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METAPHYSICS AND MODERN SCIENCE Part I: CONSCIOUSNESS AND SCIENCE with WILLIS HARMAN, Ph.D.



JEFFREY MISHLOVE, Ph.D.: Hello and welcome. I'm Jeffrey Mishlove. Our topic today is the metaphysical foundations of science. With me is Dr. Willis Harman, the President of the Institute of Noetic Sciences in Sausalito, California. Dr. Harman is author of numerous books, including *Global Mind Change*, *An Incomplete Guide to the Future*, and *Higher Creativity*. He is also the editor of an anthology called *The Metaphysical Foundations of Modern Science*. Welcome, Willis.

WILLIS HARMAN, Ph.D.: Thank you very much, Jeffrey.

MISHLOVE: It's a pleasure to be with you. You know, I would imagine that many working scientists today might feel a little surprised to think that there are metaphysical foundations to science. I suspect that many scientists sort of assume that science and metaphysics are unrelated to each other.

HARMAN: I think that's right. I took a lot of science courses, and nobody ever suggested that it was based on some metaphysical assumptions, and I think in general scientists don't think the philosophy of science has much to do with their activities.

MISHLOVE: But in effect metaphysics is implicit, even if it's not explicit, in science.

HARMAN: It certainly is. You have to start from somewhere. You have to start from some assumptions about how you're going to test knowledge, how you're going to decide that now we really know something -- that's what's called epistemology. And then you also have underlying assumptions about the very nature of reality -- ontological assumptions.

MISHLOVE: Most people, and I suppose even scientists, think of this as no more than common sense.

HARMAN: Well, they think of it as having been settled centuries ago. What was common sense in the Middle Ages was different from common sense in the modern world. But certainly for the last three centuries or so we assume that not only has science been operating from the same assumptions, more or less, but furthermore those are the only appropriate assumptions for science to be based on.

MISHLOVE: Well, I think we ought to look at two things: what are these assumptions, really, and why is that they seem to stick to science?

HARMAN: Well, the assumptions are essentially what we usually think of as scientific method. That is, the data that you really trust is the data of the physical senses and the data of various instruments that inform the physical senses; and that essentially everything can be ultimately explained reductionistically in terms of fundamental phenomena; that the universe obeys scientific laws, and if you only knew what those are you could at least statistically predict, because those laws are not violated. It's assumptions of that sort which, as you say, are just the everyday assumptions of the working scientist.

MISHLOVE: For example, that there is an objective reality out there that we can measure and know scientifically -- that it's not magical.

HARMAN: Um hm. And that the best way to know it is to stand at a distance and shoot various kinds of probes in and see what you can learn, and that what the scientist is not supposed to do is in some way identify subjectively with what's being examined. Now of course all of those have been challenged quite a bit in the last half century or so. That is, we went through the behaviorist-positivist era in science, and most scientists would say that we've left that behind. But they agree far less on where it is we're headed.

MISHLOVE: And I suppose even though one might think of the kind of positivist-behaviorist science we've been describing, where everything is sort of mechanistic and cut and dried and objective, as being something that we've left behind, it still remains sort of the orthodoxy of the scientific priesthood, or the upholders of the status quo.

HARMAN: Well, I think you sort of have to identify two different revolutions that are taking place, I think simultaneously. One is a revolution within science -- quantum physics, for example; chaos theory. A lot of things are being reassessed in the light of those frontier areas of science. The other revolution is a revolution of science, where for the first time in the history of science a few scientists and philosophers are saying the time has come when we have to go back and look at those very basic assumptions, and the fundamental driving thing here is the realization that we have to incorporate consciousness in somehow.

MISHLOVE: Consciousness has always been a problem for science, and one, I think, for the most part that's been sort of shoved under the rug.

HARMAN: That's true, and I think it was really quite a landmark conference that was held at the University of Arizona in 1994, where for the first time, as far as I'm aware, you had this whole spectrum of people, from the ones that are pretty strongly positivist and reductionist, to the ones that are out in the area of phenomenology and transpersonal psychology and the very soft areas, and the point was for all of these people somehow to learn to talk with one another.

MISHLOVE: I suppose while this conference was an important one, the debate goes back nearly a hundred years.

HARMAN: Debate goes back a long time, and it really was very closely related, of course, to the debate between science and religion. But by the time you get to the middle of this century, it became pretty clear that science has won and religion has lost and the debate's over. And then that's why it becomes so fascinating to see that since then the movement has been in the direction of somehow including spirit into the scientific world view. Now admittedly, it hasn't gone very far, but you can see the direction.

