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CONTACT: Dan Mezibov
Public Information Office
(202) 833-7881

SPERRY WINS NOBEL PRIZE FOR MEDICINE

Roger W. Sperry, a California psychobiologist whose pioneering research has led to basic understanding of the higher functions of the brain, has been awarded the 1981 Nobel Prize for Medicine.

With the Department of Biology at the California Institute of Technology since 1954, the 68-year-old Sperry was cited by Sweden's Karolinska Institute for "extracting the secrets" of the brain's two hemispheres in his now landmark "split-brain" experiments. Sperry shares half of the \$180,000 total prize with the Harvard University team of David H. Hubel and Torsten N. Wiesel, who won for their discoveries of the brain's mechanisms for processing visual information.

A member of the American Psychological Association (APA) since 1958 and a Fellow in APA's Divisions on Experimental and Physiological and Comparative Psychology, Sperry has conducted work that not only has unlocked new comprehension of the brain's functioning, but also has resulted in the direct application of medical treatments for patients with various brain disorders.

Sperry's most recent work, begun when he first joined Caltech as professor of psychobiology, involved research with cats to determine how information was transmitted between the two hemispheres of the brain. Before Sperry, relatively little was known about the role of the corpus callosum (the broad band of fibers connecting the brain's right and left hemispheres). By surgically splitting the corpus callosum and the optic nerve in experiments with adult cats, Sperry learned that the corpus callosum needed to be intact to transfer information from one hemisphere to another.

Only a short time was required for Sperry to realize that the split-brain procedure could be used in the treatment of humans with intractable epilepsy, in which seizures from one hemisphere spread to the other. Working with a team

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of neurosurgeons who surgically divided the cerebral hemispheres of adult epileptic patients, Sperry discovered that each hemisphere has a distinctly specialized function. The left, or generally dominant hemisphere, involves intellectual processing and reasoning, while the less dominant right hemisphere controls the putting together of environmental signals into coherent visual and spatial patterns. The scientific validity of Sperry's work has been confirmed by investigators in other laboratories, and has shown that each hemisphere of the brain is a source of potential approaches and solutions to certain tasks. This has led, for instance, to new methods in the teaching of children.

Earlier in his career during doctoral work at Harvard University, Sperry revealed that nerve endings store on their membranes specific information on where each nerve is to connect. In experiments with animals, nerve endings that were severed from the eye's retina, and then rotated, found their way back to their original paths, showing that nerve connections are specific and not random. It was with these experiments, conducted in the early 1940s, that Sperry's colleagues began to notice his exceptional abilities.

Sperry joined the University of Chicago faculty in 1946 as assistant professor in the Department of Anatomy, and in 1952 became sectional chief in the National Institute of Neurological Diseases and Blindness with a joint appointment as associate professor of psychology.

A graduate of Oberlin College, where he obtained his master's degree in psychology in 1937, and recipient of a Ph.D. in zoology from the University of Chicago, Sperry is the author of numerous scientific articles and has served on the editorial boards of several professional journals. He was elected to the National Academy of Sciences in 1960 and to the American Academy of Arts and Sciences in 1963. Six years later, Sperry was awarded the Warren Medal of the Society of Experimental Psychologists and, in 1972, received the APA Distinguished Scientific Contribution Award.

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