

Ross Granville Harrison

A pioneer in experimental embryology, Ross Granville Harrison made numerous discoveries that advanced biology. One of the most significant was his adaptation of the hanging drop method from bacteriology to carry out the first tissue culture. This method allowed for further studies in embryology as well as experimental improvements in oncology, virology, genetics, and a number of other fields. Prior to Harrison's innovation, a number of scientists, including Julius Arnold, Gustav Born, Leo Loeb, and Gottlieb Haberlandt, had attempted to grow tissues in isolation in vitro and in vivo but with much less success than Harrison. In addition, Harrison contributed to the understanding of organization and differentiation.

Harrison was born on 13 January 1870 in Germantown, Pennsylvania, to Catherine Barrington Diggs and Samuel Harrison, a mechanical engineer. In 1886 Harrison entered Johns Hopkins University as an undergraduate and completed his AB degree in three years. In 1889 Harrison entered Johns Hopkins University as a graduate student and worked under William Keith Brooks until receiving a PhD in zoology in 1894. In the summer of 1890 he was an assistant with the US Fish Commission at Woods Hole studying the embryology of the oyster. There he worked and formed lasting friendships with Edwin Grant Conklin and many others and he returned there every year starting in 1908 as a Trustee of the Marine Biological Laboratory. After completing his degree at Johns Hopkins, Harrison studied medicine from 1892-1899 at the University of Bonn and received his MD in 1899, although he never practiced medicine. From 1894-1895 he lectured on morphology at Bryn Mawr College, substituting for Thomas Hunt Morgan. In 1896 Harrison married Ida Lange in Altona, Germany. The couple had five children: Richard, Elizabeth, Dorothea, Eleanor, and Ross. This same year, Harrison returned to Johns Hopkins as an anatomy instructor at the medical school. In 1897 Harrison's research led him to adopt Born's method of embryonic grafting in order to study growth and regeneration in frogs. Harrison was promoted to associate professor in 1899 and remained at Johns Hopkins until 1907. During his professorship, Harrison worked with Franklin Paine Mall, Florence R. Sabin, Lewellys Barker, and Warren Lewis, among others.

In 1907 Harrison moved his family to New Haven, Connecticut, where from 1907-1938 he was a professor and head of the department of zoology at Yale University. During this time, he became a Sterling Professor and the first Bronson Professor of Comparative Anatomy at Yale. While at Yale, Harrison continued to improve the hanging drop method for culturing tissue that he had first used at Johns Hopkins with great success. Throughout his research, Harrison focused on the development of amphibians, particularly by analyzing their embryonic development, most notably that of the limbs and inner ear.

Throughout his career, Harrison held a number of administrative positions, including managing editor and founder of the *Journal of Experimental Zoology* from 1903-1946 and chairman of the National Research Council from 1938-1946. He was elected to both the National Academy of Sciences and the American Philosophical Society in 1913. Harrison died on 30 September 1959 in New Haven, Connecticut, at the age of 89, leaving behind a legacy of scientific discovery and leadership.

View a timeline of Harrison's life and career here.

Sources

1. Maienschein, Jane. *Transforming Traditions in American Biology, 1880-1915*. Baltimore & London: Johns Hopkins University Press, 1991.

2. Nicholas, John S. "Ross Granville Harrison." *Biographical Memoirs National Academy of Sciences* 35 (1961): 132-62.
3. Oppenheimer, Jane. "Harrison, Ross Granville." *Dictionary of Scientific Biography* 6: 131-35.