

**Program:** 200<sup>th</sup> Anniversary of I.U. Lecture – James Watson and the Structure of DNA

**Speaker:** Richard B. Gunderman, MD, Pediatric Radiology, Riley Hospital for Children/IU Health

**Introduced by:** Marvin Miller

**Attendance:** 144

**Guests:** B. Antressian, Duard Ballard, Larry Marcus, John Marhenkey, Larry Markis, Carol Miller, Kelly Riley, Peggy Watanabe

**Scribe:** Tom Lauer

**Editor:** Carl Warner

Dr. Gunderman is a faculty member of Indiana University and holds appointments in several departments. He has published widely, including a book on Tesla.

Dr. Gunderman introduced a guest of his - Kelly Riley. She is from the Indianapolis Public Schools Development Corp. The Sciencetech Club Foundation has provided funds for the “Mini Medical School” program she and Dr. Gunderman are associated with. Both thanked Sciencetech and gave a brief update on the program. The goal of the Mini Medical School program is to provide high school students (this year from Crispus Attucks and IPS) to be introduced to various aspects of the medical profession using health information and translational science. Much of the learning is through direct association and simulations using such things as concussion goggles. Thus far in 2019, two sessions have been completed while another one is coming this September.

The focus of this lecture was how James D. Watson got to Indiana University Bloomington (IU), his time and associations with faculty and administrators while there (1947-1950), and the impact he had on the University. Watson is most noted for his discovery (along with Francis Crick, Maurice Wilkins, and Rosalind Franklin) of the double helix structure of DNA, which was published in 1953 with Francis Crick. For this discovery, Watson, Crick and Wilkins were awarded the Nobel Prize in 1962. Dr. Franklin was not included, as she was deceased at the time of the award. For this discovery, Dr. Gunderman indicated Watson may be the most illustrious graduate of IU, although there have been other great scientists at IU (e.g., Alfred Kinsey-sexual behavior, B. F. Skinner-psychologist and behaviorist)

Pre-IU period: - 1947

Watson entered the University of Chicago at age 15, earned a BS in zoology and was a Phi Beta Kappa. He graduated in 1947 and wanted to attend graduate school, either Harvard or Cal Tech. Cal Tech refused his admission, while Harvard had no scholarship funds for his support. An IU faculty member, Hermann Mueller (who had won a Nobel Prize for showing that X-Rays caused mutations in fruit flies) convinced him to come to IU where he was offered scholarship funds.

IU period: 1947-1950

Watson arrived on the Monon railroad in September of 1947 for his graduate work at IU. He was not totally impressed with IU, and thought of it as a southern school where half the freshman did not return for the second year. Laboratory space was limited and sparsely equipped. The genetics lab was in a closet in the attic of the zoology building. However, Hermann Wells was president at the time and showed lots of energy and vision for IU, including hiring a diverse faculty. This was appealing to Watson. After taking a fruit fly genetics course with Mueller, he was not totally excited about working with him. However, he also took a class from a junior faculty member named Salvador Luria where Watson wrote a term paper on the effects of X-rays on viruses. Following that class, Luria became

Watson's PhD advisor in genetics, working with bacteria (*E. coli*) and viruses. This had much more appeal to Watson. Watson's first year of grad school also did another thing – it enabled him to identify a problem to be solved. He finished his PhD in three years at the age of 22.

Post IU period: 1950-

Watson left IU, headed to Copenhagen and then on to Cambridge, where he published the famous paper on the DNA double helix structure in *Nature* in 1953. He was assisted in his discovery using Lawrence Bragg's X-ray diffraction technique by some other previously mentioned individuals. Oddly enough, it was Lawrence Bragg that nominated Watson for the Nobel Prize.

After winning the Nobel Prize, Watson spent 20 years at Harvard; he then transformed the Cold Spring Harbor Laboratory into one of world's great research institutions, among holding other positions. Watson has published widely on a number of topics related to genetics. One of note is a book entitled "The Double Helix".

Watson's view had a deep allegiance to the truth in his pursuit of science and ideas, and indicated the (science) academy should be a place where people can state their views and perspective. Lively discussions and rancorous debate are the conditions where science advances. As a final note, Watson claimed in order to break new ground, he needed to ruffle feathers.

Some questions from the audience:

Genetic engineering – Watson thought that if it would enhance human performance it might be good and he might have championed it.

Watson could be called a savant? Probably.

Watson was not a gifted speaker (sorry students in class!), but he attracted a number of good researchers.

Watson made some statements about women/men and race regarding intelligence that have come under scrutiny as of late.

The questions to Dr. Gunderman continued after formal meeting adjournment.



**Dr. Gunderman** patiently answering questions after the meeting.