

1. Direct Experience

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The term “experience” seems to be necessary for any modern English speaker—we continually find that there can be no substitute for the notion. After all, “experience” contains our only evidence of the world, or rather, our only evidence that anything really is, which makes it fundamental to our sense of reality. The term itself derives from a Latin original meaning “test” or “proof.” From the Latin past participle we get the term “expert,” and every entry under “experience” in the Oxford English Dictionary implies the same positive handle on knowing. And in English, an idea, no matter how abstract, must be “sensible” if it is to be considered at all; the underlying reference to experience is linguistically applied to distinguish between “sense” and “nonsense.”

This is why it seems so odd, and so disturbing, that today “experience” often bears exactly the opposite connotation. “Of course, I can only speak from my own experience, but ...” or “Our experience of the matter differs,” which reduces the meaning of the term to something as relativized as “point of view.” Even if the dictionary has not yet caught up with this usage, the average speaker finds it totally familiar. But the odd dissonance this reversal of meaning can create is another matter. Empirical science, for example, should be based upon experience, if we follow the etymology of “empirical” (from the Greek for “experienced”). I suppose most scientists would still claim that it is. But when the uninitiated attempt to come to grips with the actual practice of a “hard” science, they find that the authoritative language has moved from the positive knowing of the first meaning to the subjectivity of the second. And I speak from experience.

Memories of a Wrong-minded Student.

When I began college as a chemistry major, my enthusiasm for science was somewhat dampened by meeting a professor of chemistry who pointed out the difference between my own goals and those he, as an experienced professional, would call mature. My passion, he noted, was entirely focused on direct experience. My sense of chemical change was invested in sensible

qualities: in smells, colors, the effervescence of liquids, the appearance of precipitates, the light and violence of flame, and so on. But, he countered, this was probably closer to medieval alchemy than to chemistry. Chemistry is really a matter of molecular and atomic events of which we can have only a theoretical grasp. By contrast, the sensible experience on which my excitement centered was secondary—it was not the external reality but merely the effect of that reality on the human senses.

I was reminded of this professor when I later spoke to a morphologist at Berkeley about my interest in Goethe's attempt to approach science by keeping to direct experience. The morphologist responded: "You are interested in this approach because you are a nature appreciator, while I am a productive scientist." I left his office feeling very deflated. Again a representative of science had put his finger on my immaturity.

I hope the reader can feel some sympathy for my situation. One of the difficulties with scientific accounts of the world is their apparent insistence on an "objective" reality that cannot be directly experienced, with the resulting demotion of experience—what our senses make out of the world—to a mere show that differs substantially from "what is really there." This is something we all know and do not think about very much. When I entered college as a chemistry major this line of reasoning did not distress me greatly, despite the professor's warning. I had no serious difficulties in basic chemistry and positively loved "qualitative chemistry"—a course given completely to the analysis of unknown compounds, in which sensible qualities like the colors of precipitates were important for the detection of elements.

Arriving at "quantitative chemistry," however, I entered a realm where everything was done mathematically and the mathematics themselves were grounded in an imperceptible molecular world that we could access only by theoretical models. (Years later I discovered that one could teach the course by deriving the mathematics directly from the experienced phenomena, but this is almost never done, and no one showed me the connection at the time.) I now found that the chemistry professor with whom I had my college interview understood my problem better than I did. My first reaction was to feel the world of chemistry, which had previously contained some of the most beautiful and mysterious experiences of the natural world, now becoming gray, dry, and lifeless. My second reaction was to leave chemistry.

By the time I arrived at Berkeley I was a graduate student in literature. The morphologist had it right—I was an appreciator, and even, as the chemist had feared, a romantic. After all, I now read Wordsworth, Coleridge, Keats, Shelley, Schiller, and Goethe and took them seriously. I suppose I knew that these writers often appealed to a criterion of significance that was both rooted in direct experience and "merely aesthetic," by which most scientists would understand "merely pleasing." But unlike my original mentors I still didn't understand how this sort of

corruption disqualified me for science. When I came across Goethe's scientific works, I became fascinated with his insistence that one need not depart from direct, sensible experience in order to do science. But when the morphologist pointed out that this interest made me a "nature appreciator," the words seemed to invoke an equivalent of original sin. For a moment my "appreciation" appeared as an entirely subjective act—an assignment of value based on my own pleasure that had no meaning for scientific truth.

It was not long after the conversation with the morphologist—I was still crossing the campus—when I realized that something was wrong somewhere. What had happened to the first meaning of "experience"? I was standing at the edge of the eucalyptus grove. The massive trees towered far above me; their leaf and nut litter covered the floor of the grove. The morning sun was growing warm and the air was pungent with eucalyptus. I could hear birds and a buzzing sound from some unseen insect tribe. At that moment sensible reality seemed very impressive. Was this just my indulgence in appreciation? If I called these things "tangible" and "concrete," was my criterion merely aesthetic?

How common, I wonder, is this dilemma? In retrospect I wonder how many people come to some form of this question, perhaps more than once, but eventually drop the whole business. Surely that was the advice implied by my counselors. From the judgment that an interest in the sensible qualities of chemistry showed immaturity to the conclusion that a science based on immediate perception was merely "nature appreciation," my tutors presented a unified front. A modern education seems to produce a tolerance for the dissonance between the two meanings of "experience," and, most importantly, a willingness to switch to the subjective meaning whenever our experience, if taken too seriously, might bring us into conflict with accepted theory.

I have become more acutely aware of these things in the years since that Berkeley morning, for although I did not fully realize it at the time, at that very moment I switched from defense to offense. I could not escape the sense that the botany professor's remarks implied a serious error. Of course, we cannot claim importance for a viewpoint merely because we happen to like it—that is, "appreciate" it—but this sort of criticism simply cannot apply to the importance of direct perception. The immediate evidence of the senses is not a "point of view," and the first meaning of "experience"—the test of reality—is still valid. Even the scientist cannot afford to lose the ground of experience. I seemed to see it clearly. A mistake had been made.

I resisted the temptation to return to the Botany Department looking for a fight. I saw that the relation between the two meanings of "experience" had not been sorted out correctly, but I was not yet ready to defend my insight. For one thing, I did not understand how or where science, ostensibly based on experience, had demoted experience to a subjective status? Besides, how could a graduate student in literature presume to detect a flaw in so authoritative an

institution as science? Big game is hunted with big artillery. My training, it seemed, had left me unarmed.

