

FIRST INTERNATIONAL CONFERENCE FOR THE STUDY OF CONSCIOUSNESS
WITHIN SCIENCE

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CONCEPTS OF CONSCIOUSNESS:
A PHILOSOPHICAL CRITIQUE

The philosophic content of science is only preserved if Science is conscious of its limits.
---Werner Heisenberg

Science cannot solve the Ultimate mystery of nature. And that is because, in the last analysis, we ourselves are part of nature, and, therefore, part of the mystery that we are trying to solve.

---Max Planck, **Where is Science Going?**

God is eternally partially self-ignorant. If he knows all of himself, he could define himself. If he could define himself, he would be finite. But all he knows of himself is what he has created. What is created is his knowledge, what is potential in his mystery: mysterious in him and to him.

--- John Fowles, **Aristos**

All this applies equally to man.

---Jon Fowles, **Aristos**

You can overcome that problem (i.e. of unifying the laws of the inner and the outer) only if you accept the premise that in some sense man is a microcosm of the universe; therefore what man is, is a clue to the universe.

---David Bohm, in **dialogues with Scientists and Sages**

Our language is originally built around the realities of self-attention. That is, human language is meant to be an instrument of a conscious being, a being who is fully and precisely aware of all that takes place within his own psyche. Such self-attention has disappeared from our lives, but the corresponding instrument of language remains. We have no real self-attention, yet the shells of human language remain.

---Jacob Needleman, **The Heart of Philosophy**

The aim of authentic Philosophy is to mean the unspeakable by clearly displaying the speakable.

---Wittgenstein, **Tractatus**

I want to begin by briefly sharing several autobiographical facts, for many of you don't know me and I wish to distinguish my perspective from most of contemporary analytic philosophy.

The German philosopher, Wilhelm Werkmeister, guided my doctoral work (Michael Polanyi occupied my attention (1) then-- this alone may demarcate my work from much current philosophy). D. Werkmeister's education and work encompassed philosophy, science, mathematics, and the humanities, as did Polanyi's. (2)

My second mentor was dr. Franklin Merrell-Wolff, a mathematician and philosopher, who began teaching and writing before most of us were born (he was 92 when I studied with him). He was also a formidable scholar and teacher of Indian and Buddhist philosophy (3).

My current mentor is Hazrat Salaheddin Ali Nader Shah Angha, a Persian Physicist (Nuclear Physics, Chicago, AEC), Mathematician, and present head of the oldest living school of Sufism. (4) His father, Shah Maghsoud Sadegh Angha, was a thinker and researcher whose works encompassed all major branches of science and philosophy (some of his 150 works are being translated from Farsi and Arabic, published in a new Heritage Series on Sufism by University Press of America). (5)

These three men have been moved by a profound desire to cognize and understand reality, from the leptonic to the cosmic, from the beauty and power of Galois' mathematics to the mystical poems of Rumi, from sense-bound mind to visionary insight. They recognize the division of labor expressed in the creation and existence of numerous sciences and academic disciplines. But for them, as for all truly insightful thinkers, nature and man remain a seamless whole, unaffected by the epistemological necessity to treat bounded parts and limited domains.

The same powerful aesthetic (and religious) sentiments are echoed and enhanced by a constellation of 19th and 20th century scientists whose names fill our science texts.

So, the deepest influences in my life and philosophy call me to broader and integrative visions which harmonize and balance all the forces of the universe in the unified systems of knowledge and praxis.

I am not going to critique specific concepts of consciousness here. Relevant scientific and philosophical literature does this well, as do your presentations. And I am certain our discussions will encompass all worthy concepts. Instead I want to address some conceptual, experiential, and semantic considerations underlying and associated with scientific and ordinary discourse about consciousness. I am also looking ahead to our concluding session on the "Criterion for the scientific study of consciousness." I will briefly touch three topic areas: 1) Concepts of science; 2) Consensus about "consciousness"; 3) Theories of consciousness and completeness.

CONCEPTS OF SCIENCE

It probably seems odd to interrogate the use and meaning of "science" among scientists. But my conversations with scientists over the years have left me puzzled and the puzzles have evolved into questions with consequences.

You have all heard the advice a scientist gave many years ago: "If you want to know what science is, don't listen to what they say, watch them practice their art." I don't want to take this too literally, but there is some truth in it.

Philosopher Abraham Kaplan, in **the Conduct of Inquiry**, devotes considerable space to the distinction between what he describes as "Logic-In-Use" as contrasted with "reconstructed Logic." The former corresponds to praxis, while the latter refers to efforts by scientists and philosophers to systematically articulate what occurs in practice. The differences between two logics can be enormous, and a review of relevant accounts by both scientists and philosopher reveals: Scientists metamorphose into philosophers; philosophers create ideal languages which are so remote from science that scientists don't pay attention to them.

