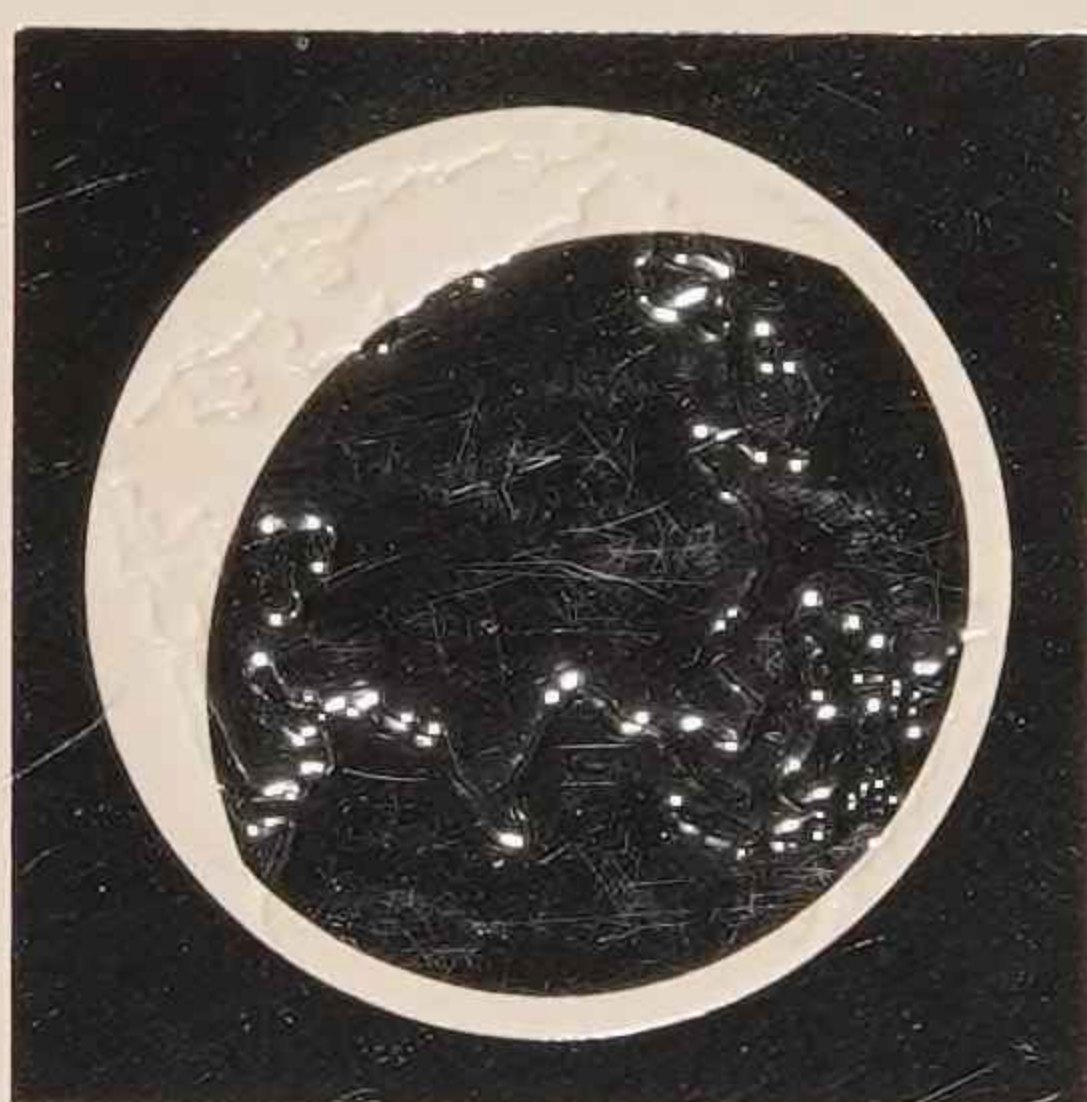


NOETIC SCIENCES

REVIEW



SPRING 1987

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If our natural does not become truer, no amount of supernatural will remedy it. . . . Unless Paradise is established on Earth, it will never be anywhere. For we take ourselves everywhere we go, even into death, and so long as this "stupid" second is not filled with heaven, no eternity will ever be lit with any star.

The transmutation must take place in the body and in everyday life; otherwise no gold will ever glitter, here or anywhere else, for ages of ages.

What matters is not to see in pink or green or gold, but to see the truth of the world, which is so much more marvelous than any paradise.

—Satprem

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The Institute of Noetic Sciences was founded in 1973 to support research and education on human consciousness. A tax-exempt, non-profit public foundation, the Institute's purposes are to broaden knowledge of the nature and potentials of mind and consciousness, and to apply that knowledge to the enhancement of the quality of life on the planet.

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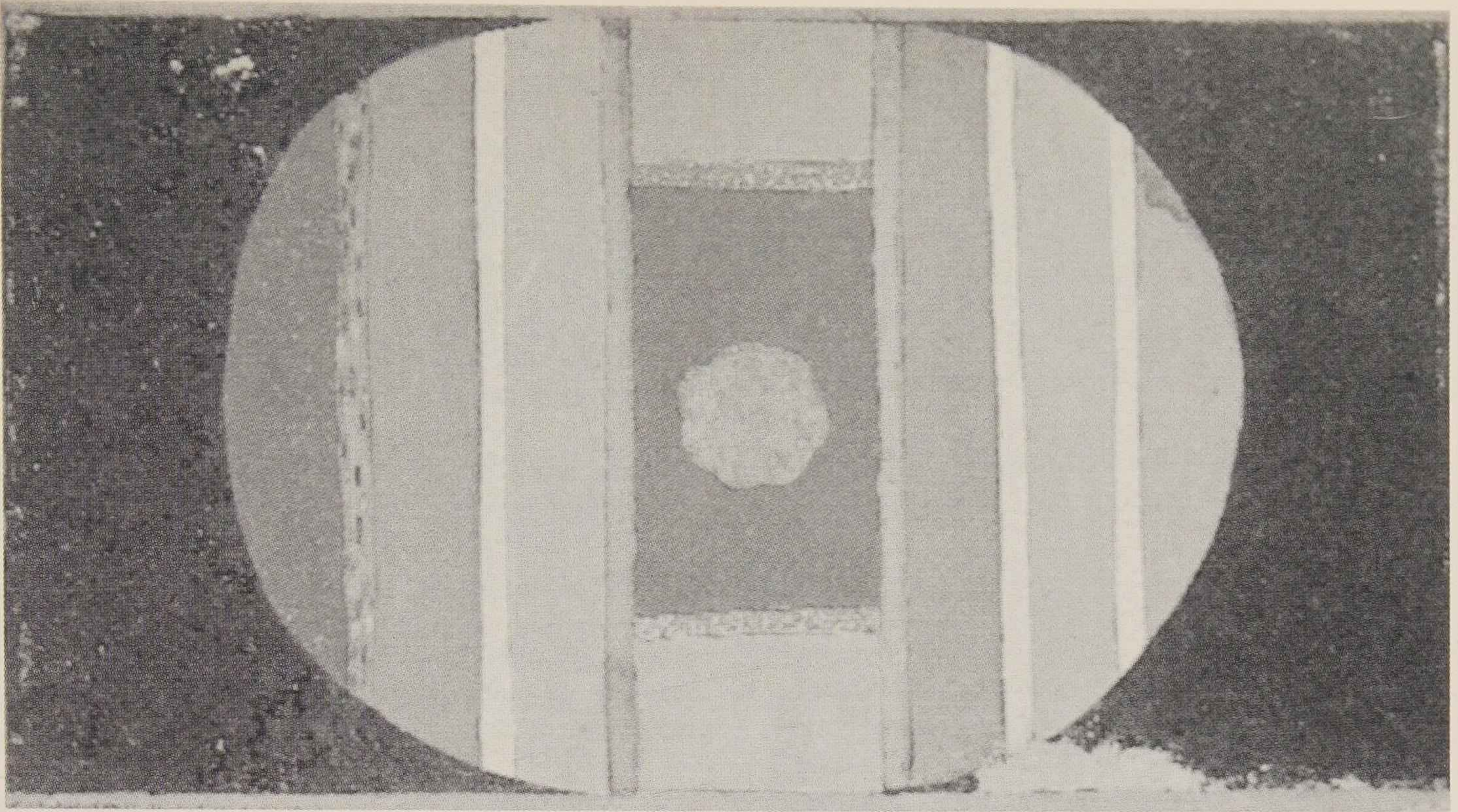
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THE COVER

Our cover graphic represents Earth at four points in its orbit, corresponding to the seasonal equinoxes and solstices. Proceeding in a counterclockwise direction, Winter is at the upper right, followed by Spring, Summer and Autumn. Art by Kevin O'Farrell.



Cosmic Egg

Rajasthan (18th century)

Science and Spirit

An Interview with Rupert Sheldrake
by David A. Tapper

Editor's note: The convergence of science and religion has been a recurrent theme throughout the work of the Institute of Noetic Sciences. Institute activities have included co-sponsorship of a symposium featuring His Holiness the Dalai Lama who spoke with Western scientists about the complementarity of "inner" and "outer" science; and another symposium applying findings from consciousness research to the question of whether consciousness survives physical death. And Institute members are, of course, familiar with President Willis Harman's work reconciling the perennial wisdom of the world's esoteric traditions with an expanded concept of science. This past summer the Institute formalized its involvement with this theme by joining forces with David Tapper of Tapper Productions Incorporated to explore the feasibility of producing a television program on Science and Spirit. In the accompanying interview, Tapper talks with biologist Rupert Sheldrake on the relationship between science and theology. Sheldrake has received international attention because of his fascinating and controversial theory of morphogenetic fields reported in A New Science of Life (J. P. Tarcher).

David A. Tapper: Doctor Sheldrake, as the spotlight of science widens, does it shunt religion to the periphery of human experience or does it make it even more significant in people's lives?

Rupert Sheldrake: The spotlight of science has always been connected with religious questions. Newton, for example, thought he was dealing with the nature of God when he talked about gravity. He thought that gravitational forces stemmed from the divine will and that space was "the sensorium of God". So even what we now label as mechanistic science grew out of a quest to understand the relationship between God and creation.

In the seventeenth century this quest was cast in terms of the Protestant theology of that era. In the present time, as science deals with various questions in biology and physics, these same metaphysical or theological questions which are always there in the background of science come up again—inevitably. The idea of the "big bang" and the evolving universe, for example, leads us to wonder "how did everything begin"—which is obviously an archetypal, mythical, religious question as well as a scientific one. And as we ask more about the nature of life and the nature of consciousness we are forced to examine certain questions and assumptions which underlie a lot of our scientific thinking. ➤



*Rupert Sheldrake studied philosophy and the history of science at Harvard University, and took a PhD in biochemistry at Cambridge. He was a Fellow of Clare College and Director of Studies in cell biology and biochemistry from 1967 to 1973, and as a Research Fellow of the Royal Society carried out research on the development of plants and the aging of cells. In 1974 he joined the International Crops Research Institute in India and worked on the physiology of tropical legume crops until 1978. He has since then been Consultant Physiologist to the Institute. In 1982 he published his controversial book *A New Science of Life* (J. P. Tarcher), and for the last three years has been working on a new book, *The Presence of the Past*, to be published by Random House this fall.*

DAT: Could you describe what's happening in the sciences today which provokes religious questions? Why don't we start with your work.

RS: The religious question that comes up in connection with my work is, first, how does anything begin? How does any new form or pattern come into being? The hypothesis I'm putting forward suggests that once a certain pattern of behavior or activity or form has got going, it will tend to be repeated—that basically nature is habit forming. The laws of nature may be more like habits than changeless principles that are given from the very beginning.

But this leaves the problem of how any new pattern or form arose in the first place. This has always been a question that religions and mythologies have dealt with: the question of origins. How does any new human thought, any new pattern of animal behavior, any new form of plant species come into being? Nobody knows. Even when we observe new ideas come into being—when somebody thinks of a new idea, or composes a symphony—we still don't know where they came from.

If the people who have created new things are asked they often say that they were simply a channel through which this came. But then the question still remains: where did it come from? That's a religious question. We can dissolve away or refuse to answer that religious question by saying that it all occurred by chance, but chance may just be a way of evading the question. Chance is actually a modern term for what in the past used to be called "dame fortune" or "lady luck". So again there is a religious undertone even to the concept of chance.

DAT: This has to do with your work in morphogenetic fields. How about implications of unified field theory today in physics?

RS: Unified field theory in contemporary physics is nearly always put in an evolutionary context, which starts with the idea that the universe began with a primal unified field. This is, of course, entirely a matter of speculation since it is not possible for any of us to observe the big bang or the events in the first 10^{-30} of a second after it. But nevertheless the idea is that there was a primal field, and that the fields of nature we know arose by splitting off or separating from this primal unified field. It's really a modern scientific way of dealing with the perennial question of "how did the many come from the one?"

This entire big bang theory is remarkably similar to many mythological and religious accounts of creation—for example the Hindu idea that the universe began by the hatch-

ing of a cosmic egg. The big bang is rather like the hatching of a cosmic egg! And the universe is rather like an organism that's been growing ever since, and differentiating as it grows.

DAT: Isn't it interesting that if we accept a big bang theory, there is a point somewhere in our history where all the molecules in the universe were in touch with each other?

RS: The idea of the big bang, and indeed all evolutionary theories, has as its principal intellectual appeal, I think, the idea that things come from a common source. This idea of primal unity, which is an ancient mythic and religious theme, is found all in evolutionary theories. Even in Darwinian evolution we have the idea that all life comes from a single, common ancestral type of cell, and that means that we're related to all living things. The big bang theory implies that all the particles of matter in the universe come from a common source, and are, therefore, in some sense ancestrally related. Now if we take seriously Bell's theorem and the implications of modern quantum physics—that things that were one time connected and then separated retain a kind of non-local connectedness among themselves—this would imply that everything in the universe is indeed connected. We know from the theory of gravitation, ever since Newton, that all matter in the universe is actually connected with all other matter through the gravitational force. We now think of it in terms of the gravitational field. So this, like all evolutionary theories, takes us back to the idea of a common origin and the idea of our relatedness, not only to other forms of life, but indeed to the entire universe in the last analysis.

DAT: Let's move from the hard sciences like biology and physics to the social sciences. Is there a direction in these sciences which also implies a spiritual dimension?

RS: The social sciences have always been much influenced by the organic metaphor, the idea that society is a kind of organism. We find this in sociological and anthropological functionalism, which compares society to a body where the different parts interact like the organs of the body. We find it in structuralism, which emphasizes the interconnections and the structural interrelationships among the parts of society. Further, most religious views of nature are based on the idea of organic metaphors. In Christianity, for example, the church is compared to an organism, the living body of Christ. And in most religions these organic metaphors are very widely used. So I think the social sciences in general fit into that way of thinking.

DAT: Science, at least since the eighteenth century, has been read as being on the side of materialism. Is this still the case?

RS: Materialism on which science since the eighteenth century has been based is the doctrine that the ultimate explanatory principle for everything is matter. And since the seventeenth century it has been assumed that the ultimate nature of matter was hard inert particles, the atoms. But now the bottom has dropped out of the atom in modern science. As Sir Karl Popper, the philosopher of science, has said, through modern physics materialism has transcended itself.

Matter is no longer the ultimate explanatory principle because science now contains an explanatory theory of matter. Matter is now seen as energy bound within fields, and so energy and fields are now the primal principles of modern physical and biological explanation. So old style materialism has become problematic and everything now hinges on what we think of as the nature of energy and the fields of which matter and all material things are made up.

DAT: Does God necessarily come into that picture?

