GENERAL DISCUSSION

CARDEÑA: I have a couple of quick questions. Hoyt, what is your opinion on the Pantheist position? A couple of people here have mentioned Whitehead, and his vision that maybe consciousness is imbued in everything so that you do not have to work out how you get consciousness into the system. The more I thought about it, the more it seems worth considering. And Dick, you gave a very interesting model with implications for how we might look at macro PK effects, and I wondered if you had any recommendations with respect to other kinds of parapsychology experiences—given your retrospective model, would you suggest doing some things that we don't already do, and by 'we' I mean not physicists but us poor old lowly psychologists.

EDGE: I was tempted to ask you if you could define 'consciousness'! One of the reasons that I suggested that we ought to find out whether psi is a function of nature or of persons is essentially trying to get at this question. I am quite open to the idea that there is a level of consciousness—whatever consciousness is—and I think it is not filled with the kinds of assumptions that the idea of 'mind' has, so I am quite open to the possibility that down to the smallest levels one could find some sort of consciousness. In thinking about consciousness, however, we tend to think about it as a thing and this is something that comes naturally to us in the atomistic rather than dynamic universe in which we think we live. What I want to do in talking about consciousness is to emphasize the dynamic quality; that is, I would want to say just as persons 'walk' so they 'conscious', and I would want to make sense of that idea of 'persons conscious' as opposed to 'persons *have* consciousness'. I think if we can make sense of the notion of consciousness in that sense we are better off, and if you want to then apply it to other areas than persons then you could.

SHOUP: Etzel, you asked about new kinds of experiments. Well, my problem at the moment is trying to find resources to analyse the 110 million trials I have in the can, so I haven't thought about new experiments too much recently, but it is certainly the case that there are things that we could do that follow from the kind of discussions we have had here. In particular, I would like to see more Helmut Schmidt-type experiments where the data are observed by observers in certain points in the chain of data collection and analysis, and not observed in other cases. I would like to control the dependencies in observers; that

would be a first step. As far as macro PK is concerned, I am not too interested in trying to evoke that or do any table-tipping, but it does seem there is nothing in principle to prevent this lectern from rising into the air simply because all the molecules in there that are bouncing around could decide in a highly highly improbable way to go in the same direction for a while, and similarly for the surrounding air molecules. There are, I think, ways this could happen without terribly violating existing physics—it would just be extremely unlikely, so that could be a place to look.

DOBYNS: Just as a quick comment on what was said a moment ago, the notion of macro PK as micro PK 'writ large' where we would co-ordinate a large number of random fluctuations has a great deal of conceptual appeal, but it has the problem that you still end up doing work on a macroscopic object and that energy has to come from somewhere, it can't simply be created by fiat.

SHOUP: But the room gets colder.

DOBYNS: Now we are violating the Second Law instead of the First; I don't see that as an improvement.

SHOUP: To recap if some of the audience didn't hear, York said that the energy must come from some place and I said it must get colder; we all know reports suggest it gets colder with poltergeist effects, and that is a plausible thing to explore. Then York said, well then you are violating the Second Law of thermodynamics, which says that these things tend to disorganize. From my point of view I have the perfect response: the Second Law isn't really a law at all, I call it a tendency; things tend to disorder. But there is nothing to stop them from going in the other direction; if you prepare the situation with sufficient initial conditions a system can become more ordered, and there are examples of that. So I don't see a big problem there, but the unlikeliness of such things might be questionable.

