Alan Lloyd Hodgkin Biography

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Biography

English physiologist Sir Alan Lloyd Hodgkin (1914-1998) received the Nobel Prize for Physiology or Medicine (along with Andrew Huxley and Sir John Eccles) in 1963 for discovery of the chemical processes responsible for passage of impulses along individual nerve fibers.

Alan Hodgkin was born on Feb. 5, 1914, in Banbury, Oxfordshire, England. Educated at Trinity College, Cambridge, he began research on the mechanism of nerve conduction, a field in which a strong tradition had been built up at Cambridge by Keith Lucas, A. V. Hill, and Lord Adrian. Within a year he had obtained clear evidence that the "local circuit" mechanism did explain the spread of activity from each point to the next as an impulse travels along a nerve fiber. For this work he was elected to a fellowship of Trinity College in 1936.

Early Work

Hodgkin's first work was carried out on whole nerve trunks dissected from frogs, the classical material for investigations on nerve conduction. All his subsequent work on nerve tissue was done on isolated single fibers. By World War II he had published important papers on "subthreshold" potentials, that is, the electric events that lead up to the full-size nerve impulse, and on the electrical resistance of the protoplasm and surface membrane of the giant nerve fiber. He also issued, jointly with A. F. Huxley, a preliminary note on recording with an electrode actually inside a squid giant nerve fiber.

Hodgkin spent most of the war years developing airborne radar. He returned to Cambridge in 1945, holding college and university teaching appointments. From 1952 to 1969 he was a research professor of the Royal Society, and from 1970 a newly founded university professor of biophysics. He worked during this period at the Physiological Laboratory of Cambridge, as well as the Marine Biological Association at Plymouth in the autumn, when squid were available. He was awarded the Nobel Prize in physiology or medicine (with Andrew Huxley and Sir John Eccles) in 1963.

Later Work

Much of Hodgkin's later work was on muscle and had to do both with the relation of ions to the electrical changes and with the processes by which contraction is initiated within the fiber when an action potential passes along its surface membrane.

His publications include: *Conduction of the Nerve Impulse* (1964) and *Chance and Design* (1992). Hodgkin died on December 20, 1998.