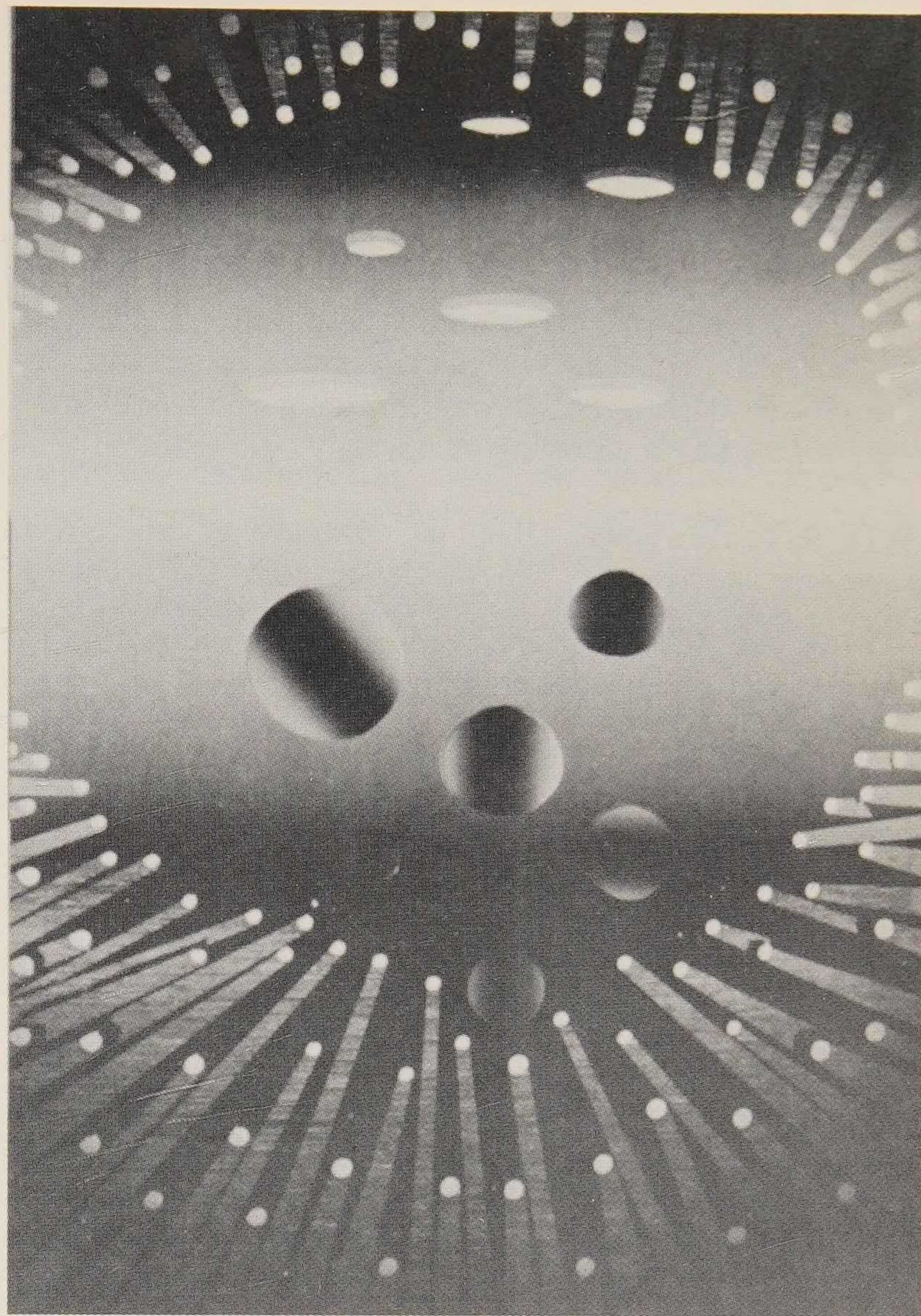
RS: If we have an idea of the universe being composed of energy and fields then we have the question: *What's the primal nature of this energy?* What's the source of the energy? The idea that all the energy appears from nowhere, which the big bang theory implies, is not entirely unlike the traditional scholastic theological doctrine that the world is created out of nothing. It leaves, of course, a great problem: how can all this energy come from nowhere? It seems very difficult for any scientific theory to explain that. And to say that it all happens by a random fluctuation seems to me to beg the question.

When we come to the field aspect of reality, the fields which give form, pattern and structure to reality, we can ask the question: *what is the origin of the fields?* Modern evolutionary physics tells us that the origin of all the fields of nature is the primal unified field of the universe. But then, what is that? It contains the potential for the fields of everything that there is. This sounds rather like the platonic notion of the demiurge, or the idea of the logos as the primal structural creative source of everything.

So, although these are modern scientific concepts, they have many resonances and parallels with traditional theological ideas having to do with the concept of God.

DAT: Can a spiritual value system make for a better science?

RS: Science has a value system anyway. It's not always clear what it is but there is an implicit value system in science. The value system that most people would think of as the scientific value system at the moment is the value system of Faust—namely that anything that gives greater knowledge and power is good, anything that stands in the way of greater knowledge and power, regardless of how that is applied, is bad. This is the value system of unlimited and boundless exploration, power and control. In the Faust story these were regarded as gifts of Mephistopheles, or the devil. Interestingly, in the early Faust stories in the sixteenth and seventeenth centuries, this was regarded as bad, whereas in



Blue World

Yoshisuke Funasaka

Goethe's Faust, later, this idea of endless exploration was basically regarded as good.

So there is an implicit value system in science anyway. And I think it is very important for people to be clear about what kinds of values they espouse when adopting scientific research. It's now clear that the old idea that science is totally neutral and that scientists are morally neutral is obviously untrue.

DAT: How will the new holistic sciences differ from the old?

RS: The emphasis in old style reductionist science was to try to explain everything by reducing it to smaller and smaller parts. Moreover, it was based on the assumption that the smallest parts of all, the atoms, or the subatomic particles, are dead, inert and without any form of consciousness—and that the whole of nature is governed by changeless laws which are totally without purpose.

In the holistic model there is much more emphasis on the way that at different levels of complexity nature is organized into what we could call organisms—cells, tissues, organs, societies—and that at each of these levels there's a wholeness which can't be reduced to the sum of the parts. This means that we both respect the different levels of organization in nature without trying to reduce them, and also regard nature as in some sense alive, as opposed to being ultimately reducible to particles of matter that are dead. ➤

DAT: That's a very exciting answer. Do you see a new paradigm entering the thinking of humanity?

RS: I think a new paradigm or model is going to be forced upon us because it seems clear that if we continue on the old one we'll destroy ourselves, if not by nuclear war then by destruction of the environment of the planet. It seems that the idea that everything can be reduced to dead matter, and that all problems can be treated separately from each other, is obviously no longer a tenable way of dealing with the environment. I think this is becoming increasingly clear to many.

DAT: You're emphasizing the threatening aspects of technology and science. I'm wondering about the liberating aspect of these new visions, your vision being one of them.

RS: I think that the motive for looking for new visions is partly because of the threatening aspects of the old ones. It would be nice to think that we are motivated by pure, untrammelled curiosity, or pure disinterested inquiry, but actually there's always a motive. If we start looking for something new it's very often because of a sense of dissatisfaction with what is already there. If everything seems fine the way it is, we don't have much incentive to inquire. I know that in my own case my motives for looking for more holistic ways of understanding life is partly because I think the mechanistic and reductionist ways of understanding are inadequate to solve biological problems. Their medical and social consequences are destructive and their ecological consequences for the Earth actually threaten the survival of our civilization. So I think that the motives for looking for new patterns, new ways of doing things, are partly related to the threats and the dangers that the old ways pose.

DAT: Would Einstein have answered the question that way, or would he have said that motive comes from the hunger for knowledge or for the sense of order in the universe?

RS: Einstein's motivations are not entirely clear, but certainly Einstein was aware of the destructive potential of his science, and actually encouraged the making of the atom bomb. So Einstein, who was politically motivated in various ways, was aware of the danger of nuclear war and encouraged the Western powers to get there first. He played an important role in the decision to go ahead and actually try to develop nuclear weapons. He became very involved in the practical application of nuclear power for destructive purposes, not because he was an evil man but because he felt that political circumstances demanded it. But even in Einstein's case his inquiry and his interest in science were not entirely neutral.

DAT: Here's a hard question: How do miracles fit into the world of science? Or *do* miracles fit into the world of science?

RS: What we think of miracles partly depends on how we think the ordinary world works. One traditional approach is to say the ordinary world works according to the laws of nature we know. Since miracles can't be explained by these laws of nature, therefore, God or some supernatural power intervenes to arrest the normal functionings of these laws.

But it may be that miracles represent the operation of psychical-spiritual laws that we don't actually know about. Any explanation depends partly upon whether we think we already know all the laws of nature. So how we think about miracles depends, really, on our frame of reference for science and spirit.

Miracles of the kind performed by Jesus, for example, are reported by many sages and saints in different religious traditions. The importance of miracles in these traditions is not so much that of the miracles themselves but for the meaning they have and the teaching they contain. The nature of the miracles is one thing. The meaning is another. Any real consideration of miracles would have to be done within a broad context, a cross-cultural one.

DAT: Assuming that we one day have a new science of spirit, what is the relationship between theology and science, in an ultimate philosophical sense? They both try to account for the known universe.

RS: Well, science is a much more limited endeavor than theology. Science is trying to account for the regularities of nature. Theology is trying to account for why nature has regularities at all, why nature should have laws at all, why we should be able to find out about the laws of nature. It's asking deeper and more fundamental questions than science.

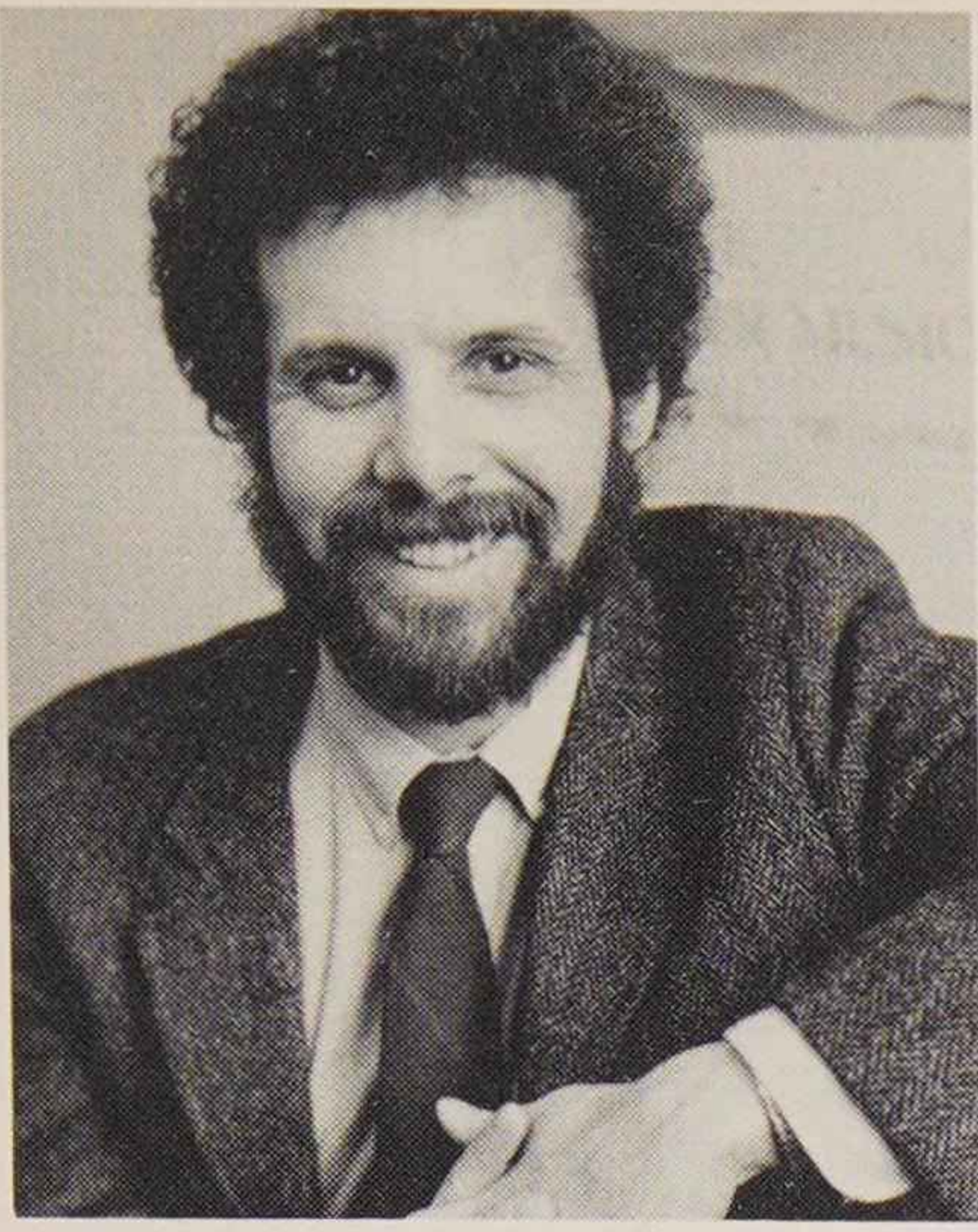
Further, science takes place within a philosophical or a theological background. Even the philosophy of materialism, which is an anti-theological theory, is based on assumptions that go way beyond anything science can establish. It provides a set of assumptions or frameworks within which science is carried out. Science needs such an overview about the nature of space, time, matter, consciousness, reality and so on, because it needs these assumptions to function at all. And theology provides possible frameworks for science just as philosophies like materialism do.

DAT: I'd like to repeat the question about the effect of the widening spotlight of science. As the area of human knowledge spreads, does religion get pushed off to a corner where superstition lives, or is it brought more into the center of human affairs?

RS: As the area of what we understand increases, or the wider the spotlight of science, the greater the frontiers of the unknown become. In a sense, the more we know, the more we're aware that we don't know things that lie beyond.

I believe that as science breaks out of the mechanistic framework of the last three centuries, the expanding scientific vision of things will enable us to see more clearly the essential complementarities of science and religion, and the incompleteness of either alone.

David A. Tapper has been a producer, writer, director of Peabody and Emmy Award-winning documentaries for 25 years. His work has been broadcast on the three commercial networks and PBS. Presently he is devoting himself to productions that illuminate spiritual issues, and is working with the Institute on Science and Spirit.



Dr. Daniel Goleman, who writes about the behavioral sciences for The New York Times, has recently served on an advisory panel for the Institute on one of its proposed programs. The following is a summary of his remarks.

As a Western psychologist who has journeyed to the East, I see that there is a strong bias among my colleagues to think of "psychology" as something that began within the last century or so in Europe and America. As I see it, though, the attempt to understand the mind and its potentials is very, very ancient; it stands at the inner core of each of the world religions.

The apparent rift between the psychologies of the West and those of the religious mystics is being bridged by developments from both sides. I recall a meeting with the Dalai Lama, for instance, where he expressed a great interest in being kept up to date on the developments of modern science, and welcomed the scientific study of Tibetan yogic adepts. He saw no incompatibility between Western science and Eastern thought, but rather a deep commonality.

Western psychologists, by the same token, are coming to appreciate that there are many modes of knowing. As William James said, there is no certainty that a temperature of 98.6 degrees is the best degree from which to know reality. Through studies of meditative and other altered states we are beginning to appreciate that alternate modes of knowing can yield truths and understandings that are unavailable to those of us stuck in the mundane reality of everyday consciousness. And the truths understood by mystics may be, from their own vantage point, quite as compelling as those of Western science.

This realization is dawning not a moment too soon. Consider the poll of Americans done in 1973, and recently repeated, by the sociologist Andrew Greeley. (See accompanying article.) One of the questions asked a random sample of Americans was: "Have you ever felt very close to a powerful, spiritual force that seemed to lift you out of yourself?"—in short, had a transcendental experience.

A full 35 percent of Americans answered "yes"; about 20 percent said it had happened to them several times, and 5 percent said it happened to them fairly often. But when the pollsters went back to some of those who answered "yes" and asked them for more details, almost all of them said, "You know, though this has happened to me, I've never told a soul about it before."

