves to precise mathematical modeling. We would simply maintain that such mathematical accounts have abstracted from other aspects of reality and that those other aspects must still be described in more concrete terms.

The Hierarchy of the Pure Sciences

The greater precision and exactitude of the natural sciences, we have maintained, is secured through their greater abstractness: they focus on only a few features of reality while abstracting from many. The human sciences remain far less precise because they are not as abstract and lie very close to the everyday lifeworld. We may, then, describe a hierarchy of the sciences in terms of their conceptual distance from the everyday lifeworld that we experience in pre-scientific ways (fig. 2). The social sciences are closest to the lifeworld because their concepts abstract only slightly from the fullness and ambiguity of everyday experience. Their concepts draw boundaries around features of the human world that are only slightly more precise than the typifications of ordinary life. The natural sciences are furthest from the lifeworld because their concepts and laws achieve exactitude only by abstracting from much of human reality. Our hierarchy, then, expresses distance from the lifeworld in terms of increasing abstraction and precision and decreasing concreteness and indefiniteness [5].

The lifeworld always serves as the foundation of meaning for the sciences because their concepts and theories are generated through abstracting progressively from pre-scientific experience. The sciences have a genesis out of the lifeworld. Those sciences that remain closer to the lifeworld draw more extensively on our pre-scientific experience. The more abstract sciences still presuppose the lifeworld as their foundation, but they rely less on the typifications of everyday life. Even the physicist, however, succeeds in comprehending abstract scientific accounts of galaxies, for example, only because, like the nonscientist, he can recognize stars when he perceives them through his senses. The human disciplines draw more pervasively on everyday understanding. Psychologists who study depression can do so only because they are already familiar with the feelings of depression and its varying expressions in the lifeworld. The scientific concept of depression, of course, achieves greater definiteness than the everyday

typification, but depression would not even be recognizable without the rich fund of pre-scientific experience of human feeling and expression on which the psychologist draws.

