

Conklin, Edwin Grant

(24 November 1863–21 November 1952)

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Conklin, Edwin Grant (24 November 1863–21 November 1952), biologist, was born in Waldo, Ohio, the son of Abram Virgil Conklin, physician, and Nancy Maria Hull. Conklin attended a one-room school and received his introduction to natural history while working on the family farm. As the son of a religious family, he entered Ohio Wesleyan University in 1880. There he encountered science for the first time, in natural history classes, on field trips to collect shells, and as an assistant in the museum. During his third year he needed money, so he dropped out to teach in a one-room country school, serving also as janitor and disciplinarian. He returned to graduate from Ohio Wesleyan with a B.S. in 1885 and a B.A. in 1886.

Conklin's strong religious upbringing and his need for a job took him in 1885 to Mississippi where he taught black students at the missionary Rust University (later Rust College). Along with languages and history, he had responsibility for all the sciences. At Rust he also met Belle Adkinson, the daughter of a minister. They were married in 1889, and she remained his close companion until her death in 1940. The couple had three children.

In 1888 Conklin entered the Johns Hopkins University to work with William Keith Brooks on morphology and natural history. As he often recalled, it was among the excellent students and faculty there that he learned to love doing scientific research. His dissertation study of cell lineage in the slipper snail *Crepidula* took him to the U.S. Fish Commission in Woods Hole, Massachusetts, for summer research. There he met Edmund Beecher Wilson, who was working across the street at the Marine Biological Laboratory. An earlier Hopkins graduate, Wilson was also carrying out cell lineage studies, but on a different organism, the annelid worm *Nereis*. Both were tracing in careful detail the exact pattern of each cell division, starting with the one-cell fertilized egg and following the fates of all the cells as they underwent division. By working on different organisms, the two men generated exciting material for comparison and for identifying functional and genealogical parallels among cells across species. They hoped that this would reveal secrets of embryological development as well as help to unlock the evolutionary, or phylogenetic, history of each organism by revealing points of similarity and difference. The classic works by Conklin and Wilson provoked a decade of enthusiasm for cell lineage studies of other organisms. Studies of cell division remained the central focus of Conklin's career in embryology and cytology.

Conklin's work in Woods Hole also introduced him to Charles Otis Whitman, first director of the Marine Biological Laboratory (MBL), who convinced Conklin to join the instructional staff there in 1892. Conklin became a trustee in 1897 and spent nearly all the rest of his summers in Woods Hole as a loyal friend and hard worker for the MBL. In keeping with his interest in marine biology, Conklin also served as president of the Bermuda Biological Station for Research after it was reorganized in 1926; he helped to secure an endowment and a permanent site for the station. In addition, he served on the board of trustees for the Woods Hole Oceanographic Institution.

In 1891, after completing his Ph.D. research but before publishing the final version of his dissertation, Conklin accepted a teaching position at Ohio Wesleyan. There he developed a modern laboratory, and the president of this Methodist institution supported Conklin's freedom to teach the theory of evolution. After three years there, Conklin moved on to Northwestern University in Evanston, Illinois, where he taught from 1894 to 1896. Though the president also backed him there, he left when some local Methodist clergymen began to attack the school by challenging Conklin's teaching of evolution. He moved to the University of Pennsylvania in 1896 and remained there until 1908, becoming an important part of the active Philadelphia scientific community.

In particular, Conklin valued his participation in the venerable American Philosophical Society, of which he became a member in 1897. His participation there had already begun the previous year when he presented his first major public paper in a symposium with Edward Drinker Cope and Liberty Hyde Bailey on "Factors of Organic Evolution." Conklin became very active in the society and worked on many committees, twice serving as president (the first person to do so). He was also active in the Academy of Natural Sciences of Philadelphia and had connections with the Wistar Institute of Anatomy and Biology.