I think the evidence is in: we're a nation of closet mystics. And I think the time has arrived when we should come out of the closet.
—Daniel Goleman

The "Impossible": It's Happening

by Andrew Greeley

Nearly half of American adults (42%) now believe they have been in contact with someone who has died, usually a dead spouse or sibling. That's up from more than one-fourth (27%) in a previous national survey done 11 years earlier.

Still higher percentages of Americans report having had psychic experiences such as extra-sensory perception (ESP). In a new survey, two-thirds of all adults (67%) now report having experienced ESP. In 1973, it was 58% in a similar poll.

Both national surveys were done by my colleagues and me at the University of Chicago's National Opinions Research Council (NORC). I became inter-

ested in what psychologists call "paranormal" experiences back in the '70s, when I began to realize how many people have them (even if they don't tell anyone).

It may well be, as Shirley MacLaine argues, that the incidence of such experiences is rising fast. But I favor a different explanation: Partly because of her and others, millions are less afraid to talk about the experiences.

I've had no vested interest, religious or sociological, in the metaphysical reality of these experiences. I am a sociologist and novelist. I am also a parish priest, as suggested by my current book, *Confessions of a Parish Priest*. The Roman Catholic church of

the era is profoundly skeptical of paranormal phenomena. So am I. I doubt, for example, that the contact-with-the-dead experiences can ever be "scientifically" validated. But even though I've never had a psychic or mystical experience myself, most Americans have. We saw this in our first study in 1973 and in data from a repeat survey we have just analyzed.

Our new results show a clear trend: More people than ever say they've had such experiences. Other surveys confirm the trend. And it's true whether you look at the most common forms of psychic and mystical experience, or the rarest.

Pollster Andrew Greeley and colleagues at the University of Chicago have tracked our spiritual health since 1973. The data show that more people in the USA report paranormal experiences now than in the '70s ('73 results in parentheses).

Americans Who:	(1973)	(1984)
Had contact with the dead (adult pop.)	(27%)	42%
Had contact with dead (widows)	(51%)	67%
Had visions	(8%)	29%
Experienced ESP	(58%)	67%
Experienced <i>deja vu</i>	(59%)	67%
Experienced clairvoyance	(24%)	31%
Believe in life after death	(*)	73%
Believe the afterlife is Paradise	(*)	68%
Believe that after death they'll be reunited with dead loved ones	(*)	74%

*No figures available

National surveys by The Gallup Organization bolster Greeley's polls showing paranormal experiences in the USA are on the rise:

Had an unusual spiritual experience	43%	('85)
Had a near-death experience	15%	('81)
Believe in life on other planets	46%	('81)
Believe in life after death	71%	('81)
Believe in reincarnation	23%	('81)
Believe in God or a Universal Spirit	95%	('81)
Believe Jesus is God	70%	('83)
Believe in angels	67% of teenagers	('86)
Believe in heaven**	71%	('80)
Believe in hell	53%	('80)
Expect the afterlife to be boring	5%	('81)

**Of those who believe, 20% ('81) think their chances of going to heaven are excellent.

Some experiences aren't too far from the ordinary, and may soon be explained by neurological or psychological processes—like *deja vu*, that eerie sense of going to a new place and feeling sure you've somehow been there before. 59% of Americans reported *deja vu* in 1973; today, the figure's 67%.

Other experiences, though, are profound. In 1973, a full 35% of Americans reported they had had a mystical experience: feeling "very close to a powerful, spiritual force that seemed to lift you out of yourself." And one-seventh of those who have had such experiences—5% of the whole population—have literally been "bathed in light" like the Apostle Paul. These experiences go way beyond intellect, and even beyond emotion. For a fifth of those who have them, they involve "a sense of tremendous personal expansion, either psychological or physical"—a form of body mysticism.

Such paranormal experiences—by definition, lying outside the normal—are generally viewed as hallucinations or symptoms of mental disorder. But if these experiences were signs of mental

illness, our numbers would show the country is going nuts. What was paranormal is now normal. It's even happening to elite scientists and physicians who insist that such things cannot possibly happen.

Indeed, the nation is living with a split between scientific belief and personal reality. For example, 30% of the Americans who do *not* believe in life after death still say they've been in personal contact with the dead. My friend John Shea, a theologian, believes that these encounters could be real and the cause, not the result, of man's tenacious belief in life after death. But as a scientist all I can vouch for is the fact that millions of Americans have such experiences.

In any case, our studies show that people who've tasted the paranormal, whether they accept it intellectually or not, are anything but religious nuts or psychiatric cases. They are, for the most part, ordinary Americans, somewhat above the norm in education and intelligence and somewhat less than average in religious involvement.

We tested people who'd had some of the deeper mystical experiences—such as being bathed in light. We began with the Affect Balance Scale of psychological well-being, a standard measure of the healthy personality. And the mystics scored at the top. Norman Bradburn, the University of Chicago psychologist who developed the scale, said no other factor has ever been found to correlate so highly.

When we reported our first NORC survey in 1973, a scientific sample of 1,467 adults, we soon discovered how nervous people can be about spirituality. Many, particularly in academia and the media, find it unthinkable that a sizable proportion of the people they see every day believe they have experiences outside the accepted limits of science. This discomfort has made it hard to carry on serious academic discussion about the mystical experiences of ordinary Americans. . . .

Despite years of attempts to study paranormal phenomena, there's been a scientific iron curtain raised against serious research on these experiences. But a crack in it opened a few years ago. Researchers in Japan and Wales, then in England, began to report on contact with the dead, especially among widowers in nursing homes. A University of North Carolina team led by associate professor of family medicine P. Richard Olson found that nearly two-thirds (64%) of widows at two Asheville nursing homes had at least "once or twice felt as though they were in touch with someone who had died."

That's not surprising by itself. What is surprising is the vividness of the experiences. Of those who reported such contact, 78% said they saw the dead one. 50% heard, 21% touched, 32% felt the presence, 18% talked with the departed and 46% had some combination of the above. Most found the encounter helpful, not scary, but none had ever mentioned the incident to their doctors.

"It's not well known that such experiences are common, but they are," Olson says. In *Geriatrics Today*, he writes that even psychoactive drugs didn't end the "visits".

Our second NORC survey of paranormal experiences included a national sample of 1,473 adults in 1984. When I recently finished work with that data,

it showed a marked increase in the number of men and women willing to report the encounters, at least in the anonymity of a polling interview. Among widows and widowers in the general population, our survey just about replicated Olson's findings in North Carolina.

We asked ourselves whether psychic and mystical beliefs cause the experience, or experience causes the belief. We turned to our national sample—this time to check for belief in life after death, intensity of religious commitment, and whether respondents envision a loving God or a judgmental one. We found, surprisingly, that many widows who experienced these visitations had not previously believed in life after death. So they were not hallucinating an image to match their beliefs (at least, not their conscious beliefs). This suggests, though it does not prove, that the experience is more likely to cause a belief in the hereafter than the other way around.

We also asked whether people who'd lost a parent or child reported contact with the dead more than people whose siblings had died—on the theory that those who'd lost closer family members would have a greater "need" to hallucinate visitations. Again, we were surprised: People who'd lost a child or

parent were less likely to report contact with the dead than those who'd lost siblings.

These findings make it difficult to explain such talks with the departed as simple psychological wish-fulfillment. But one finding does give a clue to the psychology of these experiences. For widows and for people who had lost siblings alike, the major factor associated with contacting the dead was a belief in a loving God, rather than a judgmental one. Though intriguing, however, this still doesn't prove whether belief or experience comes first. Feeling contact with a dead relative could certainly change one's mind about God, and make it easier to picture a warm, loving deity.

Whatever the cause of these "visitations", our work confirms the North Carolina suggestion that these experiences are common, benign and often helpful. What has been "paranormal" is not only becoming normal in our time—it may also be health-giving.

That has not made the news welcome to the routine scientist. There's an understandable resistance to studying phenomena, however benign, whose nature we really don't understand. It would be easier, certainly, to deny that these experiences exist.

But the data show clearly that they *do* exist, that people experience them in great numbers—and that they could even change the nature of our society. What may be most significant in our studies is not that the majority of adults now report experiencing ESP, or even that nearly half feel that they have talked with the dead. A small minority, maybe under 20 million, have undergone profoundly religious moments of ecstasy. They report out-of-body trips, being bathed in light, or other encounters that transform their lives. They become profoundly trusting, convinced that something good rules in the world. Whether their number is growing or they're just now ready to tell about it, that many people capable of trust can have a lasting effect on the country.

Andrew Greeley, PhD, priest-sociologist, is a professor of sociology at the University of Arizona. Reprinted with permission from American Health: Fitness of Body and Mind, January-February '87; © 1987 by American Health Partners.



Guidance on the Path: The Inward Arc

by Frances Vaughan

Editor's note: A recent front page article in The New York Times chronicled the increased national interest in matters psychic, occult and spiritual, and then went on to cite charges of "mind control" and "cultism" levelled by critics. While such criticism seems to be an overreaction, there are some legitimate questions one might ask in weighing various claims and counterclaims which now abound. What is the layperson to make of this recent ferment? Given the variety of experiences now available, how does an individual choose what is most enriching and appropriate for herself or himself?

The Inward Arc by Dr. Frances Vaughan is a useful guide for those with such concerns. Subtitled Healing and Wholeness

in Psychotherapy and Spirituality, the book provides an extensive overview of two complementary aspects of human development. "After many years of work in both psychotherapy and spiritual practice," says Vaughan, "I see both as necessary for healing and wholeness."

The following material was excerpted from the chapter "Guidance on the Path", in which Vaughan describes five different types of paths for psychospiritual development, each path corresponding to a level of human consciousness—physical, emotional, mental, existential, transpersonal. She then reflects on various issues inherent in selecting a psychospiritual path and choosing a teacher.

Masters and Mastery

Self-determination, self-regulation, and appropriate self-concept are essential to the development of a cohesive sense of ego-identity, but attachment to this independent separate sense of self tends to impede growth beyond ego. Thus psychic powers are considered hazardous to anyone using them for ego goals. The spiritually self-realized person functioning as a bodhisattva. . . is therefore said to be in the world, but not of it. The power of spiritual mastery is said to be *in* the master, but not *of* him or her. The spiritual master does not claim ownership.

This attitude can counteract the risk of ego inflation resulting from mastery of psychic abilities, but does not necessarily preclude it. Regardless of whether one claims to be a channel for Spirit, or identified with Spirit, willful claims to manipulation or control can be viewed as indicating ego mastery rather than authentic spiritual mastery. Power at the level of ego is a function of self-determination and expertise. Authentic spiritual mastery calls for integrity and self-transcendence.

In the genuine master, then, transcendence of ego goals and desires can be expected to manifest as nonattachment and acceptance of things as they are. One who has attained mastery on the spiritual path may choose to act in the world but is not attached to the outcome of particular actions. Attachment to power for its own sake at any level can be an obstacle to further development, as is attachment to recognition, success, or any form of personal achievement.

A master who actively seeks disciples may well be operating from egoic desire for recognition. In master/slave relationships that can develop at this level, the master is apt to become the slave of his own passions. In some traditions, where the master is also a trickster, invisibility rather than fame is considered a desirable attribute¹. In yoga, when consciousness has reached the level of the sixth chakra, self-

mastery gives control of inner light, and the master is said to be able to increase or decrease its brightness, becoming more or less visible at will.²

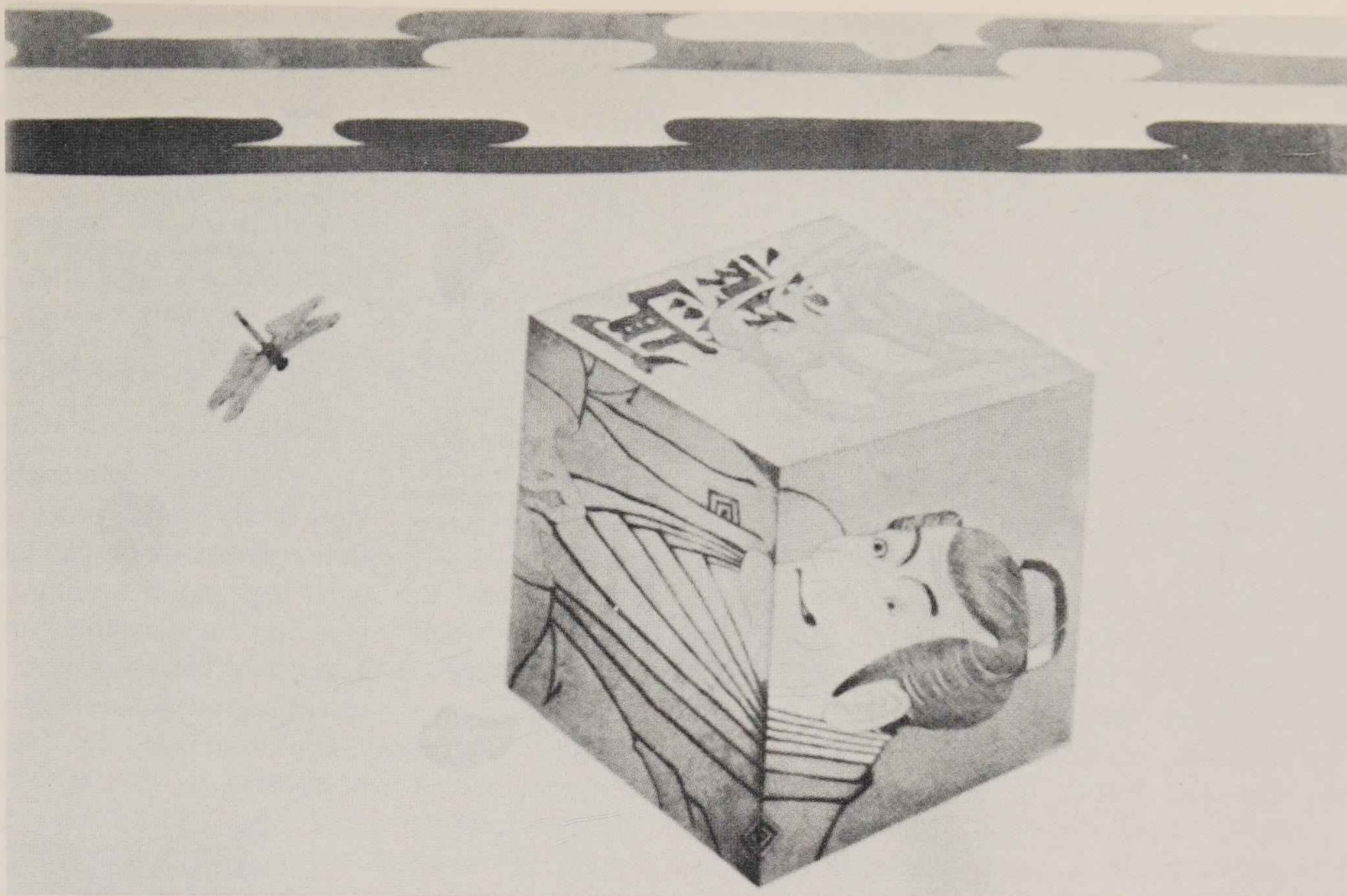
The person who wants to advance on the path of spiritual development is invariably instructed to practice detachment and have no expectations. Even a master who is attached to mastery is ruled by what he seeks to master. According to the Chinese sage, Lao Tsu, leadership based on love and respect is better than leadership based on fear and coercion, but leadership is best when the people say, "We have done this ourselves."³ . . .

In growth-oriented psychotherapy, when a therapist trains awareness and assists clients in personal problem solving, the aim is not to create dependency, but to enable clients to handle their own problems and empower them to continue the process of psychological growth on their own. Likewise, genuine spiritual teachers remind seekers that they must look within to find the true guru, which, translated literally from Sanskrit, means "dispeller of darkness". . . .

