AN EMERGENT-INTERACTIONIST UNDERSTANDING OF HUMAN CONSCIOUSNESS

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Throughout my career I have been interested in a range of phenomena I usually group under the heading of states of consciousness, phenomena dealing with the fascinating, multitudinous changes that can take place in people's mode of experience. While changes in the manifestations of consciousness can be studied without asking any fundamental questions about the nature of consciousness, so avoiding dilemmas that have puzzled philosophers through the ages, I have, nevertheless, always been curious as to the ultimate nature of consciousness, and I have found parapsychological phenomena to be of extreme value in pointing the direction of an answer to that question. What I shall share with you today is the beginnings of a scientific approach to understanding the basic nature of consciousness, an approach that I call *Emergent Interactionism*, an approach that would be classified philosophically as dualistic, and yet has empirical consequences and so can be classified as scientific. I do not lay any great claim to originality in this approach, as I have drawn on multitudinous sources for the basic ideas, but I hope the particular way I have put these ideas together will be useful in understanding human consciousness. I shall also apologize in advance for the crudeness and gaps in these formulations, for, while I have touched on these ideas for years, this is my first attempt to express them more systematically.

My observational base for trying to understand consciousness begins with my own experience, which is then expanded by my experiences of the world and others about me. Perhaps the most striking thing about my own experience is the obviously different nature of my consciousness from the physical world about me. Despite difficulties in knowing precisely how to think it or express it, it is simply a given that there is something fundamentally different about the experiences I call my mental processes from what I call the external world. This

basic distinction has been drawn by multitudes of others, and in formal philosophy has been called a dualistic position, a formal postulation of some fundamentally different qualities of mind and matter, such that the nature of one cannot be adequately explained by or reduced to the other.

I have had no formal training in philosophy, but at times I have attempted to study philosophical literature on the nature of consciousness, and, I must admit, I have always come away baffled and disappointed. Once the basic distinction between mind and matter is postulated, I get the feeling that most philosophers restrict themselves to playing word games, dealing with purely semantic distinctions, and end up with a dualistic position that might or might not be true; but the truth or falsity of that dualism does not seem to have any useful experimental or experiential consequences that I can discern. I am not comfortable with making a distinction that has no consequences, and I am strongly committed to the kind of scientific pragmatism that says observable consequences (whether physical or experiential) have priority over intellectual formulations.

Monistic Views

In terms of acceptance by the intellectual and scientific community, monistic philosophies, which postulate that mind and matter are basically manifestations of the same thing, that they are *totally* reducible to one another, are the accepted philosophies. This is particularly so in orthodox science. Figure 1 for example, taken from my *States of Consciousness* book (Tart, 1975a), diagrams the widely accepted scientific view of consciousness, what I have called the "orthodox" or scientifically conservative view of the mind. The basic reality that is being dealt with in this diagram is physical reality, fixed physical reality, immutable laws. As a result of these laws a particular physical system comes into existence, the brain and its associated nervous system and body (which I shall just refer to as brain for short for the rest of this paper). Many aspects of this brain are fixed in their functioning: instructions for your kidneys to work, for example, are encoded in the physical structure of the brain and ordinarily never changed. This physical structure also has many programmable capacities, so our culture, our language, the various events of our personal history, and our interactions with physical reality teach us a language, a way of thinking, values, and mores, etc. This large computer-like physical structure then functions in a wide variety of complex ways. At any given moment we are aware of only a small fraction of the total functioning of it, and this tiny fraction of physical functioning that we are aware of is consciousness as we experience it.

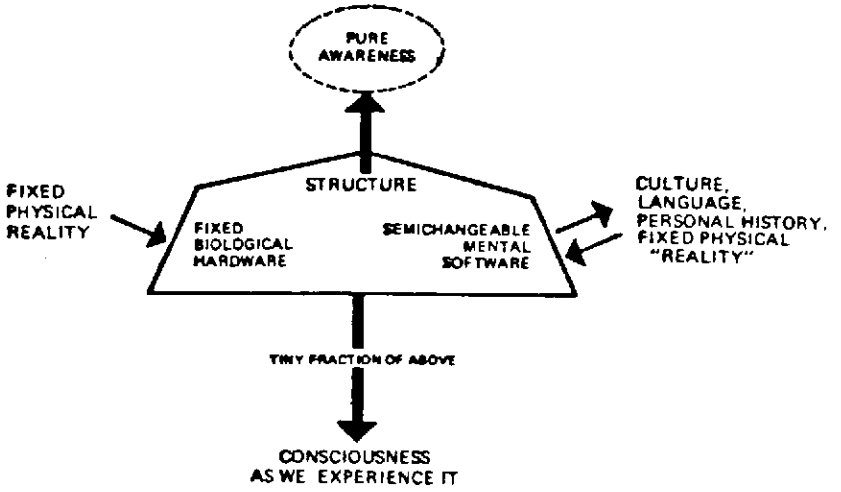

Figure 1. An orthodox, monistic representation of the nature of human consciousness. Reproduced from C. Tart, *States of Consciousness*, Dutton, 1975, by permission of the publisher.

In presenting this model I have added something called "pure awareness" in the upper part of it, which can refer in a general way for our context here to those feelings of mental activity which do not seem tied to obvious bodily functioning, such as certain meditative experiences or various altered states experiences. More formally, I have used the term pure awareness to mean that raw proto-experience of knowing that *something* is happening before that experience gets highly elaborated and articulated into semantic categories where it has obviously been influenced by brain structure. In the figure, I show pure awareness as "emerging" from the physical structure of the brain. That is, this is a representation of the monistic *psychoneural identity hypothesis*, which says that while we might find it convenient to distinguish certain types of mental activity for semantic purposes, all experience is, in principle, completely reducible to physical activity within the brain. In practice we are a long way from being able to carry out this reduction due to the sheer complexity of the brain, but in principle the orthodox scientific view believes this is possible.

The psychoneural identity approach is clearly a useful scientific approach, for it has observable consequences. It predicts, for example, that a physiological correlate of any and every kind of experience can ultimately be found. It further predicts that no experiences can occur in reality that violate the basic physical laws and system operation laws that govern the operation of the brain, although the brain may produce *illusory* experiences that seem to violate basic physical laws.

Complexity

In mentioning laws governing systems operation, I am reminded of the other disappointment I have always had with formal philosophical writings on the nature of consciousness. That is their typical obsession with an absolutistic understanding of simple mental events, when it has always been obvious to me that consciousness represents an *exceptionally* complex *system*, not a simple mechanism. Probably, my early experience in working with electronic systems, where alterations in one component can have many effects on the whole system operation, effects which are often not at all obviously predictable beforehand, sensitized me to this issue. Modern brain theory now recognizes the complexity of the brain and nervous system. Starting from a simplistic approach that likened each neural junction to a relay and thought the complexity of brain function could be handled by a simple additive operation of all these individual relay operations, modern understandings of the brain are increasingly looking to general systems theory to provide general laws about *emergent* properties of brain functioning, properties that are holistic outcomes of total system operation rather than simple linear additions of more basic subsystem elements. The Emergent Interactionism approach to understanding consciousness that I shall outline here tries to take this complexity, these emergent system properties of brain functioning (and, as we shall see, of mind functioning) into account, as well as dealing with the fundamental experience of a dualistic difference between experience and the physical world.