One discrimination which appears in scientist's accounts of their working world is the contrast between methods and bodies of knowledge generated by those methods. The methodological emphasis prompts statements similar to Kaplan's:

The unity of science is more than an abstract philosophical thesis; it marks the ever-present potentiality of fruitful unions. It is in this sense that all the sciences, whatever their subject-matter, are methodologically of one species: they can be interbred. (6)

Whether we identify science with its method, or its contents, or both, the conception of science expressed tacitly in praxis, or explicitly in reconstructed logic can determine the boundaries of research and theorizing--the range and diversity of phenomena we consider subject to investigation.

The contrast between "inner" and "outer" empiricisms illustrates the consequences. For example, Psychologist Charles Tart and others propose "State Specific Science" in order to deal with non-ordinary states of consciousness and their contents. (7) Such "inner" investigation becomes "intersubjective" in a very literal sense.

Phenomenological explorations characteristic of German and French Phenomenology represent another form of "inner" empiricism, particularly where observers are able to substantially bracket ontological superimpositions, e.g., "consciousness is always consciousness of an object, but it is not inherently directional."

A third example emerges from the focused, systematic, experimental inquiry found in classic Indian and Buddhist Yoga, e.g., Patanjali's **Yoga Sutra (8)**, or in the work of the brilliant representative of the **Madhyamika**, Nagarjuna (2nd century A.D.). (9) I was impressed when I began simultaneous intellectual and experiential study of these traditions because their approach seemed so remarkably parallel to Western empiricism, although in its purest forms, there is little or no theorizing (except for pedagogical purposes) in Yoga and the phenomenal field is "inward" rather than "outward".

If method constitutes the primary defining characteristic of science, then scientific investigation of the "inner" domain should be possible.

Descriptive, experimental, and even consensual intersubjective validation conditions could be preserved.

Of course, this application would represent a novel form of science as well as its associated philosophies. Scientists and philosophers would have to loosen their hold on distinctions such as "inner-outer", "internal-external", "subjective-objective". It would also presuppose a thorough examination and reexamination of the structure, function, and process of consciousness present (or attributed) while scientists are experimenting, observing, theorizing, doing mathematical transforms, etc. It may be possible to treat scientific states of consciousness as instances of state specific content awareness, differing from non-ordinary states only in content.

If, however, the content of science is considered the key identifying feature, along with its methods (inclusive of theory, quantification, control, prediction, etc.), then direct investigation of the "inward", "subjective" domain as a distinct area of inquiry seems improbable, if not impossible. "Objectivity", "externality", quantifiability and related intersubjective criteria would seemingly prohibit "inner" empiricism.

Needless to say, I am not here talking about the extensive and significant ways in which subjective awareness and experiencing inter scientific research in psychology and neuropsychology.

Correlations of brain and conscious events are, for example, close to the heart of our comprehension of consciousness in the natural world. Dr. Pribram makes a powerful assertion in this connection:

. . . reports of subjective experience made in natural language are not only admitted as scientific evidence and analysis, but as ontological primitives of vital interest to scientific psychology. (10)

I won't review the history of the evolution of science from Galileo, etc. But the enthusiastic application of the methods of mathematical and experimental physics to all phenomena, including the human, has been responsible for the identification of science with both its methods and content. Scientific Psychology was born of this historical movement. So were the excesses of scientism. (11)

Particular conceptions of science do depend upon pre-scientific premises. Such premises are often metaphysical and epistemological, although pragmatic and traditional commitments can be determinative elements, e.g., the history of a discipline, available technologies, dominant paradigms, etc. The history of Physics illustrates the significance and power of the role of extra-scientific paradigms.

Scientific approaches to human consciousness especially need to make underlying premises explicit, since pre-scientific views of what constitutes the human being determine the boundaries of research.

Pre-scientific views generate our philosophical positions. And philosophical positions can dictate the domain of the investigatable. Yet such positions don't have the same logical status as empirical or theoretical scientific statements, even though the former require reference to scientific evidence and modeling. I am not referring here to the conceptual/linguistic analytical treatments of predicates, etc. which are the stock in trade of many contemporary philosophers. Instead, I am referencing substantive claims

philosopher-scientists like my mentors and others (Whitehead, for example) make about reality, mind, cognition, knowing, etc.). Conceptual/analytical tools are absolutely essential for any critical enterprise, but I am not interested in using the tools upon themselves. Thirty years of trying to answer the questions, "What is consciousness?" have been productive because I have been pushed beyond concepts into matters of substance--everything from immediately experienced contents of awareness to the most abstract and elegant forms which my lay mind can distill from Quantum Mechanics.