Implications for Psychological Investigation

Most religious institutions in the West have failed to provide training in contemplation for the lay person in any disciplined way. Understanding spiritual development as an integral aspect of wholeness calls for expanding the field of psychological investigation as well as using new methods of inquiry. The inward arc of the journey to wholeness must traverse the transpersonal domain, where each one must learn to investigate rather than to judge, condemn, or idealize spiritual disciplines. The growing concern with the well-being of humanity as a whole, and the necessity of continuing conscious evolution⁴, call for discriminating wisdom in evaluating spiritual practices.

Investigators can view this domain only as participant observers. No one can understand what lies outside his or her



Dice

Makoto Ouchi

perceptual capacity. Furthermore, observations of human development invariably reflect the level of inquiry. One tends to find what one looks for, and one can see only what perceptual limitations permit. What anyone can do is to bear in mind the limitations of one's present capacity for discernment while working on expanding the perceptual framework. . . .

Psychology as a social science is still in its infancy. In the East, spiritual understanding has rarely been applied to social problems. Sri Aurobindo and Gandhi in India were notable exceptions in this century. Gandhi recommended meditation for everyone as a contribution to world peace. Sri Aurobindo was one of the first to emphasize the interdependence of inner and outer liberation. He taught the unity of the infinite and the finite, the timeless and the temporal, and the transcendent and the immanent. Only when this unity is known can one have "peace in every action and Joy in every way".⁵

Each of us must choose where to look for guidance in unfamiliar territory. Should one surrender in obedience to another person who is deemed wiser than oneself? Perhaps the cultural values of freedom and self-determination, coupled with Self-awareness and a vision of transcendence, can help one avoid some of the pitfalls and develop the discriminating wisdom that is required. Each of us must undertake a subjective path of inner development as well as learn from traditional sources and external authorities. Studying the teachings and learning about something from someone else is never a substitute for direct experience. Before judging others, one may begin by acknowledging the tyranny of one's own passions, and the desire for control of both inner and outer experience. As one learns to include and balance opposites, recognizing their interdependent nature, one may also contribute more effectively to the well-being of others. Lasting peace is not purchased by surrendering one ego to

another. Perhaps it is only in transcendence of egoic identification that the conditions of peace can be established.

In the final analysis, efforts at evaluation of spiritual teachers may be guided best by the words of the Buddha:

Do not believe in what you have heard; do not believe in traditions because they have been handed down for many generations; do not believe anything because it is rumored and spoken of by many; do not believe merely because the written statement of some old sage is produced; do not believe in conjectures; do not believe merely in the authority of your teachers and elders. After observation and analysis, when it agrees with reason and it is conducive to the good and benefit of one and all, then accept it and live up to it.⁶

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Frances Vaughan has been a practicing psychotherapist for more than fifteen years, and is past president of the Association for Transpersonal Psychology. She is the author of four books and numerous articles.

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Mind and Body: Pathways of Linkage

by Brendan O'Regan
Vice President for Research

The day has come when we can no longer be satisfied with simply demonstrating that links between mind and body exist. The time has come when we have to probe deeper than this and ask: what kinds of links, which kinds of pathways to which cells, which neurons, which molecules?

Some historians of neuroscience already recognize that a vital step in this realm of investigation was taken at Johns Hopkins University where Dr. Candace Pert and her colleagues isolated the first endorphins—the brain's so-called natural opiates. Here, finally, were vital pieces of the physical stuff through which mind and feeling mediate their way into the world.

In considering the feedback loops that exist between psyche and soma, one recently discovered property of the nervous system may be especially important. This is the property of molecular and neurotransmitter plasticity in the brain.

Not long ago, for example, researchers thought the brain used only two neurotransmitters, the chemical agents of communication between the neurons. Now we know that there are more than 50 different molecules that can act as neurotransmitters—and they are found not just in the brain but in other parts of the body as well.

The growth in our knowledge about these "communicator molecules" has coincided with the emergence of another major concept regarding the nervous system—its ability to use more than one neurotransmitter to communicate between neurons. Previously it was thought that relations between neurons were more or less "hard-wired" and once they were linked up within the developing organism, they were basically locked in to that wiring.

It is now known that any given neuron seems to have the ability to switch from using one type of neurotransmitter to another, thereby altering its message *and* the region of the brain to which it sends signals. As Dr. Ira Black from Cornell University recently wrote:

It is becoming increasingly apparent that the transmitter status of a neuron represents a dynamic, changing process, influenced by multiple extracellular factors. . . . Consequently, neurons may respond to environmental information by altering transmitter phenotypic expression and, presumably, the signals sent to other neurons.

Since placebos clearly seem to require a basic change in the brain/mind's modus operandi, it is tempting to speculate that *such neurotransmitter plasticity of neurons may be the molecular key to placebo effects*, since it would allow the actual physico-chemical modes of transmission from the same site to change from one type of signal to another.

It is also known that neurons can effectively involve themselves with more than one neurotransmitter or neuropeptide at the same time. It could well be that the subtle shifts of mind involved in hope and expectancy could, on the molecular level, involve just such shifts in neuron-to-neurotransmitter relationships.

One of the important sources of new thinking in this field is Candace Pert and her colleagues at the National Institute of Mental Health. Writing in the *Journal of Immunology* in 1985, they state:

A major conceptual shift in neuroscience has been wrought by the realization that brain function is modulated by numerous chemicals in addition to classical neurotransmitters. Many of these informational substances are neuropeptides, originally studied in other contexts as hormones, "gut peptides", or growth factors. Their number presently exceeds 50 and most, if not all, alter behavior and mood states, although only endogenous analogs of psychoactive drugs like morphine, valium, and phencyclidine have been well appreciated in this context. We now realize that their signal specificity resides in receptors (distinct classes of recognition molecules), rather than the close juxtaposition occurring at classical synapses. Rather precise brain distribution patterns for many neuropeptide receptors have been determined. A number of brain loci, many within emotion-mediating brain areas, are enriched with many types of neuropeptide receptors suggesting a con-

vergence of information at these "nodes". Additionally, neuropeptide receptors occur on mobile cells of the immune system; monocytes can chemotax to numerous neuropeptides via processes shown by structure-activity analysis to be mediated by distinct receptors indistinguishable from those found in the brain. Neuropeptides and their receptors thus join the brain, glands and immune system in a network of communication between brain and body, probably representing the biochemical substrate of emotion.

This new informational systems view of the healing process seems likely to deeply transform our overall view of what happens in healing processes and promises to "make sense" of many previously inexplicable claims. In his recent book *The Psychobiology of Mind-Body Healing*, Dr. Ernest Rossi observes:

Neuropeptides, then, are a previously unrecognized form of information transduction between mind and body that may be the basis of many hypnotherapeutic, psychosocial, and placebo responses. From a broader perspective, the neuropeptide system also may be the psychobiological basis of the folk, shamanistic, and spiritual forms of healing (that share many of the characteristics of hypnotic healing) currently returning to vogue under the banner of "holistic medicine".

It seems therefore that the many and complex linkages between mind/brain/body at the cellular level are emerging at long last. The work Candace Pert describes in the accompanying article—and so much more has been done since she gave this talk for the Institute of Noetic Sciences in October 1985—promises to be basic to the new picture of brain and body and, perhaps, eventually brain and mind.

This exciting line of thinking pioneered by Pert and her colleagues may eventually force us to re-classify several of the major diseases, and lead to treatments. Already the work has resulted in a new approach to the treatment of AIDS; it also promises to alter our thinking about schizophrenia and even some kinds of cancer.

Another result of this work may be that we can now make sense of some of the practices we have dismissed from medicine. It may also make us dismiss from medical practice some attitudes and behaviors towards patients we have assumed to have no impact on people's lives and the course of their disease.

Neuropeptides: The Emotions and Bodymind

by Candace Pert

Editor's note: Neuropeptides are chemical substances made and released by brain cells and certain other cells. Recent research suggests that these neuropeptides may provide the key to an understanding of the body's chemistry of emotion. They appear to serve as a newly discovered form of communication within the body.

This is the conclusion of biochemist Dr. Candace Pert, who describes the research that led her to this insight, in the accompanying article. She also explores the far-reaching implications of this new informational link.

Pert was among the first researchers to show that opiate drugs like morphine and heroin bind to cells, or "receptor sites", in the brain. This finding, along with the discovery that the body produces its own opiate-like chemicals which bind to the same receptor sites, has opened a whole new approach to investigating the role of brain chemistry and human emotions.

The relationship between neuropeptides and their specific receptor sites has been likened to that of "key and lock". Neuropeptides float through virtually all the body fluids and are attracted only to specific receptors because, in effect, they fit specific locks. This establishes an information system in which neuropeptides "speak" and receptors "listen". Pert believes that this communication system is fundamental to the biochemistry of emotion. "When we document the key role that the emotions, expressed through neuropeptide molecules, play in affecting the body," she says, "it will become clear how emotions can be a key to the understanding of disease".

The accompanying article was adapted from a talk delivered by Pert at the Symposium on Consciousness and Survival, co-sponsored by the Institute of Noetic Sciences. Pert was one of a panel of eleven scholars and scientists who were asked to apply insights from their research findings on mind/body relationships to the question: Does individual consciousness survive bodily death?



Leonardo

In this talk, I am going to describe an array of fascinating, mostly new findings about the chemical substances in the body called neuropeptides. Based on these findings, I am going to suggest that neuropeptides and their receptors form an information network within the body. Perhaps this suggestion sounds fairly innocuous, but its implications are far reaching:

I believe that neuropeptides and their receptors are a key to understanding how mind and body are interconnected and how emotions can be manifested throughout the body. Indeed, the more we know about neuropeptides, the harder it is to think in the traditional terms of a mind and a body. It makes more and more sense to speak of a single integrated entity, a "body-mind".

Most of what I will describe are laboratory findings, hard science. But it is important to remember that the scientific study of psychology traditionally focuses on animal learning and cognition. This means that if you look in the index of recent textbooks on psychology, you are not likely to find a listing for "consciousness", "mind", or even "emotions". These subjects are basically not in the realm of traditional experimental psychology, which primarily studies *behavior* because it can be seen and measured.

The Specificity of Receptor Sites

There is one field in psychology where mind—at least consciousness—has been objectively studied for perhaps twenty years. This is the field of psychopharmacology wherein researchers have

This messenger molecule [neuropeptide] and cell-receptor communication system is the psychobiological basis of mind-body healing, therapeutic hypnosis, and holistic medicine in general.

—Ernest Rossi: *The Psychobiology of Mind-Body Healing*

developed highly rigorous ways to measure the effects of drugs and altered states of consciousness.

Research in this field evolved from an assumption that no drug acts unless it is "fixed"—that is, somehow gets attached to the brain. And so researchers initially imagined hypothetical tissue constituents to which a drug might bind—much the way a key fits a lock—and they called these "receptors". In this way, the notion of specific brain receptors for drugs became a central theory in pharmacology. It is a very old idea.

In the past several years, a critical development has been the invention of new technologies for actually binding drugs to these receptor molecules and for studying both their distribution in the brain and body and their actual molecular structure.

My initial work in this area was in the laboratory of Solomon Snyder at Johns Hopkins University, where we focused our attention on opium, a drug that obviously alters consciousness and that also is used medicinally to alleviate pain. I worked long and hard, over many months of initial failure, to develop a technical system for measuring the material in the brain with which opium interacts to produce its effects. To make a long (and technical) story short, we used radioactive drug molecules, and with this technology were actually able to identify the receptor element for opium in the brain. You can imagine, therefore, a molecule of opium attaching itself to a receptor—and then from this small connection, large changes follow.

It next turned out that the whole class of drugs to which opium belongs—they are called opiates and they include morphine, codeine, and heroin, as well as opium—attach to the *same*

receptors. Further, we discovered that the receptors were scattered throughout not only the brain but also the body.

After finding the receptor for the external opiates, our thinking took another step. If the brain and the other parts of the body have a receptor for something taken from *outside* the body it makes sense to suppose that something produced *inside* the body also fits the receptor. Otherwise, why would the receptor be there?

This perspective ultimately led to the identification of one of the brain's own form of opiates, a chemical substance called beta endorphin. Beta endorphin is created in the brain's own nerve cells and consists of peptides—thus it is a neuropeptide. Furthermore peptides grow directly off the DNA which stores the information to make our brains and bodies.

If you picture an ordinary nerve cell, you can visualize the general mechanism. In the center (as in any cell) is the DNA, and a direct printout of the DNA leads to the production of a neuropeptide, which then traverses down the axons of the nerve cell to be stored in little balls at the end waiting for the right electro-physical events that will release it. The DNA also leads to the production of receptors, which are made out of the same peptide material but are much bigger. What has to be added to this picture is the fact that 50 to 60 neuropeptides have been identified, each of them as specific as the beta endorphin neuropeptide. We have here an enormously complex system.

Until quite recently, it had been thought that the information of the nervous system was distributed across the gap between two nerve cells, called the synapse. This meant that the proximity of the nerve cells determined what could be communicated.

But now we know that the largest portion of information coming from the brain is kept straight not by the close physical juxtaposition of the nerve cells, but by the specificity of the receptors. What was thought of as a highly rigid linear system appears to be one with far more complex patterns of distribution.

Thus when a nerve cell squirts out opiate peptides, the peptides can act "miles" away at other nerve cells. The same is true of all neuropeptides. At any given moment, many neuropeptides may be floating along within the body, and what enables them to attach to the correct receptor molecules is, to repeat, the specificity of the receptors. *Thus, the receptors serve as the mechanism that sorts out the information exchange in the body.*

The Biochemistry of the Emotions

What is this leading up to? To something very intriguing—the notion that the receptors for the neuropeptides are in fact the keys to the biochemistry of emotion. In the last two years, the workers in my lab have formalized this idea in a number of theoretical papers¹, and I am going to review briefly the evidence to support it.

I should say that some scientists might describe this idea as outrageous. It is not, in other words, part of the established wisdom. Indeed, coming from a tradition where the textbooks do not even contain the word "emotions" in the index, it was not without a little trepidation that we dared to start talking about the biochemical substrate of emotions.

I will begin by noting a fact that neuroscientists have agreed on for a long time: that emotions are mediated by the limbic system of the brain. The limbic

Emotions and the Limbic System

The limbic system has been identified as the seat of emotions in the brain. Key structures involved in regulating emotions are:

•*Amygdala*

•*Hypothalamus*: "the brain's brain"

} Number of *opiate receptors* here is 40-fold higher than in other areas of the brain.

The hypothalamus controls the action of the pituitary gland, generally considered the "master gland" of the body. Hormones released by the pituitary control the release of other hormones involved in varying emotional states

system refers to a section of neuro-anatomical parts of the brain which include the hypothalamus (which controls the homeostatic mechanism of the body and is sometimes called the "brain" of the brain), the pituitary gland (which regulates the hormones in the body), and the amygdala. We will be talking mostly about the hypothalamus and the amygdala.

The experiments showing the connection between emotions and the limbic system were first done by Wilder Penfield and other neurologists who worked with conscious, awake individuals. The neurologists found that when they used electrodes to stimulate the cortex over the amygdala they could evoke a whole gamut of emotional displays—powerful reactions of grief, of pain, of pleasure associated with profound memories, and also the total somatic accompaniment of emotional states. The limbic system was first identified, then, by psychological experiments.

Now when we began to map the location of opiate receptors in the brain we found that the limbic system was highly enriched with opiate receptors (and with other receptors too, we eventually learned). The amygdala and the hypothalamus, both classically considered to be the main components of the limbic system, are in fact blazing with opiate receptors—40-fold higher than in other areas of the brain.

These "hot spots" correspond to very specific nuclei or cellular groups that physiological psychologists have identified as mediating such processes as sexual behavior, appetite, and water

balance in the body. The main point is that our receptor-mapping confirmed and expanded in important ways the psychological experiments that defined the limbic system.