As a final introductory note, I should say that if I had to characterize my philosophical bias it is to be pragmatic. As a scientist, I am committed to the proposition that data, that experience, is primary, and our conceptualizations, our theories about the meaning of that data are secondary. If I cannot adequately or logically express my experience that is a shortcoming of my philosophy or grammar, not an invalidation of my experience. Theories must always be adjusted to account for the data, and theories must have consequences in terms of observable data. If my theory has no testable consequences, it may be intellectually interesting, but it is not scientifically worthwhile. I believe that the dualistic theory of consciousness I shall now present has such testable consequences and so forms the basis of a scientific set of theories about consciousness.

An aspect of this pragmatism is that I do not want to get into the kind of absolutism that marks philosophical discourse. I have no way to satisfactorily define concepts like mind versus matter or mind versus brain in any kind of absolute fashion. If I say that something is mental

or nonmaterial, what I am saying is that that something seems to have observable or experiencable properties which cannot be adequately explained in terms of our current understanding of the physical world, or reasonable extrapolations of that understanding. It is quite possible that future advances at the cutting edge of physics will drastically change our conception of what is and is not "physical," and what can and cannot be handled within a physical explanatory system. Thus, in distinguishing mind and brain, I am doing no more than making distinctions which are pragmatically useful at present, regardless of their absolute validity.

Paraconceptual Phenomena

The basic support for my dualistic approach to understanding consciousness comes from the excellent scientific evidence for the existence of certain "paranormal" phenomena. Given our current understanding of the physical world, it is possible to talk about isolating or shielding one event from another so that no known, feasible form of information transfer channel exists between these two isolated events. If we now make physical observations, either the behaviors of people or the readings of physical instruments, which indicate that an information or energy transfer has nevertheless occurred between two isolated events, we have a paranormal or, more appropriately, a para*conceptual* event. We have an observation that cannot be satisfactorily explained by our theories. Since the majority of the population in America believe they have experienced some kinds of psi, (Greeley, 1975), these events are hardly para*normal*, beyond the norm, but they are certainly paraconceptual to the orthodox, current scientific view of how the physical universe works.

While there have been many types of observations reported on purported paraconceptual events, we have only had extensive experimental work on four kinds of experimental situations, leading us to postulate the existence of four basic types of paraconceptual events, namely telepathy, clairvoyance, precognition, and psychokinesis (PK), collectively referred to as psi events. There are dozens of experimental reports supporting the existence of each of these kinds of effects. Typically, we define telepathy as mind to mind communication, clairvoyance as matter to mind communication or sensing the physical state of affairs directly with the mind, precognition as predicting a future state of events (that we might further subdivide into precognitive telepathy or precognitive clairvoyance), and psychokinesis as directly effecting a state of physical events simply by wishing for it. These conventional types of definitions have an implicit dualism in them,

so we could be more formal and distinguish the above four phenomena simply by the kinds of experimental operations by which they have been established. Thus, telepathy becomes a matter of a percipient making a behavioral response that is supposed to relate to what is in someone else's mind (as judged by his behavior), clairvoyance as perception of a physical event that is not in anyone's mind (as fixed by the experimental situation) at the time the percipient makes his responses, etc. We know, of course, that there has been no satisfactory way to absolutely demonstrate the existence of "pure" telepathy, for if you keep a physical record of the target in order to insure objectivity of scoring, then clairvoyance is always possible, even though we have a little evidence for pure telepathy (McMahan, 1946). Nevertheless, these common distinctions are useful.

The existence of these paraconceptual or psi phenomena provides a general basis for arguing that a dualistic view of mind and matter is a useful and *realistic* view; that is, that it reflects the nature of things rather than just being a semantically convenient distinction. The monistic view of mind and matter, the psychoneural identity hypothesis, so widely accepted in science, is one result of a world view that totally denies the existence of psi phenomena as we experimentally know them. The existence of psi phenomena is a clearcut scientific demonstration, however, that our understanding of the nature of a physical world is quite inadequate and will require major revisions. These paraconceptual events demonstrate the incompleteness of the overall conceptual system from which monism is derived. Thus, in a general sense, we can argue that a psychoneural identity position is far from proven, because it rests on an incomplete and, therefore, faulty conceptual system.

Emergent Interactionism

My psychological studies of consciousness and states of consciousness, as well as and especially my parapsychological studies, have forced me to go a step further than this and postulate that experience *and* high quality scientific data basically indicate that mind is of a fundamentally different nature than matter as we know it today, and, more specifically, postulate that certain psi functions are the mechanisms of mind-brain interaction. Consciousness, as we experience it, is an emergent property of this mind-brain interaction. This theory is represented in simplified form in Figure 2.

The physical structure of the brain is represented on the left hand side of Figure 2. We shall not be concerned with its internal structure

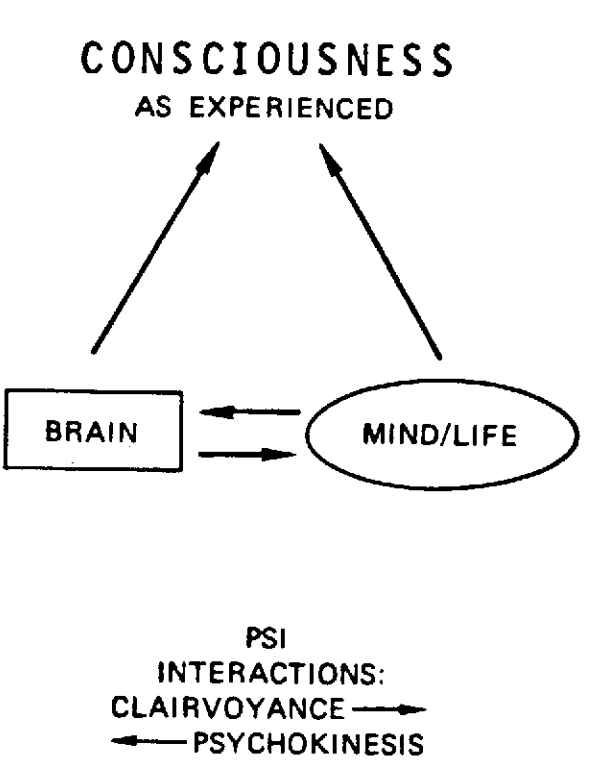

Figure 2. Simplified representation of the Emergent Interactionist position, in which consciousness, as experienced, is an emergent, system property of two basically different component systems interacting via psi.

or inherent system properties for the moment. The dualistic factor I shall begin calling mind/life is represented on the right hand side of the figure. I add the "life" designation to this side of the figure to point out that the "nonphysical" aspect of consciousness is not always a matter of mental *experience*, it includes a general "vitalistic" effect of mind/life that is more basic than conscious experience.

Consciousness, as we ordinarily experience it, is the higher level emergent of the psi interaction of brain and mind/life. To put it more formally, experienced consciousness is a system property, an *emergent*, of the complex interaction of the subsystems of brain on the one hand and the mind/life factor on the other.