MISHLOVE: Well, there are some interesting words that have now come up, challenging sort of the orthodox scientific metaphysics -- spirit, consciousness. These words, which most people can identify with at one level or another, have been excluded. And it's striking to me that scientists, who use their own consciousness, and very often their own deep intuitions, to develop their theories, have operated on assumptions that deny the very existence of those intuitions.

HARMAN: Well, we all have a certain amount of ability to shut out certain kinds of experience while we're involved with others. But while you raise these questions, it's in no way denigrating the kind of science that we have and the things that it can do. But we have a science that was dedicated to prediction and to control and to devising manipulative technologies, controlling the physical environment, and for that purpose it's absolutely superb. But the mistake was made, largely by the non-scientists. I think, in elevating that kind of a world view into the position of a world view by which you try to guide your life, and in particular guide the powerful institutions of society.

MISHLOVE: I'd like to go back to William James, one of the founders of American psychology, who took the notion of empiricism, which is one of the foundation words of science, and developed it -- I guess he thought he would carry it as far as it could be carried, and he developed what he called radical empiricism. Could you talk about that?

HARMAN: In fact he played it safe and the material wasn't even published until after his death, or at least it wasn't gathered together into a book. But the basic principle of radical empiricism is simply yes, empiricism is how we find out. We try things, we observe, we gather all the data that we can. But radical empiricism has two principles. One is that you don't leave out anything; especially you don't leave out anything on the basis that it couldn't happen because our scientific law says it couldn't happen. And the other part of it is that you include nothing but experience; that is, your science is based totally on experience. But it's external and internal experience.

MISHLOVE: In other words, if conventional science maintains that all of our knowledge comes through our senses the radical empiricist says, "Yes, but what does it mean to obtain knowledge through the senses? Isn't there a consciousness in there?"

HARMAN: Yes, I think the radical empiricist would probably say that.

MISHLOVE: And in many ways the current debate is one in which scientists from many disciplines, from anesthesiology to quantum physics to psychology and computer science, are trying to understand exactly what is the role of pure experience, of consciousness, of intuition, in science.

HARMAN: I think that's exactly right. There really are two fundamental approaches to this, it seems to me. One is to say science must be right because it's been so effective so far, so therefore there must be ways that we can patch up things through quantum physics, chaos theory, holographic theory, or whatever; we must be able to get consciousness in. The other approach is to say, "Whoa! If we go back now and look at the fundamental assumptions" -- and quantum physics helped here. Quantum physics showed that you couldn't leave out the consciousness of the observer. Well then you'd think then that the rational thing to do at that point is say, "Well, let's go back and reexamine how we started, and how consciousness got left out." That's of course not what happened, by and large, but what happened was to increase the faith that somehow if we push quantum physics a little farther, we'll find the rest of consciousness. But consciousness was left out in the basic founding assumptions of science.

MISHLOVE: And if we were to go back two or three hundred years ago to Newtonian science, or the writings of Francis Bacon, we'd see a world view in which there's the observer and the observed, and the two are separate; the observer does not influence or partake of that which is observed, typically.

HARMAN: Well, I think if you go back that far, what you'd find is that this was an expedient thing to do. It was a way to get started. It was a way to start an empirical science, and from a political standpoint it was a way to start an empirical science without running afoul of the powerful church, because the church had staked out the mind and consciousness and spirit as the church's territory. So it made all the sense in the world for science to start that way. It's just that by the time we get to the end of the twentieth century it's time to broaden the window.

MISHLOVE: Today we have a notion coming from many fields -- from biology, from ecology, even in quantum physics -- the notion of holism -- that the universe is an unseparated whole at its deepest level.

HARMAN: That's right. Now, that brings up a very, very interesting point -- that science is all about cause. That's why you have science; you're trying to find the explanation, the causes, for the phenomena. Now, if really everything is connected to everything, if there really is only a oneness, everything then affects everything, and everything is the cause of everything in a certain sense, so that the whole idea of causality has to be revised.

MISHLOVE: And if I as a scientist am to accept that my own consciousness, the way I think, my values, my goals and aspirations -- if these are an intimate part of the natural world that I'm attempting to study, then I might begin to think differently about what I'm doing to begin with.