Over the intervening years, however, I could not let the matter drop, although I began to suspect that current training left everyone unarmed. I proposed a dissertation on the crossover between scientific observation and aesthetic experience in Goethe's science. Naturally, the Literature Department wouldn't hear of it. Aesthetic experience, they repeated knowingly, is important to literature but not to science. With a certain sense of déjà vu, I left Literature. The people in History of Ideas were more reassuring. They were confident that Goethe's connection between aesthetics and science would make a good dissertation, *provided*, and they stressed the necessity of this, I would keep to the task of tracing influence. Whether Goethe was right or wrong in this matter could not be part of a historical discussion. When I balked, they sent me to Philosophy. The Philosophy Department said they were glad to get me. For how long? I wondered.

Being Serious

This book came to be written when two physicists and a philosopher compared notes. We all shared a distrust of the way direct experience was demoted in the sciences, but more importantly, we thought there was room to do otherwise and do better. Of course, this position was not easy to sell. After all, the development of mathematical physics was made possible by discovering a world that could be the object of *numerical measurement*—in Galileo's abstraction, a world inhabited only by *bodies* divested of all but "primary qualities" (shape, velocity, size, mass, and number). Galileo performed the feat of abstraction, but physics has pursued it since, and, like Galileo, has generally assumed that the resulting picture is not merely *a* way of looking at the world (a way that allows mathematical treatment), but *the* way of looking—the only true approach to the reality of the world that human cognition can make.

The enormous powers secured by this mode of investigation have produced such an overwhelming impression of success that its authority is beyond question. In one sense, the *truth* of the method is obvious. And yet the image of reality that the sciences have developed leaves out a good amount of the experientially known as uninformative—that is, *less than real*. This conflict has bothered artists and philosophers more than scientists, but it lies at the heart of our present culture. I doubt that anyone who has had any scientific education can escape moments when this dissonance is painfully felt. It is such a normal part of life, in fact, that it has become a

background condition for all we do and is hardly noticed until we come to one of those disappointing moments when, perhaps, an aesthetic valuation falls prey to scientific representation.

For all our familiarity with this conflict and our recognition of the authority of science, the three of us did not see the divorce of the scientific and the experiential as a demand of truth. Truth was indeed secured in the sciences, in the verifiable measures of physics and other sciences, but this accomplishment did not, to our minds, mean that the scientific world picture was identical with reality. The truth of a measure is not able to specify its meaning. Only a larger context can do that. Let me explain.

The opposition often felt between the view of much of science and the claims of immediate experience began with the Galilean split between the primary qualities and “secondary qualities” (direct sensations such as colors, sounds, tastes, and smells). The primary qualities are those that, in the Galilean argument, *cannot be divorced from the concept of a body*. The secondary qualities can be divorced, however, and Galileo, reasoning that they were not necessary to bodies, saw no other source for them but the human senses, concluding that “they reside only in consciousness” (Galileo 1957, p. 274). Descartes and Locke were in substantial agreement with this judgment, although they argued that a particular sensation—let us say a certain color—can only appear on a surface if the surface possesses the power of producing that color in the human sense organ, thus linking the color to the observed body. Yet the color itself still resided only in consciousness, for it remained the *effect* of powers possessed by the observed body and/or the sensing mechanism, and the effect need not resemble its cause.

And now a problem comes into view. It is impossible for a world possessing only primary qualities to appear sensibly, since the senses speak in terms of secondary qualities. The primary qualities are discovered through the senses as *relations* between secondary qualities, and must be abstracted from appearances by a mental act. (Shape, for instance, is seen only through variations in color and/or brightness.) Thus we know the world of physics only mediately, as it is deduced from the world of appearances, but the world of appearances is known more immediately, as it appears to experience. Indeed, the primary qualities are part of this experiential picture, but when they have been abstracted from it a great deal of the apparent world has been left behind, existing, it would seem, only as a mental picture in an individual consciousness. This is the *demotion* of direct experience spoken of above.

The effort to distinguish elements of experience in this manner, picking out and relating only those that belong to Galileo’s concept of bodies, must be recognized as a great feat of abstraction—one that represents, historically, an advance in human thinking. This is the very act that produced an object for mathematical physics. After all, the primary qualities are numerically

measurable, while the others are not. But to venture further and treat the resulting division as a distinction between what exists “externally”—independently of the observer—and what does not is another matter entirely. Here something has been added to the original distinction between primary and secondary that is not derivable from the distinction itself. We have no a priori knowledge that only the measurable is real (“out there”) and the rest merely subjective (“in here”). During the Renaissance, however, for reasons that pertain to the times, Galileo’s distinction was given just this significance. (For discussion of this historical development, see *The Marriage of Sense & Thought* by Edelglass, Maier, et al. 1997.)

Of course, for the Renaissance mind as well as the modern, the lawful mathematical relations revealed through measures testify to an underlying reality. This conclusion derives from equating the independently *real* with the *lawful*, a fundamental premise of Western thought. The equation of real with lawful, however, says nothing about what qualifies as lawful. Thus it does not follow that what is not numerically measurable is also not lawful. Yet this second judgment was added to the first, and the West after the Renaissance adopted a worldview that fosters a deep split between theoretical knowledge and experience. This view assigns external, lawful, and independent existence only to the world measured in terms of primary qualities. It demotes to a contingent existence, dependent upon the individual observer, everything left over after the primary information has been abstracted. This demotion is what I meant by remarking that the truth of the measure does not provide a context adequate for specifying the meaning of the measure. The discovery of a lawful reality permitting mathematical treatment says nothing about the remainder of experience that does not permit such treatment.

The assumption that “lawful” is identical with “measurable” is often entertained today and it still, for many thinkers, serves to distinguish individual subjectivity from independent reality. In general, scientific methodology still depends upon measurement of primary qualities, and, since those qualities are assumed to be independent of the observer, it uses methods of measurement that either omit the observer entirely (by substituting mechanical devices) or attempt to escape subjective variation by generalizing on the reports of multiple observers. Immediate experience is *individual*—not a good candidate for what is normally termed “scientific observation”—and far richer than its measured relations. So “scientific observation” represents but a small part of the original content.

Left over when the scientific information has been abstracted is the part of experience that, like colors or sounds, cannot be known *except* through direct experience. The majority position holds that a direct connection to individual human consciousness disqualifies this portion of experience from scientific investigation. But there is a minority position, and we have found a

historical thread of opposition to the majority position running from its inception in the renaissance to the present day. After all, an exhaustive equation of law with numerical measurement is a weak premise—hardly something that will stand up to direct experience.

