

Roger sperry



**ASSIGN
BUSTER**

Born August 20, 1913, Roger W. Sperry, won the 1981 Nobel Prize in physiology and medicine. He shared it with two other scientists, Wiesel and Hubel, for research on the nervous system and brain. They were praised for demonstrating the difference between the two hemispheres of the brain and special functions of the right brain. (Roger W. Sperry Biography (n. d.) A moderately controversial psycho biologist, Sperry changed the history of psychology. In 1935, Sperry attended an Introduction to Psychology class. His first page of notes reported two questions. One being, " Where does behavior come from?" and two, " What is the purpose of consciousness?" (Puente, A. 1995) His questions lead this intellectual giant into decades of research that would make a permanent impact on neuroscience, neuropsychology, psychology, philosophy, and society worldwide. (Puente, A. 1995)

Born in Hartford, Connecticut, Sperry was a son of a banker and son of an Assistant to the Principle at a local High School. He had one brother named Russell, a year younger, who went into chemistry. At 10 years old, Sperry read a William James (1842-1910) publication that influenced his thoughts. At 11 years old, his father passed away, which left him mentally and emotional unfit for some time. As he attended high school, he played sports and was able to letter in the varsity athletics. Between high school and college he lettered three times in varsity athletics. He went on to graduate as an English Major in 1935, obtained a Masters in Psychology in 1937, then earned his Doctorate in Zoology 1941. In his professional career, Sperry held six different professional positions throughout his studies as a researcher and professor. He achieved near thirty-five different awards, honors, and

scholarships in his lifetime. He also traveled all over the world to join in research studies. (Odelberg, W. 1982)

Sperry was a shy and reserved man. He married Norma, a fellow biologist in December 1949. Together they had a son and a daughter ten years apart. In his home life, he appeared as a family man as well as he loved collecting fossils, fishing, snorkeling, painting, sports, sculptures, ceramics, and dancing. In the first year of the Sperry's marriage, Roger, during a routine chest x-ray showed evidence of tuberculosis. The couple were sent to New York for treatment. During treatment he began writing monumental concepts of "Mind and Brain", (1952) where he began to describe, "Present day science is quite at a loss even to begin to describe the neural events involved in the simplest forms of mental activity". (Sperry, R. W. 1952 p. 311) His thoughts became a published article in 1952 titled "Neurology of mind and brain problems." This was one of two hundred-ninety publications by Sperry.

Experimental Studies

Sperry is most famous for experimental studies of how brain circuits are formed and for research on mental activities after the connecting tracts between cerebral hemispheres have been cut. While working toward his doctorate, Sperry was in close association with biophysicist Paul Weiss. Weiss developed a surgery to analyze how connections between nerves and muscles are patterned in amphibian. This experiment showed regeneration of links from eye to brain, and brain to muscles after having one eye removed and one rotated 180 degrees. (Trevvarthen, C. 2004)

In 1950, Sperry took one eye and transferred the other eye to the opposite side of the head in a fish or newt, resulting in them going in circles or appearing to be chasing their tail. Sperry concluded there is an internal brain signal, helping both perception of self movement and the focus of perception while the world is in motion. (Trevvarthen, C. 2004)

In 1953, Sperry and graduate student, Ronald Myers, invented an operation in cats to cut the crossover of visual nerves, and lead the nerves to only one cerebral hemisphere. While leaving one hemisphere intact for the animal to function . They tried several versions of crossovers. Specific connections could transmit learning. This operation is the route of the term " split brain". These experiments extended to monkeys. (Trevvarthen, C. 2004)

In 1960, Neurosurgeon Joseph Bogen and Sperry observed behavior of split brain monkeys outside test situations. Their observations indicated that the left hemisphere which is normally the dominant and learning side, was virtually unimpaired and offered promise of relief from debilitating epileptic fits. (Trevvarthen, C. 2004) Epilepsy disturbs brain function and can cause injury, brain damage or death.

In 1962, Bogen performed a total neocortical commissurotomy, also known as brain surgery on a man who suffered frequent epileptic attacks. Sperry was able to apply systematic psychological tests after the surgery. In 1965, researchers explored a small population of brain surgery patients. Once understanding the connections achieved, this step in human brain surgery reached into all areas of human mental life and excited immense public and scholarly interest. (Trevvarthen, C. 2004)

In 1964, Roger Sperry, in a conference to the Division of Biology at Caltech, presented his ideas on consciousness. For the first time in psychology's history, Sperry was able to give his professional thesis on behavior and consciousness. Stating behavior is not only the culmination of complex interworking of neuronal patterning, but such patterning would give rise to consciousness. This consciousness would have causal effect on specific neuronal activity. (Puente, A. 1995) In laymen's terms, our behavior affects our consciousness, and our consciousness affects our behavior. Giving an answer to questions he had asked himself nearly 30 years before.

Summary

Sperry continued his research until the end of his life. He received an APA Lifetime Achievement Award at the 101st convention of the American Psychological Association in August of 1993. Several extraordinary breakthroughs have been achieved from the dedication, research, and logic Sperry was able to share with his colleagues. He was able to give humans with neurological problems life rather than having to suffer. Roger W. Sperry died on April 17, 1994, in Pasadena, CA from neuromuscular degenerative disorder.

References

1. http://nobelprize.org/nobel_prizes/medicine/laureates/1981/sperry-autobio.html#
2. <http://www.faqs.org/health/bios/41/Roger-W-Sperry.html>
3. <http://people.uncw.edu/puente/sperry/sperrypapers/50s/46-1952.pdf>