Now let me bring in some other neuropeptides. I have already noted that 50 to 60 substances are now considered to be neuropeptides. Where do they come from? Many of them are the natural analogs of psychoactive drugs. But another major source—very unexpected—is hormones. Hormones historically have been conceived of as being produced by glands—in other words, not by nerve cells. A hormone presumably was stored in one place in the body, then travelled over to its receptors in other parts of the body. The prime hormone is insulin, which is secreted in the pancreas. But, now, it turns out that insulin is not just a hormone. In fact, insulin is a neuropeptide, made and stored in the brain, and there are insulin receptors in the brain. When we map insulin, we again find hot spots in the amygdala and hypothalamus. *In short, it has become increasingly clear that the limbic system, the seat of emotions in the brain, is also the focal point of receptors for neuropeptides.*

Another critical point. As we have studied the distribution of these receptors, we have found that the limbic system is not just in the forebrain, in the classical locations of the amygdala and the hypothalamus. It appears that the body has other places in which many different neuropeptide receptors are located—places where there is a lot of chemical action. We call these spots

nodal points, and they are anatomically located at places that receive a lot of emotional modulation.

One nodal point is the dorsal (back) horn of the spinal cord, which is the spot that sensory information comes in. This is the first synapse within the brain where touch-sensory information is processed. We have found that for virtually all the senses for which we know the entry area, the spot is always a nodal point for neuropeptide receptors.

I believe these findings have amazing implications for understanding and appreciating what emotions do and what they are about. Consider the chemical substance angiotensin, another classical hormone which is also a peptide and now shown to be a neuropeptide. When we map for angiotensin receptors in the brain, we again find little hot spots in the amygdala. It has long been known that angiotensin mediates thirst, so if one implants a tube in the area of a rat's brain that is rich with angiotensin receptors and drops a little angiotensin down the tube, within 10 seconds the rat will start to drink water, even if it is totally sated with water. So, chemically speaking, angiotensin translates as an altered state of consciousness, a state that makes animals (and humans) say, "I want water." In other words, neuropeptides bring us to a state of consciousness and to alterations in those states.

Equally important is the fact that neuropeptide receptors are not just in the brain, they are also in the body. We have mapped and shown biochemically that there are angiotensin receptors in the kidney identical to those in the brain, and in a way that is not yet quite understood, the kidney-located receptors conserve water. The point is that the release of the neuropeptide angiotensin leads both to the behavior of drinking and to the internal conservation of water. Here is an example of how a neuropeptide—which perhaps corresponds to a mood state—can integrate what happens in the body with what happens in the brain. (A further important point that I only mention here is that overall integration of behavior seems designed to be consistent with survival.)

My basic speculation here is that neuropeptides provide the physiological basis for the emotions. As my colleagues and I argued in a recent paper in

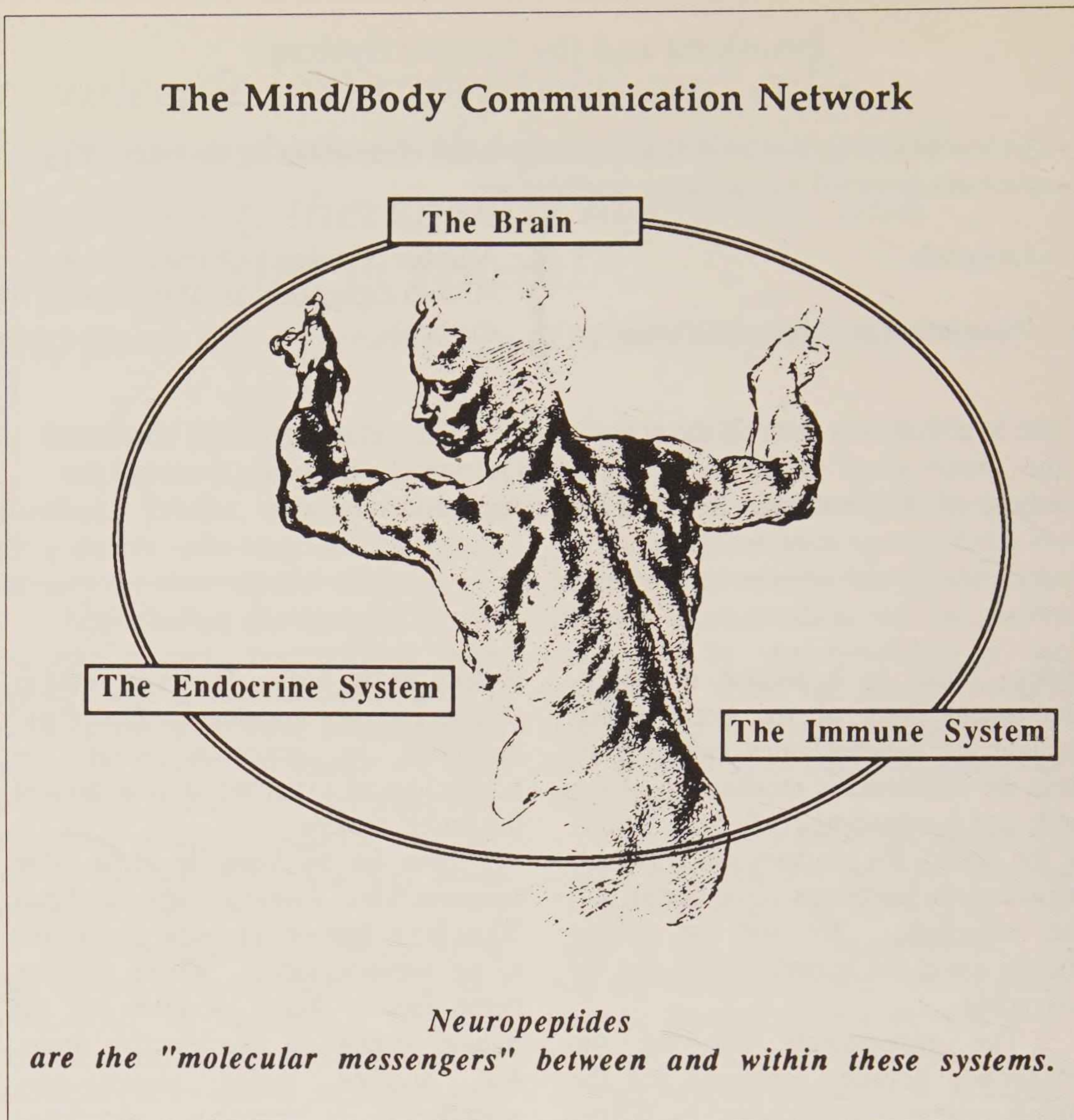
the *Journal of Immunology*²: The striking pattern of neuropeptide receptor distribution in mood-regulating areas of the brain, as well as their role in mediating communication through the whole organism, makes neuropeptides the obvious candidates for the biochemical mediation of emotion. It may be too that each neuropeptide biases information processing uniquely when occupying receptors at nodal points with the brain and body. If so, then each neuropeptide may evoke a unique "tone" that is equivalent to a mood state.

In the beginning of my work, I matter-of-factly presumed that emotions were in the head or the brain. Now I would say they are really in the body as well. They are expressed in the body and are part of the body. I can no longer make a strong distinction between the brain and the body.

Communicating with the Immune System

I now want to bring the immune system into this picture. I have already explained that the hormone system, which historically has been studied as being separate from the brain, is conceptually the same thing as the nervous system. Packets of juices are released and diffuse very far away, acting via the specificity of receptors at sites far from where the juices are stored. So, endocrinology and neuroscience are two aspects of the same process. Now I am going to maintain that immunology is also part of this conceptual system and should not be considered a separate discipline.

A key property of the immune system is that its cells move. They are otherwise identical to the stable brain cells, with their nuclei, cell membranes and all of the receptors. Monocytes, for example, which ingest foreign organisms, start life in your bone marrow, and they then diffuse out and travel through your veins and arteries, and decide where to go by following chemical cues. A monocyte travels along in the blood and at some point comes within "scenting" distance of a neuropeptide, and because the monocyte has receptors for the neuropeptide on its cell surface, it begins literally to chemotax, or crawl, toward that chemical. This is very well documented, and there are excellent ways of studying it in the laboratory.



Now, monocytes are responsible not just for recognizing and digesting foreign bodies but also for wound healing and tissue-repair mechanisms. What we are talking about, then, are cells with vital, health-sustaining functions.

The new discovery I want to emphasize here is that *every* neuropeptide receptor that we have looked for (using an elegant and precise system developed by my colleague, Michael Ruff) is also on human monocytes. Human monocytes have receptors for opiates, for PCP, for another peptide called bombasin, and so on. *These emotion-affecting biochemicals actually appear to control the routing and migration of monocytes, which are so pivotal in the immune system.* They communicate with B-cells and T-cells, interact in the whole system to fight disease and to distinguish between self and non-self, deciding, say, which part of the body is a tumor cell to be killed by natural killer cells, and which parts need to be restored. I hope this picture is clear to you.

A monocyte is circulating—this health-sustaining element of the immune system is traveling in the blood—and then the presence of an opiate pulls it over, and it can connect with the neuropeptide because it has the receptor to do so. It has, in fact, many different receptors for different neuropeptides.

It turns out, moreover, that the cells of the immune system not only have receptors for these various neuropeptides; as is becoming clear, they also make the neuropeptides themselves. There are subsets of immune cells that make beta endorphins, for example, and the other opiate peptides. In other words, these immune cells are making the same chemicals that we conceive of as controlling mood in the brain. They control the tissue integrity of the body, and they also make chemicals that control mood. Once again, brain and body.

The Unity of the Variety

The last point I am going to make about the neuropeptides is an astounding one, I think. ➤

Mind as Information

What do these kinds of connections between brain and body mean? Ordinarily they are referred to as "the power of the mind over the body". As far as I am concerned, that phrase does not describe what we are talking about here. I would go further. We are all aware of the bias built into the Western idea that consciousness is totally in the head. I believe the research findings I have described indicate that we need to start thinking about how consciousness can be projected into various parts of the body. When we document the key role that the emotions, expressed through neuropeptide molecules, play in affecting the body, it will become clear how emotions can be a key to the understanding of disease. Unfortunately, people who think about these things do

not usually work in a government laboratory.

My argument is that the three classic areas of neuroscience, endocrinology, and immunology, with their various organs—the brain (which is the key organ that the neuroscientists study), the glands, and the immune system (consisting of the spleen, the bone marrow, the lymph nodes, and of course the cells circulating through the body)—that these three areas are actually joined to each other in a bi-directional network of communication and that the information "carriers" are the neuropeptides. There are well-studied physiological substrates showing that communication exists in both directions for every single one of these areas and their organs. Some of the research is

old, some of it is new.

The word I would stress in regard to this integrated system is network, which comes from information theory. For what we have been talking about all along is *information*. In thinking about these matters, then, it might make more sense to emphasize the perspective of psychology—literally the study of the mind—rather than of neuroscience. A mind is composed of information, and it has a physical substrate, which is the body and the brain; and it also has another immaterial substrate that has to do with information flowing around: *Perhaps, then, mind is the information flowing among all of these bodily parts. Maybe mind is what holds the network together.*

As we have seen, neuropeptides are signaling molecules. They send messages all over the body (including the brain). Of course, to have such a communications network, you need components that can talk to each other and listen to each other. In the situation we are discussing here, the components that "talk" are the neuropeptides, and the components that "hear" are the neuropeptide receptors. How can this be? How can 50 to 60 neuropeptides be produced, float around, and talk to 50 or 60 types of listening receptors which are on a variety of cells? Why does order rather than chaos reign?

The finding I am going to discuss is not totally accepted, but our experiments show that it is true. I have not published it yet, but I think that it is only a matter of time before everybody can confirm these observations.

There are thousands of scientists studying the opiate receptors and the opiate peptides, and they see great heterogeneity in the receptors. They have given a series of Greek names to the apparent heterogeneity. However, all the evidence from our lab suggests that in fact *there is actually only one type of molecule in the opiate receptors, one long polypeptide chain whose*

formula you can write. This molecule is quite capable of changing its conformation within its membrane so that it can assume a number of shapes.

I note in passing that this interconversion can occur at a very rapid pace—so rapid that it is hard to tell whether it is one state or another at a given moment in time. In other words, receptors have both a wave-like and a particulate character, and it is important to note that information can be stored in the form of time spent in different states.

As I said, the molecular unity of the receptors is quite amazing. Consider the tetrahymena, a protozoa that is one of the simplest organisms. Despite its simplicity, the tetrahymena can do almost everything we can do—it can eat, have sex, and of course it makes the same neuropeptide components that I have been talking about. The tetrahymena makes insulin. It makes beta endorphins. We have taken tetrahymena membranes and in particular studied the opiate receptor molecules on them; and we have studied the opiate receptor in rat brains and on human monocytes.

We believe that we have shown that the molecular substance of *all* opiate receptors is the same. The actual

molecule of the human-brain opiate receptor is identical to the opiate receptor components in that simplest of animals, the tetrahymena. I hope the force of this clear. The opiate receptor in my brain and in your brain is, at root, made of the same molecular substance as the tetrahymena.

This finding gets to the simplicity and the unity of life. It is comparable to the four DNA-based pairs that code for the production of all the proteins, which are the physical substrates of life. We now know that in this physical substrate there are only 60 or so signal molecules, the neuropeptides, that account for the physiological manifestation of emotions—for enlivening emotions, if you will, or perhaps better yet, for flowing energy. The protozoa form of the tetrahymena indicates that the receptor molecules do not become more complex as an organism becomes more complex: *The identical molecular components for information flow are conserved throughout evolution. The whole system is simple, elegant, and it may very well be complete.*

Is the Mind in the Brain?

We have been talking about mind, and the question arises: Where is it? In

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our own work, consciousness has come up in the context of studying pain and the role of opiate receptors and endorphins in modulating pain. A lot of labs are measuring pain, and we would all agree that the area called periaqueductal gray, located around the third ventricle of the brain, is filled with opiate receptors, making it a kind of control area for pain. We have found that the periaqueductal gray is also loaded with receptors for virtually all the neuropeptides that have been studied.

Now, everyone knows that there are yogis who can train themselves so that they do or do not perceive pain, depending on how they structure their experience. Women in labor do the same thing. What seems to be going on is that these sorts of people are able to plug into their periaqueductal gray. Somehow they gain access to it—with their consciousness, I believe—and set pain thresholds. Note what is going on here. In these situations, a person has an experience that brings with it pain, but a part of the person consciously does something so that the pain is not felt. Where is this consciousness coming from—this conscious I—that somehow plugs into the periaqueductal gray so that he or she does not feel a thing?

I want to go back to the idea of a network. A network is different from a hierarchical structure which has one top place. You theoretically can plug into a network at any point and get to any other point. A concept like this seems to me valuable in thinking about the processes by which a consciousness can manage to reach the periaqueductal gray and use it to control pain.

The yogi and the laboring woman both use a similar technique to control pain—breathing. Athletes use it, too. Breathing is extremely powerful. I suggest that there is a physical substrate

for these phenomena, the brain stem nuclei. I would say that we now must include the brain stem nuclei in the limbic system because they are nodal points, thickly encrusted with neuropeptide receptors and neuropeptides.

The idea, then, goes like this: breathing has a physical substrate which is also a nodal point, this nodal point is part of an information network in which each part leads to all the other parts, and so, from the nodal point of the brain stem nuclei, the consciousness can, among other things, plug into the periaqueductal gray.

I think it is possible now to conceive of mind and consciousness as an emanation of emotional information processing, and as such, mind and consciousness would appear to be independent of brain and body.

Can Mind Survive Physical Death?

One last speculation, an outrageous one perhaps, but on the theme I was asked to consider for this symposium on "Survival and Consciousness". Can the mind survive the death of the physical brain? Perhaps here we have to recall how mathematics suggests that physical entities can suddenly collapse or infinitely expand. I think it is important to realize that information is stored in the brain, and it is conceivable to me that this information could transform itself into some other realm. The DNA molecules surely have the information that makes the brain and body, and the bodymind seems to share the information molecules that enliven the organism. Where does the information go after the destruction of the molecules (the mass) that compose it? Matter can neither be created nor destroyed, and perhaps biological information flow cannot just disappear at death and must be transformed into another realm. Who

can rationally say "impossible"? No one has yet mathematically unified gravitation field theory with matter and energy. The mathematics of consciousness has not even been approached. The nature of the hypothetical "other realm" is currently in the religious or mystical dimension, where Western science is clearly forbidden to tread.

