Dallas Times Herald

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Tuesday, December 21, 1982

The new brain trust

Scientists, theologians share quest for truth

By JENNIFER BOETH
Staff Writer

FOR CENTURIES they've been the best of enemies. First, there was the church, telling science and scientists what they might study, drawing the boundaries around what they might believe. Then it was science, returning the favor, rejecting religion as unproved, unprovable and therefore untrue.

Now at least they're talking to each other.

Four Nobel Prize-winning scientists and two noted theologians are participating in a series of dialogues in Dallas on "the convergences of sciences and religion."

The scientists are saying some surprising things. One is questioning the very existence of the universal laws, the cornerstone of modern science. Another is urging the development of a new "scientific theology," in hopes of saving our world from itself. A third sees science heading rapidly, and properly, down a path the mystics were traveling long ago.

The theologians welcomed the scientists to what they called "a shared quest for truth," noting, "In the face of worsening world conditions, the modern sciences and the living religions need each other as never before."

'It would go a long way to help improve current global conditions if mankind generally were to acquire a deep and powerful religious conviction that it is ... actually sacrilegious to pollute the world, to overpopulate ... or in any way despoil, degrade or desecrate for coming generations the quality of our biosphere.'

— Roger Sperry
Nobel Prize-winning zoologist

The lecture series is sponsored by the Isthmus Institute — a nonprofit study group — the Department of Psychiatry and the Division of Continuing Medical Education at the University of Texas Health Science Center here.

In what he called "the greatest scientific revolution since the Renaissance," Nobel laureate chemist Ilya Prigogine said "a new dialogue between science and philosophy is becoming possible."

Prigogine, who teaches at the University of Texas at Austin, won the Nobel Prize in chemistry in 1977 for his work on "dissipative structures" — structures that move from disorder to order by dissipating energy, forms that arise spontaneously in states of chemical nonequilibrium.

To Prigogine, it follows that life itself may also arise from a state of nonequilibrium, which the chemist called "the normal quality of the universe."

"In the classical view of physics, of science, structure formation is an exception, life is an exception. Classical physics takes a mechanical world view, seeing matter as essentially passive and life as an accident, an accident compatible with the laws of physics but outside nature," Prigogine said.

"Classical physics believes that molecules do not communicate with each other. How then do you explain how molecules in the brain know what molecules in the feet are doing?" he asked.

"Now we can say that life is a beautiful expression of some very basic laws of nature. We are entering a new dialogue of man with nature. Life is not an exception."

Ilya Prigogine sees a growing scientific interest in the concept of time as another major humanizing factor in science. For a while, science was "a liberation from the temporal," the chemist suggested, an escape into the security of a sense of timelessness. As significant a modern scientist as Albert Einstein rejected time as "an illusion."

"Our century is the century of the rediscovery of time," Prigogine predicted.

In classical physics, the chemist went on to say, time separated man from nature. Ilya Prigogine now believes — admitting that few physicists would yet agree — that "time has its roots in nature, in the very laws of complex systems. To negate the role of time," said the chemist soberly, "is to negate Hiroshima, to negate history, to negate science itself."

Prigogine chastised scientific educators who teach students that science is a rational, closed, deterministic system. Rather, "science is a flow," he said, "as

Science, religion share questioning nature

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Calling science and religion both "modes of inquiry," Schubert Ogden, professor of theology at Southern Methodist University, responded to Prigogine's talk by calling "the questioning process more fundamental than any byproduct of it."

If, as Ogden suggests, the questions are more important than the answers, do we find science and religion asking the same kinds of questions?

The theologian thinks not. Science asks the structure of ultimate reality, and religion asks the meaning of that ultimate reality to ourselves, Ogden said.

At the second in the series of Isthmus Institute lectures, Roger Sperry, a zoologist who received the Nobel Prize in medicine/physiology last year for his work on right brain/left brain function, and Brian Josephson, a British physicist who won the Nobel prize in 1973 for pioneering research in superconductivity, matched wits with Albert Outler, professor emeritus of theology at SMU.

Although science and religion are "historical adversaries," Sperry believes they'll be able to get together now because "science is changing its way of thinking."

The 1970s saw "a broad shift in scientific paradigm," the zoologist said, from mechanistic and materialistic to what Sperry, who has devoted his career to brain research, calls "mentalism." And, although scientists dealing with the mind, brain and human behavior have come the farthest, Sperry sees what he calls "revisionist principles" affecting all sciences, as our understanding of the very nature of physical reality changes.

Specifically, Sperry defined two new principles affecting our world view: what he calls "downward causation" and a revitalized theory of vitalism.

Vitalism, which hypothesized certain "vital forces" that distinguish life from inanimate objects, was debunked in the early part of the century because no such forces could be found in the physics or chemistry of living things.

"What happened is that we biologists had been searching in the wrong places," Sperry claimed. "You don't look for vital forces among atoms and molecules; you look instead among living things."

"The special vital forces that distinguish living things from the non-living are emergent, holistic properties of the living entities themselves," the zoologist went on to say. In other words, horses gallop, fish swim, birds fly, not simply because of their molecular or atomic structure, but because they are horses, fish and birds.

"Downward causation," the other major scientific metamorphosis described by Sperry, says that higher laws and force exert downward control over lower forces. "The lower-level forces in any entity are enveloped, overwhelmed and overpowered by the higher," the zoologist said.