Direct Experience Examined

Before we examine direct experience, perhaps we should examine the viability of such “unscientific” investigation—that is, investigation of experience by experience. We are so accustomed to making another sort of investigation that it may seem perverse to suppose that the mere observation of direct experience could have worthwhile results, but I propose to make such observations, and to do so from the standpoint of the individual—a standpoint sometimes thought to impugn the resulting observations. Moreover, the following reflections, derived largely by a method of introspection, are claimed to describe a lawful reality. It remains to the reader to decide the truth of this claim.

When we look for the world it is always conveniently there, “at our fingertips” so to speak. But although it is so readily at hand, this very availability appears to depend upon several elements that belong to the observer rather than to the observed. This judgment does not demand any more information than any person has at his or her immediate disposal. Consider the following.

If you have loitered on the Berkeley campus, you may have come upon that towering eucalyptus grove mentioned above, and if you were moved to enter it, you probably noticed the dark, woody, nut-like objects scattered in the leaf litter. On occasion these may have drawn your immediate attention by falling through the leaves (registering hits on several of them) and reaching the ground with a small but solid thud. If you moved to investigate more closely, you found the nut somewhat smaller, harder, and more compact than an acorn, ridged and granular rather than smooth. When bruised, these little nuts give off a strong scent, a more potent version of the smell always detected in the grove. They are too hard to crack with your teeth, but if they are flattened with a stone and placed in the mouth, the scent is supplemented with a related pungent taste, which may quickly bring you to spit it out. All this information is immediately available and, except for the experiment on taste, has probably been collected by innumerable visitors to the grove.

If we look back at my account, however, we can find in it the imprint of something other than the grove. The naturalness of my investigation, its everyday quality, depends a good deal on the order in which the observations are introduced. The grove is, to begin with, visual. You can

see, or imagine seeing, the “massive” trees at a distance. Upon entering the grove, you may see the eucalyptus fruits in the leaf litter, or hear one fall through the leaves and hit the ground. Even in your imagination the grove is located by sight, our most distant sense, but sound soon joins the account, and I also mentioned scent in the first account above. Sight again guides our movement in touching, but once in hand the fruit reveals qualities that sight alone would be inadequate to investigate. At this close proximity, scent is noticeably more pungent than in the grove at large, and the close interplay between scent and taste that we experience during every meal leads me, if perhaps not more sensible people, to taste.

The description of my investigation is clearly structured by my tools of investigation, that is, my senses. This seems natural, in part because the senses that operate at a distance are utilized to establish a context and a purpose for those that can work only at close quarters. Of course, until I think about it, the sequence of the senses is tacit within an investigation that appears seamless. I am aware that I investigate those things that attract my attention, but I focus on them, not on how I investigate.

When I begin attending to my own part in the situation, however, the whole story seems to alter. As soon as I reflect that the “sights and sounds” of the place were forms of experienced sensation, I become aware that the seamless picture appearing to my understanding was actually received through very different sense reports, each of which lacked a reference to any other sense. Yet for my consciousness the eucalyptus nut, despite my experiencing it through several senses, was not partitioned. The unity of those reports—the fact that all the differing senses still portrayed the same seamless object—could not have been a product of any one of the reports, but must have been a product of *how I used or understood* them.

The more I pay attention to myself during my visit to the grove, the more I seem to have contributed to its appearance. Does this mean that my perception of the grove is compromised by my own contributions?

First Doubt: Do the Senses Discover or Manufacture?

The question arises from the usual model of perception, which assumes a clear separation between the objects independent of consciousness and the observing consciousness. This understanding of perception argues that an accurate description of external objects must be free of all qualities deriving from consciousness, which is why the observer’s contributions discovered in the preceding paragraph seem to raise a difficulty. There are, in fact, not one but two difficulties.

The first and most obvious occasion of doubt concerns the senses. We need only a brief consideration to reconstruct it. The human being is equipped most obviously with senses of sight, hearing, touch, taste, and smell (and perhaps others that will come under discussion later). While it is conceivable that other beings would bring other senses to the task, I must use what I have. But this admission seems to evoke a limitation. At least some part of this touchable, noisy, colored, and scented world is derived from my nature, rather than simply existing on its own. After all, color would not exist for an organism without a color-sensing organ, nor scent for one without an olfactory sense. Or are all these qualities (and perhaps others discoverable only by sense organs I do not possess) actually “there” merely waiting to be sensed? Do the senses discover or manufacture?

We may be able to gather evidence bearing on this question by examining an account first proposed by “the father of sense physiology,” Johannes Mueller (1801-1858). He formulated the “principle of specific nerve energies,” which proposes that the sensation received from a specific sense organ depends on the nature of that organ and not on the nature of the stimulation. Take, for example, the taste of salt that results when the tip of the tongue is mechanically stimulated by flicking the underside of the tip with your fingernail. The resulting salty taste is clearly not an indication that your fingertip is salty. In fact, if you smear it with honey before the test the results do not differ. As you can verify for yourself, a small amount of salt placed in the mouth seems to be generally noticeable, but particularly so at the tip of the tongue. Sugar, on the other hand, hardly registers right under the tip, but is quite noticeable on the top. Presumably the flicking finger stimulates the salt receptors that are concentrated on the underside of the tip.

Similarly, mechanical pressure on the closed eyelids, which compresses the eyeball to some degree, results in a complex show of light and color, often in vibrant patterns. (The experiment should be done with great caution to avoid eye injuries.) This much the reader may investigate directly. Physiology textbooks indicate that when mechanical, thermal, or electrical stimulation is applied to the olfactory nerve, the test subject detects scents. When such stimulation is applied to the auditory nerve, the subject hears sounds, and so forth. Each organ, it would seem, translates all disturbances into its own language, whether light and color or sound, scent, or taste, without regard for the nature of the stimulation. Thus, when I see a red flower, or hear a chord on the piano, the eye or ear has presumably received some form of original stimulation, but it seems that the resulting sensation need not resemble the original stimulation.