The above is a revised version of an article adapted by Harris Dienstfrey from a talk delivered at the Symposium on Consciousness and Survival, sponsored by the Institute of Noetic Sciences, October 25 - 26, 1985; reprinted with permission from Advances, Volume 3, Number 3, Summer 1986, © 1986 Institute for the Advancement of Health.

Candace Pert, PhD, is chief of brain biochemistry, Clinical Neuroscience Branch, National Institute of Mental Health. As a doctoral student at Johns Hopkins in 1973, she was among the first to show that opiate drugs like morphine and heroin can bind to cells in the brain. This finding, along with the discovery two years later that the body produces its own morphine-like chemicals called endorphins, has opened up a whole new approach to investigating how the brain controls emotion.

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Beyond the Modern Worldview

A worldview is a way of seeing reality as a whole. It consists of the beliefs and values which shape our experience by molding how we think, perceive, feel and act. Our worldviews shape what we think we are capable of achieving, and what we view as desirable goals for ourselves and our fellow human beings.



by Thomas J. Hurley III

Eclipse

Art Holman

Editor's note: This article was written following the author's attendance at a conference in Santa Barbara, California, January 16-20, 1987. Entitled "Toward a Post-Modern World", the conference was co-sponsored by the Center for a Post-Modern World and the Center for Process Studies. It featured 18 keynote speakers from a variety of fields—astrophysics, biology, ecology, economy, psychology, theology and cultural history, among others—each of whom led a small-group workshop in addition to giving a plenary address. It attracted over 250 participants. Information on the availability of proceedings of the conference and audiotapes of individual talks is available from the Center for a Post-Modern World, 2060 Alameda Padre Serra, Suite 101, Santa Barbara, CA 93103; (805) 965-0366.

There are periods in history in which the prevailing worldview or cosmology of a culture fulfills the needs of that culture by providing a sense of meaning in life for each of its members, and a sense of human purpose in relation to the cosmos. During these periods, the overarching "orienting stories" of that culture provide both

context and direction for individual and social development. The Judeo-Christian story, the "manifest destiny" story of the United States, and the liberal story of human evolution are examples of orienting stories that until recently have had the power to compel belief and inspire motivation.

We are now, however, living in a period in which the "fit" between our worldviews and our world has eroded. Rapid developments in science, technology and society have utterly transformed the world in which we live. Yet our ways of thinking about that world, and of organizing our lives in it, have not kept pace with these changes.

As a result, once powerful ideas concerning the role of human life on Earth have lost their capacity to provide meaning and purpose for many, and for some they have become actively dysfunctional.

Even science, which has played a major role in displacing the traditional mythologies and religious worldviews that formerly inspired a sense of connection, has begun to lose its monopoly on truth.

We thus find ourselves in a growing crisis of faith that tests both our

courage and will, and our capacity to engage creatively with the unknown. Three arenas in which we are presently challenged in this way are the realms of the self (whose loss is feared), social institutions (where multiple crises predominate), and science (where basic assumptions are being questioned).

Self and Center

When our worldviews no longer give meaning to life, "disorienting stories" proliferate. Such stories, which have emerged in the 20th century in art, literature and the social sciences, tell of the meaningless of human existence and the lack of connection between the events in one's life. The existential protagonist with "no exit" exemplifies the human being in such stories. In them, the self is relativized and people feel powerless to bring about change in the world. Much of contemporary culture reinforces this trivialization of the self.

Yet intuitively we feel that the self is not, ultimately, adrift in an unfriendly, incomprehensible world, and with our capacity for purposive action we cannot be without power, however insignificant that power may seem at

times in relation to the technological, economic and political engines of change on Earth. We seek a post-modern worldview to supplant this sense of trivialization and powerlessness.

"The self does have a center," theologian William Beardslee urged conference participants to see, and it is precisely this center that can serve as one key frame of reference for the new story, or stories, that will re-connect us with ourselves, one another, nature and the cosmos. Both human creativity and conscience have their source in this center, and both are necessary guides in mapping and settling the post-modern world.

The self's center is at once both personal and transpersonal. Our individual efforts to heal the split between how we deeply feel our lives could be and the ways we actually lead our lives are simultaneously efforts to reconstitute the world. Remembering ourselves, we "re-member" the world.

It cannot be otherwise—the link between personal development and the dynamics of collective change is indivisible. "(T)he soul of the individual can never advance beyond the soul of the world, because they are *inseparable*, the one always implicating the other," said psychologist James Hillman in a paper distributed at the conference. "Any alteration in the human psyche resonates with a change in the psyche of the world."

Thus, it is not only we who, in speaking to one another, speak to the world; the world speaks to and through us. "The world, because of its breakdown, is entering a new moment of consciousness," wrote Hillman. "By drawing attention to itself by means of its symptoms, it is becoming aware of itself as a psychic reality."

We are the world awakening to its own soul. By listening to its voices, we can discern both its pain and its possibilities for transformation—pain and possibilities which are also our own.

Seeing ourselves in this way involves a fundamental shift in identification—a shift from seeing ourselves as separate from a world of dead matter to feeling that we are inescapably connected with a living cosmos. We are not like the isolated, indestructible

Conference Presentations: Toward a Post-Modern World

David Griffin, *Beyond the Modern World*
Richard Falk, *A Holistic Worldview and a Peaceful World*
Frederick Ferré, *Toward a Post-Modern Science and Technology*
Carolyn Merchant, *Science: Modern and Post-Modern*
Brian Swimme, *The Cosmic Creation Story*
L. Charles Birch, *Post-Modern Biology*
Herman Daly, *Post-Modern Economics on a Finite Planet*
C. Dean Freudenberger, *Agriculture in a Post-Modern World*
John B. Cobb, Jr., *A Post-Modern Social Policy*
Steve Odin, *Esoteric Buddhism & Post-Modern Religion*
Catherine Keller, *Post-Modernity as Post Patriarchy*
Yaakov Garb, *Images of the Earth: Pre-Modern Modern and Post-Modern*
Timothy Eastman, *NASA & NSF Programs in Global Geoscience*
Joanna Rogers Macy, *Our Planet Our Self: Discovering Our Deep Ecology*
William Beardslee, *Stories in the Post-Modern World*
Stanley Krippner, *Parapsychology & Post-Modern Psychology*
James Hillman, *Anima Mundi & The Imagination of Post-Modern Therapy*
Jamake Highwater, *The Imagination as a Political Force*
Matthew Fox, *Creation Spirituality: A Post-Modern and Pre-Modern Spiritual Paradigm*
Charlene Spretnak, *An Earth-Based Politics of Wisdom and Compassion*
Willis Harman, *Toward a Post-Modern World*

atoms of Newtonian physics. We are—in astrophysicist Brian Swimme's terms—cosmological formations, aspects of the cosmos knowing itself.

Our particular contribution to the evolving, self-organizing cosmos is a function of our capacity for conscious self-regulation, which brings with it the capacity for self-transformation. What kinds of transformation are possible we do not really know, for we have just begun to explore, in contemporary terms, the nature and extent of the mind, body and spiritual mechanisms involved. Continuing inquiry along these lines is now essential since we have the capability to alter ourselves and the world so dramatically. Bio-engineering and computerization are just two of the more highly-publicized trends that are already reshaping human and planetary futures.

The quest for a post-modern worldview is in large part the quest for a story that will support transformative processes (social, political and economic as well as personal) that are more richly conscious and self-conscious—a story that has both the potential, the charge and even some guidelines for such transformation built into it.

Multiple Crises Rooted in Mind

While one reference for a new way of being is our individual conscience, a second must be the health and well-being of the larger systems of which we are a part—our families, communities,

nations and nature. Enormous suffering exists in all these realms, suffering that directly reflects the obsolescence of the modern worldview and the ways of life that derive from it.

The scope of the modern world's crisis is planetary and affects every field of human endeavor. In Santa Barbara, for example, agronomist C. Dean Freudenberger characterized agriculture as an enterprise in the advanced stages of collapse because modern agricultural practices have proven technologically, socially and economically disastrous.

He chronicled their shortcomings: Humanity has eroded away 50% of the Earth's soil deposits and will lose another 30% by the end of the century. The soil and food systems that remain are increasingly toxic and will become more so as long as agricultural technology depends on fossil fuels and petrochemicals, themselves nonrenewable and toxic resources. Trying to extend agriculture into other areas results in deforestation, "the most environmentally abusive activity perpetrated by the human species." Pervasive monocropping destroys the genetic variability on which plant hardiness and adaptability depends, while other agricultural practices contribute to damaging the Earth's ozone layer and to the buildup of carbon dioxide in the atmosphere—both ecologically disruptive trends. Moreover, the system is bankrupt. In the USA alone, farm debt equals the combined international debts of Mexico,

Whether or not a post-modern worldview (or several of them) will emerge is not the question. They will. The question is, what will be the foundation assumptions about reality that will form the basis of this story?

Likewise, it is not a question of whether or not we can change ourselves and the world—that is already happening, and trends already well-established promise ever greater changes.

The question is, to what extent can we participate consciously in this world-transformation, conscious both of the effects of these changes on ourselves and the Earth and of the source of these changes in our own minds and hearts? What kinds of knowledge about ourselves, and what kinds of disciplines with ourselves, can foster a worldview and associated world that ensures our continuing well-being and promotes our potentials for learning, development and creative achievement?

Argentina and Brazil—some 220 billion dollars—and this rests on 3% of the population. Internationally, the situation is worse.

The crisis in agriculture is but one facet of a larger pattern of change that also affects economics, health care, politics, community development, education and business. While many can discern problems in one or another of these areas, however, most of the measures that are advanced to address them treat only "symptoms" while continuing to mask the underlying "disease". That is why seeing the *pattern* of systemic challenges—in agriculture, economics, etc.—is important. Then it becomes easier to see that the roots of each of these crises lie in a ground common to them all. That ground is the mind—it is how we think and feel about the world and our place in it. We then see, too, that *none of our systemic problems can be fully resolved until the question of underlying values and beliefs is addressed.*

"The modern worldview is intellectually inadequate, spiritually destructive and ecologically suicidal," said David Griffin, Director of the Center for a Post-Modern World. In its epistemological bias toward mechanism, reductionism, scientism, individualism, ruthless competition and sensate empiricism to the exclusion of other modes of knowing, it leaves no place for such fundamental dimensions of human experience as the influence of normative

ideals, free will, consciousness, genuine creativity and inspiration, spiritual experience and our kinship with nature. It is no longer an effective guide to action in the world, and directly poses a danger to our continuing survival and well-being.

"What we need to see *more* clearly," said Griffin, "is that our current crises are ultimately rooted in the modern worldview."

What might replace the modern worldview is sometimes less clear than the fact that it needs to be replaced. It is easier to say what a post-modern worldview is not, than to say positively what it is, said cultural historian Carolyn Merchant to the audience in Santa Barbara. Nevertheless, she ventured to identify several emerging assumptions about the basic nature of reality that could begin to serve as broad guides to both an ethic and a vision for a healthy and regenerative global society. These include:

- *Dynamic union:* Everything is connected to everything else.
- *Effective synergy:* The whole is greater than the sum of the parts.
- *Context-dependence:* Each part takes its meaning from the whole.
- *Self-organizing process:* The process is more fundamental than the parts.
- *Implicate order:* All that is (nature, mind, body, matter, energy) is unified at the deepest level of reality.

These concepts "bear an intimate resemblance to the worldview emerging as intrinsic to feminist thought and

practice," scholar Catherine Keller said. "Both are generating creative alternatives to the traditional. . . dualisms of body and mind, matter and spirit, self and other, world and deity. . . .But such satisfying generalizations," she also noted, "though perhaps bearing important truths, must work themselves through the specific frictions of our histories, our psychologies, our visions."

Science and Subjectivity

The dilemmas in society are paralleled by a conceptual impasse in science—an impasse rooted in problems insoluble in terms of the current scientific paradigm.

"There are questions that can now be asked that cannot be satisfactorily answered within the dominant mechanistic framework of biology," said Charles Birch of the University of Sydney in Australia. Important problems which mechanistic, reductionistic models are proving insufficiently powerful to address include biological development, the function of the central nervous system and brain, some aspects of animal behavior, and the evolution of mind and consciousness.

For example, a key feature of mechanistic models of evolution is that they attempt to explain the development of all phenomena in terms of the interplay of chance and necessity. These models leave human beings without a meaningful role in life on Earth:

Whether pure chance, pure necessity (determinism), or some combination of the two are responsible for evolution, we are superfluous in every case.

We deeply feel this is not so. In the words of philosopher Charles Hartshorne, whom Birch quoted, "Neither pure chance nor the pure absence of chance can explain the world. . . . There must be something positive limiting chance and something more than mere matter in matter, or Darwinism fails to explain life."

That "something", according to Birch, "is the notion that natural entities have a degree of self-determination in response to the possibilities of their future. . . . (W)hy did atoms evolve into cells and to plants and to animals? Why didn't creativity stop with the first DNA molecule? Mechanism provides no answer to this question. The ecological model opens up ways to explore it in terms of lure and response or purposive influence and self-determination. . . . Because natural entities are always in process of relating with their own particular degree of freedom to the lure of fulfillment, there is in nature a constant tension between order and chaos.

"Chance alone cannot explain the evolution of life," Birch concludes. "Chance and purpose together provide a more substantial base for thinking about evolution."

This means that evolution is not just the endless re-shuffling and re-arrangement of interchangeable, independently-existing objects or parts. It is fundamentally the evolution of subjects, a view which constitutes a major shift in scientific assumptions. It at once shatters the myth of objectivity and attributes subjectivity to all of nature, not just to conscious human beings. It takes *mind* out of the human head and places it firmly, pervasively, in the world.

Hillman gives this concept psychological immediacy. Anima mundi, the soul of the world, is a soul which permeates not only the Earth as a whole but every individual aspect of it. "(L)et us imagine the anima mundi as that particular soul-spark, that seminal image, which offers itself through each thing in its visible form," he wrote. "Each particular event, including individual humans with our invisible thoughts, feelings and intentions,

reveals a soul in its imaginative display."

One consequence of this point of view is that we begin to experience our kinship with other beings on a level that touches the core of who we experience ourselves to be in our most profound moments of inspiration and self-knowledge.

"I cannot really know what it is to be a chimpanzee, let alone a bee, unless I *be* one," said Birch. "Nor can I know what it is to be you instead of me. -But in this latter case we struggle imaginatively to enter one another's lives.

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Why should we not seek to do the same with other living organisms? Is not our neighbor all that participates in life? If so, the implication for ethics is revolutionary. If the needs of neighbor stretch beyond human needs, so does the reach of love."

Placing subjectivity at the core of life and evolution is part of the radical overhaul that the "theoretical intelligence" of modern science is badly in need of, according to professor Frederick Ferré. While Ferré thinks we cannot yet fully discern the features of a mature post-modern science and technology, some of them can be induced by examining emerging concepts and concerns. Thus, post-modern science is likely to be far more concerned than science is at

present with *quality* and not just quantity, with *integration and synthesis* to balance the tendency toward reductive analysis, with *relationality and process* to complement the focus on separate structures, with *complexity*, with *whole living systems*, and with *optimization* as distinct from maximization. Moreover, *consciousness* will be centrally implicated, as no account of science and technology (or indeed any human endeavor) that does not include the investigator will be deemed complete.

Beyond all this, science has to rediscover its role as a myth-making endeavor. "The primary purpose of science," said astrophysicist Brian Swimme, "has to be to deepen our awe in the universe."

Swimme reframes the scientific enterprise from within the new "cosmic creation story" he began to articulate in *The Universe is a Green Dragon*. "All of the science that's ever been done has been created primarily by the universe and secondarily by humans," he pointed out in Santa Barbara. "We do not go out and *take* knowledge from the universe; we are the universe knowing itself. . . . The Earth in inventing science and technology is involved with enhancing its own life." The question then becomes, which technologies and what forms of knowledge enhance the journey of the Earth?