The brain is, of course, the link between consciousness and the world about us. Environmental factors are detected through the sense organs and end up as electrical/chemical patterns within the brain. Actions begin as electrical/chemical patterns within the brain and end up as

specific impulses to motor apparatus that create our overt behavior. The brain is an ultra-complex and especially interesting structure, however, for while many aspects of brain functioning seem completely determined, such as basic reflexes, many other important aspects seem to be under the control of quasi-random or fully random processes, that is, they are controlled by neurons or neural ensembles that are often almost but-not-quite, ready to fire. My Emergent Interactionism approach postulates that the mind/life factor cognizes important aspects of the state of the brain by means of clairvoyance, that is, that mind/life uses clairvoyance to "read" the brain and thus the state of the body and the body's immediate sensory world. Further, the action of the brain is influenced at critical junctures by PK from mind/life: that is, in addition to self-organizational system properties of its own, there are control functions exerted over the brain by mind/life through psychokinetic modification of brain firing. The holistic emergent of this interaction, the mutual interaction and mutual patterning of brain and mind/life on each other via clairvoyance and PK, leads to an overall pattern of functioning and experience that is consciousness as we experience it. Ordinarily, when we consult our own experience, we do not experience what brain alone is like, or experience what mind alone is like; we experience the emergent from their interaction, for which I use the term consciousness.

Having sketched the basic postulates of Emergent Interactionism in terms of "brain," "consciousness," and "mind/life," I must now face the semantic problem that others have used these terms in wider and overlapping ways, as I myself have done in the past. While I could request that you listen to these terms in just the way I define them, it is not that easy to drop lifetime associative patterns, so I shall try to avoid semantic problems by adopting more neutral abbreviations for the remainder of this paper. I shall use the term "B system" to refer to those physical functions of the brain, body, and nervous system that we already understand in physical concepts or expect to understand with straightforward extensions of current physical concepts. I shall use the term "M/L system" for those non-physical (by current and straightforward extensions of current physical concepts) aspects I have been calling mind/life. I shall retain "consciousness," with a reminder that I restrict it to our usual experience of ourselves, not to more exotic experiences. As for the psi interactions, I shall add the prefix auto- to designate psi in general or clairvoyance or PK in particular that is concerned with a person's M/L system interacting with his own B system: thus auto-psi, auto-clairvoyance (auto-CL in later diagrams), and auto-PK. For those cases where psi reaches outside the bounds of the normal B

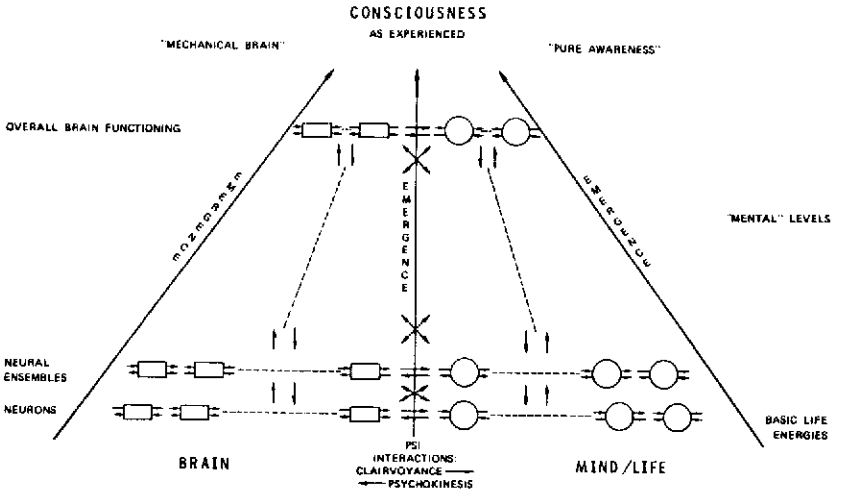

Figure 3. The Emergent Interactionist representation of consciousness.

system and M/L system interrelationship, as when we ask a percipient to tell us, e.g., what the order of a sealed deck of cards is, I shall add the prefix allo-: thus allo-psi in general, or more specifically allo-clairvoyance, allo-PK, allo-telepathy, etc.

Figure 2 was a very general schematic of B system and M/L system interaction and their emergent properties. A more realistic schematic, using just present knowledge, would be of the sort shown in Figure 3. This figure brings in a number of further considerations. First, there are various hierarchical levels of organization in the B system alone, without even beginning to bring the M/L system into the picture. The lowest level shown on the left hand side of the figure would be individual neurons, and while these have properties we are beginning to understand fairly well, they are organized into basic neural ensembles at the next level, so this next systems level has emergent properties. That is, simple neuron ensembles can have properties which are not clearly predicted from those of neurons alone. These level two neuron ensembles are influenced by the lower level properties of neurons, and these level two properties in turn influence level one functioning, thus the arrows representing interaction. Similarly, neuron ensembles are organized into more complex ensembles, etc., up to very high levels of complexity. System, emergent properties occur at all these various levels, as do numerous and complex interactions. It will not be an easy job to understand the B system, especially since the brain alone, without even bringing in the M/L system, is so many orders of magnitude

more complex than any well understood present day system, such as computers.

Although we know far more about the B system than the M/L system, I have assumed, on the basis of the symmetry principle (Tart, 1975a, chapter 18) that the M/L system itself is probably a system of many hierarchical levels, and have diagrammed it accordingly on the right. I have avoided putting any labeling on that part of the scheme other than distinguishing the most basic life "energies" at the lowest levels versus more "mental" levels higher up in the system hierarchy. This is a matter of being cautious and not pretending to know more than we do know, but it seems very likely that there are fundamental aspects of the M/L system that interact with each other, produce more complex, emergent system properties, and so on, as with B system processes. All interaction within the M/L system is mediated by some kind of auto-psi, which might or might not be the same kind of psi auto-mediating M/L system and B system interactions. Thus we have an emergence of system properties on the M/L side of the diagram as well as the B system side.

I have shown auto-clairvoyance and auto-PK interactions between the B and M/L systems as potentially occurring between similar hierarchical levels of B and M/L subsystems, as well as potential cross level auto-psi interactions. There is probably no single locus of interaction of auto-clairvoyance and auto-PK between the B and M/L systems, but a variety of interactions occurring at different levels. Lower level auto-psi interactions between B and M/L systems, then, may change the isolated properties of both neural tissue and basic life energies at those lower levels, which in turn are reflected in further interactions and system property emergence in both the B and M/L system levels, further complicating interactions at higher levels.

I regret that this is not the simplistic kind of picture we seem to prefer, but real systems are complex! If one could separate out B system properties alone, one would observe an emergent that I have labeled as "mechanical brain" at the top of the left hand systems hierarchy. Similarly, if one could separate out M/L system properties and functionings without any interactions with brain ones, one would observe something I have called "pure awareness" at the top of the M/L side of the diagram. I suspect that we actually have some data on both of these relatively pure cases, but not in a form we can clearly recognize and make use of. Some meditative practices, for example, or variants of out-of-the-body experiences, lead to experiences which are usually described as "ineffable," that is, they cannot be expressed in terms of the emergent of language which deals with consciousness: these may be instances of isolated M/L system operation.

This has been a basic outline of the Emergent Interactionist position. Let us now consider a variety of topics from this point of view, starting with the psychological factor of automatization.