Evidence of this sort is often used to discredit the notion that the senses accurately reproduce an external world. But what is specifically attacked here is the content of direct sensation: brightness, color, smell, taste, sound, warmth, cold, and so on. The above discussion therefore brings into doubt the so-called “secondary qualities” of experience rather than the

“primary qualities” (shape, number, mass, velocity, position, and so on) which are all discovered by relations between sensations and do not partake of the qualities of sensation itself. Thus we arrive at the strategy of Galilean and Newtonian physics: if we leave out the secondary qualities of direct sensation and reduce our picture of the world to one describable by primary qualities only, the resulting account might present accurate information about the world as it is, with no distortions from the observer.

Second Doubt: The Power of the Mind to Combine

But just here we meet the second type of perceiver contribution. The astute observer will notice that to speak of the way things “seem” to the senses is perhaps to engage in a figure of speech. The senses may be involved in observation, but they do not constitute the observer. It is to us, rather than to our senses, that things *seem*. The senses fulfill their functions but they pass no judgments. To us “the world” seems colored, sounded, scented, and touchable—all of these at once. But since no one sense could have this impression, the multifaceted world can *seem* to be so only through the involvement of another part of our nature.

When I stood in the eucalyptus grove I was not confused by the multiple reports of my senses. Upon hearing the nut hitting leaves on its way down, I looked up expectantly at the trees and was rewarded with the sight of a bouncing nut, accompanied by those small thuds. I was able to coordinate sight and sound effortlessly, guided by my idea that such noise would necessitate a moving body, which would also be visible to the eye. Naturally, I also assumed that the quite noticeable scent of the grove would have an identifiable—a visible and touchable—source. While each sense organ presumably worked independently, my grasp of the situation was capable of unifying their reports to such a degree that I would momentarily forget that I had separate senses. Rather than experiencing some kind of combination of multiple reports, I experienced a seamless world, rich with multiple qualities. To me it was *this world*, rather than *my nature*, that appeared to possess all these different elements.

The “naturalness” of my description and the “ready-to-hand” quality of the things found in the grove were derived as much from this synthetic power as they were from the reports of the senses. I committed violence upon the observable world by asking you to break it into sense fragments in order to become aware of how dependent we are upon the working of multiple senses. But just because we gain this awareness, the power of the mind to combine the reports of several senses into a seamless world becomes apparent. Of course, it became apparent to

Johannes Mueller too, and for similar reasons. Any close examination of just what the senses deliver will detect the synthesizing agent that must coordinate the sense reports if these reports are to lead to a unified world.

The Power of the Mind to Attend and to Intend

In postulating a mental activity quite distinct from the specific energies of the senses, Mueller referred to the activity as “attention” or “intention.” It is our attention, he argued, that brings our sense experience into focus or allows it to drop below the threshold of consciousness by ignoring it. While listening to the combined sounds of an orchestra, he suggested, we can easily focus our attention upon one section, say the flutes, and immediately all other sections become background to their sound, a condition that reverses easily enough when we switch our focus to the strings and the flutes drop into the general background. The walker meditating upon a pressing matter does not hear the cries of street merchants. Even the pain of a serious wound, Mueller records, is sometimes unfelt when the attention is concentrated on some other point.

Of course, if something so capable of demanding attention as pain can fail to reach our consciousness due to our focus on something else, it seems quite obvious that other potential perceptions could also be overlooked. How often have I been asked how I could miss seeing something “right under my nose,” even though I had actually searched for the very item! We are all quite aware of this possibility, but it may escape our notice that the power to make things disappear could also be a power to make things appear. When someone redirected my attention, the previously unnoticed object suddenly appeared (gained notice) right under my nose.

The reader may recall other examples. When looking out on an open field by twilight, I am often distracted by what seem to be, in the periphery of my vision, dark figures moving in some manner. When I turn to look directly at them I find nothing more than the bordering trees, with perhaps swaying branches. But even when I know this and look out into the field once more, the dark figures may reoccur. I am aware that they seem to be a product of my mistaking something in the surroundings, but that confers no immunity.

A more expanded version of this experience, sometimes called a “double-take,” occurs when a first appearance is, on the second “take,” replaced by something else. This is the familiar instance of “I thought I saw, but found it was ...” or “She had her apron wrapped around her and he took her for a swan,” as I remember the popular lyrics of forty years ago. The perceptual double-take is the paradigm case of the connection between attention and the perceived appearance. In this type of experience I first see a situation in one way, in terms of one set of

relations, but within a very short period the field of vision is somehow rearranged, and I see the situation quite differently, in terms of another set of relations. Although I dismiss my first “take” as a “mis-take,” it is a mistake that I actually saw, and thus I came by an appearance (momentarily) by the grace of this mistake. In normal perception I do not notice any “taking” because my focus is upon what I perceive rather than my own activity in perceiving, and thus that activity, like anything else I do not focus upon, is allowed to drop below the threshold of consciousness.

When something goes wrong, however—when my activity is not transparent to its object but becomes somehow opaque, as in the first moment of the double-take—I become suddenly aware of my own participation in the result. As soon as I identify that first appearance as mistaken, I am aware that it was *my* mistake, which makes the second appearance *my* correction, something I can now see because I have changed my mental focus. A brief reflection on these results suggests that both moments of the double-take are products of my own activity, and this activity provides ways of looking—takes—without which neither could appear. If this description is even close to being correct, however, it seems possible that no perception can come to consciousness without a proposal of *relations* from the active perceiver, and these relations would include the primary qualities.

These two sources of doubt—the respective contributions of the mind and the senses to perception—haunt all modern thought. As we reflect on the fact that no perception can be innocent of perceiver contribution, it may seem that no perception can present its object as it really is, but only as translated into the language of the senses and that of the mind. “We can know the world only indirectly, from what our senses and mind make out of it.” So apparent is this conclusion that it has become ubiquitous in many fields of inquiry.

The Modeled Relation of Subject and Object—The Historical Problem

Let us reexamine the starting point of the preceding arguments, for they are all built on a single structure. In the model I evoked above, the perceiving subject and the perceived object are necessarily two separate objects in a world of material objects. Since subject and object are independent, perception takes place through the effect of the object upon the subject, or rather upon the sense organs of the subject. Such an influence must be detected through changes in the organs. But this very model introduces a qualitative break between the original stimuli and the resulting sensible picture, for the latter is found within consciousness, while the former is part of

the external world. Perception becomes problematic when we consider by what mechanical process the subject can gather an accurate picture of the *external* object through changes *internal* to the subject—that is, when we consider how this picture can be *independent* of the process of perception.