In Philadelphia, Conklin also began to express his religious views more publicly and to address questions about the relations of science, especially evolution, and religion. During his last college year, he and several classmates had received what was called a local preacher's license following a perfunctory test on the Bible and their basic faith. Though he never pursued the ministry formally, in Philadelphia he spoke at various churches and to church congresses about science and religion, even though some members of the Philadelphia Methodist Preachers Meeting vehemently opposed evolution. Conklin felt that evolution was fully consistent with Methodist teachings, but others within the church did not. As a result of that opposition, Conklin never transferred his church membership from Evanston to Philadelphia.

Later, against the background of increasing concern about evolution excited by the Scopes trial in 1925, Conklin worked even harder to articulate the ways in which religion and science, including evolution, are fully compatible. He drew on trends in contemporary liberal theology to demonstrate that the apparently supernatural and miraculous is actually fully natural in origin and character, and that a rich picture of the natural world and of the powers of evolution could provide all the freedom, dignity, and ethical principles that humans seek.

As his career progressed, Conklin devoted greater attention to concerns about nature and man. His *Heredity and Environment* of 1915 looked at humanity's place in nature and at eugenical possibilities for improving that place, as well as at the relative importance of heredity and development in shaping organisms. Conklin accepted the ideals and optimism of eugenics but not the practical suggestions for achieving the goals through genetics. Education and social progress should work with biology to improve the species, Conklin felt.

In 1908 Conklin was elected to the National Academy of Sciences and also moved to Princeton University as professor of biology and chair of the biology department. Princeton was just completing a new modern building for biology and geology, and Conklin's mission was to coordinate previously separate subdisciplines of biology and organize a new biology program. Attracted by Princeton's president Woodrow Wilson, who had urged the development of modern scientific teaching and research, Conklin was

frustrated at times after Wilson left to become governor of New Jersey and the new administrations did not always support his requests. Nonetheless, he settled into the Princeton life, holding a regular open house for students and working, until he retired in 1933, to strengthen the biology program and faculty.

Conklin continued his work on various journal boards, including the *Journal of Morphology*, the *Biological Bulletin*, *Genetics*, the *Journal of Experimental Zoology*, and the *Quarterly Review of Biology*. In addition to holding the presidency of the American Philosophical Society, he was elected president of the American Society of Zoologists (1899), the American Society of Naturalists (1912), and the American Association for the Advancement of Science (1936). He served the National Academy of Sciences as first chairman of the new Committee on Zoology for the National Research Council, on the executive committee, and on the council. He also held membership in a number of international societies. This service and professional work was important to Conklin, and as his career progressed the public functions took more and more of his time. During much of his long and productive career, Conklin was one of the most influential biologists in the United States; he remained active until shortly before his death in Princeton, New Jersey.

Bibliography

Conklin's papers are available in the Manuscripts Collection, Princeton University; unfortunately, they are not cataloged or sorted in any detail. His most important works include "The Embryology of *Crepidula*," *Journal of Morphology* 13 (1897): 1–226; "The Organization and Cell-Lineage of the Ascidian Egg," *Journal of the Academy of Natural Sciences of Philadelphia* 13 (1905): 1–119; *Heredity and Environment in the Development of Man* (1915); *The Direction of Evolution* (1921); and *Man: Real and Ideal* (1943). The most complete biography, with full bibliography, is E. Newton Harvey, "Edwin Grant Conklin," *Biographical Memoirs, National Academy of Sciences* 31 (1958): 54–91, while A. Richards, "Edwin Grant Conklin," *Bios* 6 (March 1935): 187–211, provides a useful contemporary look. Conklin's autobiographical sketch in *Thirteen Americans: Their Spiritual Biographies*, ed. Louis Finkelstein (1953) gives special insight into his views on religion, ethics, and democracy.

See also

Brooks, William Keith (1848-1908), zoologist

Wilson, Edmund Beecher (1856-1939), cytologist, embryologist, and geneticist

Whitman, Charles Otis (1842-1910), zoologist

Cope, Edward Drinker (1840-1897), biologist and paleontologist

Bailey, Liberty Hyde (1858-1954), horticulturist and botanist

Wilson, Woodrow (28/29 Dec. 1856–03 February 1924), the twenty-eighth president of the United States