Automatization

A very important psychological consideration to now introduce into this Emergent Interactionism approach is that of *automatization*, the habitual, automatic way that consciousness seems to function a great deal of the time. Much of this results from the socialization process where various assumptions and habit patterns become implicit. That is, these processes lead to semi-permanent physical modifications in the B system which automatically tend to guide B system functioning (and M/L system interaction) along certain lines, lines which simply seem like the "natural" way of doing things, a process I have discussed at length elsewhere (Tart, 1975a). What this means in terms of the Emergent Interactionism position is that a great deal of information processing, decision making, perception and action may take place in the B system without there necessarily being any auto-psi interaction with the M/L system. The B system, as it were, can do a good many things "on automatic," without the M/L system being involved. We shall consider aspects of this in more detail later. For now, this point can be illustrated by considering this Emergent Interactionist point of view as analogous with the operation of a "smart" computer terminal.

An ordinary computer terminal consists essentially of a keyboard or other input device whose sole function is to transmit and receive data from a remote computer. The remote computer does some kind of processing of the information and sends back output, it sends "decisions" back to the ordinary computer terminal which simply prints them out unaltered. The smart computer terminal, on the other hand, actually has a small computer of its own built into the terminal. Certain kinds of data may be inputed to this terminal and, rather than simply transmitting it unaltered to the remote computer, the terminal will carry out some processing on the data right there. The resulting abstractions or transformations of the input data may then be sent to the remote computer when the remote computer is ready to accept them, and/or an output, a decision, may be made right there at the smart computer terminal and activate its output printer or control devices.

Let the B system be analogous with the smart computer terminal, and the M/L system be analogous to the remote computer. A good deal of information processing from both sensory input and internal, habitual concerns is carried on by the mechanical processes of the B system alone and outputs (behaviors) made. For much of this, there may be no auto-psi connection with the "remote" computer, the M/L

system, at all. Sometimes, however, the remote computer is consulted and it modifies the action of the B system, the smart computer terminal, in ways which are not predictable from a knowledge of the smart computer terminal alone. The kinds of behaviors Stanford (1974a; 1974b) has described as psi-mediated instrumental responses (PMIRs) are excellent examples of this. Given the sensory and stored information available to the person and the processing capacities of the B system, he does not have the information necessary to reach a decision to carry out a certain kind of action which will be need relevant, yet he nevertheless behaves appropriately, for the M/L system has used allo-psi to gather the needed information and then influenced B system processes by auto-psi to modify the final emergent, the person's behavior, in ways which are need relevant. In the PMIR, the auto-psi process need not actually modify the emergent of conscious experience, however; the person just does the right thing without knowing why.

I believe the tremendous complexity of the B system and the automatization of much of its action in the course of ordinary socialization offers a partial explanation for why allo-psi about external events does not work very well in our ordinary state of consciousness. The information processing activity in the B system has become habitual and continuous, and it ties up most or all of the processing capacity of the B system. In terms of possible allo-psi messages being received or allo-psi outputs being initiated (via auto-psi intermediation), this produces a very high noise level that makes it unlikely that auto-psi will be able to influence the B system or vice versa. This view is congruent with various experimental data we have that indicate that allo-psi conducive states involve cutting down internal noise levels from irrelevant B system processes. In my extended presentation of my theory that immediate feedback will help learning (Tart, 1977c), I also stress that learning to discriminate the relevant psi signals from internal B system noise is a major requirement of success.

Altered States of Consciousness

In my systems approach to understanding altered states of consciousness (Lee et al., 1975; Tart, 1974; 1975a; 1976; 1977b; 1977d; in press a; in press b), I defined a discrete altered state of consciousness (d-ASC) as a radical pattern change in the functioning of consciousness, a combination both of particular subsystems or aspects of consciousness changing as well as the consequent emergent, system properties of consciousness changing. I was careful not to bring in serious dualistic considerations there, in order not to arouse possible prejudices in the psychologist audience the theory was primarily intended for. Thus

while I talked about "awareness" as constituting a kind of activating energy for affecting the operation of subsystems of consciousness, I was careful to legitimatize this usage as primarily a matter of semantic convenience, if one adopted a monistic position. For the dualistic Emergent Interactionism position I am now proposing, however, some further distinctions about the nature of altered states of consciousness can be made.

Any discrete state of consciousness (d-SoC) consists of a particular *pattern* of functioning, a system functioning both within B system and M/L system levels. The d-SoC, the experienced consciousness, is the emergent from the interaction of both of these B and M/L levels of organization. A discrete *altered* state of consciousness, a radical pattern shift, can be induced by either (1) changing the organization of subsystems of the B system alone; (2) changing the organization of subsystems of the M/L system alone; and/or (3) changing the nature of the auto-psi interactions between B and M/L system levels. In terms of observable consequences of this Emergent Interactionist understanding, some d-ASC will turn out to be explainable strictly in terms of alterations of B system functioning, but others will not be reducible simply to alterations in B system functioning.

This view that some d-ASC are primarily functions of M/L system changes or auto-psi interaction changes has important implications for parapsychological research. We have a scattering of evidence to suggest that various altered states may be conducive to psi functioning. This may be partially due to the fact that well ingrained B system habits (automatisms) that create the noise that interferes with psi functioning in our ordinary state, are no longer functioning as strongly due to changes in B system operation. It may also mean that certain d-ASC have their balance of functioning shifted more toward the M/L system side, for which psi is a direct mode of expression. Thus we might expect some important breakthroughs for enhancing allo-psi by discovering which particular d-ASC are most favorable in this way.

Ordinary Psi and Non-Ordinary Psi

Given this Emergent Interactionist view of consciousness, it becomes clear that psi is being used a large amount of the time in everyone's life, but is being used, as it were, "internally." We frequently use auto-clairvoyance to read our own B system and auto-PK to affect our B systems. This is ordinary psi, auto-psi. What we observe in parapsychological experiments, however, is non-ordinary psi, it is taking a process ordinarily confined "within" a single organism and pushing it outside, making it allo-psi. I have tried to represent the general situation in an

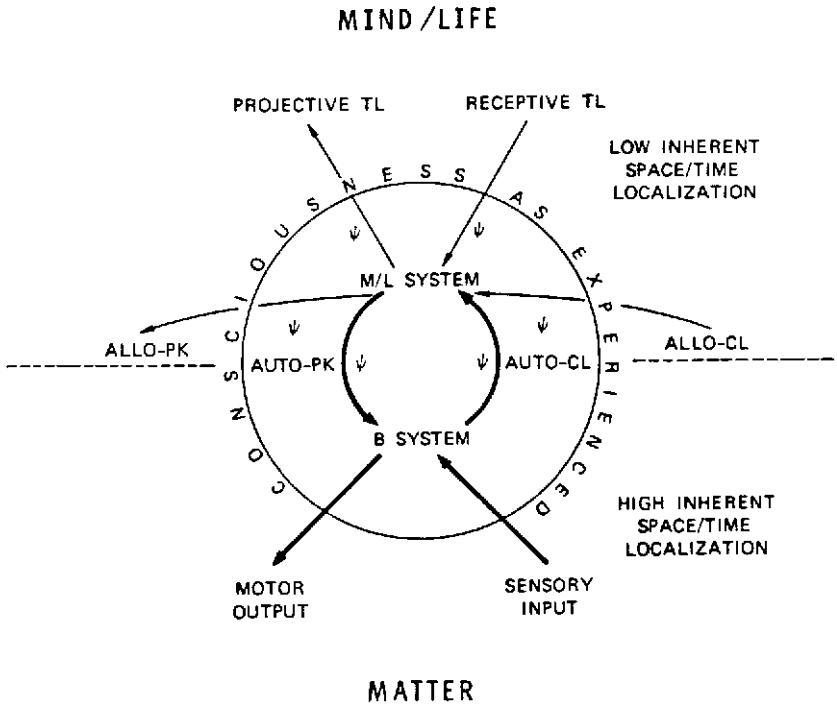

Figure 4. Psi processes within and external to the organism, from the Emergent Interactionist point of view.