This difficulty applies to *any* form of perception, including that of our own bodies, for in sensible perception the receptive organ must be impressed by some independent stimulus, and must measure the stimulus by the resulting changes within itself. Once again the interaction of two independent entities, impinging stimulus and receiving sense organ, gives rise to a problem if the goal of the interaction is to discover the nature of the stimulus independent of the nature of the perceptive organ. Thus all perceptual events must be modeled on the very structure that is the heart of the problem—that is, given the interaction of two independent entities, how can one record the nature of the other independent of its own nature? The problem as stated is inescapable, which is why we should make sure we have formulated *the right problem*.

How did we come to know there is a problem of perception? That is, how do we know that perception entails the interaction of two independent entities and that the encounter is detected by sense organs which record it through internal changes? Is this not a conclusion that requires perceptual knowledge? Discussions of perception often model the situation in terms of a knowable subject and an independent and perhaps even unknowable object, but when we go about knowing the perceiving subject do we not labor under the very same difficulties that call our impressions of the object into doubt? After all, to be known, the subject must be object to itself and to the process of perception. Thus knowledge of both subject and object is called into question by the same arguments, but it is just such “knowledge” that we must take for granted in order to construct the problem of perception. We must know enough to specify the existence of both observer and observed, and to specify their independence, in order to generate a problem of interaction.

The “problem of perception” is largely derived from the mechanical model of perception, but most discussions of the subject take the model to be beyond question. This seems surprisingly forgetful of the knowledge claims implied and the difficulty entailed in any effort to substantiate them. In order to *know* so much about the two independent entities of the model, for example, we would need sources of knowledge that the model denies to us, and, worse, I would have to know them prior to mounting a science (since the scientific methods used will be constructed upon the modeled relation of subject and object). The immediate perception of the apparent independence of subject and object is obviously made questionable by the difficulties discovered in the attempt to trace the mechanical chain of perception, which produces, among

other problems, the two doubts above. It seems obvious, therefore, that the model itself can only be hypothetical, along with the independent external objects that are supposed to lie beyond immediate experience.

A common response to these observations, common even from people in the field of perception studies, is that the original picture of the interaction of independent objects was learned through evolution or through the learning inherent in our early years, and it is therefore based on some sort of “common sense,” which, of course, is thought to be beyond question. Or, in the short version given to me by a scientist colleague, “I must believe that there is something *out there*.”

The naiveté of such responses is disturbing, for it suggests that the original assumptions are not open to question. Yet it appears clear that the model of perception is drawn from “knowledge” of the world that, according to the model, cannot be secured by perception. It is perhaps worth remembering that Immanuel Kant, who gave philosophic formulation to the “things-in-themselves” existing “out there,” pointed out that logically we could never know the nature of these hypothetical entities, *nor even whether they actually existed*. Our belief in them, he concluded, derived from the nature of our own thought. My colleague’s response, based on the *necessity* of belief, was properly Kantian.

Although the mechanical explanation of perception exhibits what might be termed “performative contradiction” (since it denies the knowledge claims that it is constructed upon), I am aware that a good many thinkers will not be willing to let the hypothesis go, hoping that some new twist of argument or new empirical information will remove the difficulty. On the other hand, if we *do not* attempt a third-person account, but investigate immediate perceptual experience on the basis of direct introspection, the situation looks quite different.

The performative contradiction is generated by the assumption of mechanical relations between object and perceiving subject that seem to deny the knowledge needed to form the model. But consider: if these relations are not assumed, there would be no reason to impugn the apparent truth of direct perception. Or perhaps this is another way of saying that we must not forget what we have already granted in getting this far. Obviously direct perception is in some sense accurate to reality, or we would have nothing to talk about here. Thus we can begin again, but this time from the assumption that our act of perception is an act of knowing, and our investigation can focus on how this takes place. The elements of this investigation will be drawn from experience, and unlike the “things-in-themselves” that provide the teleology to the usual investigation, they will consist entirely of either “things-for-us” or implications drawn directly from these. Approached in this manner, the act of perception appears somewhat unfamiliar.

Our Senses Bear Witness to an Encounter

When my account of the grove came to a consideration of how I perceived the grove, it also came to difficulty. I had just written

...for my consciousness the eucalyptus nut, despite my experiencing it through several senses, was not partitioned. The unity of those reports—the fact that all the differing senses still portrayed the same seamless object—could not have been a product of any one of the reports, but must have been a product of *how I used or understood* them.

I came to a halt at that point because of the implication that the eucalyptus nut was not simply “photographed” by my senses, but was experienced through the effect of my own action on the report of the senses. My next sections examined the doubts generated by discovery of my mental participation in my observations.

The naive reaction to these doubts is to seek to eliminate or minimize the observer's contribution. Yet when we examine perception generally, no perceptual result appears to be innocent of such participation. Given any sensible situation, for example, we are not inactive, but meet the perception from a certain point of view, and therefore we must *choose* the focus of our attention—for one thing, we must decide whether to look toward the world or toward ourselves. Let me review my time in the grove once again. As I entered the grove in my original narrative, I was entranced by the nature of the objects, which were communicated in a “natural” mode, presenting a world ready-to-hand and available to me. But as I explored further in the above discussion, another pole came to manifestation. When I looked for elements of my own nature in the perceptual experience, the objective world seemed to recede, letting me fall deeper and deeper into the intricacies of the perceiving subject.

If we examine this transition more closely, it becomes obvious that the objective world seems to “recede” just because it is less and less the target of my attention. As my attention shifts to myself, the content of my perception seems largely a function of my own nature. Were we to go on in this vein, the world would recede even further and experience would appear to derive almost completely *from* the subject because it would be almost completely *of* the subject. For the same reason, my first experience of the grove appeared to derive entirely *from* the grove since it seemed entirely *of* the grove. In that mode of experience the activity of the self had slipped

below my horizon. Yet in either case this apparent isolation is produced by a kind of forgetfulness.

After all, however innocent of the perceiving subject the world may appear, that appearance always specifies something of the perceiver as well as the perceived. We must remember, for example, that if our bodies are parts of that same world, our sensible situation is always an interaction between two elements. Thus our senses bear witness to an *encounter*, not a fact viewed from nowhere. The visible picture that we have of any object can be achieved only from one location, and the same would hold for the quality of sound. The visible world is always structured as a “looked at” world, the world of touch is always “touched,” and all observations are “for” the conscious observer. Thus perceptual information on the perceiver is always given along with information on the perceptible objects. If we suppose that the appearances before us are innocent of our looking at them, we have forgotten something that should be quite obvious—namely, that the observer and the observing situation always appear with the observed.