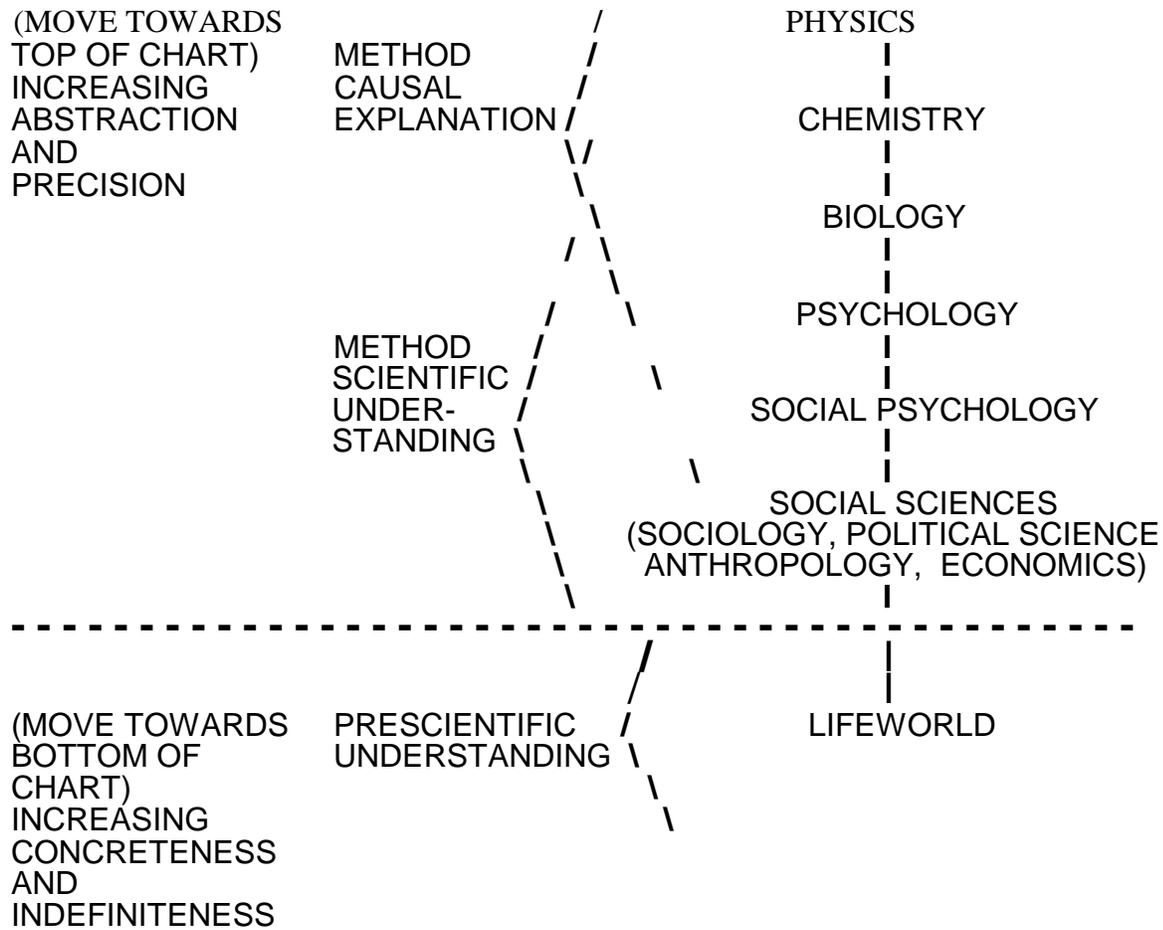


FIGURE 2: THE HEIRARCHY OF THE PURE SCIENCES

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Medicine and the Hierarchy of the Pure Sciences

As a practical science, medicine must utilize those features of the pure sciences that contribute to the realization of its goal. We have already noticed, however, that the pure sciences of human life are many because human life is a multifaceted reality. Psychology, for example, has circumscribed its own subject matter by abstractly isolating those features of human life that can be categorized as "mental." Biology has secured its own province by abstractly focusing on those components of human existence that can be deemed "organic." Hence neither psychology nor biology could possibly develop a conception of human reality in its wholeness or entirety. The pure sciences, when left to themselves, cannot reconstitute the whole from the abstract pieces that, as separate pieces, make their very research possible. Medicine, consequently, must draw on a multiplicity of pure sciences, each of which discloses merely a single facet of human life but yields knowledge relevant to diagnosis and treatment.

In drawing on the pure sciences, however, medicine also progresses beyond them. Basing itself on the theories of the other sciences, medicine develops concepts and techniques that are peculiar to it alone. The notion of hepatitis, for example, is peculiar to medical science. Medicine could never have developed such a notion, however, if it had not utilized and extended some of the well-established principles of physiology and biochemistry -- not to mention anatomy, pathology, and microbiology. Hepatitis is not an item in these pure sciences because its conceptualization need arise only if science is aiming at promoting health and treating illness. Or consider two further examples. In order to successfully catheterize the bladder, doctors must be able to perform a technique that draws on their knowledge of anatomy, physiology, and microbiology. And when physicians perform radiological or other imaging studies in order to visualize tumors, they may employ concepts from physics, anatomy, chemistry, and physiology. In all these cases, the goals of medicine have motivated the development of these conceptions and techniques. These conceptions and techniques, however, are deeply embedded in a variety of other sciences.

Medicine, accordingly, can find no particular place within the hierarchy of the sciences. Medicine, as a practical science, must assemble a vast array of concepts, techniques, and approaches that have their origins in other domains. For this reason, it may sometimes appear that medicine exhibits no real unity and that physicians partake of any and every field. The unity of medicine, however, lies in its goals. It is the multifaceted nature of these goals, on the other hand, that creates the appearance of disunity. Doctors draw on the methods and conceptualizations of many sciences in order to develop those theories and techniques that are peculiar to medicine. Medical science

remains, as a result, a multiplicity-in-unity that is forever fluid and subject to change and extension.

The Method of Human Sciences: Scientific Understanding

In everyday social life, human beings and culture directly present themselves to us through *understanding*. The understanding of other people that pervades ordinary social existence, however, fails to be scientific because in ordinary life we require evidence for understanding only to the extent that such evidence is needed in order to complete our practical projects at hand. Science, however, moves beyond everyday perception and action by demanding that all its beliefs and practices be strictly grounded in as much evidence as possible. Such evidence, we have said, becomes available only through understanding. Beyond the limits of everyday understanding, therefore, there arises a scientific need for an understanding of human reality that is strictly based on evidence. The fundamental method of the human sciences in their approach to the human world thus becomes *scientific understanding*. Scientific understanding presupposes everyday understanding, but the former goes beyond the latter by demanding more evidence for its beliefs and practices. Ideally, scientific understanding should be grounded on *all* the evidence obtainable for its subject matter, human reality.

Scientific understanding becomes a basic method in medicine because its subject matter is the human reality of health and illness. For example, in diagnosing thyrotoxicosis the physician talks with the patient during the clinical examination. The patient reports a gradual onset of fatigue, weakness, and insomnia. He has noticed heart palpitations and a fine tremor in his fingers. In spite of increased eating, he has lost weight. There is a shortness of breath with exertion. The physician apprehends the meaning of such reports through understanding them as expressions of the patient's experience. Understanding is one person's comprehension of another person's experience. The physician's understanding of the patient draws on the physician's everyday experience of himself and other people in the lifeworld. He can grasp the meanings of the terms "weakness," "fatigue," and "insomnia" because he knows experiences designated as such in the lives of others and himself.