In any case, unearthing underlying premises allows us to detect and clarify conceptual slippages that seem to occur in science-related discussion of consciousness, e.g., mistaking philosophical statements for empirical/scientific ones, and vice versa.

Many of you here have given careful attention to the distinction between empirical and philosophical or pre-scientific statements. Dr. Pribram's above-cited article exemplifies this feature quite well.

Scientific studies of consciousness draw upon the pre-scientific "public", ordinary domain of language use about "conscious" and "consciousness", in fact the "consciousnessing" expressed in such language constitutes that which our observations, experiments, and theories is attempting to explain. But the interplay between the ordinary and the scientific languages, particularly when we are "reconstructing our logic-in-use for communication and publication, easily creates semantic and conceptual shifts so that we make claims which are unwarranted empirically, although they may be warranted and interesting philosophically. General claims about what mind our consciousness is relative to empirical studies of the brain, or as viewed from the vantage point of Quantum Theory fall into this class. Someday we may be able to make such

claims, but at the moment, they are premature, even when phrased in terms of what is the case "in principle".

Our criteria search later might include a reference to pre-scientific premise clarification. We may want to emphasize making such premises explicit and try to articulate their logical, conceptual, psychological and heuristic roles in scientific practice.

CONSENSUS ABOUT "CONSCIOUSNESS"

Consensus regarding the foundational concepts on the basis of which scientist do their research is vital . In the present case, the scientific study of consciousness in its preliminary phase, consensus about the conditions under which we can reach a consensus about "consciousness" is important. Perhaps the latter is present here. I am not so certain about the former.

I want to briefly interrogate conceptual consensus and the ways by which we might come to or acknowledge it.

Dr. Pribram and others stress the crucial significance of pre-scientific subjective experience and ordinary language discourse expressive and reflective of that experience. The immediacy of human life and awareness constitutes the starting point for all our investigations. We never leave it. The **Lebenswelt**, the pre-reflexive, pre-scientific, pre-philosophical world of purposive human action guides scientific and philosophical reflection.

The vast bodies of experiment and theory in the sciences are judged ultimately by how well and how completely they help us make sense of the world, our knowing processes, and our practical realizations in action.

The particular consensus with which I am concerned is the one regarding the constitution and content of consciousness before we shape and reshape it conceptually, making it amenable to scientific investigation. This consensus, **arising from its ordinary experiential habitat**, is not a function of empirical conceptualizing and theoretical construction. Rather, it grows from our ordinary but reflective observation of what we find ourselves doing (often as we do it) and perhaps some philosophically focused queries about our minds and bodies. We have to be extremely careful about not losing touch with this domain. In the energy and excitement of research, it is all too easy to forget the starting point, even though it is mirrored in our investigative acts. Our constructs and schema are superimposed upon ordinary experience and language, so that we begin dealing with "reconstructed" experience, concepts, and language rather than the **Lebenswelt**.

I think we can agree that consciousness as we manifest live, and observe it (?) processes certain primary features, e.g., we are a live, alert, responsive to environments, self-aware, selective, purposive, introspective. Psychologist Thomas Natsoulas catalogued the significant primary characteristics in an illuminating article titled "concepts of Consciousness". (4) He begins:

How shall we join the phenomena of consciousness to the word? Contemporary psychologists who address the problems of consciousness enter thereby an

important area of potential scientific inquiry that is both difficult and neglected. At the same time, they enter as well a conflicted sphere of their collective psyche. I surely do not need to demonstrate here the curious fact, after years of revival, the topic of consciousness still awaits to be fully admitted into mainstream psychology (12).

In a lengthy and penetrating discussion of **OED** renderings of the words "conscious" and "consciousness" as well as the efforts of numerous contemporary psychologists and neuroscientists, he teases out of six meanings. They are: 1) Interpersonal awareness and sharing; 2) Intrapersonal, internal witnessing; 3) internationality; 4) Particularized introspective awareness of "subjective" contents; 5) The totality and center self, I, ego; 6) wide-awakeness, alertness. He concludes the article by interrelating the various concepts of consciousness. Four dimensions are sketched: A) The intersubjectival; B) The objectivational; C) The apprehensional; D) The introspective. these meanings and dimensions are familiar to researchers in some form. but Natsoulas' clarifications and proposals set the stage for a deeper, operationally meaningful consensus.

I am not going to analyze Natsoulas' suggestions here. I simply want to call your attention to his work and to the emergence of a new wave of philosophically minded researchers who are attempting to import solid conceptual clarity to key terms in contemporary consciousness study. The linguistic/conceptual apparatus he provides might stimulate all of us to specify our usages more carefully, particularly in exchanges like the ones taking place at this conference. I should note, however, that the present

conference, although somewhat unique, is really one of a number of similar gatherings in recent years where communication regarding "consciousness" was the focus. It is instructive to see that conferees experience a communications breakdown of sorts over the key words. Natsoulas, for example, quotes Dr. Pribram, who chaired a session on the "Evolution of Consciousness, at just such a conference:

Yesterday we were exposed to many statements regarding consciousness. But one of the problems was that people were not communicating because terms remained undefined I now ask the speaker to let us know which definition of consciousness he is addressingThis should help us understand each other. (13)

An excellent suggestion we might cultivate here.