In fact, neither the world nor the subject can become perceptible except under the conditions described; both are given, at least potentially, in the same encounter, but we choose which view to actualize, and our focus on one pole leaves the other pole in an implicit condition. This is true of all polar relations, as with the concepts of plus and minus, or affirmation and negation. One pole always implies the other and cannot be thought without that implication. So a perception of the world is grounded in a potential perception of the observer, and vice versa. The perceptual world is a whole. In any perceptual situation we are tacitly aware of the other pole of the experience, and the possibility of choice.

I “See” by My Understanding as Much as by My Eyes

The notion of choice may seem unproblematic at first glance—we choose different targets for our gaze whenever we like. As I shift my gaze from object to object in the room, I simply move between objects already perceived, singling out first one and then another for closer inspection. But the sort of choice that is of interest here is the one we must make between *potential* rather than actual observations. Let me explain.

At the edge of a pond or lake you can find a zone of just the right depth to yield either reflections of the opposing trees or a view of the sandy or muddy bottom. When you attend to the bottom, surprisingly the reflections are lost, and when you view the reflected trees, you cannot see the bottom—but each is immediately available when you look for it. The images involved require a different focus of the eyes, and thus we may correlate the alternation with the

everyday experience of looking at something nearby, while the distant background blurs, and then something distant, while the foreground blurs. But in this case the two images are not adjacent but overlapping, and the difference of focal length is so great that each seems to disappear when the other is visible. (You can do the same thing using a piece of window glass as the reflecting/transparent surface, as long as the illumination of the area on one side of the glass is balanced with that on the other, as when you look through the window of a house at dusk.)

Now, I am aware that from an “external” point of view this example seems to show nothing more than the fact that a distant object cannot come into focus while our instrument—the eye or a telescope—has been focused for a near one. But look at the matter in another way. From the point of view of my experience, the situation is not at all simple. After all, no image is there *for me* until I notice it. In the case of the images available from the edge of the pond, I cannot obtain either reflections or bottom until I have focused upon, or chosen, them. If I seem to begin with one—say, the reflections—that is because I have already achieved the required focus, even if I did so unconsciously. Thus my own active participation, my choice, whether conscious or unconscious, is required. I had to look for the images to see them—there was a preparation.

Although we rarely notice such preparation, it is present, and can often be far more complex than the above example. Let me try another example. When standing on the edge of a shallow lake in bright summer sunlight, I spent some time watching the small waves (two and three inches high) on the surface. The water was so transparent to the light, and so shallow, that I could easily see the sandy bottom. I could also, by a slight adjustment, see the tall trees on the distant shore reflected on the surface. But here the surface waves introduced a third element, and I became interested in how I saw them. The water, as I remarked, was clear—so clear that the sandy bottom, about six to eight inches deep, was very bright and grainy. Since I was able to look right through the waves, almost as if they were not there, it was obvious that I could not actually “see” a wave as one sees opaque objects. Yet surely I was making them out by reflected light, even as I see the opaque objects of the world. But how? I became intrigued with the problem.

As I sit writing I have two examples of a similar nature in my room. To my right a glass-covered print hangs on the wall; behind me I can look into a large mirror. In both cases I cannot “see” the glass as I see other objects in the room. I see it rather by the reflections in it. (The reader should probably try looking.) I can see a lamp and the far wall reflected in the glass of the print. If I choose to do so, I can look into the depth of the reflection and make out details of the scene. But I can also “see” the glass by conceiving of a plane, immediately in front of the print, that holds the reflection. (I find that it helps to move, allowing the image to move within the

glass.) In this case I do not focus at the focal length of the lamp but of the glass. When approached in this manner, the glass is quite visible. The mirror is another problem.

Of course, the solution is similar, but this time there is nothing “behind”—only the invisible glass, but no print. When the mirror is clear, the glass is quite invisible, yet the concept of a plane that holds the reflection still works. The plane of the mirror seems to become visible whenever I look *at* it, rather than *through* it (at the reflected scene). When the mirror is clean, however, this plane is ghostly, a locus that holds the images, a reflective sheen, but something we seem to think more than see.

Compared to the mirror, the waves are far more satisfactory. The water was clear, but the surface reflected the image of distant trees. I found that when I looked at the trees the waves were nothing more than regular disturbances, running wiggles, in the image. There was no hint of three-dimensionality in these disturbances—they bent the trunks of the trees, for example, to the left and to the right. I could easily change the focal length of my looking and find the sandy bottom, which was relatively unaffected by the waves. But finding the waves themselves necessitated a change in the manner in which I followed the distortions mentioned earlier. Instead of looking to the mirrored scene, I looked for the surface, which I had to conceive as the locus of the disturbances. When I did this, the regular distortions became regular articulations of that same surface. That is, I was now grasping what had been a bending of the images *as a bending of the plane* that held them, and I was attending to the plane. The trees were immediately lost, but three-inch waves stood up and ran in toward the shore. As I switched from trees to waves the change was always startling. The waves seemed to grow out of nothing.

Focal length is merely a relation of physical optics, and we may model the situation mechanically in the way we model the operation of a camera. But the person who uses the camera already knows what the camera is to be focused upon, while an account of human perception must begin with the situation as it is *for us*, prior to the inception of our own activity. And, of course, prior to our notice the situation is simply not there for us.

In order that something be there to notice, we must choose a focus, and choice is a directed act. As I look out the window, for example, and change the focus of my eyes, moving in jumps from nearer to farther objects and back again, I must lead my activity by a concept of the distance. I must choose my mental focus, even as I must choose the focal point of my eyes, but the latter *follows* the former, for my eyes could not attempt to focus on what has not yet come to mind. By the same token, if I had not conceived the regular distortions of the mirrored images as articulations of a single plane, I would not have found the waves at all. *I see by my*

understanding as much as by my eyes. The crucial element in sense perception is the person using the senses.

The situations obtained by viewing shallow water are common enough, but asking the right questions about them can lead to uncommon insights. If I see by my understanding as much as by my eyes, then what is given to the eyes is not fixed, but can yield different things to different understandings. At the point of becoming mentally active (in response to a sensible situation), I am not faced with given objects (images), but with a set of potentials that require my action if I am to come by any image at all. Consider that alongside the pond I can, at will, translate the same complex of visual sensations into three mutually exclusive images. Such a claim does not contradict common experience; it only differs from what we usually notice in common experience. And besides, the everyday view of perception must ignore the *necessity* of dual focus when we use the sense of touch.