The physician's comprehension of the patient goes beyond everyday understanding, however, by employing a scientific term, thyrotoxicosis, to classify these symptoms and by seeking more evidence for the application of this term to the patient's distress. The doctor may, in order to elicit more evidence, ask the patient if he has been sweating more and if he has experienced significant trouble with hot weather. When the patient responds, in an act of surprised recognition, that this is so, the physician has strong evidence for his diagnosis. Yet if the diagnosis is to remain scientific, the doctor must seek all obtainable evidence. He must, accordingly, look for physical findings and order the relevant laboratory tests. Such findings, however, act as evidence for thyrotoxicosis only when situated within the broadest context of the illness as revealed through understanding. Nonetheless, although a pathognomonic physical finding or laboratory test must be placed within the context of understanding in order to take on its proper medical meaning, such findings do go beyond understanding by employing the explanatory methods peculiar to the natural sciences. It becomes necessary, consequently, to

distinguish the method of understanding in the human sciences from the method of explanation in the natural sciences. The practical discipline of medicine constantly utilizes both.

The Method of Natural Sciences: Scientific Explanation

Natural science, in order to isolate those facets of reality we call nature, has abstracted from the peculiarly human features of the world. Accordingly, human experience never becomes the subject matter of these sciences. Human beings are viewed by the natural sciences as physical systems on a par with all other physical systems, organic or inorganic. Because they abstract from the human features of things, the natural sciences have little use for understanding. Natural science need only detect and demonstrate causal regularities in a nonhuman nature. The method of the natural sciences, then, is causal explanation, not understanding. We wish to emphasize that this difference in methods arises from differences in subject matter and evidence: whereas the human sciences study human reality, the natural sciences examine a reality from which all human attributes have been abstracted. Human reality evidentially presents itself only through understanding; nonhuman nature delivers its evidence to a science searching for causal explanations. The human sciences must remain close to the lifeworld because human reality in its fullness and concreteness exists there. Hence, the human sciences adopt as their method a mode of experience that is in the lifeworld already providing access to human things. The natural sciences have moved conceptually very far away from the everyday lifeworld. They can, therefore, disregard our ordinary mode of access to the reality of human life.

We can, accordingly, resituate Karl Jaspers's important distinction between understanding (*Verstehen*) and explanation (*Erkliiren*) [24]. For Jaspers, the subject matter of understanding is the meaningful connections of mental life. The subject of explanation, on the other hand, is causal regularities and connections, whether mental or physical. Without developing our disagreements with Jaspers here, we maintain that understanding remains psychophysically neutral: understanding grasps human beings as integral wholes, without distinguishing between a mental part and a causal part of human life. Explanation, for us, exists only the natural sciences. It accounts for the causal workings of a nature in which everything distinctively human has been abstracted. In summary, Jaspers's distinction seems to depend on a quasi-Cartesian dualism between mental events and causal ones. We view understanding as the mode of access to the less abstract and more concrete domain of human existence, whereas explanation provides our mode of access to the more abstract region of nonhuman nature.

Understanding and Explanation in Medicine

The practical science of medicine must utilize both understanding and explanation in realizing its goals. Since human health and illness are multifaceted realities, medicine aims at achieving its ends by drawing on all those conceptions and techniques of the sciences that prove relevant.

The biomedical approach draws exclusively on the natural sciences. The natural sciences do provide many explanatory notions that illuminate the causes and conditions

of health and illness. Moreover, these notions, because they are scientifically constructed and tested, are based on evidence. Yet these abstract notions of the natural sciences capture merely a *part* of the evidence. Other forms of evidence emerge in talking with patients, in directly observing their appearance, and in comprehending their own experience of themselves. These forms of evidence can be grasped only through understanding. If the biomedical model ignores understanding, it fails to apprehend much of the evidence pertinent to health and illness; that is, it fails to remain scientific. Any model of medical science that would prove truly scientific must recognize the usefulness to medicine of both scientific understanding and explanation.

Engel's biopsychosocial model does emphasize the relevance of both the human and natural sciences to medical science. But this model fails to notice that the human sciences prove relevant to medicine only because the physician must *understand* patients. The biopsychosocial model fails to notice the necessity of understanding because it does not recognize the reliance of medicine on the prescientific lifeworld. Medicine must employ scientific understanding because patients are human beings who can be adequately known only by making the understanding employed in everyday life more rigorous and evidentially secure. Medicine cannot remain content with everyday understanding, but neither can it ignore understanding altogether without blinding itself to human reality. Medicine must rather render understanding scientific. The human sciences become relevant to medicine by enlarging our appreciation of the subtleties, varieties, details, and possibilities of human experience. In this way the human sciences prepare physicians to grasp the manifold subtleties and details of patients' experiences when the evidence emerges.