No compelling answer to this question can be forthcoming except in the context of a larger set of beliefs about mind, life and the cosmos. It may be precisely this which is emerging into human awareness now, although we can be cautious of superficial treatments of science and natural reality that emphasize their complementarity with spiritual worldviews. Discerning the common ground between science and spirituality "is useful as a basis for healing the cultural wounds of modernism," said Princeton professor Richard Falk, "but it is not indicative of an overall transformation of the civilizational worldview, at least not in accordance with a time frame relevant for the solution of the main world order challenges: catastrophe, war, famine, oppression, environmental decay, alienation, poverty."

For this, a more broadly based awakening of people who can, in Falk's

phrase, "reinvent democracy from the ground up" is needed. And in this context, not only the priorities of science but such basic concepts as patriotism, citizenship, authority and power will be reframed.

Sources of Vision

We are the first generation in the history of the world that is not assured of its future, according to Joanna Macy. This loss of certainty about whether or not civilization as we know it will exist an hour, a day, a month or five years from now deeply affects our sense of identity as individuals and as a species.

The possibility of apocalypse is not a future possibility, Falk pointed out. It is manifesting itself in our psyches now, and we must locate it in the present.

We may experience rage, frustration, grief or hopelessness as a result. But as Macy's work with "despair and empowerment" groups has shown, acknowledging these feelings can also be the first step in revisioning and remaking our lives. Locating our deaths and the death of the species in the present liberates us, freeing creative energies for transformation that otherwise might not be available to us.

How do we liberate those energies? How do we recover a relationship with our center? What follows are some of the ideas that emerged during the four days of the conference in Santa Barbara.

- *By deliberately creating the conditions in our lives in which we experience our creativity, our connectedness, and the fullness of grace.* This may involve different things for different people—prayer, meditation, solitude in nature, dance, painting, writing, listening to music. Thus we would consciously nurture daily those moments of transcendent insight that reveal to us our most profound possibilities of being, and from which we derive our deepest sense of meaning and purpose.

- *By allowing ourselves to feel deeply our own despair, rage, grief and frustration, and by experiencing the suffering of the world.* These feelings reflect our basic orientation to ourselves and the world, and by being aware of them we can begin to give voice to—and then learn to trust—our fundamental

wisdom concerning the purpose and picture of our lives. Aware of the suffering of the world, we do not shallowly affirm a holistic, harmonious future or neglect to engage ourselves fully in the work to overcome real suffering and promote the well-being of this and future generations.

- *By celebrating with one another through the arts, music, ritual and other forms of collective remembrance and renewal.* In these practices, we root ourselves in a common social and spiritual ground. We also promote both individual and collective healing and growth. They are constant reminders that we can experience a sense of the sacred in everything we do, and help us foster nurturing relationships, begin unlearning patterns of competition, and find ways of expressing both our pain and our hopes for wholeness and fulfillment.

- *By rediscovering our capacities for imagination and esthetic perception.* These capacities are based in our empathic engagement with the world and reflect our openness to the numinous, magical dimensions of existence. In imaginative play we can loose ourselves of everyday constraints and ask what should or could be as well as what is. We can identify with the "other", and in so doing we can explore our multifold potentials for being, learning and development.

Our culture's long emphasis on logic and reason has undermined much of our capacity to imagine in this way, a loss reflected in the artistic illiteracy which haunts society. "Until we find and universally apply methods to awaken and to affirm artistic sensibility in all our communities," Jamake Highwater said in his address, "we will continue to be in mortal danger of losing ourselves and our world. Surely there can be no greater imperative."

- *By rediscovering the feminine aspects of ourselves, including values and capacities such as nurturance, connection and receptivity.* These capacities, devalued in the modern world, may be the sine qua non for the successful transition to a viable post-modern world. This can not be a mere transference of power from men to women, though, for both men and women are engaged in creating more authentic

patterns of selfhood and self-development. This is a process in which both need to commit themselves to the joint creation of more satisfying patterns of relationship and broader social institutions.

- *By tapping into our deepest religious roots, including Western mystical traditions.*

"All that most people know about mysticism," said theologian Matthew Fox, "is that it begins in 'mist' and ends in 'schism'." But the mystic is the one among us who intuits nonduality, interconnection and our intrinsic divinity. Mysticism gives us the direct experience that we are loved and, experiencing this love, we can trust ourselves to create with the full power that the universe vests in and moves through us.

More generally, *the experience of non-ordinary realities through alternate states of consciousness can remind us that the world we experience is a construction of our own minds.* Moreover, in states of mind other than the ones in which we ordinarily dwell, we may discover new capacities and sources of knowledge.

- *By re-establishing a connection with the Earth.* "The 'land' is not simply the backdrop against which history is enacted," philosopher John Cobb said. "We belong to the land and have no existence apart from it." In nourishing our bond with the Earth we are acknowledging our place in the larger natural cycles of which we are a part. We also begin to heal the Earth of the violence done to her through human ignorance and arrogance. Both of these processes are necessary to foster an ethic, a vision and everyday ways of living that promote the co-evolution of human beings and the natural world. Deep ecology takes this even further, linking our experience of the Earth with our most profound spiritual roots.

The challenge, then, is to encourage creative responses to the practical challenges we confront in every field of endeavor and every aspect of our lives. In addition to looking among ourselves for new ideas, this means attending to the novel forms of life, thought and feeling that are emerging on the edges of Western civilization—edges internal as well as external, scientific as well as

*As the set of lenses
through which we view the world changes,
we see new facets of ourselves and
new opportunities come into focus.*

spiritual, psychological as well as social, natural and cosmological.

What we are likely to discover is that there may not be a single post-modern worldview. There may be several, or many stories, even several cosmologies and sciences. A key issue that will confront us as we grant genuine legitimacy to these alternative stories is how to relate them to our own story without losing our bearings.

"The postmodern world is a world of the interweaving of many stories, and a world in which we recognize the positive value of stories in which we do not take part," Beardslee said. ". . . In the world as it is, one single story is no longer sufficient to give us direction. Whatever the orienting story is with which we identify, it has to be woven into others, and how we do that and still find a way of expressing a genuine loyalty to our faith, or to our country, is what we need to discover."

The Future in the Present

A worldview is always supported by a world, and the worldview structures the world we perceive. This is why we can change the world by changing our beliefs about the world. As the set of lenses through which we view the world changes, we see new facets of ourselves and new opportunities come into focus. We begin to think, feel and act differently, and the energies of life organize themselves differently in us. As this occurs, the world about us, including family, friends and associates, also begins to change. This form of activism is one in which we can all engage, and it may be the only one for which we are continually responsible.

Those who gathered in Santa Barbara represent a community still in the early phases of developing a post-modern worldview. They recognized that in their efforts there is much that we may eventually come to see more as a reaction to modernism than as anything truly post-modern. Simple

glorification of one capacity over another—cooperation rather than competition, for example—could well prove to be in large part a response to modern society's overemphasis on the latter.

For it is not that by emphasizing cooperation as a basic feature of the emerging ways of thinking and being that there is no place for competition, any more than a deep appreciation of the role of "feminine" energies and values means that those which are "masculine" will be suppressed. What we seek in a genuinely post-modern practice is a way to work with these apparent polarities in our experience—masculine and feminine, mind and body, unity and diversity, self and other. In remaining attentive to that fine edge in our experience where we really discern the possibility of choosing one way of being or another, we can stay in touch both with the formless ground of our creative impulses and the intelligence which gives them form.

The possibilities of the future then become, as Birch argued, real evolutionary influences. By choosing which possibilities of the present to actualize, we are literally creating worlds. This is the true exercise of imagination—the act of generating creative thought which is somehow more real than the world, thought which brings the world into being.

In any event, the "return of the repressed"—feminism, ecology, spirituality—has been and still is a healthy first shoot in the budding of a new worldview. Now conscious again of these dimensions of ourselves, we are able to begin exploring what role they play in our lives and how they relate to those capacities with which we have formerly been so strongly identified.

Eventually, we will integrate these in a new constellation of perceptions, capacities, values and institutions that will be historically and psychologically unique. This new synthesis may bear little resemblance to anything in our

worlds now or even to anything we can presently imagine. Concepts and tools that may form an integral part of it may not even have been invented yet, but will emerge from the early stages of work in which we are now engaged.

Whatever the new stories that emerge from the crucible of contemporary human experience, one thing is clear: They must be as vital as we are in the most magical and creative moments of our lives. They must be living cosmologies that have mystery, mind, creativity and evolution at their core, not as peripheral or accidental phenomena, and they must reveal to us our open-ended potential for inner as well as outer growth and development, rather than ignoring these or denying their importance. Art, mysticism and science will all contribute to these new stories, as will the innovative responses of people around the world to their need for more effective personal and social institutions.

Let us conclude with this poem by Juan Ramon Jiménez, translated by Robert Bly. It suggests that in one sense the leap from the modern to a post-modern worldview takes only a simple shift in perception. A simple but profound leap—for it eliminates a subtle kind of separation that exists in our minds when we imagine ourselves to be *here* and the self, or world, toward which we are striving to be *there*. The poem is called "Oceans".

*I have a feeling that my boat
has struck, down there in the depths,
against a great thing.*

*And nothing
happens! Nothing...Silence...Waves...*

*—Nothing happens? Or has everything
happened,
and are we standing now, quietly,
in the new life?*

*Thomas J. Hurley III is Research
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Sciences.*

The Debunking Temptation

The Transcendental Temptation: A Critique of Religion and the Paranormal by Paul Kurtz; Buffalo: Prometheus Books, 1986; 500 pages; cloth \$18.95 (\$16.10 to members; see page 29 for order form.)

Reviewed by Willis Harman

The January 1987 television production of Shirley MacLaine's *Out on a Limb* was a telling sign of the times. Both the network's decision to produce and air it, and the generally positive response it received, indicate how far the American public has moved toward acceptance, or at least tolerance, of the metaphysical point of view portrayed in the story. One of the key lines in the dialogue, "I create my own reality", is meaningful only in a very different metaphysical context from that which has dominated the modern Western world.

This was only one of many contemporary indicators that the idea of a nonmaterial, spiritual aspect of human experience, which was so thoroughly debunked by science a half century or so ago, is showing strong signs of revivification. In light of this development, the recently published book by Paul Kurtz, *The Transcendental Temptation: A Critique of Religion and the Paranormal*, appears as a curious anachronism.

Paul Kurtz is a brave man. He is undaunted by the task he sets himself, which is essentially to debunk the basic "stories" of Christianity, Judaism, and Islam; the claims regarding Jesus Christ, Moses, Mohammed, and Joseph Smith; the parapsychology of the West and the reincarnation theories of the East, all in one fell swoop.

His thesis is well summarized in his Preface:

Man . . . tends to read into his life some divine mystery. He erects cathedrals and monuments, develops creeds and dogmas, engages in ceremonies and celebrations—all to deny his mortal existence and to reinforce

and give permanence to that which is absent. In acts of supreme self-deception, at various times and in various places he has been willing to profess belief in the most incredible myths because of what they have promised him: Moses on Mt. Sinai delivering the Ten Commandments to God's 'chosen people', Christ crucified beckoning man to salvation, Mohammed the true prophet of Allah so appointed by Gabriel, Buddha the Light, Joseph Smith and the New Zion of the Mormons. . . .

The pathos of the human condition is that many or most human beings cannot easily accept the stark realities of human finitude, *the fact that there is no ultimate providence or purpose for our existence* (italics mine).

Kurtz is not intimidated by the power of the Church or the long tradition of prayer and mysticism. He summarily dismisses the mystics' experiences, observing: they "usually involve a long and arduous preparation before the mystic culmination. There is first an intense longing for the mystical experience, a desire to discover God or achieve Nirvana. Second, there is an intense effort at a spiritual life, including constant prayers and devotions. Third, the mystic must repress all physical desire, worldly goods, sexual thoughts, or carnal lust. Fourth, he or she must lead a life of asceticism, self-denial, and self-control. . . . Fifth, the mystic generally leads an isolated and secluded life. . . . The ground is thus laid for such an experience by sensory deprivation, sexual repression, and enforced withdrawal; in short, the preconditions for a psychotic-like reaction are present." (p. 98)

We learn that for the classic mystics of Christianity, the mystical life "expressed a pathological response to the need for sexual fulfillment, by means of a deflected discharge of the libido". The typical experience of male mystics "tends to suggest a latent homosexuality. The statues and paintings of an almost nude Jesus, which appear in the great cathedrals of Europe, perhaps helped to arouse prurient feelings." (pp. 100, 101)

Kurtz is puzzled as to why such absurd ideas and practices endure. He claims all of Western history since the fourth century is dominated by the fact that "Christianity succeeded in overwhelming Greco-Roman culture, one of

the great tragedies of human history. . . . Why Christianity persists is. . . . mystifying. The answers do not point to its being true—far from it—but rather to the frailty of critical human intelligence in civilization at large and the willingness of large sections of the human species to devour myths, however weak or fraudulent they may be." (p. 123)

He dismisses the other major spiritual traditions with similar arguments. Much is made of the likelihood that the founders of religions used conjuring tricks to produce healings and other miracles which were represented as supernatural events, thus impressing their followers with their special powers. For example, in his discussion of Judaism, Kurtz opines that "It is both pathetic and amusing to speculate about the possible devices that Moses used to hoodwink people [e.g. the Red Sea parting, the burning bush, the tablets of stone] to engender fear and respect for his sovereignty." (p. 181)

The revelations of Mohammed, too, were—we are told—the result of "a midlife crisis" and "a condition similar to epilepsy". Although his early "hallucinatory" revelations appear to have been spontaneous, during an epileptic seizure, later on "Mohammed deviously resorted to 'making up' revelations to suit his political and private purposes." (p. 215) So much for the Koran.

Investigating the Paranormal

A goodly portion of the book is devoted to taking on the psychic researchers and parapsychologists, and explaining how each was either party to a widespread conspiracy to deceive, or was hoodwinked by some member of the conspiracy.

Parapsychologists, acting with the prestige of legitimate science, seek to overthrow a number of principles that undergird science and, for that matter, ordinary experience. These principles affirm:

- 1) Future events cannot affect the present *before* they happen;
- 2) A person's mind cannot effect a change in the material world: there has to be intervention of some physical energy or force;
- 3) A person cannot know the content of another person's mind except by the use of inferences based on exper-

*The book is on the whole a competent if biased
piece of scholarship. But it misses the main point.
It is science, not spirituality, that is embattled these days.*

ience and drawn from observations of speech or behavior;

4) We cannot directly know what happens at distant points in space without some sensory perception or energy transmitted to us; and

5) Discarnate beings do not exist as persons separable from physical bodies.

"Those who use the term *paranormal* believe that they have uncovered a body of empirical facts that call into question precisely those principles. . . . Before we can invoke miraculous or occult explanations that overturn well-established laws and regularities of experience and nature, we would need very strong evidence." (p. 50) That evidence Kurtz finds to be seriously lacking. Claims of parapsychologists to have provided statistical support for the existence of paranormal phenomena he refutes or casts doubt upon, one by one.

The charge that the findings of parapsychology are fraudulent or the result of error and wishful thinking is one that has been often heard. Kurtz makes the case about as thoroughly as it has ever been made. Yet his own work is not without bias and error.

Take for example the case of the Brazilian healer Arigó. When in his early thirties, Arigó began to receive "instructions" in his right ear that purported to come from a deceased German "Dr. Fritz". Although Arigó's education was limited to four years of elementary school, he was able to give quite accurate diagnoses in modern diagnostic terms, often including specific information that was later verified through physical examination and laboratory tests. His "voice" would often dictate to him specific pharmacological treatments which, although unorthodox, seemed to be effective. Furthermore, under the guidance of "Dr. Fritz", Arigó carried out hundreds of cases of minor surgery in a few minutes at most, with an ordinary pocket knife, in the absence of anesthetic or any of the modern preparation and aseptic conditions. Yet there seemed never to be infection or negative after-effects. Arigó was finally stopped

by the Brazilian government from carrying on these activities. The case is well known; he was studied by a succession of American and European physicians. Kurtz mentions him once, casually, in discrediting one psychic researcher by pointing out that he "even accepted as genuine the psychic surgery of Arigó, the *Philippine* charlatan" (italics mine).