VON LUCADOU: I want to make a comment concerning macro PK; I have investigated a lot of cases and Friederike Schriever has written a nice article about more than 60 cases, which were collected by Hans Bender. I think these cases show us something very interesting. Firstly, such events occur rather often so they are not as rare as one might think. Secondly, they show a certain lawfulness, so not everything happens but only certain things which are rather specific. But what is most important is that they follow a certain time development and they

show a certain structure. We have developed a phenomenological model derived from the model of pragmatic information and weak quantum theory, and this has been published. What came out of this was really astonishing: Fredericke did a cluster analysis of all these historical cases and it turns out there are two main clusters, and these fit perfectly with the prediction of the model, which says that there is a complementarity between the structure of the cases and the behavior reported in cases. This shows up a certain complementarity in terms of weak quantum theory. Another feature is the apparent elusiveness of the phenomena. I gave a paper at the last Euro PA in which I formulated an uncertainty rule for macro PK that simply says whenever you have perfect documentation in a case, then the effect size of what is happening goes down and vice versa; it depends on the organizational closure of the whole system. So there seems to be a rather clear lawfulness behind the phenomena indicating that the main problem is not energy but it is the organization of the whole system. You are right, we do not know how the system works, but I am really astonished about how precisely you can predict the development of these cases. I have never found a case where the model doesn't work. So my question is, this would say we have found a model that is equivalent to other physical models so where is the problem you mentioned? We do not know the mechanism in detail but we have so many processes in nature where we do not know the mechanism in detail but we know how it works. This is maybe sufficient.

DOBYNS: In response to this I would simply comment that while phenomenological studies are all well and good and I approve of any increment in our understanding of the phenomenon, this does not alter the fact that if the phenomenon occurs at all it is violating what we consider to be fundamental laws of physics and therefore those laws require revision.

HÖVELMANN: Just a remark concerning Hoyt Edge's paper, which I very much agreed with. However, I was not completely convinced by the parallel that you drew when you compared the mind-matter relationship to the relationship between night and day. I think the relationship between night and day is publicly perceivable and communicable, whereas mind is a private phenomenon and is difficult to communicate, and I don't believe the parallel is as obvious as you made it out to be.

EDGE: My point is simply that when you look at the characteristics of mind and matter as they are defined by Descartes, they are defined in terms of each other. So the question is not whether they are the same sorts of things, with one more private than the other, but that conceptually they seem to be so close together.

ROLL: This question is mainly directed to York but also applies to some of Dick's observations. York stated there is no known physical mechanism for macro PK and also that energy has so far only been detected subjectively by psychics. These two points seem to be mistaken. Blanchard, in a book with his associates some years ago, described how the location of a microphysical object is due to four quantum numbers of which one can be referred to as the spin of a fundamental particle. If one of these quantum numbers is altered, the object—Blanchard theorised—becomes unstable in this location and moves to another location where it is again stable. The quantum number that refers to the spin of a fundamental particle can be affected by an applied magnetic field, and we have observed that the beginnings of poltergeist experiences are associated with an increase in human magnetic disturbances. In other words, there does exist a quantum mechanical model to account for the movements of large scale objects. Secondly, York claimed that energy has not been detected. In fact it has been on two occasions; first by William Joyce at Duke and secondly by Bill Joines and Steven Baumann and others. In these studies two gifted individuals were able to produce effects that were detected by photomultipliers, and it is said that these people could emit photons that were visible in a darkened room. If this is taken together with the Blanchard claim then we have empirical and theoretical evidence that macro PK takes place.

DOBYNS: In the first place regarding Blanchard's physical model, the model you describe is not part of current physics and, frankly, if it is postulating a change in macroscopic location due to manipulation of spin quantum numbers in a macroscopic body then I at least would find it difficult to integrate with what we know of current quantum physics. I would certainly not regard it as a credible physical theory until some of its prediction had been tested and verified with experiments in domains other than macro PK. Regarding the matter of energy, considering the ubiquity of reports of these energy sensations by all manner of talented individuals, I do not find reports of photo production by two specific talented individuals to be all that

illuminating. One of the major reports of macro PK is the well-recorded incident in which Ingo Swann caused a magnetometer to register through its shielding—does that mean that psi is *magnetism*? I am afraid that I at least would classify the measurements described as simply another instance of a PK experiment with a very interesting and valuable result, but not necessarily relevant to all the thousands of sensitives and practitioners who report feeling something they call 'energy' and projecting something they call 'energy', but who do not physically glow in the dark.