Theater, literature, and the other arts, however, can perform the same function in medical understanding. Familiarity with the works of Shakespeare, Dostoyevsky, and Flaubert also prepares doctors to recognize peculiarities and complexities in the experience of patients that they could not otherwise apprehend. Without the arts and the human sciences, physicians could use only the typifications of human behavior that they have acquired by participation in the everyday world. Such typifications, because of their generic and vague outlines, cannot possibly capture the complicated and unusual interconnections of human experience that frequently emerge in medical practice. If physicians are to interpret the evidence correctly, then, they must draw on those disciplines and fields that present them with complex and unusual interconnections: the human sciences and the arts.

Medicine should draw on the human sciences and the arts, however, only to the extent that such knowledge helps physicians understand the experience of patients. Physicians need not be experts in the human sciences and the arts, nor need they be experts in the natural sciences. They need to be experts in promoting health and treating illness. The arts and the sciences become significant to the practicing physician only insofar as they can further these practical goals.

Guided by the criterion of goal-relevance, medical understanding must join with medical explanation. The evidence given through understanding is ambiguous, subject to many different interpretations and conceptualizations. The evidence pertinent to the natural sciences, on the other hand, is far more exact and precise because it emerges only after we have abstracted from many facets of reality. Thus, when the medical evidence

justifies the application of concepts and techniques from the natural sciences, much is gained. Since medicine aims at promoting health and treating illness, the exactitude and clarity of natural scientific notions aid us immensely in reaching these goals with certainty and confidence. The causal explanations of the natural sciences furnish a precision in control and predictability that could never arise from understanding. As a result, medical science should employ the practical advantages available to it in the natural sciences whenever the evidence sufficiently warrants it.

Medicine, then, is a practical science that must utilize both understanding and explanation in order to achieve its goals in the most effective way. Because human health and illness are multifaceted realities, the concepts and techniques of the arts, the human sciences, and the natural sciences may, in different ways at different times, prove relevant to medicine's goals. Medicine is that scientific care for human distress that unavoidably straddles and partakes of all the sciences, the creations of art, and the pre-scientific lifeworld.

Medical Humanism

Medicine is humanistic to the extent that it takes into account the full humanness of patients. And the humanness of human beings, we have argued, is accessible to us only through understanding. In understanding other people, we come to comprehend the manifold aspects of their concrete lives and experiences. As we extend our understanding of them, we come to apprehend more and more features of their existence. Such understanding, in order to grasp the fullness of a person's life, must remain close to the concrete fullness of the lifeworld. Any approach to patients that distances itself from everyday experience also distances itself from their humanness. Accordingly, to the extent that we apperceive people from the more abstract vistas of the natural sciences alone, we lose sight of those human qualities that the natural sciences have *abstracted from*. The natural sciences have set aside so many facets of human existence in order to render their concepts precise and exact that they retain little of what makes people truly human [30]. This, of course, does not entail that humanistic medicine must operate without the concepts and theories of the natural sciences. Far from it! The natural sciences do indeed disclose to us many aspects of health and illness that we can know in no other way. We simply maintain that the natural sciences can serve the purposes of a humanistic medicine only if they find their rightful place within a larger knowledge of the patient as an individual human being that is provided by understanding. Understanding, then, supplies the comprehensive context for dealing with human beings into which our abstract notions and techniques must fit. Outside of this more comprehensive context, abstract conceptions and techniques become dehumanizing.

We are able to be "humanistic physicians," then, only because we are first of all human beings living with and caring for other human beings within the social lifeworld. The understanding we have of other people in their ordinary and extraordinary sufferings and joys in everyday life provides the foundation on which we constantly draw when we seek to understand them scientifically. Everyday understanding furnishes us with the comprehension of human emotion -- pain, misery, hopelessness, pleasure, hope, and relief -- that we must know if we are to appreciate and grasp these in our patients. Thus,

everyday understanding provides that rich access to other people as human that nourishes and undergirds any humanistic medicine. Again, medicine must, of course, go beyond everyday understanding and seek to extend our understanding of patients through seeking more and more evidence. Thus scientific understanding -- the understanding of other people rigorously based on evidence -- becomes the method of humanistic medicine, for it is only through such careful and thorough understanding that we can come to know the life of another person in its complexity, detail, and wealth. Only if we try to extend our understanding of patients through seeking more and more evidence of their lives do we come to apprehend their full humanness and individuality as persons.

Scientific understanding of patients, therefore, serves as a crucial method for the *science* of medicine as well as for the *humanism* of medicine. In the science of medicine, understanding gives us access to the many facets of the patients' experience and existence that are essential for effective diagnosis and treatment. But we are able to appreciate and apprehend these facets because we are also able to appreciate the humanness of people. Without the humanism of medicine we remain blind to the complexities and details of the human evidence. Ultimately, then, the humanism of medicine and the science of medicine meet and even merge in *medical understanding*: we appreciate patients as valuable and unique persons when we understand the fullness of their lives in health and illness. And the underlying basis of humanism turns out to be identical with the underlying assumption of science: the lifeworld as we experience it in pre-scientific perception and action remains the source of meaning for medical knowledge.

