

IN MEMORIAM

HAROLD CLAYTON UREY

1893 – 1981

On January 5th, 1981, died Harold Urey, a legend in his lifetime. Few men of science have had the impact Urey has had on science, ranging from the study of the origin of life to the exploration of the universe.

Urey was born in Walkerton, Indiana, on April 23rd, 1893. His father, Samuel Clayton, a teacher and a minister, died when Harold was only six years old. When his mother, Cora Urey, remarried, Harold took her maiden name and was known as Harold Clayton Urey.*

Harold Urey's early education was in the rural schools of Indiana. He himself became a school teacher, but his restless craving for knowledge propelled him on to a college education at Montana State University where he studied biology. Although later on in life his greatest efforts and contributions were in the physical sciences, he recalled with some degree of nostalgia his first independent research project in which he studied the protozoa in the Missoula River. After graduating from Montana State University and a brief stint at a war materials plant in Philadelphia, he returned to Montana, this time as a university teacher.

In 1921 Urey headed for Berkeley where G. N. Lewis was laying the foundations of Berkeley's great preeminence in chemistry. He earned his doctorate from Berkeley in 1923 in physical chemistry. Here it was, that, in a sense, Urey discovered himself. From now on each step led him further to another, more penetrating insight into the very heart of science. From Berkeley his scientific odyssey took him to Copenhagen where he spent a year steeping himself in atomic science under the patronage of the famed Niels Bohr. Denmark was followed by a brief period on the faculty at Johns Hopkins in Baltimore. From Baltimore he moved to Columbia where, in 1931, he did his epochmaking work on the isolation of Deuterium. Barely ten years after his Ph.D., he received the Nobel prize in Chemistry.

During World War II, he headed the Manhattan Project at Columbia. After Columbia and the war, followed the days in Chicago. This was the exciting period when the rudiments of the new discipline of Cosmochemistry was being forged, with Libby, Harrison Brown, Hans Seuss, and the galaxy of chemists who were bold enough to venture from their earthbound laboratories to nature's own, in the very heart of the stars. The years in Chicago swiftly gave place to those in La Jolla, where, in 1958, Harold Urey was named Professor-at-large. To his last day Urey lived in La Jolla, making it the Mecca and Medina of all Cosmochemists.

* In 1926 he married Frieda Dawn. He had four children, Gertrude, Frieda, Mary Alice, and John.

Urey's influence extended to every branch of science. One of the first significant experiments on the origin of life was performed by his graduate student, Stanley Miller. Other associates, like Harmon Craig, have blazed the isotope trail, and a whole generation of researchers has emulated his studies of the Moon.

His love affair with the Moon began over thirty years ago. In his own oft-quoted words, 'Joyously! One day on a train I read a book, *The Face of the Moon* by Ralph Baldwin. I was fascinated.' He went back to his office at the University of Chicago and pasted together a map of the Moon from photographs and hung it on his office wall. 'And I just went on from there.' He literally went on to participate in every aspect of lunar exploration. At the height of the Apollo program he once exclaimed, 'I'd love to go to the Moon. I think I'd go even if I knew I could never get back.'

Perhaps the greatest legacy that Harold Urey has left us is his dedication to basic science. He represented in the scientific world, long before its time, the phenomenon of the native American scientist inspired by the problems of pure science, working not towards practical applications but attempting to formulate the natural laws of the Universe. Urey hunted for Deuterium not because of the potential value of heavy water but because he had a chart of nuclear species on the wall, with a blank space, where he was convinced that Deuterium had to be.

Harold Urey thrived in the intellectual climate of academe. To him, 'the main business of a university is to examine the discrepancies between actual phenomena and the currently accepted explanations of them.' Throughout his scintillating career, to a degree seldom equalled, he personified excitement in science.

Of him, more than of anyone else, one could say with Ogden Nash:

'There wasn't a problem he feared to face
From smashing atoms to conquering space
And, should one of his theories expire
He had other ions in the fire.'

Harold Urey was a warm and affectionate human being. Those of us who had the privilege of knowing him have lost a friend and a teacher. A generation of American scientists accustomed to him will miss the special Urey brand of inspiration and leadership.

To Mrs. Urey and her family we convey our deepest sympathies and warm affection.

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