amplified model of consciousness in Figure 4. When the M/L system reads the state of its own B system, we term this auto-clairvoyance (auto-CL in the figure); when the M/L system influences B system operation we term it auto-PK. The unusual use of psi outside of the organism results in allo-clairvoyance (allo-CL) to obtain information about the external environment, and allo-PK to affect the external environment. This is non-B system matter to M/L system information flow, and M/L system to non-B system information/energy flow. Communication from one distinct M/L system to another, telepathy, can be subdivided into receptive telepathy, picking up information from another M/L system, and projective telepathy, sending information to another M/L system, a useful division for maintaining symmetry with the clairvoyance and PK processes. Given our terminological convention, telepathy is a form of allo-psi. Indeed, the fundamental distinction seems to be with psi that deals with M/L system to M/L system interaction, and psi that deals with matter and M/L system

interaction. There is, of course, a methodological problem in trying to observe "pure" allo-telepathy, for, if we want objective verification of it through the senses, we have to add in auto-PK to have a behavioral manifestation of the information.

On the B system side of consciousness, sensory input brings in information about the matter world around us, automatically abstracts this information along value lines and creates a continuous simulation of our environment (which we call perceiving the world). Motor output sends, though our various musculatures, information and energy back out into that matter world. I have shown the sensory input and motor output arrows, and the auto-CL and auto-PK arrows in heavy lines to represent the most prominent information flow channels ordinarily active in an organism. I have also drawn in consciousness as experienced as a circle around these other processes, to remind us that it is an emergent of B system and M/L system auto-psi interaction.

Earlier I listed precognition as one of the basic psi phenomena, but I am now inclined not to consider the temporal distinction as basic. In Figure 4 I have indicated that the M/L aspect of consciousness has a low inherent degree of localization in space and time (an idea developed further in my discussion of *trans-temporal inhibition* (Tart, 1977a; 1978)) while the B system aspect of consciousness is very highly localized in space and time. That is, the B system belongs to an order of reality in which you can specify with great confidence that a particular event is happening at a certain time, at a certain location in space and possesses highly specifiable and predictable matter and physical energy properties. The M/L system, on the other hand, is not so localized in terms of physical space/time measures. While it usually centers around the here and now of B system space and time, it is more widely spread than that (thus the need for trans-temporal inhibition in efficient ESP), and can volitionally focus at different spatial and temporal locations than the B system and its associated sensory and motor apparatus can. To be more speculative, I suspect the very diffuseness or non-localization of the M/L system has something to do with the reason that it is associated with a particular B system, for that B system acts as a stabilizing influence on the operation of the M/L system, it focuses and anchors that M/L system to a particular location and moment in space and time for evolutionary reasons. Indeed, as far as biological survival is concerned, events within the sensory range of the B system are almost always the most important ones for the organism to be concerned with, so the style of M/L system interaction with the B system would evolve toward maximizing the efficiency of the B system/consciousness for biological survival. To the extent to which this becomes habitual and

automatized, this would be a reason why allo-psi seems relatively rare: the psi capacity is almost totally used up in auto-psi functioning which is geared to maximizing the functioning of the total organism in its physical environment.

Special Sensitivity of B System to Psi

The B system, from this Emergent Interactionism point of view, has two main properties. First are many self-organizing properties, independent of interaction with the M/L system, that are adaptive in dealing with the needs for maintaining homeostasis within the physical organism and dealing effectively with the physical environment. Second, it must have properties that not only make it receptive to M/L system influences via auto-PK, it should be *efficiently* receptive to these influences in order to maximize survival potential. This means semi-independent associative and decision making properties, "perceptual" properties, with respect to M/L system influences that compensate for inefficiencies and deficiencies in the interaction. The B system, for example, should automatically fill in a message from the M/L system that is a little incomplete and, in cases of doubt, fill it in along lines which are most relevant to biological survival. For example, if an ambiguous pattern seen in some bushes *could* be a tiger, it is highly adaptive for the simulation of the environment to make you perceive it as a tiger and take fast action, rather than ignore it because you aren't *sure* it's a tiger. The receptive function of the B system, then, for auto-PK, is likely to be elaborative as well as efficiently receptive, and, by being elaborative, it can be prone, like any similar communication system, to produce incorrect outputs.

This line of reasoning has two important consequences for parapsychological research. First, the B system must be especially sensitive to auto-PK, and, insofar as auto-PK and allo-PK are probably manifestations of the same fundamental process, investigation of what aspects of B system functioning make it especially sensitive to PK should be of great value in designing other physical processes which would be sensitive PK detectors. Second, not only does the M/L system need to use an appropriate allo-psi process to gather the relevant information about some distant target other than the percipient's own B system, this information must be then put into, or influence the B system of the percipient by auto-PK effects on B system functioning, in order to get relevant information into the emergent consciousness of the percipient, information which he can then express behaviorally so we can observe it. Auto-PK at least needs to affect relevant aspects of the

B system so we can observe a behavioral or physiological effect that manifests the psi information, even if it does not reach the percipient's consciousness. But, the B system is constantly producing an adaptive simulation of the percipient's immediate sensory environment (modified by his psychological concerns) in a way largely independent of current B and M/L system interactions, and this constitutes a high noise level that the auto-PK information carrying the allo-psi information must compete with. Further, the elaborative aspects of the B system's receptivity to auto-PK means that there is a strong probability that the psi message will tend to be elaborated/distorted in ways which fit the ongoing, survival-oriented simulation of the immediate physical environment being continuously constructed by the B system. The very "efficiency" and partial independence of the B system, then, automatically makes some distortion of allo-psi messages likely. Given this as a basic characteristic of the B system, practical measures to increase the incidence of psi in parapsychological experiments would need to involve some combination of B system noise reduction (as in, e.g. ganzfeld techniques), discrimination training (as in immediate feedback training), and enhanced discriminability of the allo-psi targets themselves (distinct remote locations, e.g. versus similar playing cards differing only in number).

Complexity of Psi Tasks

The B system is obviously an incredibly complex system, so auto-psi interaction with the M/L system must also be of a very complex nature. This leads to an interesting comparison: the kinds of allo-ESP and allo-PK tasks we have given percipients and agents in the laboratory have probably been enormously simple (and perhaps trivial) compared to what is routinely done by auto-clairvoyance and auto-PK. In an earlier modeling of PK along conventional lines (Tart, 1966; 1977c), for example, I argued that influencing a tumbling die by PK is quite complex, requiring continuous clairvoyant feedback about its three dimensional motion and mass-energy parameters and the surface characteristics of the surface it would bounce against, so just the right amount of PK force could be applied in just the right places and directions at just the right moments. This is, indeed, a formidable task from the viewpoint of physical mechanics as we currently conceive it, but from the point of view of an M/L system used to constantly reading and influencing enormous numbers of cells in a dynamically changing brain, the task may well be so trivial as to be hardly capable of attracting much attention! Similarly, the circuits of the electronic

random number generators which have been influenced by allo-PK may also be trivially simple compared to the typical operations of auto-clairvoyance and auto-PK.