Conclusion

Our phenomenological model of medicine has sought to view it as a practical discipline responding to the distress of human beings in the everyday lifeworld. Because it is a practical discipline, medicine is defined not as much by a body of knowledge as by the goals it seeks to achieve: the promotion of health and the treatment of illness. These goals make medicine necessarily both a science and a humanism. Medical humanism is possible because to some extent we already understand human beings as human through our everyday lives with and among them. This everyday understanding, founded in the lifeworld, can be enlarged and developed through a scientific understanding that thoroughly follows the leads of evidence. Only this enlarged understanding of the humanness and individuality of patients can provide the evidential context for a medical science of health and illness. Within this enlarged context of understanding, the exact explanatory concepts of the natural sciences can effectively serve humanistic ends. This model can resolve the current crisis of medical science and humanism by restoring the primacy of the lifeworld and combating the spirit of abstraction so persistently powerful in our own day.

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The Fundamental Phenomenological Outlook. First Chapter. The Thesis of the natural standpoint and its suspension. Pages 101-106.

THE THESIS OF THE NATURAL STANDPOINT AND ITS SUSPENSION

§ 27. THE WORLD OF THE NATURAL STANDPOINT: I AND MY WORLD ABOUT ME

Our first outlook upon life is that of natural human beings, imaging, judging, feeling, willing, "*from the natural standpoint*". Let us make clear to ourselves what this means in the form of simple meditations which we can best carry on in the first person.

I am aware of a world, spread out in space endlessly, and in time becoming and become, without end. I am aware of it, that means, first of all, I discover it immediately, intuitively, I experience it. Through sight, touch, hearing, etc., in the different ways of sensory perception, corporeal things somehow spatially distributed are *for me simply there*, in verbal or figurative sense "present", whether or not I pay them special attention by busying myself with them, considering, thinking, feeling, willing. Animal beings also, perhaps men, are immediately there for me; I look up, I see them, I hear them coming towards me, I grasp them by the hand; speaking with them, I understand immediately what they are sensing and thinking, the feelings that stir them, what they wish or will. They too are present as realities in my field of intuition, even when I pay them no attention. But it is not necessary that they and other objects likewise should be present precisely in my *field of perception*. For me real objects are there, definite, more or less familiar, agreeing with what is actually perceived without being themselves perceived or even intuitively present. I can let my attention wander from the writing-table I have just seen and observed, through the unseen portions of the room behind my back to the verandah, into the garden, to the children in the summer-house, and so forth, to all the objects concerning which I

precisely "know" that they are there and yonder in my immediate co-perceived surroundings -- a knowledge which has nothing of conceptual thinking in it, and first changes into clear intuiting with the bestowing of attention, and even then only partially and for the most part very imperfectly.

But not even with the added reach of this intuitively clear or dark, distinct or indistinct *co-present* margin, which forms a continuous ring around the actual field of perception, does that world exhaust itself which in every waking moment is in some conscious measure "present" before me. It reaches rather in a fixed order of being into the limitless beyond. What is actually perceived, and what is more or less clearly co-present and determinate (to some extent at least), is partly pervaded, partly girt, about with a *dimly apprehended depth or fringe of indeterminate reality*. I can pierce it with rays from the illuminating focus of attention with varying success. Determining representations, dim at first, then livelier, fetch me something out, a chain of such recollections takes shape, the circle of determinacy extends ever farther, and eventually so far that the connexion with the actual field of perception as the *immediate* environment is established. But in general the issue is a different one: an empty mist of dim indeterminacy gets studded over with intuitive possibilities or presumptions, and only the "form" of the world as "world" is foretokened. Moreover, the zone of indeterminacy is infinite. The misty horizon that can never be completely outlined remains necessarily there.

As it is with the world in its ordered being as a spatial present -- the aspect I have so far been considering--so likewise is it with the world in respect to its *ordered being in the succession of time*. This world now present to me, and in every waking 'now' obviously so, has its temporal horizon, infinite in both directions, its known and unknown, its intimately alive and its unalive past and future. Moving freely within the moment of experience which brings what is present into my intuitional grasp, I can follow up these connexions of the reality which immediately surrounds me. I can shift my standpoint in space and time, look this way and that, turn temporally forwards and backwards; I can provide for myself constantly new and more or less clear and meaningful perceptions and representations, and images also more or less clear, in which I make intuitable to myself whatever can possibly exist real or supposedly in the steadfast order of space and time.