VAN DE CASTLE: This is not exactly glowing in the dark, but years ago there was a lot of interest in Kirlian photography and there got to be a lot of legitimate complaints regarding its lack of reliability. There has been a version now coming out in Russia by Konstantin Korotkov called the gas discharge visualization technique. An electrical pulse is passed through your fingertips which releases a gas vapor and it shows up as a kind of aura around each fingertip. Then you can take a computer-enhanced imagery that allows you to get 18 different parametric measures from that, so there have been huge advances. I spent some time over there with them in the lab and saw some things that I felt were fairly outstanding. My second comment is for Hoyt. You started out by saying no-one in the audience did cross cultural work then you recognized that I had done some. This includes six trips that were sponsored by the Parapsychology Foundation to do some field work in Panama with the Kuna Indians down there. I had made ESP cards with jaguars and sharks and so forth for stimuli. I found I got results that were successful enough for me to be happy about publishing them. The last year I was there one of the Kuna said to me, 'why do you think we can relate to you? You are a white guy and you are not one of us'. It seemed obvious that I didn't have the right kind of connection to be their sender, so I had them choose who they would prefer to be their sender. They chose and we went through the study and got results that were so outstanding that I still have a hard time believing them.

EDGE: Thanks, I meant to say that I was surprised no-one had said anything about cross cultural work, not that no-one had done it. I agree with you about the importance of working within a culture rather than coming in from outside; this is why the work I have done in Bali with the support of the Bial Foundation has always been with Dr Suryani and she has always been the one directly working with the Balinese

precisely for this reason. But not only is Dr Suryani so well known to the people who participate in our studies, she is a figure of high regard. I have often wondered—but did not have a chance to investigate formally—how much the experimental evidence has been affected by that kind of relationship as opposed to another Balinese working with these people. But you are right; we have to be sensitive to that.

WALACH: I have a question for York Dobyns. You said that the EPR measurement was analogous to what happens in parapsychology; you have entangled photons for instance, you measure one and the other, and then compare the measurements. I am not sure that is what is happening here, and wondered what the views of other people are here. As far as I can see what is going on there is you have streams of measurements in both detectors, and the way you find out whether they are correlated is not that you compare them but you compare the streams of measurements you have to a theoretical distribution which you derive from the Bell inequality. That is a fundamental difference because we don't have a theoretical model to find out whether measurements are correlated or not, is this not the case?

DOBYNS: No, that is not the case. You cannot establish whether Bell's inequality has been violated or not except by comparing the two streams of measurements with each other. The inequality provides limits as to what the correlation can be under different conditions of detector angle orientation in the standard polarization approach but there is no theoretical distribution to compare the individual streamer against. If you only look at one of the detectors you have literally no way of knowing whether an entanglement is present or not.

WALACH: No, you are looking at two, but when you compare the two to the boundary conditions of the Bell inequality that is the decisive point.

DOBYNS: You compare the correlations to the Bell inequality. However, for purposes of the experimental structure, the fact that the entanglement is violating a certain mathematical limit based on classical assumptions is actually not all that important. What is important is that a correlation exists which can only be established after the fact by comparing experimental results from the two different sites, just as in a PK experiment we cannot attest that PK has happened or not until we compare, for example, the list of intentions or activity periods of the agent with the output of the target. In a remote viewing

experiment we do not assert that successful remote viewing has taken place until we compare the transcript of the viewer with the properties of the target.

WALACH: But would it not be the case that without the Bell inequality you wouldn't be able to tell?

DOBYNS: The Bell inequality is merely what tells us that the correlation is not resulting from classical fixed information transmitted separately to each location by classical particles. It is not needed in the parapsychological equivalent where we do our information exclusion by making sure the REG box does not have external control on it, or that no-one is slipping your viewer a piece of paper saying 'the target is the museum in Anaheim'. In the physics experiment we have a mathematical proof of information exclusion provided the correlation displays certain mathematical properties. In the parapsychology experiment the absence of classical information is hopefully imposed by our controls, if we are doing them right.