This leads me to an unusual prediction, namely, that allo-PK should work more successfully when directed toward super-complex systems, such as brains or huge computers, rather than when directed toward simple physical tasks: it's what the M/L system is used to doing, and habit is hard to break. Further, we probably can't reliably detect differences in PK efficacy for simple tasks that involve, say, influencing one versus ten decision-making elements. They are all ridiculously simple; we need to compare PK on single decision making RNGs versus those that employ millions or more of interacting decision-making elements leading to a random output.

A similar line of thinking might be applied to ESP tasks; perhaps ESP is more successful at detecting the overall *pattern* of complex elements than at picking out single elements.

Out-of-the-Body Experiences

Out-of-the-body experiences (OBEs) are especially interesting from a dualistic point of view. While there are both a wide variety of experiences and much looseness in the use of the term OBE, the basic, "classical" experience that we will consider here has two distinguishing elements. First, the experiencer finds himself located at some location other than where he knows his physical body is located. Second, and of crucial importance in definition, the experiencer knows *during* the experience that his consciousness is basically functioning in the pattern he recognizes as his ordinary state. He can call upon most or all of his ordinary cognitive abilities during the OBE, typically recognizing, e.g., the "impossibility" of his ongoing experience according to what he has been taught. As far as he can tell, he is perfectly "normal" in all mental ways that matter; it's just that he is obviously located somewhere other than where his physical body is.

Although some people manage to retrospectively talk themselves out of their experience, most people who have an OBE become confirmed dualists on an experiential basis. No matter what "logical" arguments one may make, they *know* that their consciousness is of a different nature than their physical body, because they've experienced them as separated.

As an outsider, listening to someone else's account of his OBE, we can dismiss the implications of his experience and remain convinced monists without much psychological effort. The OBE, as defined so far,

can be seen as an interesting hallucination. It is like a dream in that a realistic, but hallucinatory environment is present, but obviously certain other parts of the B system responsible for ordinary consciousness are also activated. Indeed, if the experiencer would only call his experience a "lucid dream," instead of an OBE, that is, stop insisting that his experience was *real* and agree with our view that it was hallucinatory, even if it *seemed* real, he would not bother a confirmed monist. It is easy from a monistic point of view to model brain functioning that would create a lucid dream.

As defined so far, OBEs could easily be included within the domain of ordinary psychology (although they are not), for I haven't put any psi element into the definition. Indeed, it is useful to define them in purely psychological terms just to make them legitimate subjects for investigation by psychologists who might shy away from psi phenomena. But we know, of course, that in some OBEs the person accurately describes a distant location that he could not have known about except by psi, as when my Miss Z correctly read a five-digit random number on a shelf above her head (Tart, 1968).

Because of the strong psi component of some OBEs, I am inclined, from an Emergent Interactionist position, to take them as being pretty much what they seem to be, a temporary spatial/funtional separation of the M/L system from the B system. The separation is not only temporary (otherwise we wouldn't get any report!), it is probably only partial, with the M/L system still interacting with the B system to some extent. Several aspects of OBEs support this partial separation view.

First, in most OBEs the person experiences his consciousness as very like ordinary, yet ordinary consciousness arises as an emergent from B and M/L system interaction and mutual patterning. This suggests that a great deal of this interaction is still occurring, and/or that the force of habit, the lifetime practice of this patterning, is still fairly active in the M/L system alone.

Second, in cases of prolonged (more than a few minutes apparent duration) OBEs, or people who have had many OBEs, or OBEs associated with severe disruption of physical functioning as in near-death cases, consciousness as experienced tends to drift away from its ordinary patterning into various d-ASC. The OBE starts to become "ineffable," or more of a "mystical experience," even though it retains the basic feeling of separation of B and M/L systems. This is what we would expect for greatly reduced auto-psi interaction between these two systems; both the B system and the M/L system would start drifting toward unique patterns of functioning determined by their own inherent characteristics, now manifesting as they are freed from mutual, inter-

active patterning of each other. Indeed, it is these kinds of unusual OBEs that may give us valuable insights into what the M/L system in and of itself may be like, unpatterned by the B system.

Third, the sparse (and largely anecdotal) evidence we have on it suggests that there are few, if any, physiological changes of great consequence during *brief* OBEs. The B system functions pretty much as usual. But during temporarily prolonged OBEs, larger and potentially fatal physiological changes may begin to occur. Robert Monroe, for example, reports that his body has been quite chilled following prolonged OBEs (Monroe, 1971). I see this as showing that life and consciousness, as we know them, arise from the mutual interaction and patterning of the B and M/L systems, and when the patterning of the M/L system upon the B system begins to break down, the brain by itself cannot adequately run the complex system of the body, and small errors start to cumulate. In principle, this would eventually lead to death.

Survival

The Emergent Interactionist position allows for some kinds of potential survival of bodily death, but it would not necessarily be the kind of postmortem survival we usually conceive of. Our usual conceptions of survival mean survival of the basic pattern of our *consciousness*, our experience of our mental life, our feelings of personal identity. But consciousness, as we have seen, is an emergent of the auto-psi interactions of both the B and the M/L systems, an emergent of constant patterning of each system upon the other. If the B system ceases functioning in death, the patterning influence of the B system upon the M/L system will cease, so how is ordinary consciousness, as we know it, to survive? What is the emergent to emerge from?

One answer may be that personal identity, which is so intimately intertwined with ordinary consciousness (see my *States of Consciousness* for a discussion of this, Tart, 1975a), does not survive death, at least not for very long. The M/L system may survive, with the length of postmortem survival being determined by currently unknown characteristics of M/L systems in general, but this is survival of some *aspect* of a person, not the person. Indeed, we would expect this aspect to be quite different from the person.

This answer should be partially modified by referring back to our discussion of OBEs, where we noted that rather ordinary consciousness is frequently maintained for at least short periods in many OBEs. The customary patterning of the M/L system by the B system is thus capable,

at least for short periods, of continuing to pattern the M/L system with reduced or perhaps temporarily eliminated auto-psi interaction. The patterning parameters may be stored in something analogous to ordinary "memory" in the M/L system, or the M/L system may be permanently or semi-permanently modified in its own stable pattern of functioning as a result of prolonged auto-psi interaction with the B system in its developmental history.

If B system patterning and consequent "ordinary" consciousness can manifest in the M/L system alone, at least temporarily in OBEs, then it is possible to conceive of survival of personal identity in at least some people. To the degree that a particular person's sense of identity was not strongly and permanently patterned in the M/L system *per se*, but was supported largely through environmental, bodily, and social constancies patterned in the B system, then we would expect the emergent of consciousness and personal identity to disintegrate rapidly once the B system ceased functioning. At the other extreme, if basic personal identity and consciousness patterns were strongly and permanently stored at the M/L level, for whatever reasons, such a person might withstand the loss of B system patterning influence and still maintain consciousness and personal identity patterning in the M/L system after death, thus achieving personal survival. Such intense patterning of the M/L system might arise for a variety of reasons, such as deliberate practice of meditative techniques or sheer psychological rigidity and fanaticism.

It would be premature to compare this Emergent Interactionist view with the data about mediumistic communications, as that is an area of complex phenomena strongly affected by social beliefs and experimenter/sitter biases.