In this way, when consciously awake, I find myself at all times, and without my ever being able to change this, set in relation to a world which, through its constant changes, remains one and ever the same. It is continually "present" for me, and I myself am a member of it. Therefore this world is not there for me as a mere *world of facts and affairs*, but, with the same immediacy, as a *world of values*, a *world of goods*, a *practical world*. Without further effort on my part I find the things before me furnished not only with the qualities that befit their positive nature, but with value-characters such as beautiful or ugly, agreeable or disagreeable, pleasant or unpleasant, and so forth. Things in their immediacy stand there as objects to be used, the "table" with its "books", the "glass to drink from", the "vase", the "piano", and so forth. These values and practicalities, they too belong to *the constitution of the "actually present" objects as such*, irrespective of my turning or not turning to consider them or indeed any other objects. The same considerations apply of course just as well to the men and beasts in my surroundings as to "mere things". They are my "friends" or my "foes", my "servants" or "superiors", "strangers" or "relatives", and so forth.

§ 28. THE "COGITO". MY NATURAL WORLD-ABOUT-ME AND THE IDEAL WORLDS-ABOUT-ME

It is then to this world, *the world in which I find myself and which is also my world-about-me*, that the complex forms of my manifold and shifting *spontaneities* of consciousness stand related: observing in the interests of research the bringing of meaning into conceptual form through description; comparing and distinguishing, collecting and counting, presupposing and inferring, the theorizing activity of consciousness, in short, in its different forms and stages. Related to it likewise are the diverse acts and states of sentiment and will: approval and disapproval, joy and sorrow, desire and aversion, hope and fear, decision and action. All these, together with the sheer acts of the Ego, in which I become acquainted with the world as *immediately* given me, through spontaneous tendencies to turn towards it and to grasp it, are included under the one Cartesian expression: *Cogito*. In the natural urge of life I live continually in *this fundamental form of all "wakeful" living*, whether in addition I do or do not assert the *cogito*, and whether I am or am not "reflectively" concerned with the Ego and the *cogitare*. If I am so concerned, a new *cogito* has become livingly active, which for its part is not reflected upon, and so not objective for me.

I am present to myself continually as someone who perceives, represents, thinks, feels, desires, and so forth; and *for the most part* herein I find myself related in present experience to the fact-world which is constantly about me. But I am not always so related, not every *cogito* in which I live has for its *cogitatum* things, men, objects or contents of one kind or another. Perhaps I am busied with pure numbers and the laws they symbolize: nothing of this sort is present in the world about me, this world of "real fact". And yet the world of numbers also is there for me, as the field of objects with which I am arithmetically busied; while I am thus occupied some numbers or constructions of a numerical kind will be at the focus of vision, girt by an arithmetical horizon partly defined, partly not; but obviously this being-there-for-me, like the being there at all, is something very different from this. *The arithmetical world is there for me only when and so long as I occupy the arithmetical standpoint*. But the *natural* world, the world in the ordinary sense of the word, is *constantly there for me*, so long as I live naturally and look in its direction. I am then at the "*natural standpoint*", which is just another way of stating the same thing. And there is no need to modify these conclusions when I proceed to appropriate to myself the arithmetical world, and other similar "worlds", by adopting the corresponding standpoint. The natural world *still remains "present"*, I am at the natural standpoint after as well as before, and in this respect *undisturbed by the adoption of new standpoints*. If my *cogito* is active *only* in the worlds proper to the new standpoints, the natural world remains unconsidered; it is now the background for my consciousness as act, but it is *not the encircling sphere within which an arithmetical world finds its true and proper place*. The two worlds are present together but *disconnected*, apart, that is, from their relation to the Ego, in virtue of which I can freely direct my glance or my acts to the one or to the other.

§ 29. THE "OTHER" EGO-SUBJECT AND THE INTERSUBJECTIVE NATURAL WORLD-ABOUT-ME

Whatever holds good for me personally, also holds good, as I know, for all other men whom I find present in my world-about-me. Experiencing them as men, I understand and take them as

Ego-subjects, units like myself, and related to their natural surroundings. But this in such wise that I apprehend the world- about-them and the world-about-me objectively as one and the same world, which differs in each case only through affecting consciousness differently. Each has his place whence he sees the things that are present, and each enjoys accordingly different appearances of the things. For each, again, the fields of perception and memory actually present are different, quite apart from the fact that even that which is here intersubjectively known in common is known in different ways, is differently apprehended, shows different grades of clearness, and so forth. Despite all this, we come to understandings with our neighbours, and set up in common an objective spatio-temporal fact-world as *the world about us that is there for us all, and to which we ourselves none the less belong.*

§ 30. THE GENERAL THESIS OF THE NATURAL STANDPOINT

That which we have submitted towards the characterization of what is given to us from the natural standpoint, and thereby of the natural standpoint itself, was a piece of pure description *prior to all "theory"*. In these studies we stand bodily aloof from all theories, and by 'theories' we here mean anticipatory ideas of every kind. Only as facts of our environment, not as agencies for uniting facts validly together, do theories concern us at all. But we do not set ourselves the task of continuing the pure description and raising it to a systematically inclusive and exhaustive characterization of the data, in their full length and breadth, discoverable from the natural standpoint (or from any standpoint, we might add, that can be knit up with the same in a common consent). A task such as this can and must -- as scientific -- be undertaken, and it is one of extraordinary importance, although so far scarcely noticed. Here it is not ours to attempt. For us who are striving towards the entrance-gate of phenomenology all the necessary work in this direction has already been carried out; the few features pertaining to the natural standpoint which we need are of a quite general character, and have already figured in our descriptions, and been sufficiently *and fully clarified*. We even made a special point of securing this full measure of clearness.