VASSY: I have a question about mind-body dualism. I always find it very instructive to think of the time in physics when there were four different kinds of forces: gravity, electromagnetism, strong nuclear and weak nuclear forces. None of them could be reduced to the other three, so none of them could be explained by the other three. Yet nobody thought at the time that reality somehow is divided into four different realms and we should think ontologically in terms of four different things in nature. Therefore the moral of this situation for me is that when we tend to think of mind and body as two ontologically distant things, is it not because they cannot be reduced operationally or in any other way to each other, because this need not imply that they are fundamentally different. Maybe we are culturally conditioned to think mind and body are so different, and subjectively we feel that they are different. But if we can extract ourselves from all of those subjective and cultural assumptions and try to think objectively about them, then perhaps we would not take those differences so seriously as we do.

EDGE: I think this is a response that is interesting and logical. If we have been conditioned to think of them as separate, one can argue we can also be conditioned to think of them as un-separate; if we begin to use the language of conditioning, you have to apply it in both cases. I was interested to hear you say in your delivery of Ed May's address that you are able to teach parapsychology because your colleagues

knew that you wouldn't fill students' brains with heresies. When I started teaching as a graduate student philosophy in 1968 I asked my students, "is the thought of 'fried chicken', for example, a brain process, or is that statement equivalent to the logical contradiction that 'a square is a circle'?" Out of 25 students, 23 accepted that claiming that a thought is a brain process is equivalent to saying a square is a circle — it is a logical contradiction. But 20 years later when I ask the same question, I get the reversed conclusion; 23 said not only is it possible but it has to be true. Now these are 18 year olds, who are not yet particularly sophisticated in the ways of science, but they reflect a cultural shift within a period of 15-20 years that was dramatic enough to move from saying something is completely illogical to saying it has to be true. The point I was trying to make in my talk is if that kind of cultural shift happens so quickly, then one should not be surprised if a lot of conceptual baggage is brought into that conceptual change.

VASSY: I wanted to show with an example from physics that just because two things are not reducible to each other does not mean that we have to think of reality as divided into two different things.

EDGE: An interesting analogy, I think the dis-analogy is that these two things have been defined in contradiction to each other. If one has any characteristic of the other then it is automatically the other—you don't have that with the four principles; this is a unique characterization of mind and body.

SHOUP: I think it was 't Hooft who got his Nobel Prize for unifying weak nuclear force with electromagnetism. But unifying mind and brain is the ultimate problem for us because we live here. My identity exists here, connected to my brain. This is part of Eastern tradition and we are trying to build that bridge. As an exercise, take an afternoon and try to avoid all personal pronouns; instead of saying 'I think XYZ', or 'my brain thinks XYZ', say 'this brain is thinking' and try to remove your identity for a while. It is really instructional and to the point that you are making—there is a strong bias that we can't give up.

EDGE: I agree with the latter part of what you said, but do you really mean that 'your experienced identity is with your brain'? I have to admit I don't know what that means. I can understand that theoretically, but I have to admit that is not my experienced identity, which has nothing at all to do with my brain. It has to do with my personhood and it is only a theoretical construct that allows me to talk about the brain.

Interesting, and important, and perhaps we ought to be talking that way, but let's not think that is the way we experience the world.