What Can We Learn about the M/L System in Isolation?

As discussed earlier, we ordinarily know almost nothing about what the M/L system *per se* is like, the consciousness we experience is an emergent from the extensive interactions and mutual patternings of the B and M/L systems. Yet I believe we can learn at least some things about the properties of the M/L system in and of itself, when it is not patterned, or at least is patterned to a much lesser degree, by the B system.

The characteristics of allo-psi processes give us some clue to what the M/L system is like, so that we can generally say that the M/L system is probably capable of gathering information about and affecting at least some aspects of physical reality which are sensorily/energetically

remote and shielded from the B system by either spatial shields or distances or temporal distances. That is, the M/L system can exercise allo-psi of the clairvoyant and psychokinetic type, either in real time or precognitively, and possibly postcognitively. Although there is little evidence for "pure" telepathy (where a clairvoyance interpretation of the data is completely excluded), I shall presume that the M/L system can also exercise allo-telepathy in both real time and pre- and post-cognitively.

As far as ordinary physical limits are concerned, our present knowledge of allo-psi indicates no obvious limits, but we have really only investigated a quite limited range of physical variables. There may well be limits inherent in the nature of psi that are perceptible from the point of view of the M/L system, even if not detectible from physical measures. This last point about the detectibility of limits or characteristics of psi being related to the perspective from which it is viewed, leads us to a specific proposal within a more general conceptual framework that I have written about elsewhere (Tart, 1972; 1975a; 1975b), namely the development of *state specific sciences* as a means of understanding psi.

The consciousness in which we ordinarily carry out scientific research is an emergent from auto-psi interaction between the B and M/L systems. It is not unlimited consciousness, but a specific kind of consciousness. Its characteristics and limitations are governed by the inherent properties of the B system, the inherent properties of the M/L system, the laws which govern auto-psi interaction, and the general laws of emergence which we hope to understand adequately some day through development of general systems theory. The part of all this to emphasize for our purposes is that ordinary consciousness has limitations, limitations in the way reality can be perceived, limitations in the kinds of concepts that can be generated about reality and limitations in the way such concepts can be tested.

While I believe that a great deal can be learned about psi from skillful scientific work in our ordinary state of consciousness, I suspect that important aspects of it will not be comprehensible, will remain *para*conceptual to ordinary consciousness because of these limitations. The little scientific and anecdotal knowledge we have about the range of functioning available in various d-ASC, however, suggests that there are alternative modes of consciousness, quite different emergents from B and M/L system interaction, that may yield more useful perceptions of, concepts about and tests of psi functioning. The paraconceptual aspect of psi is not saying something about any inherent perversity in the universe; it is saying something about the limitations of ordinary consciousness.

In discussing OBEs, I suggested that certain OBEs show more drastic alterations in consciousness because there is greatly reduced B and M/L interaction, so the consciousness experienced reflects M/L characteristics *per se* more than ordinary consciousness does. I have also suggested that in general some d-ASC may come about through reduced B and M/L system interaction. The state-specific sciences that could potentially be developed for these d-ASC then, including OBEs, could lead us to increased experiential and scientific knowledge about the M/L system under conditions of greatly reduced auto-psi interaction with the B system, from which we could make more accurate extrapolations to what the totally isolated M/L system would be like.

Our knowledge base is too small to warrant further speculation now about specific d-ASC and directions of development that will be useful for understanding psi, but this is the direction I ultimately see the field going in.

Summary

I have proposed the beginnings of a dualistic theory of consciousness, Emergent Interactionism, which is intended to be scientifically useful and has empirical, testable consequences. The existence of psi phenomena, which are paraconceptual for a physicalistic monism, is the basic evidence for a pragmatic dualism, a recognition of the need to understand consciousness in terms of two qualitatively different aspects of reality, what I have called the B system, the brain, body, and nervous system and the physical laws which govern it, and the M/L system, the mental and life aspects of reality. Consciousness is seen as a system property, an emergent, from the auto-psi interaction of the B and M/L systems. Ultimate understanding of consciousness, then, while it requires further and extensive development of conventional approaches in the study of brain functioning and physical law, also requires extensive development of our knowledge of psi, as well as development of general systems theory so principles of emergence in complex systems can be better understood. While this view is complex, it is more adequate to the reality of psi than a physicalistic monism, and exciting discoveries await us!

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DISCUSSION

HONORTON: Please, Charlie, don't try to introduce another para-term. We've got too many of them already. Para-conceptual is not going to be any better than paranormal or parapsychology or any of the rest. Let's just stick with psi phenomena for the time being, until we have an adequate basis for descriptive terms.

If the natural function of psi phenomena is to provide the basis of communication back and forth between brain and mind, then we should see more consistent, more reliable evidence of psi phenomena if we're successfully able to monitor that interaction than we do in the allo-psi

occurrences. It seems to me that in a series of experimental studies that are specifically designed to test the possibility that there are psi correlates of "normal functioning," if they were not to show a much more consistent and reliable level of psi functioning, then there would be something wrong with this formulation. Would you agree?

TART: I would say the possibility is there to achieve a much more reliable and consistent form of psi functioning, but I think in terms of practical aspects now. We have to consider two things, really. One is the social environment, which has a lot of pressures against psi functioning, and the other is the fact that the B system can carry out enormous amounts of activity, I think, with no reference to the M/L system. The M/L system has linked up with a kind of super-computer that can become self-programming in a lot of ways, that can run on automatic. I think we need to find training techniques to begin to cut down the noise level that comes from the automatic functioning of that B system. It's constant noise.

HONORTON: We have another point of evidence that favors this, and that is the very frequent finding in almost every area of psi research that novelty facilitates psi. If an experimenter comes up with a new idea, new stimuli, new tasks, the first result is usually quite good relative to what follows, and it may be that such initial exploratory activity is more likely to bring the M/L and B systems into contact, whereas after learning sets in, it may go on automatic, as you suggest.

TART: Yes, very much so. It's funny we've never learned the lesson never to repeat the same experiment.

BELOFF: I think that my position is very close to yours and I liked especially your whole idea of a pragmatic dualism. I think this is the kind of dualism at the moment we are all really looking for, but there are certain discrepancies between the kind of schema you adopt and the one that would be more congenial to my way of thinking. In particular, I notice that you couple together mind and life and you separate mind and consciousness. Now, of course, in traditional dualism, consciousness was always taken as the distinctive attribute of mind, and therefore I find this idea of consciousness as a sort of joint emergent property of mind and matter as something rather strange, and the idea of coupling mind and life—well, won't you sort of resuscitate vitalism? Are you going to say that the biochemical system, like the body, is somehow intrinsically different from other kinds of material structures? Or was this not part of what you mean?

TART: I'm definitely resuscitating vitalism as part of this. I've never

thought of it as disreputable. Now let me make a comment on the specialized way I'm using "consciousness" here as an emergent, rather than as an inherent property, of the M/L system. The reason for this is that my work with altered states of consciousness as the basic reference for what mind must be like, is very misleading. Ordinary consciousness is a semi-arbitrary construction and can undergo enormous variations. It's just obvious to me that that is not the fundamental kind of thing that you should model the M/L system on, so I'm being very nonspecific at this point about what the characteristics of the M/L system are. But, clearly, whatever that basic thing is, it's not *simply* reflected in our ordinary consciousness.