We emphasize a most important point once again in the sentences that follow: I find continually present and standing over against me the one spatio-temporal fact-world to which I myself belong, as do all other men found in it and related in the same way to it. This "fact-world", as the word already tells us, I find to *be out there*, and also *take it just as it gives itself to me as something that exists out there*. All doubting and rejecting of the data of the natural world leaves standing the *general thesis of the natural standpoint*. "The" world is as fact-world always there; at the most it is at odd points "other" than I supposed, this or that under such names as "illusion", "hallucination", and the like, must be struck *out of it*, so to speak; but the "it" remains ever, in the sense of the general thesis, a world that has its being out there. To know it more comprehensively, more trustworthily, more perfectly than the naive lore of experience is able to do, and to solve all the problems of scientific knowledge which offer themselves upon its ground, that is the goal of the *sciences of the natural standpoint*.

Appendix 2: Schwartz MA, Wiggins OP. Scientific and Humanistic Medicine: A Theory of Clinical Methods. In KR White (ed) The Task of Medicine. Menlo Park, CA., Henry J Kaiser Foundation, 1988, p137 – 171.

Exerpt taken from pages 142-147.

THE LEFWORLD AND THE LIVED BODY

Following Edmund Husserl, we give the name "lifeworld" to the world as we experience it in its concrete fullness, prior to viewing it through the abstractions of science (19,6,28). The lifeworld, in other words, is the world as we encounter it in our everyday, prescientific experience. In the lifeworld we encounter other people, cultural objects, and natural things with all of their concretely given properties. Thus, these people, objects, and things have for us the features they have in our prescientific, everyday experience, not those properties that scientific abstractions attribute to them.

For example, apples, as we encounter them in the lifeworld, are red and sweet; they are not objects with particular molecular and chemical characteristics. As another example, the bodies of other people, as we experience them in the prescientific life-world, are not the organisms of which biologists or physiologists speak. The body of my neighbor as he waves to me from across the street is a meaningful and expressive reality. Through his bodily actions he expresses his feelings and his intentions, and he communicates them to me (12). And in understanding his greeting, I do not distinguish between its "physical" parts and its "mental" parts: I do not apprehend his bodily movements as "the physical" and the intentions expressed by such movements as "the mental" parts. I rather apprehend his greeting as an indivisible unit. My understanding of him is "psychophysically neutral": it makes no distinction between his mind and his body (6). The same holds for my experience of my own lived body. If I respond to my neighbor by smiling and waving back, I do not distinguish between one part of my smile, the kinesthetic sensations involved in moving my lips, as the physical component and another part, the emotion of friendliness, as the mental part. My experience of my own lived body is psychophysically neutral.

The organism that biologists describe through their abstract concepts is not this meaningful, expressive, and communicative lived body. Biologists, in order to characterize the organism, must abstract from its concrete meaningfulness and expressiveness. Let us call this meaningful and communicative human body of prescientific experience the "lived body," and let us distinguish it terminologically from the "organism" that is abstractly depicted by biologists and physiologists (28).

UNDERSTANDING AND COMMUNICATION IN EVERYDAY LIFE

In my prescientific experience I can understand my neighbor's feelings, ideas, choices, and purposes as he expresses them through his words and behavior. And he can understand me. I us call this ability to comprehend the feelings, ideas, decisions, and intentions of another person "understanding" (29, 30). Understanding, then, is our access to other people as concrete wholes. It is the way in which we apprehend other people and their experiences apart from any abstract

concepts developed by scientists. As thus defined, understanding is crucial to the communication and interactions that pervade everyday life (31).

Understanding another person through communication is ways a matter of degree. When my neighbor waves to me, I need to understand him to only a very limited extent in order to grasp that he is merely signaling "hello." At the gasoline station the pump reads \$16, and I hand the attendant a \$20 bill. Without saying a word he hands me \$4 and I drive away. Our interlocking intentions, silently expressed in deed and gesture, have been communicated sufficiently for our purposes at hand. This communicative understanding guides and informs our transaction (32). Therefore, the practical activities of daily social life could not take place without such mutual understanding. Furthermore, the goals of these practical activities circumscribe the extent which we need to communicate with one another.