THEORIES OF CONSCIOUSNESS AND COMPLETENESS

There is an old Indian story illustrates the point I want to make in this brief, concluding section.

THE STORY OF THE TEN MERCHANTS

It seems there were ten merchants on their way in order to conduct transactions in another city. They had come to the banks of a broad river. The rains had caused it to rise so much that it had swept away the bridge. nevertheless, their business was urgent. And

so the merchants decided to swim across the river. When they reached the other bank, one of them began to count the group. He wanted to make sure that no one had drowned during the crossing. To his horror, however, he always ended up with nine instead of ten, no matter how often he repeated the count. The others too began to count. But no one got a higher figure than nine. A hermit, coming long, delivered them from distress and doubt. He laughed merrily, counted the merchants and found that all ten were there. Only then did they notice that each of them, when making his count, had forgotten to include himself explicitly. (14)

When we forget to "count" ourselves while "counting" objects in the world, including third person external accounts of behavior, or physical descriptions and models of the brain, we neglect a vital dimension of the conscious human being. We also generate puzzles, paradoxes, and problems we find difficult to articulate, much less resolve, e.g., the mind-body mystery, the intangible, inarticulable but still palpable presence of felt experiencing and self-consciousness, the sources and forces of scientific and artistic creativity, or even the presence of the spiritual, the "delicate aspect of the knowledgeable agents of the corpse," as Hazrat Salaheddin Ali Nader Shah Angha describes it in **The Secret Word**.

"Ourselves" refers to several facets and dimensions of the self and self-consciousness functionally constellated in action, in this case, the scientific acts, which produce the descriptions and models necessary for the explanation of the human phenomena.

Sometimes, when reviewing the literature of the scientific study of consciousness, I get the sense that something is missing. Brain and behavioral pictures don't always provide mirror reflections of me or even the people who create the pictures. The domain of subjective experiencing or felt meaning which constitutes so much of our personal and social life never becomes a center of consideration in its own right. Perhaps it cannot, given current conceptions of objective science, as well as the difficulties involved in conceptually objectifying felt, **in vivo**, processes.

There are symbolic bridges between **experiencing** and the construct level, experience, but invariant content is lost in the translation from dynamic, living systems to static, known structures. For example, Eugene Gendlen, in **Experience and the Creation of Meaning**, does some successful bridge building, but he recognizes that there is an incommensurability of the levels of subjective experiencing and logical-operational characterizations of experience. (15)

However, the heart of my concern lies in the possibility or impossibility of creating models of consciousness which are self-referentially complete, i.e., ones which are sufficiently rich in concepts, systematic interconnections, and conceptual bridges to first and third person experiencing to account for or include themselves, the theorizer, and the theory creation.

In the West, one paradigm of the effort to create completeness and comprehensiveness in theory is Whitehead in **Process and Reality**. Another can be found in David Bohm's work. Indian, Buddhist and Sufi philosophies offer some of the most successful examples of comprehensive accounts, but they are difficult for Westerners to appreciate, given their radically different foundational premises.

Here I am pushing through to the borders (perhaps fringes) of contemporary consciousness research. Many of you would like to have comprehensive accounts, which describe and explain the general scope of human knowing and being. But as rich and encompassing as the theories are, higher order behaviors, such as creating a scientific theory, or doing abstract mathematics, remain to be explored and mapped in detail. I am suggesting that when and if the scientific enterprise comes to terms with higher order human phenomena, you will probably want to "count" yourselves in all the roles-- as counter, countee, and passing hermits with a sense of humor.

When scientists incorporate "themselves" in their work, or at least allow such a specification, in real as well as theoretical time, some interesting phenomena appear. For instance, they would comprehend the way in which the extent to which their reflections of their own consciousness color (even determine) the phenomenal field under investigation.

It may be that psychological and neuropsychological research will need to formulate and employ "bootstrap" principles. An entirely different order of "built-in" experimenter interference comes into being.

I close, then, with another criteria suggestion: the scientific study of consciousness must be simultaneously, and at all times, a scientific, philosophical, psychological, and phenomenological study of the study of consciousness. The domain of human consciousness and the character of research here forces us into multi-level, multi-disciplinary approaches. From our collective efforts, a comprehensive and useful picture of consciousness will emerge. Its potential impact on education, therapy,

medicine, and the structure of communication of knowledge may constitute a new Copernican revolution.

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