So, when science teaches that the forces and laws of the universe are blind, uncaring and purposeless, that human beings and everything else in the world are nothing but aggregates of electrons, protons and other subatomic elements, it's a classic case of missing the forest for the trees. The scientists are right, but they're overlooking the fact that, as Sperry put it, "the molecules and atoms of our world are pushed around, not so much by atomic and molecular forces, but rather by higher level mental and vital forces such as those manifest in politics, psychology, religion."

"The humanities and common sense were right all along," the zoologist went on to say. "Science was wrong."

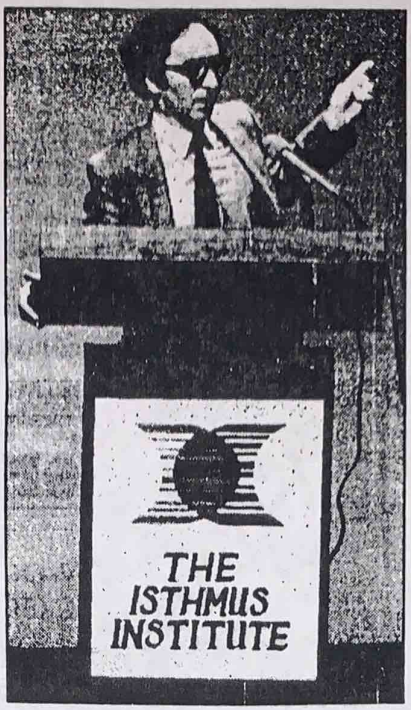
Sperry called for "a new, science-based theology, equating God with the natural forces of the universe." Uniting science and religion is the only road Sperry sees to a new value system that stands a chance of saving the world from itself.

"Society is on the wrong track when it continues to try to treat global ills through further advancements in science and technology," he warned. "The problems are much too urgent to wait and much too complex to expect solutions from any single mind."

If we are to avert "global disaster," science and religion must join forces to create a new moral code based on ecological principles, Sperry said.

"It would go a long way to help improve current global conditions if mankind generally were to acquire a deep and powerful religious conviction that it is not just unwise or inexpedient, but actually sacrilegious to pollute the world, to overpopulate, to deplete irreplaceable resources, eradicate or demean other species, or in any way despoil, degrade or desecrate for coming generations the quality of our biosphere."

Even as he called for a "scientific theology," Sperry drew the line at "angels, myths of heaven and hell, other-wordly dieties, devils and dualist spirits of all kinds," effectively eliminating much of the Judeo-Christian tradition. He also rejected the highly individual, experiential knowing of the mystics and many of the eastern religions, preferring what he called a naturalistic pantheism, equating God with the laws and forces of the universe.



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— Brian Josephson
Nobel Prize-winning physicist

"I would rather be governed by principles and values which have been proved at least a little," Sperry remarked.

In that he differed dramatically from Brian Josephson, the British physicist whose work and personal exploration has taken him increasingly in the direction of mysticism and meditation.

"If scientists were to examine the nature of God, what would come out is a confirmation and clarification of what the mystics have already said," Josephson claimed.

"Mysticism deals with the roots of reality," Josephson suggested. "Science deals with the branches."

Physicist Fritjof Capra's "The Tao of Physics" kicked the whole thing off, Josephson said, by drawing connections between the discoveries on the frontiers of quantum physics — where particles act in ways that can't be explained mechanistically, sometimes acting differently under the same conditions, where separate regions of space appear to be connected in ways science can't readily understand or picture — and the universe generally.

Up to now, science has gotten along quite well without God because "science casts its spotlight very selectively," Josephson said. "Science likes to look at simple phenomena, assuming as a matter of faith that if we understand the simple phenomena, we will eventually understand the complex phenomena."

Josephson, like Sperry, clearly thinks that assumption is wrong.

He sketched out a new paradigm in which God plays a role in science.

"What kind of science might it be that would take God into account?"

"The closest aspect of God to science is intelligence." A synthesis of religion and science might view God as a "scaled-up human intelligence," not different, just bigger and more universal, Josephson suggested.

"There is an unobserved order," the physicist concluded. "There is an intelligence behind the scenes."

Theologian Albert Outler, professor emeritus at the Perkins School of Theology at SMU, agreed — with certain caveats.

"We need to keep exploring the known and the knowable, the knower and ways of knowing. But the level of spiritual giftedness has nothing to do with intelligence," he warned.

The physicist and the theologian compared answers to a fundamental question that often divides science from religion: How shall we tell illusion from reality? Scientifically, "by observation, examination and consensus," Josephson said firmly. Outler proposed instead "an ancient moral and spiritual test: "by their fruits you shall know them."

"Good fruits are not normally produced by illusions," the theologian said.

How far has the dialogue between science and religion progressed?

"At this point there is essentially zero overlap," Josephson claimed. "It's still difficult to get articles on the synthesis of science and religion published. At least they're publishing some articles on psychic phenomena."

Outler concluded on a more hopeful note. "Look at this meeting," he said. "A distinguished scientist pleading for human values. A distinguished physicist pleading for meditation. Talk of values as causal forces, of wholeness."

A psychiatrist in the audience rose to urge science and religion "not to regress from our real common ground" by letting religion get too scientific or science too fuzzy.

Sir John Eccles, an Australian physiologist, will be featured at the final Isthmus Institute lecture at the University of Texas Health Science Center on Jan. 29. Eccles, who received the Nobel prize in medical neurophysiology for his discovery that nerve cell impulses are transmitted chemically rather than electrically, wrote "The Human Mystery" in 1979, based on his studies of natural theology at the University of Edinburgh.