Sometimes we need to understand one another to relatively great extents. Especially in intimate relationships but also many other instances I need to grasp large portions of another person's experience in significant detail. Thus I come to understand how this other person experiences his or her world. For example, I may come to understand how my friend feels about his work, his love and concern for his family, and his hopes, expectations, and fears for the future. I know my friend well enough to understand his motives and behavior in especially complex situations. Suppose that I am with him when he suddenly falls ill. Knowing his values and personality, I understand his reluctance to seek treatment. I understand, although he does not tell me -- and perhaps does not even know himself -- that out a sense of responsibility toward his family and his job he cannot face being ill at this time. Moreover, my understanding of him may enable me, by appealing to values that I know he holds, to persuade him to seek medical help despite his initial reluctance. In this way our mutual understanding informs our communicative interaction. And furthermore, our communication alters, deepens, and extends our understanding of one another (32).

TYPIFICATIONS AS SKILLS IN EVERYDAY LIFE

This communicative understanding of people along with my perception of things is always informed by certain typifications (33,31,34,35). When I see my neighbor waving his hand, I typify this piece of behavior as a friendly greeting. Moreover, when I drive my car through a new part of town, I typify the objects going past me as cars and trucks. Such typifications are not explicit acts of conceptualization; they rather occur at a preconceptual, purely perceptual level of everyday experience. I do not *conceive* the objects moving past me *as* cars; I rather immediately *see* them *as* cars. Typification is "seeing as. ..." or "under- standing as. ..." (36). When I sit down at my desk in the morning, I need not explicitly scrutinize all of the objects on my desk in order then to recognize what they are. Typifications occur automatically and with greater immediacy. As I sit down at my desk, I immediately see some of the things as books, others as letters, and even others as pens.

Because typifications are pre-conceptual activities, they can be viewed as "skills" as defined by the biologist, Michael Polanyi. Polanyi characterizes a skill as follows:

the aim of a skillful performance is achieved by the observance of a set of rules which are not known as such to the person following them (37: p49).

When I perceive an object moving past me as a car, I do not do so because I explicitly compare features of that object with a set of rules that define cars. I do not know "the set of rules" that I am using when I immediately typify the object as a car. I simply and immediately see the object as a car. Much the same can be said about riding a bicycle. If I have mastered the skill of riding a bicycle, I do not explicitly observe a "set of rules" as I thoughtlessly ride my bicycle down the road.

THE TAKEN-FOR-GRANTEDNESS OF EVERYDAY LIFE

The typifications that inform our everyday experience are pervaded by a certain taken-for-grantedness (31). For example, in my everyday life I simply take it for granted that the man across the street who appears to be my neighbor is in fact my neighbor and that the waving of his hand expresses a greeting to me. I could, of course, doubt that he is my neighbor or that his hand waving indicates a friendly greeting. But in my ordinary life I usually harbor few such doubts. Or consider another example. In my prescientific life I simply assume that my friend feels well unless something in his behavior or appearance prompts me to think otherwise. If he looks like I am accustomed to him looking, I merely take it for granted that he feels well. I assume, in other words, that things truly are what they appear to be. I take the appearances of things for granted; I do not persistently question, doubt, or suspect them. I may come to doubt these appearances, however, if something occurs which is unexpected or is inconsistent with them. I assume that my friend is well until he enters my home looking run down, glassy-eyed, and red-nosed. His directly given appearance then shatters my taken-for-grantedness and compels me to ask about his health. Only this unexpected counter-evidence can challenge my assumption that he is well and force me to doubt it.

FROM PRESCIENTIFIC LIFE TO SCIENTIFIC ACTIVITY

Scientists will avoid precisely this taken-for-grantedness of prescientific experience. They will adopt instead a critical attitude toward whatever appears to be the case. The critical attitude can guide us in our scientific investigations of concrete realities. This attitude can also guide us in the use of the typifications that we learn to apply as scientists. And, finally, the critical attitude of science can also lead to the development of concepts and theories that are more and more abstract. We must now examine these features of scientific activity in some detail.

SCIENTIFIC ACTIVITY: THE CRITICAL ATTITUDE AND THE SEARCH FOR EVIDENCE

Scientific activity, we maintain, is any human activity that rigorously adopts "a critical attitude" (38). As scientists we circumvent the taken-for-grantedness of everyday life. In the

critical attitude required by science, I do not need counter-evidence to compel me to doubt that things are what they appear to be. As a scientist I am rather *persistently doubting* that things truly are what they appear to be. The scientific attitude is a sustained suspiciousness and uncertainty of what appears to be the case. And because I remain steadily suspicious and doubtful, I seek evidence to decide what things truly are. But when evidence emerges, I remain critical even of the significance of this evidence. And consequently, I seek more and more evidence to help me make my decision. The scientific attitude requires, therefore, that I seek as much evidence as I can possibly obtain regarding the phenomena in question (38). As a result, the critical attitude of the scientist always includes a *tentativeness* or *provisionality* regarding any claim to knowledge. No scientific belief is simply "true." Every scientific claim is only tentatively or provisionally true, pending the gathering of further evidence regarding it.