CARR: In discussing the connection with physics, York gave us three possibilities: one, that there need be no change; two that you need some extension; and three that you need some giant revolution. I would like to push the idea you really do need revolution; you can't just make small extensions. He also made the point that such a revolution is bound to come from within physics itself, and I think that's a really crucial point. I think attempts to explain psi just in terms of entanglement and quantum theory cannot be the full explanation. Physicists do not understand quantum theory, so to try and explain one mystery in terms of another does not get the bottom of it—there has to be a more fundamental picture that will enable us to understand both psi and quantum theory. I think in a way that York was not sufficiently ambitious in just confining his attention to ESP and micro PK, because actually it is a more fundamental problem; it is not just the matter of explaining psi in physical terms but of explaining any mental process at all that is the challenge. Physicists never talk about the theory of everything; they're just talking about a theory of physics. But half my experience is not in the physical world, it is in this other domain, the mental domain, which doesn't just include ESP but also dreams, out of body experiences, near death experiences, a whole range of phenomena that I think are intrinsically linked to any theory of psi, indeed a theory of mental processes. My view is that there is a good prospect of that, especially in the higher dimensional approach which is beloved of string theorists at the moment. I think that is the way to go, but whatever the solution, it will require going much deeper, and whatever change we must go through is going to evoke a lot of pain on part of the physicists. I think there will be this great paradigm shift to incorporate psi, but it won't be easy, even for the physicists.

DOBYNS: The problem with the grand revolution approach, which I think is going to be called for, is that getting the revolution—or to get the right one, as opposed to something that ignores part of reality—will require someone who is profoundly mathematically adept, capable of handling all the intricacies of the current physical theory that things must reduce to, and simultaneously encompass the whole phenomenology of psi and incorporate it. I am not up to the task; I hope no-one is offended when I say I don't know anyone who is. We are

probably looking for the next Newton or Einstein to be produced by the fates.

JOSEPHSON: I would like to get back to the energy question. First, the boundary thinness dimension that Christine talked about may be relevant, in suggesting that there are features of our environment that most of us are unaware of, but the psychic may have thinner boundaries and so be more sensitive to them. This could provide a source of energy that would not violate physics directly.

SHOUP: I do suspect that there are connections among all of us to a degree that are totally unappreciated, either in terms of quantum entanglement or some residual connection or togetherness from our common origins. It is maybe worth pointing out that correlations can be entirely invisible if all the particles involved are not measured simultaneously; you can have entanglement between 2, 3, or N particles such that you cannot see any effects if you examine N-1 or fewer of them, and so that might mean such things exist even in weak entanglement among very large numbers of particles you may not see it all and yet under the proper invocation in some fashion that could become manifested. We ought to all look at this.

VARVOGLIS: Hoyt, I'm generally supportive of your arguments about naturalism, and think that is a good way to go, but I am less convinced by your historical and cultural arguments. The fact that Descartes might come up with a theory and that you can show its cultural and historical relativism is not an argument against its validity. We can have insights for different reasons. The fact that students now see no problem of conceiving of a thought as a brain process does not argue for there being any greater insight there. It could be students are now more culturally conditioned by Dennett and the Churchlands and so on into thinking that thoughts *are* chemical interactions, and in itself does not show evidence of progress. This is not an argument as to one being more valid than another.

EDGE: I would love to think my 18 year olds had read Dennett and the Churchlands! The serious point is that the traditional philosophical approach of simply abstracting and looking at ideas fails to recognize that these ideas are proposed to do work within a context, and this approach does not let us understand all of the assumptions these concepts have. I have not presented an argument—and I agree with you on that—but what I was trying to say is if you understand the work that

that concept is doing in that context then you will understand more about its assumptions.

VARVOGLIS: Dick, the idea of retrocausal influence is a very important idea, which has considerable data starting with Schmidt's experiments. How would you close a system in terms of future observers, how would you decide you were discovering lawfulness in nature as opposed to some future observers' hypotheses coming into the system and continuing to introduce new information, which you could no longer call lawful, independent of that observer?

SHOUP: It is a very good question—where does the experiment end? How can it be isolated from the future or the past? I don't have a good answer to that; I can only think about the connectivity, the dependence relationships and the structure of the experiment, whether you let the information affect any further in the future for example by publishing or by allowing other entities to be affected by results of an experiment or the outcome of a particular measurement.

VARVOGLIS: The reason I bring it up is because I'm taking into account York's position about whether or not we have to disturb science too much. It may be true that with retro-causal and time symmetric postulates we do not disturb science too much, but *methodologically* it is a disaster for science in terms of epistemology. It is a big shift, maybe not in terms of assumptions but it is a big shift.