= Katharine Way =

Katharine " Kay " Way (February 20 , 1902 ? December 9 , 1995) was an American physicist best known for her work on the Nuclear Data Project . During World War II , she worked for the Manhattan Project at the Metallurgical Laboratory in Chicago . She became an adjunct professor at Duke University in 1968 .

= = Education and early life = =

Katharine Way was born in Sewickley , Pennsylvania , the second child of William Addisson Way , a lawyer , and his wife Louise Jones . She had an older brother and a younger sister . Originally named Catherine , she later changed her name to Katharine . Friends and colleagues generally knew her as Kay . Her mother died when she was twelve years old , and her father married an ear and throat specialist , who provided Kay with a role model of a career woman .

Way was educated at Miss Hartridge 's boarding school in Plainfield , New Jersey , and Rosemary Hall in Greenwich , Connecticut . In 1920 she entered Vassar College , but was forced to drop out after two years after becoming ill with suspected tuberculosis . After convalescing in Saranac Lake , New York , she attended Barnard College for a couple of semesters in 1924 and 1925 .

From 1929 to 1934 she studied at Columbia University , where Edward Kasner stoked an interest in mathematics , and co @-@ authored Way 's first published academic paper . She finally graduated with her BS in 1932 . She next went to the University of North Carolina , where John Wheeler stimulated an interest in nuclear physics , and she became his first PhD student . Because jobs were hard to come by during the Great Depression , she stayed on as a graduate student after completing the requirements of her PhD .

In 1938 , she became a Huff Research Fellow at Bryn Mawr College , which allowed her to receive her PhD for her thesis on nuclear physics about the " Photoelectric cross section of the deuteron " , She subsequently took up a teaching position at the University of Tennessee in 1939 , becoming an assistant professor in 1941 .

At a conference in New York in 1938 , Way presented a paper on " Nuclear Quadrupole and Magnetic Moments " in which she examined deformation of a spinning atomic nucleus under three models , including Niels Bohr 's liquid drop model . She followed this up with a closer examination of the liquid drop model in a paper entitled " The Liquid @-@ Drop Model and Nuclear Moments " , in which she showed that the resulting cigar @-@ shaped nucleus could be unstable . Wheeler later recalled that :

One day [Katherine Way] came in and reported a difficully . The equations gave no solution in the case of a sufficiently great angular velocity . It was clear that one had to do in this case with a kind of instability . It took only 1939 and the discovery of Hahn and Strasmann to recognize the nature of the instability : nuclear fission . Why did we not do to the analysis of the higher order terms in the deformation energy and predict fission in advance of its discovery ? It was not any difficulty in mathematics . It was a difficulty in the model . It failed to give the right magnitudes and right trends for nuclear magnetic moments .

= = Manhattan Project = =

In 1942 , Wheeler recruited Way to work on the Manhattan Project at the Metallurgical Laboratory in Chicago . Working with physicist Alvin Weinberg , Way analyzed neutron flux data from Enrico Fermi 's early nuclear reactor designs to see whether it would be possible to create a self @-@ sustaining nuclear chain reaction . These calculations were put to use in the construction of Chicago Pile @-@ 1 . Afterwards , she examined the problem of nuclear poisoning of reactors by certain fission products . With physicist Eugene Wigner she developed the Way @-@ Wigner approximation for fission product decay .

Apart from working on the Manhattan Project in Chicago , Way also visited the Hanford Site and the Los Alamos Laboratory . In mid @-@ 1945 she moved to Oak Ridge , Tennessee , where she

continued her research into nuclear decay . While there , she began to specialize in the collection and organization of nuclear data .

With Dexter Masters , she co @-@ edited the 1946 New York Times bestseller One World or None : a Report to the Public on the Full Meaning of the Atomic Bomb . The book included essays by Niels Bohr , Albert Einstein and Robert Oppenheimer , and sold over 100 @,@ 000 copies .

= = Later life = =

Way moved to Washington , D.C. , in 1949 , where she went to work for the National Bureau of Standards . Four years later , she persuaded the National Academy of Sciences ' National Research Council to establish the Nuclear Data Project (NDP) , an organization with special responsibility for gathering and disseminating nuclear data , under her leadership . The NDP moved to the Oak Ridge National Laboratory in 1964 , but Way remained its head until 1968 . Beginning in 1964 , the NDP published a journal , Nuclear Data Sheets , to disseminate the information that the NDP had gathered . This was joined the following year by a second journal , Atomic Data and Nuclear Data Tables . She also persuaded the editors of Nuclear Physics to add keywords to the subject headings of articles to facilitate cross @-@ referencing .

Way left the NDP in 1968 and became an adjunct professor at Duke University in Durham , North Carolina , although she continued as editor of Nuclear Data Sheets until 1973 , and Atomic Data and Nuclear Data Tables until 1982 . In later life she became interested in the health problems of seniors , and lobbied for improved health care for them .

Way , who never married , died at Chapel Hill , North Carolina , on December 9 , 1995 .