HARMAN: I think for the typical scientist this is a whole succession of shocks. That is, the first shock is to realize that there's a bias introduced just in the way you create the experiment, even deciding to do it; and then there's a bias that comes in in the perception, because we now recognize how powerfully the contents and the processes of the unconscious mind affect the way we perceive, not just with our eyes but in every sense. And even though we all know that, it has never been applied to the studying again of how we go about science. We act as though scientists didn't have an unconscious mind; everybody else does. But then, when you pursue the holism even further, then you find there are even more subtle ways than perception and ESP in which things are connected, and you just can't create an experiment which is isolated, even though of course you can come reasonably close, and that makes the kind of science that we have now so extremely useful.

MISHLOVE: In other words, conventional science still offers us what appears to be a pretty good approximation of reality.

HARMAN: It's not about to be displaced for scientific work. But it probably is going to be displaced in terms of a cosmology and a world view that will guide the society.

MISHLOVE: One of the major areas of your own work is to look, I think, at the perennial philosophy, the mystical traditions, the work that's going on in transpersonal psychology and in psychic research, and to say, let's see what these traditions, where very serious people have been exploring consciousness in many different ways, what do they have to contribute to the scientific endeavor?

HARMAN: Well, if you're going to study consciousness, it only makes sense to turn to the ones who devoted their lives to that. And so you do pay attention to the mystics and the spiritual philosophers and especially to the core esoteric traditions of the various spiritual traditions of the earth.

MISHLOVE: And of course they are asking questions themselves that are very relevant to science, one being the question of epistemology: how do we know what we know?

HARMAN: That's right. That is, the best of the mystics in all of the traditions tested their knowledge just as rigorously as scientists test their knowledge. Now, it sounds different because it was in a totally different framework, but they knew just as well as we know that you can fool yourself with optical illusions, and you can fool yourself with inner vision. And you have to keep testing, and you're never sure.

MISHLOVE: You seem to be suggesting that we may be able to develop a new epistemology by looking at some of the spiritual disciplines, intuitive disciplines.

HARMAN: I think that's right, and we tested it out. We gathered together a couple of groups of scientists of all sorts and some philosophers, people who were willing to take seriously this question: if we're going to take the challenge of consciousness seriously, then what kind of an epistemology do we need in order to deal with it within the spirit of scientific inquiry? And we put them in a retreat setting. We got away from all the telephones and the meetings and the paperwork, and furthermore we asked them to forget that they were experts and academicians, and to just explore together as human beings these very, very fundamental questions, then bringing in later their scientific or philosophical expertise. And we did come up with a set of nine characteristics of an epistemology which doesn't say, "Here's the end result. Here's the

epistemology." It does say that as we finally agree upon an epistemology in the scientific community -- a certain set of rules of evidence, as it were -- as we finally agree on that, it will probably have these nine characteristics.

MISHLOVE: Well, I certainly won't ask you to enumerate each of the nine characteristics now.

HARMAN: The first one is the radical empiricism that you mentioned.

MISHLOVE: I would imagine that the thrust of all of this is to say that there is a legitimacy to exploring the universe by using our own consciousness, our own direct awareness of the universe, as our tool.

HARMAN: That's a part of it. That is one of the characteristics -- that it's going to pay primary attention to subjective experience, subjectively experienced data, and it's going to test that, and it's going to have some consensus about how you test that. But that's definitely a part of the picture. And that leads to something else -- well, it leads to a number of things. It leads to realizing that any models or equations or metaphors that we use -- and that's what science is, is a collection of those things -- but whatever that collection is, it has to always be tentative, and it has to always be specific to a certain purpose. You use one metaphor for consciousness for one purpose, and you use another metaphor for another purpose. But let me go on just a minute, if I may, because one of the other characteristics becomes a real sticking point, and that is that once you recognize the power of the unconscious to affect our perceptions, then you recognize that as the scientist continues to explore further and further, lo and behold, the scientist is going to change, because he or she also is exploring their own inner working, and so one of the characteristics of the epistemology is that it won't stand still. As the scientific culture changes, the consensus about the epistemology is going to change.

MISHLOVE: In other words, just as computers and telescopes, the tools of science, as they become more and more refined for further use, as we consider consciousness itself a scientific tool, it will change, it will evolve.

HARMAN: That's right. Human beings will become more and more refined, and then that will change the way we do things. But what that means, of course, is in the education of a science, that the personal transformation is very definitely a part of the education, not something that you can do in your off hours somewhere.

MISHLOVE: Now, we've been talking about epistemology, which is the branch of philosophy that asks --

HARMAN: Do you have any other six-syllable words that you use on this program?

MISHLOVE: Yes, I've got one coming up -- ontology.

HARMAN: That's not six syllables.

MISHLOVE: But it ought to be. Epistemology is a tough one. It means: how do we know what we think we know? And ontology, another branch of philosophy, asks the question: what is it that is ultimately real?