Most parapsychologists will admit that they are dealing with phenomena that do seem to be influenced by psychological factors in the environment; that are not strictly replicable in the sense that a physics experiment is; and that are very frustrating to work with because of things like the effect of belief, the "decline effect", and so on. But Kurtz takes these characteristics to be not a description of why the field is so difficult but rather evidence that the phenomena never existed in the first place.

The Great Puzzle

The book is on the whole a competent if biased piece of scholarship. It makes the case well for a skeptical attitude. It should be extremely satisfying to anyone who wants to bolster the point of view that science has outmoded any concept of a spiritual reality and an ensouled world.

But of course it misses the main point. It is science, not spirituality, that is embattled these days, as is well indicated by the following quotation. Jacob Needleman's *A Sense of the Cosmos* begins with this paragraph:

Once the hope of mankind, modern science has now become the object of such mistrust and disappointment that it will probably never again speak with its old authority. The crisis of ecology, the threat of atomic war, and the disruption of the patterns of human life by advanced technology have all eroded what was once a general trust in the goodness of science. And the appearance in our society of alien metaphysical systems, of 'new religions' sourced in the East, and of ideas and fragments of teachings emanating from ancient times have all contributed doubt about the

truth of science. Even among scientists themselves there are signs of a metaphysical rebellion. Modern man is searching for a new world view.

To whatever extent the goodness and truth of science in its present form are being questioned, isn't that likely to be healthy in the long run? Aren't we better off with a science that is willing to extend its boundaries to include, in Roger Sperry's phrase, "inner conscious awareness as a causal reality", than one which dogmatically insists that positivism and reductionism are inherently part of the "scientific method"?

Probably most scientists nowadays will freely admit that extreme positivism and reductionism have not seemed to lead to an adequate science of life and of humankind. However much one may caricature the excesses and simplicities that have been committed in the name of spirituality and religion, a basic inner experience which has persisted for thousands of years cannot be simply ignored or explained away. However many frauds and gullibilities have manifested in connection with explorations of mysterious phenomena, an unbiased look at the record again shows a residue of data that cannot be easily dismissed.

There is indeed a great puzzle to be dealt with in this tangled area of religion, revelation, healing, psychic phenomena, extraterrestrials, and so on. Let's work together on it. We can't afford to believe everything we see or hear about. But neither can we afford to dogmatically assert that there aren't any mysteries that reductionistic science can't explain away. There just might be.

Willis Harman, President of the Institute of Noetic Sciences, is Professor of Electrical Engineering at Stanford University's Department of Economic Systems; he is affiliated with SRI International, a member of the Board of Regents of the University of California, and author of An Incomplete Guide to the Future, Higher Creativity (with Howard Rheingold) and Paths to Peace (with Richard Smoke).

Book Reviews

by Nola Lewis

The Psychobiology of Mind/Body Healing: New Concepts of Therapeutic Hypnosis

by Ernest Rossi

New York: W. W. Norton & Company, 1987;

231 pages; cloth, \$25.95 (22.05 to members*)

Is it really possible to use the mind to heal body illness? Is there really a "mind-gene connection" whereby our thoughts and emotions can facilitate healing? Ernest Rossi, a clinical psychologist trained in hypnotherapy by the late Milton H. Erickson, set out to answer these questions, and in doing so, provides us with a fascinating glimpse into the new world of psychobiology.

Within this view there is no mysterious gap between mind and body. State-dependent memory, learning, and behavior encoded in the limbic-hypothalamic system of the brain are the major information transducers forming the mind-body connection. Rossi documents how this is the major pathway coordinating all the "messenger molecules" of mind-body communication via the autonomic, endocrine, immune, and neuropeptide systems.

*There are 2100,000,000,000,000 connections
among the nerve cells of the brain. . . .
According to Carl Sagan, this means that
there are more possible mental states in each
person's brain than there are atoms
in the known universe.*

—Rossi

How do we learn to use these natural processes to facilitate our emotional and physical well-being? The reader is next introduced to new approaches to mind-body healing and therapeutic hypnosis which *access* the state-dependent systems that encode psychosomatic problems and then *reframe* them into ones generating a higher level of health and development.

Rossi describes many new ways to evoke our healing resources; his lucid three-step outlines for converting symptoms into signals and psychological problems into creative resources will please readers who intuitively sense that we all hold within ourselves the keys to our own health and well-being.

This insightful book is carefully researched and well-written in a style which makes it accessible to the lay reader as well as the serious scholar of mind-body relationships. It is sure to prove useful in our growing understanding of ourselves.

The Search for Certainty

by Wilford W. Spradlin and Patricia Porterfield

New York: Springer-Verlag, 1983

290 pages; paperback, \$38.50 (\$32.70 to members*)

Who are we? What are we? How do we fit into the world, or into the universe? These and other questions pertaining to ourselves and our environment are as compelling today as to our primitive ancestors. In each age, a conceptual framework has emerged which reflects an acceptable organization for the contents of that particular time-space envelope and which provides a satisfactory answer to these important questions.

This absorbing book sketches a historical picture of three worldviews that have shaped our ideas about ourselves. These conceptual formats are not mutually exclusive and are seen as present simultaneously, although to varying degrees depending on individual bias.

The most ancient, termed here The Anthropomorphic World of Words, utilized words to create *distance* from experience, thus allowing us to see ourselves as objective observers in a world fashioned for our use. This World of Words does not address detailed information specifically, but does possess a global quality which holds tremendous appeal for the philosopher and the mystic. But as instruments and ideas became available to quantitate and qualify events and entities, the World of Words gave way to a system of measurement and observation that grew into the paradigm we term *science*, catapulting us into the second age, The World of Form and Function. This worldview rests on laws of nature that are seen as immutably fixed and knowable. By learning them it was believed possible to unravel all the mysteries of living and nonliving systems.

But the boundaries of life are seldom neat, and now, in the twentieth century, we are once again witnessing a complete reorganization of our thinking. The publication of Einstein's Theory of Relativity heralded yet another conceptual world, The Relative World of Process. Investigators at both the micro- and macroscopic ends of the scientific spectrum postulate a four-dimensional universe in which mass, energy, time and space coordinates are interchangeable. This new theoretical frame, characterized by the principles of relativity, probability, and uncertainty, places all living and nonliving systems on a continuum in which the "observer" is also a participant in the transient harmonic of interacting force fields.

This scholarly book describes each of these worlds, its views of the basic human questions mentioned earlier, and its important limitations. While this is not a casual or easily-read book, it does reward the reader with a concise overview and a frame of reference for better understanding the subtleties of the changing world we live in today.

**Members may order these books at the special prices listed through the Institute ordering service; please add \$1.50 handling and postage for each book (1-3 books), \$1.00 each book (4 or more) and 6% tax for Californians. See page 29.*

Explorers of the Black Box:

The Search for the Cellular Basis of Memory

by Susan Allport

New York: W. W. Norton & Company, 1986;

271 pages; cloth, \$17.95 (\$15.25 to members*)

One of the central questions in the study of nervous systems today is how the small number of "brain genes" in an animal's DNA contrive to make a brain, to produce millions or billions of nerve cells connected to one another in a very precise fashion, and how this physical system supports the functions of mind.

"What are the specific molecules that the brain uses to remember, to produce a mood, an emotion, an idea—the mind?" in the words of neurobiologist Eric Kandel, who in the early 1960s had the idea that he could address the very complex question of how brains learn and remember by studying the simple nervous system of a very simple animal, a sea snail.

Since then, this insight has grown into one of the most prominent and highly charged fields in basic biological research today as a small constellation of highly competitive scientific luminaries seeks to explore, as it were, the black box of the mind. The search for the cellular basis of such higher brain functions as learning and memory has taken neurobiologists into other disciplines—molecular biology, biochemistry, neuroanatomy, and psychology—as well as into the deeper reaches of human nature.

Allport has created an absorbing account of how the brain works, and how science itself works, as this highly readable book traces the story of neurobiology from its early days to the present. How will models of learning developed in different labs come to answer the questions that the many different disciplines of biology bring to bear on learning, and equally important, how will the researchers interact as the story to which they are devoting their scientific careers unfolds?

Like a good experiment, *Explorers of the Black Box* leaves us with both a deeper understanding of its subject *and* with unanswered questions "to grow on".

Gandhi the Man

by Eknath Easwaran

Petaluma, CA: Nilgiri Press, 1983;

184 pages; cloth, \$13.95 (\$11.85 to members*); paperback, \$7.95; (\$6.75*)

In 1892 Mohandas Gandhi left India for South Africa at the age of 23—a shy, tongue-tied, average little man whose past was full of failure. Ten years later, called a saint even by those who opposed him, he was the leader of 100,000 people in one of the most remarkable experiments in history: "satyagraha", a war without violence. He returned to India not as M. K. Gandhi but as Mahatma, "great soul"—the man who was to free his country from foreign rule without firing a shot.

Much has been written about the life of Gandhi, and from many perspectives; it is a story so familiar as to feel almost mythical. Yet to comprehend and convey the meaning that is at the heart of this story requires a very special set of qualities, and in this account, Eknath Easwaran has ably transmitted the values, experiences and choices which impelled this powerful life.

Easwaran grew up in Gandhi's India. He was in his twenties when he made his first visit to Gandhi to learn the secret of his transformation—the secret not of Gandhi the political leader, but of Gandhi the man. "I wanted to know," Easwaran recalls simply, "the secret of his power."

Gandhi the Man, abundantly illustrated with quotes and black-and-white photos, does much to illumine that secret. "My life," Gandhi tells us, "is an indivisible whole, and all my activities run into one another. . ." Each of the four sections of this book reveals a facet of this whole-heartedness and shows how it empowered Gandhi.

Drawing upon the context of his own extensive practice and teaching of spiritual disciplines, Easwaran simply and lovingly sets forth the stories and events of Gandhi's life and the spiritual principles they illustrate, allowing the reader full freedom to examine the results and draw his or her own conclusions.

For the reader, this coherence and consistency provides an inspiring example of the reaches of human possibility when infused with spiritual insight.

* See page 29 for ordering instructions

Special Offers on Institute-Sponsored Books

Higher Creativity:

Liberating the Unconscious

Mind for Breakthrough Insights,

by Willis W. Harman and Howard Rheingold; Los Angeles: J. P. Tarcher; 1984; paper, \$8.95 (\$6.95 to members*)

"Almost everyone has had some experience of a channeling of creative insight, a breakthrough of deeper intuition, a moment of knowledge recognizable as something beyond the usual reach of the cognitive mind. . . .

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Waking Up:

Overcoming the Obstacles to Human Potential

by Charles T. Tart; Boston: Shambhala Publications; 1986; cloth, \$17.95 (\$15.25 to members*)

"There is an inner light, an inner peace, that can be found. There is an awakening of your mind possible that will indeed make ordinary consciousness seem like a state of sleep. It will make you more, not less, effective in the ordinary world, and allow you to give more genuine attention, care, and compassion to others. I have tasted it, not just thought about it. I know it leads to an inner peace that facilitates an outer peace. I am happy to share what I can of this knowledge with you."

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See page 31 for details!

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1987 TRAVEL PROGRAM NEWS

The USSR Citizen Diplomacy trip in May is now full.

June 20 - July 1 - A cruise to several Hawaiian Islands with IONS Senior Research Fellow, Charles Tart, PhD. Those of you who have read his new book, *Waking Up*, (which was made possible by an IONS grant) know the treat you will have taking part in experiential work to deepen the insights you've gained—to take a few more steps along the spiritual path. There will be a daily workshop aboard ship as you cruise to Kauai, Hawaii and Maui, and four days at a resort hotel in Honolulu, continuing the workshop sessions and enjoying the sun and sea. Cost, including air, from \$2,895.

October 1-21 - Fiji and Australia with Brendan O'Regan, IONS Vice President for Research, and Naomi Remen, MD. An opportunity to learn more about the Institute's Inner Mechanisms of Healing research programs, and to learn more about our healing potential in the beautiful tropical surroundings of Fiji. In Australia you'll continue your connection with the natural world. We will experience many animals and birds found nowhere else in the world, and we'll explore the natural world of the Great Barrier Reef and see the magnificent harbor and sights in Sydney. An extension of

this trip includes the aborigine paintings in the Kakadu National Park, Alice Springs, and Ayers Rock. Cost, including air, \$4,400. Fiji only, \$2,495.

November 14-December 6 - Burma and Thailand with Bruce Carpenter. (This journey was shifted to November to accommodate members who could not make the January tour.) The flight into Burma is like tumbling through a time warp. The Burmese are steeped in spirit worship beside their Buddhist beliefs. Their temples are of legendary splendor. Thailand is an enchanting Buddhist kingdom where past and present mingle harmoniously. We'll visit hill tribes in the north, meet healers, magicians, and learn of their beliefs and practices. We'll see festivals and dances and a water culture unique in the world. Phuket, an island of southern Thailand, will be a peaceful ending to an exotic journey. Cost, including air, \$4,675.

For complete descriptions of these tours, please contact Marguerite Craig, Director of Travel Programs, at (415) 461-7854 or (415) 331-5650 or request tour brochures from the Institute.

Annual Membership Application

- \$35 Associate Membership: Provides general support of the Institute and members receive monthly Institute publications
- \$60 Two Years
- \$25 Student (fulltime) Membership
- \$25 Senior (retired) Membership
- \$100 Supporting Membership: Helps additionally to support the research budget; members receive approximately four additional research reports annually.
- \$500+ Sustaining Membership: Helps even more—and receives the additional research documents. (Sustaining members frequently are invited to serve on project committees.)
- \$5,000 President's Circle: The above benefits, plus individual conversations with President Willis Harman and other senior Institute staff members.
- \$10 additional for members outside United States ZIP codes to cover postage cost.
- I would like to be a member of the Institute. Please sign me up for the category checked above.
- I am already a member but would like to extend/renew my membership for the category/years above.
- I am greatly encouraged by the Institute's work and would like to make a one time contribution of

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- Enclosed is my tax-deductible contribution for the membership(s) checked.

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- Please charge my M/C VISA

which expires _____

Signature: _____

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Or charge by phone: (415) 331-5650, 9-5 Pacific time. Please have your M/C or VISA ready.

New members receive a free copy of Higher Creativity: Liberating the Unconscious Mind for Breakthrough Insights, by Institute President Willis Harman and Howard Rheingold (an \$8.95 value). Renewing members receive a free copy of Institute Fellow Charles Tart's new book Waking Up: Overcoming the Obstacles to Human Potential (a \$17.95 value)

The Institute of Noetic Sciences

Peace Packet

Finding Your Own Role in the Work for Global Peace

Readings: A historical and conceptual orientation to peace, with particular attention to US/USSR relations.

- *How to Think About Peace:* Willis W. Harman
- *Sample Scenarios for Peace:* Willis W. Harman, Elise Boulding, Patricia Mische
- *What the Russians Really Want:* Marshall D. Shulman

Inner Work: Suggestions on how to get in touch with your own beliefs about peace, and how to use techniques such as relaxation, visualization and affirmation to modify beliefs. The Peace Journal is for recording your inner work, collecting quotes and pictures that inspire you and deepen your understanding of peace issues.

- *Techniques to Enhance Belief Modification:* Nancy J. Napier
 - *Peace Affirmations*
 - *Peace Journal*

Outer Work: A beginning point only—for you to discover your own opportunities and move easily into the roles that best fit you.

- Individual Action
- Group Opportunities
- Reference Books and Music

\$10.95 plus \$2.50 for postage and handling
—Ordering Instructions and Form, page 29—

*When nothing seems to help,
I go and look at a stonecutter hammering away
at his rock perhaps a hundred times
without as much as a crack showing in it.
Yet at the hundred and first blow it will split. . .
and I know it was not that blow that did it—
but all that had gone before.*

—Jacob Riis