I am typing near a rather heavy brass lamp. When I reach out and take hold of the lamp it feels very solid and cold. But while still gripping the column of the lamp I can attend to my hand: I feel that my palm and the inner surface of my fingers are quite cold, and the hand is tensed against resistance—but while I hold this focus I do not “see” the lamp, I sense only my hand. Investigating further I find that as I place my hand on varied objects in the room I can achieve either focus—the object or the hand. Thus, in the same sensible situation, I can choose very different experiences. In daily activity I have occasion to switch back and forth between these two foci quite often, and sometimes quite rapidly. As I shift, I do not forget about the focus I am not activating, for I continually hold it, as it were, in potential. After all, I must understand their relation, or my body will be instantly endangered. Everyone masters this ability at an early age.

But notice that while the young child, or even the animal, commands mastery of this relation between the sensing organ and the object sensed, consciousness of *how* we manage the relation is not part of doing it. When we explain the feat we must recognize our own activity whereby we shift our attention from one pole to the other, integrating information from both in our total grasp of the situation. Thus the real genie within this bottle is the mental activity of intending, or understanding, without which the explanation would not make sense. But this activity, taken for granted in all moments of consciousness, is *an element usually unconscious in mental life*. Our usual picture of the world has omitted ourselves from that world. We perceive the lamp, we perceive the hand, but we do not also perceive the activity that alters focus. And thus we arrive at the notion that the lamp and the hand are simply there, impressing themselves on us through a mechanical process.

Experience as an Object of Attention.

I have been arguing the nature of *experience*, but perhaps I am doing something unusual. Experience, as it is for us, is not a normal object of observation. We habitually focus not upon the nature of experience, but upon the object of experience, as that object is thought in the mind. Yet if the observations above have been recognizable, we *are* able to depart from an exclusive focus on the theoretical object and shift our gaze to the nature of experience itself. But experience as an object of observation must be distinguished from those objects common to the present empirical sciences.

Experience is necessarily “for” someone, and, of course, only that “someone” knows it directly. I am aware when I remember my experiences that they belong to me. It is only when I look closely, however—only when I am aware of the activity with which I meet the perceptual situation—that I am also aware *why* the result belongs to me. The multivalent quality of perception—our ability to find different things in the same sensible situation—links it to the activity of the subject in a manner absent from the usual reports of observation in the sciences. When I focus on “my experience,” I do not *mean* to observe a separable object but a phenomenon (visual, auditory, or otherwise) that requires my activity and that may alter as my activity does.

That alteration, if it happens, is always an alteration in how the given sensible situation is conceived, and therefore *represented*, for my perception represents the perceptual situation as I conceive it. This insight has been implied by everything examined above, for we all know that recognition (whether correct or incorrect) demands that we grasp a situation in specific terms. As I discussed above in the passage on the problem of perceptual double-takes, the most common perceptual errors contain a notion of thought: “For a moment I thought you were my brother,” or, “How easily is a bush supposed a bear.” Both perceptual error and perceptual success are inexorably tied to understanding, for my “experience” is also my representation of the situation in terms of my understanding, and this element of cognition may not be separated from the perceptual object.

Our common habit of representing the images about us as independent of our participation is itself a case in point. Although we understand that our senses (and mind, in a more sophisticated view) form and sustain the picture, we assume that we see *in* the picture what is independent of the picture. Of course the distinction is too difficult to maintain, which results in the working assumption that the images *are* the independent things. (However, we do not bring this

assumption to artistic images, and therefore have no problem with Magritte's painting of a pipe labeled, "This is not a pipe.") Thus our "normal" representation of the world—the way things actually seem to us—is as objects independent of any observer. But since this seeming is itself a representation, the contradiction revealed by the discovery of observer participation derives from the original framework of our representation. It does not come from the senses but from thought—it is our usual mode of understanding, or misunderstanding, that brings about the problem.

My arguments in this section are not intended to question the ability of human perception to discover reality, but only to undermine the usual assumptions about perceptual experience. I do not believe that perception is merely subjective, but I know that I will seem to be suggesting just this to the reader who takes perceptual images to be independent of their observer. When I argue that such a separation cannot be maintained, I am not judging the result by a view that models objectivity on separation, but trying to discard that model. After all, the goal was never entirely desirable. An observation—the tree standing there minding its own business—is made into an *experience* only by our claim of possession: "This happened to me; it is *my* experience." Only our individual and necessary connection to the observation provides any ground for testimony, and the testimony of experience seems to be our only basis for claims about the world.

"Who Hath Measur'd the Ground?"

The representation of the world as innocent of our own contribution leads to a certain manner of speaking of the world, and this discourse is perhaps more perfectly developed in natural science than anywhere else. After all, such science attempts to *think* the world as it is in itself—that is, independent of that thinking. Since experiential claims about the world manifest a necessary connection to the subject, they are not fully voiced in scientific prose. In fact the rhetoric of science is structured to distance the *report* from the individual making it. Any perusal of scientific papers will reveal the generalized use of the passive voice, designed to make the objects, rather than the investigator, the subject of the sentence. And as Alan Gross (*A Rhetoric of Science*) notes, the use of the passive voice appears to be increasing. He argues that

such change is a consequence of the social pressures that shape science in conformity to a worldview that has material objects rather than people as its center of interest. To say routinely, *I poured the distillate into the flask*, is to assume a people centered world; to

say routinely, *The distillate was poured into a flask* is to assume an object-centered world, the world of science.... (Gross 1996, p. xxix)

Gross predicts further that “the prose of science will evolve into an embodiment of its worldview,” and in this manner achieve greater efficiency and effectiveness within that context. The purpose of such stylistic devices is the elimination of the individual observer, but notice that in such prose a simple record of measures and procedures replaces *the testimony of a witness*.

Thus scientific reports concern themselves with *what* the measure is rather than *for whom?* These two questions have not been equivalent since the rise of the modern worldview with its preferred mode of representation. For such a worldview the conscious subject is necessarily “subjective,” that is, it bears no test of truth within it and thus requires external evidence to confirm its ideas. Were the subject to contribute to all perceptions, the resulting “evidence,” so it is thought, would be distorted, and perception would fail of its purpose. The notion that the two questions above cannot be separated therefore becomes something of a nightmare for the quest for objectivity.