HARMAN: Yes; what are your assumptions about ultimate reality? And of course the assumptions of the Middle Ages were one thing, and the assumptions of the present-day scientist are quite different, and the assumptions of science by and large -- and there are always exceptions to these fine generalizations -- but the assumption by and large is that the universe follows certain regularities which can be studied, and that ultimately a nomothetic science -- there's another one; nomothetic, that is, a science about laws -- will ultimately completely describe the universe and all the creatures in it. Whereas the emerging point of view, I think, is that that has to be tempered -- that scientific laws hold under certain conditions, one of the conditions being that consciousness is not intervening somehow in the experiment.

MISHLOVE: Well, the traditional scientific ontology is I guess what one might call materialism -- monistic materialism. Everything is made out of particles of matter, or particles of matter and energy. Now I think we're looking at a larger view, in which we say yes of course, matter exists, particles exist, but there are other levels. There are in fact several levels of consciousness, and levels of culture, and levels of biological systems, that cannot be reduced to the interactions of billiard-ball-like particles.

HARMAN: Yes, I don't want us to caricature the scientists. They aren't necessarily one hundred percent pure materialists. Scientific law is something real, but it's not material. So there is a certain amount of idealist philosophy that comes into science too. But there has not been clear thinking about it on the part of the scientists, and there hasn't been clear thinking about it on the part of the philosophers either, it seems to me, because they've gone off and gotten involved with other subjects, and they haven't had much wise to say about this recently. So there is an opening up to the possibility, let's say, of multiple vantage points. You can look at the world in its physical forms and you can learn certain things. You can look at the world taking as part of reality biological organisms, and they have certain characteristics that you can't reduce to simple physical things. And then you can look at the world from the standpoint of, say, humanistic studies, and then consciousness comes in in a way that it didn't before. Then you can look at the world in a mystical-spiritual way, and then some new elements come in. And no one of those denies the rest. They all have a certain validity.

MISHLOVE: I know you are particularly interested in the field that's been called transpersonal psychology, which is the attempt to take the mystical-spiritual approach to life and translate it, not into a religious metaphor, but into a psychological understanding.

HARMAN: That's only one of many labels I have, but we talk in terms of that one. Yes, it seems to me that that's an end of the spectrum that's been neglected, and that we'd better pay attention to it. As you may know, there's just been a flurry of conferences on science and consciousness recently, and I presume that they will go on, a number of them each year, and they reflect the fact that we have come to the point in history where we have to raise this question seriously.

MISHLOVE: Well, it's an important time to do it. I think the irony is that if we go back in history just a few decades, consciousness was a taboo word in science. People would be afraid of losing their research grants or not getting tenure if they spoke too vociferously about the mind.

HARMAN: Well, the conscious awareness of the scientist was of course recognized as something that was there. But it was assumed that some day we will have an explanation for that in terms of the processes within the central nervous system or somewhere. And in fact you can still hear scientific papers on occasion that are on the subject of where do we locate consciousness in the human body. I think it will turn out to be a nonsense question.

MISHLOVE: Well, I suppose it's fair to say that the mainstream of the scientific community still sort of holds the faith that the neurological sciences will ultimately provide us the foundation of consciousness.

HARMAN: Well, again, there is an evolution taking place. Some years ago the Sloan Foundation put up a good big sum of money to develop what came to be known as the neurosciences, which didn't exist; it was a lot of separate disciplines that were brought together. And then later on they did the same thing with regard to what came to be called the cognitive sciences. And I think now it's time for some foundation to come forth and say, "We'll put up some money to develop consciousness research as a valid, legitimate field of inquiry," which it has not been, as you observed.

MISHLOVE: So the day may come when the intuitive sciences will take their place side by side with the neurosciences and the cognitive sciences.

HARMAN: Without feeling ashamed.

MISHLOVE: Well, Willis, it's been a pleasure pursuing this exploration with you. It strikes me that what you're doing is waving a banner for people to say, look what's going on. The age is changing. The old assumptions are dying, and we have to allow all of the serious thinkers, and maybe even some of the not so serious thinkers in our society, in on the discussion, because reality itself is evolving in a way, or certainly our understanding of the fundamentals of reality are evolving.

HARMAN: I think that's right, and so far of course we've only talked about embodied consciousness.

MISHLOVE: Uh huh. Well, we'll have another conversation and look at disembodied consciousness as well. Willis Harman, it's been a pleasure. Thank you so much for being with me.

HARMAN: It's certainly a pleasure for me too.

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