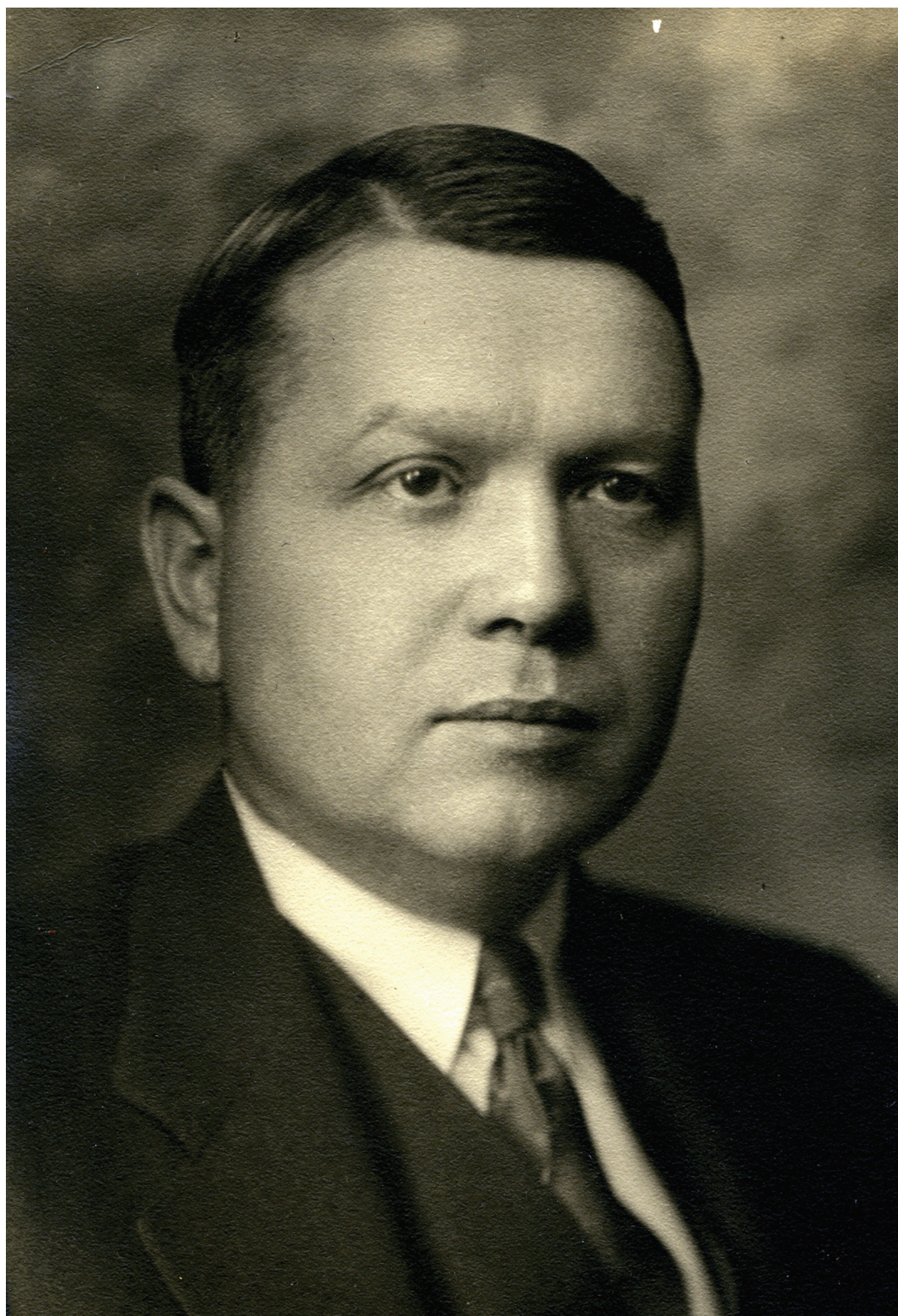


# Harold C. Urey

Chemist, Nobel Laureate (1893 – 1981)



Urey was born in Walkerton, Indiana. After briefly teaching in rural schools, Urey earned a degree in zoology from the University of Montana and a Ph.D. in chemistry at the University of California at Berkeley. Urey then joined Niels Bohr in Copenhagen to work on atomic structure at the Institute for Theoretical Physics. He returned to the U.S., and between 1924 and 1928, he taught at Johns Hopkins University, before moving to Columbia University. After completion of his text, *Atoms, Quanta and Molecules*, with Arthur Ruark, one of the first English texts on quantum mechanics, Urey became interested in nuclear systematics, which led to his discovery of deuterium.

In this breakthrough, Urey isolated deuterium by repeatedly distilling a sample of liquid hydrogen. In 1931, he and his associates went on to demonstrate the existence of heavy water. Urey was awarded the Nobel Prize in Chemistry in 1934 for this work.

During World War II, Urey's team at Columbia worked on a number of research programs that contributed to the success of the Manhattan Project and the development of an atomic bomb for the United States Armed Forces. Most importantly, they developed the gaseous diffusion method to separate uranium-235 from uranium-238. In autumn 1941, Urey, with GEORGE. B. PEGRAM, led a diplomatic mission to England to establish co-operation on development of the atomic bomb.

ISAAC ASIMOV, a student at Columbia at this time, remembers Urey lamenting, perhaps too vehemently, how pained he was that he could do nothing to help the war effort. Asimov pointed out innocently that perhaps the enriched uranium kept at Columbia may have had something to do with the war effort. Urey reddened and changed the subject.

After the war, Urey became professor of chemistry at the Institute for Nuclear Studies, then Ryerson professor of chemistry at the University of Chicago before progressing to honorific offices at the University of California, San Diego. In later life, Urey helped develop the field of cosmochemistry and is credited with coining the term. His work on oxygen-18 led him to develop theories about the abundance of the chemical elements on earth and of their abundance and evolution in the stars. This work was among the pioneering paleoclimatic research. Urey summarized his work in the book *The Planets: Their Origin and Development* (1952). Urey died at La Jolla, California.