On the other hand we all employ an idea of human faculties that does not fit this model. The testimony of a witness requires not merely a witness but a “reliable witness” who can be taken seriously, and the reliability depends upon the understanding of the witness. In the simplest case the witness must be capable of distinguishing, for example, visual after-images, motion after-effects, dreams, hallucinations, and a host of other oddities from the events on the street. Beyond such obvious problems lie the subtler distinctions we must make in order to “see” how fast an object is moving or tell what sort of sound we have heard or even what species of weed we have just stepped on. And the scientific observer in the laboratory must have the skills to make observations that only long practice can tutor. It would seem that the more carefully we try to “see” the world, the greater the perceptual skill and understanding required to perform the seeing. The usual presumption that the contribution of the observer to observation must be minimized to maximize accuracy to the “thing-in-itself” is apparently reversed here. Yet the notion that there are perceptual skills requiring long years of effort to perfect, such as the immediate recognition of species in the field or the detection of animal signs in the wild, is found in all cultures. Reliability, it would seem, is not derived from the measure, but only from the skill and intelligence of the person taking it. It is generated by *what we put into our observation*, not by what we take away.

Given the discussion above I do not see how we can avoid the conclusion that our activity precedes and prepares for perception—that is just the way it is. And so far in the examination this contribution does not imply any degradation in the accuracy of our perceptions. If anything,

it seems to provide a framework that makes perception possible where otherwise it could not be obtained. But if it is true that our own activity contributes the standards governing the act of perception, then this activity is even more fundamental than I have argued so far.

In Shakespeare's *Henry V*, when the Constable of France is told, in the night before the battle of Agincourt, that the English army lies a certain number of paces distant, he asks, sensibly, "Who hath measur'd the ground?" Implied in his question, of course, is not only who but how, since presumably the person would not be welcomed at the English end of the field.

The Constable's gentle skepticism is well taken, and I wonder if there is not cause for a similar response to the formulation of objectivity that has dogged this discussion from its inception—that is, the objectivity based on the independence of the object from observer contribution. Certainly the representation of an independent, unparticipated world implies the notion of "objective" treatment—it is built in, so to speak. But it is built in to the picture of the world in our thought, and that picture is supposed to be the result of earlier investigations. What were these investigations? Who has measured the ground?

My Activity Produces the Stable Object

I have already indicated the performative contradiction that arises at this point for the mechanical model. In our current terms, to "measure the ground" of perception requires knowledge that the reigning model of perception would deny to us. But now I want to approach the problem in a more positive manner. I remarked above that we must remember what we had allowed in order to get this far. Presumably we have some understanding of what we are talking about, and that understanding was gained by some measuring of experience. I think it possible to remember how this was done.

All modern accounts of perception seem to agree that the subject is *given* something other than thinking—other than mental activity—to focus that mental activity upon. I have referred to this element as the sensible situation, and it seems to me that "given" is a good term, for this situation is not produced by our own activity but simply *suffered* by the subject. But let me add that, according to my argument so far, the given element cannot yet be a world of recognizable things, for these can arise *only when I choose a mode of representation*. The things are not there *for me* prior to the activity of recognition (or representation) by which I come to realize that they are there.

Thus the sensible situation alone does not label these things for me—I must recognize them through my own act of understanding. And the fact that we do not begin with experience but must create it through our own activity on the sensible given alters the logic of the problem. (Obviously, as above, I have come to these conclusions by analysis after the fact. We are not directly conscious of a pre-experiential given, but understand its contribution by an examination of conscious experience.)

The activity preceding my discovery of a world cannot be random, but must contain certain standards. Even a relatively young child has the ability, for instance, to look again and correct the first impression. Any normal human being seems critical enough to understand, through the experience of looking again and in a different manner, that a second impression may correct the first, and a third, the second, and so on. But notice that a specific framework for subject-object relations is crucial to this enterprise. Our *default* understanding of the process by which we gain successive “takes” on a matter is that we are correcting our view of the *same* object, rather than substituting a different object; the object of perception is stable while our views of it are alterable. We search for such stability before we find it, and without this guide our own perception could not settle upon a stable world at all. Obviously then, this act of perception must contain firm parameters that *do not need* to be discovered before they can be used, or no understanding could ever result from it.

As one follows out the default position it becomes obvious that there can be no concept of a “search” unless there is subjective activity and a subject to whom things appear or seem. Without the understanding that I form my own impression, or take, of the situation, the changes of successive takes would deny stability to the intended target. On the other hand, my grasp of this “taking” *as my own activity* makes possible the stable subject-object relation and includes an understanding of truth and error, since implicit in the notion of a “take” is the possibility of error.

As I implied above, the notion of “correction” implies method, and of course my cognition must take place methodically in order to recognize, as well as to relate what has been recognized, or correct recognitions. But again, since this is a prerequisite of successful application, the “rules” guiding cognition are in place *prior* to learning anything from its application. Thus these directives would seem to be original with our activity. Intentionality evidently contains its own directive—we know *how* to understand prior to understanding anything. We must think *before* we can learn anything from our thinking (thinking in the widest sense of the term), and we must intend to understand before we do. Thus, the method by which all our thinking and intending is done already guides our efforts before they can come to a result—before, in fact, any consciousness of the objects of cognition arises. Here is another way to understand perceptual

activity: subject and perceptual object cannot be separated, but that fact is not pejorative, for *the test of truth resides within the activity of the subject*.

If this is so, then one more important point follows from it. I named two doubts above, but I have addressed only one—the problem of the contribution of the mind. I have left the senses without comment up to this point, because at this point their “problem” alters. Let me explain.

Galileo deemed the senses unreliable because the world of bodies, as he conceived it, could be abstracted from all direct sensations and treated mathematically without reference to the secondary qualities. Once he relegated the direct perceptual qualities to the human sense organs, they were only mediately useful in gathering evidence of the world beyond the senses. The search for stable entities is thereby restricted to entities lying beyond the sensible situation—to one kind of entity and one kind of stability—perhaps because this was the only world that Galileo could imagine.

Yet our original search for stability, from which all others must be derived, is addressed directly to the sensible situation, and were it to fail in that arena no other application could be conceived, for conscious experience would be lacking. The only test that can be applied here is our arrival, in direct experience, at a stable object of perception, and as we know, perception passes this test at every moment of the day. Therefore, when we begin from the apparent truth of immediate perception, neither of the doubts described above present any serious problems. Those sprung from an assumptive model.