McGUINNESS: You're advocating a form of parallelism in which the vitalistic principle presumably is intact out there; it doesn't evolve. And then we have evolving brains and at some point these two begin to interact. Now, I'm assuming that the vitalism does not give rise to, does not generate the brain, and likewise the brain does not generate the other, so, therefore, they are independent and parallel.

TART: I don't known whether the M/L system in isolation, whatever it is, evolves or does not evolve. I'm simply saying it's qualitatively different and needs to be understood in terms of different kinds of principles. I don't want to say it's mysterious and non-understandable, but simply that the kind of principles that work so well on the B system don't account for all these aspects of the M/L system.

McGUINNESS: Does a fly have a mind? Does a worm experience psi phenomena?

TART: I don't know, but I suspect we would find some low level psi phenomena occasionally, and of course, we have some experimental work indicating animal psi. It's a great methodological problem whether that's really animal psi or the experimenter influencing them; but I see no reason to assume that we're so incredibly special that only we have got it and other organisms haven't. There's probably a difference in amount and the kind of interactive system that's built up in its complexity.

PRIBRAM: Your M/L system, as you describe it, is no different in any way that I can imagine from what Whitehead or Wigner or David Bohm would call the "physical environment." In other words, the way they describe physics is exactly the way you have described your M/L system. To me, the M/L system is best described as holographic. In other words, your M/L system and my holographic universe are identical, if we go along with Bohm and Wigner and Whitehead.

TART: I think that's a very important point, because one assumption that's implicitly in my paper, which I now realize I didn't necessarily want to put in there, was that I've drawn an individual M/L system as totally discrete and associated with just one B system, and I'm not at all sure that we necessarily want to assume totally discrete M/L systems. They may very well be interacting in a holographic kind of way.

PRIBRAM: If that's so, the B system is the object/image universe. The way you describe it in Figure 4, for instance, the object/image has all the properties of space and time and all of that type of "objectivity." There is good evidence from neuroscience research that the M/L system also partakes of the brain system. Any time there is a sheet-like formation, as in the retina or in the cortex, there is a production of M/L properties, that is, holographic properties. I believe there is a duality between holographic and object/image reality, whereas you seem to be locked into a matter versus non-material framework. The paradigm shift that some of us are beginning to experience is a duality that's different from that between mind and matter. The physicists started it with the dematerialization of matter.

TART: Perhaps we're on a continuum here, but we're emphasizing different ends of the continuum. I'm deliberately emphasizing the part that seems less explainable. I'm saying, for instance, we will have communication events between people for which we will find no adequate explanation in terms of brain functioning.

KELLY: Well, not professing at this point to understand Dr. Pribram's theory in any detail, I certainly feel sympathy with the basic strategy of trying to assimilate the M/L system to other things that we know about. In short, I think my basic response to this is rather like my response to Eccles' theory—that it's an interesting story and it may, in fact, be something like correct, but I'm still quite dubious about the dualistic aspect of it.

I just recently started to read a book by Bergson, called *Matter and Memory*, which contains a number of things that are quite closely alike in spirit to what you are trying to do, and I think you might enjoy looking at that also. He's worked out ideas somewhat like yours in quite a detailed way, particularly with respect to memory, but to a lesser degree with respect to perception. Another thing I was struck by while listening to you was a paper given by Julian Isaacs at Utrecht. In mentioning this, I also want to underline another thing that's come out here repeatedly, that readers of these proceedings should take note of, and that is, I think we're all agreed that one very interesting and possibly

productive line of work would be PK investigations using target systems that are relatively brain-like in their structure.

TART: I'm glad you're dubious, Ed, because dualistic systems usually come along with the implication that we can't understand consciousness by looking at the brain, and that is not at all the implication I would want here. If this dualism turns out to be more than just pragmatic at the moment, then its nature will be articulated much more precisely by extensive work on the brain, getting more and more precise about *exactly* what we can reduce to brain functioning, and *exactly* what we can't reduce to brain functioning.

KELLY: Yes, that was really one of the central messages.

PRIBRAM: One can have interactions between organisms and environments without being a dualist.

KELLY: I think Dr. Pribram's paper really raises in particularly acute form a question I'd like to raise. This may not be the right time, but just let me say that I, like John Beloff, found it very difficult to understand the ideas that were put forward. There are only a few places where I presently find a specific point to zero in on, and I think it raises the question whether we shouldn't try to get these papers available beforehand for the discussants. I had the same feeling about Charley's paper—there was so much to it, so complicated that I'd really like to digest it for awhile before discussing it.

SMALL: I have a question about reducing the noise in the B system in order to facilitate the psi action of the M/L system. We heard yesterday the question about a high degree of physiological arousal in conjunction with macro-PK, for example. How would you feel about that seemingly opposed finding? You did mention that this possibly has some implications for the question of survival, and since you say that you've now become an out-and-out dualist, do you see any kind of testable implications possibly emerging from this new formulation?

TART: As to the high level of activation in some macro-PK events, that's easily handled within this framework. High level of arousal, for instance, may be a convenient way of getting the B system so involved in its own processing that it gets out of the way, as it were. Or it may act as an induction technique for transition to an altered state of consciousness. There are a variety of ways you can handle that. It's not a simple thing.

Now as to the survival matter, I think the problem in most survival research so far is that the question has been put: Does consciousness

survive transition to death intact? And when we have so much evidence that particular aspects of consciousness depend on B system functioning, you really wonder how in the world could it survive intact when there's no B system there. I'm not proposing simply that an M/L system patterns a B system and that's it. The B system is interacting with the M/L system and patterning it also, so that the emergent that we have for consciousness really depends on both. This makes it difficult for me to see how consciousness, as we ordinarily experience it, can survive for a prolonged period of time in the absence of a B system. The section of my paper about out-of-the-body experiences addresses this particularly. When people experience relatively brief out-of-the-body episodes, they usually indicate that their consciousness seems to be functioning in essentially the same way as it does ordinarily. This is the defining criteria I actually use for a classical out-of-the-body experience. But when these become prolonged out-of-the-body experiences, lasting an hour instead of minutes, or when they're associated with severe trauma to the B system as in near death cases, you begin to get shifts in the nature of functioning of consciousness that we, at this stage, vaguely talk about as "mystical experiences," or "ineffable" kinds of experiences. I think such experiences may well be telling us something about what the M/L system functions like when the degree of interaction with the B system is substantially reduced. The inherent pattern of the M/L system begins to show up rather than the modulated pattern ordinarily resulting from the extensive B and M/L interaction.

GRAD: On the interaction between the "L" part of your M/L system and brain, I believe that experimentally it should be possible to identify and establish relationships more easily by investigating those aspects that relate to the idea of a life energy as it effects biological processes. Some of these, such as wound healing, goiter inhibition, plant growth, enzyme action, etc., have already begun to be investigated, as have also some non-living systems, such as the infra-red spectra and surface tension of water, for example. I believe that by focusing efforts on such fundamental phenomena, a basis could then be built for a better understanding of the more complex ESP findings such as telepathy, clairvoyance, and precognition.

TART: Your work on healing is a primary reason that I emphasized the "L" part of that idea. We tend to think that vitalism was disproved long ago, but I think historically the case is more that it fell out of favor. People were told not to do the experiments and vitalistic results were ignored, and so there's been practically no experimental test.