Samuel Randall Detwiler (1890-1957) [1]

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Samuel Randall Detwiler [5] was an embryologist who studied neural development [6] in embryos and vertebrate retinas [7]. He discovered evidence for the relationship between somites [8] and spinal ganglia, that transplanted limbs can be controlled by foreign ganglia, and the plasticity of ganglia in response to limb transplantations. He also extensively studied vertebrate retinas [7] during and after embryonic development. Detwiler's work established many principles studied in later limb transplantation [9] experiments and was identified by Viktor Hamburger [10] as an important bridge between his and Ross Granville Harrison's research.

Detwiler was born on 17 February 1890 in Ironbridge, Pennsylvania, to Mary Hallman and Isaiah Detwiler. He was the youngest of twelve children and shared tasks on the family farm with his siblings. Detwiler was described as an energetic worker who rarely relaxed. Before attending college, he taught at the country schoolhouse near his family farm.

In 1910 Detwiler enrolled at Ursinus College in Collegeville, Pennsylvania, for two years. He completed his bachelor's degree at Yale University [11] in 1914. Detwiler then began graduate work in zoology in Ross Harrison's laboratory. Detwiler earned a master's degree in 1916 and a PhD in anatomy and zoology from Yale in 1918. From 1917 to 1920 he maintained an appointment as an instructor at the Yale Medical School [12]. In 1920 he accepted a position at the Peking Union Medical College [13] in China where he spent three years. He then accepted a position as Assistant Professor of Zoology at Harvard University [14] in 1923. He was promoted to Associate Professor in 1926 and travelled to Freiburg, Germany, to spend a semester in Hans Spemann's lab. In 1927 Detwiler became Professor of Anatomy at Columbia University [15].

Detwiler's research focused on neuroembryology [16] and development of the vertebrate eye. He was a tenacious researcher. One series of experiments transplanting segments of spinal cord from one location of an embryo to another location of the embryo failed on the first one hundred attempts. His one hundred and first attempt was successful and produced a reliable technique. His work on neuroembryology [16] began while he was working for Harrison. He published many papers concerning the development of vertebrate retinas [7], including a monograph summarizing his work. Detwiler performed many limb transplantation [9] experiments. He discovered that transplanted limbs can be controlled by alternate ganglia. He also found the ganglia that received a transplanted limb grew larger and the ganglia that would have normally innervated the limb were smaller than usual. He found a direct relationship between the number of spinal ganglia and the number of somites [8] in an embryo. Detwiler continued Harrison's work on neural development [6] as Harrison moved into other fields.

He was awarded an honorary MS degree from Yale in 1931. He was a member of the American Association of Anatomists, the American Society of Zoologists [17], the National Academy of Sciences [18], the American Academy of Arts and Sciences [19], and the American Philosophical Society [20].

Outside of the lab, Samuel Detwiler was known as an artist and athelete. He participated in a variety of sports throughout his career including weekly faculty volleyball games. When he was forty, he discovered a latent artistic talent. He made wood carvings and painted portraits of his friends and colleagues. Detwiler died on 2 May 1957 in his laboratory.

Sources

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2. Hamburger, Viktor. "Ontogeny of Neuroembryology." *The Journal of Neuroscience* 8 (1988): 3535–3540.
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Samuel Randall Detwiler was an embryologist who studied neural development in embryos and vertebrate retinas. He discovered evidence for the relationship between somites and spinal ganglia, that transplanted limbs can be controlled by foreign ganglia, and the plasticity of ganglia in response to limb transplantations. He also extensively studied vertebrate retinas during and after embryonic development. Detwiler's work established many principles studied in later limb transplantation experiments and was identified by Viktor Hamburger as an important bridge between his and Ross Granville Harrison's research.

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