= George T. Reynolds =

George Thomas Reynolds (May 27 , 1917 ? April 19 , 2005) was an American physicist best known for his accomplishments in particle physics , biophysics and environmental science .

Reynolds received his PhD in physics from Princeton in 1943 , writing a thesis of the propagation of shock waves . During World War II , he joined the United States Navy , and served with the Manhattan Project . He worked with George Kistiakowsky on the design of the explosive lenses required by the implosion @-@ type nuclear weapon . He was involved in the investigation of the Port Chicago disaster , served with Project Alberta on Tinian , and was part of the Manhattan Project team sent to Hiroshima and Nagasaki to inspect the bomb damage .

After the war , Reynolds began a long academic career at Princeton University . He was director of the Princeton 's High Energy Physics Program from 1948 until 1970 , when he became the first director of Princeton 's new Center for Environmental Studies . He combined his interest in the sea and science by working during the summers at the Marine Biological Laboratory in Woods Hole , Massachusetts , where he studied marine bioluminescence . He also worked at the Woods Hole Oceanographic Institution .

= = Early life = =

George Thomas Reynolds was born in Trenton , New Jersey on May 27 , 1917 , the son of George W. Reynolds , a trainmaster for the Pennsylvania Railroad , and his wife Laura , a secretary with the New Jersey Department of Geology . He attended Franklin Junior High School in Highland Park , New Jersey , until year 10 , and then New Brunswick High School .

He received a bachelor 's degree in physics from Rutgers University in 1939 . He then entered Princeton University , where was awarded a master of science degree in 1942 . He earned his PhD in 1943 under the supervision of Walker Bleakney , writing his thesis " Studies in the production , propagation , and interactions of shock waves " .

= = Manhattan Project = =

World War II was raging at this time , and someone with a doctorate in such a topic area was highly sought after by the wartime Manhattan Project , but Reynolds turned down an offer to join it . An avid surf fisherman and sailor , he aspired to join the United States Navy . He attempted to enlist , but was turned down because he wore glasses . He then lobbied the Navy , which waived this requirement . He was then commissioned as an ensign in 1943 , and married Virginia Rendall , a librarian , while he waited for his first assignment .

Instead of the seafaring assignment he hoped for , Reynolds was sent to the Manhattan Project 's Los Alamos Laboratory to assist George Kistiakowsky in the design of the explosive lenses required by the implosion @-@ type nuclear weapon . In April 1944 , Kistiakowsky named Reynolds as one of eleven men that he would like to have working for him at Los Alamos .

Reynolds was one of the naval officers who was sent to investigate the Port Chicago disaster , in which an ammunition ship had blown up in the harbor . He was tasked with estimating the size of the explosion , based upon observations of the damage . His estimate was 1 @,@ 550 tons of TNT (6 @,@ 500 GJ) ± 50 tons of TNT (210 GJ) tons . A bill of lading was subsequently found for 1 @,@ 540 tons , confirming his estimate .

Reynolds was one of several researchers who determined that an atomic bomb would do maximum damage if detonated in the air rather than at ground level .

He later served with Project Alberta , the part of the Manhattan Project for operations in the field . He served on Tinian , where the worked with the X @-@ Unit Section , which was responsible for the Fat Man bomb 's firing unit . He flew a number of practice missions , but not the bombing of Hiroshima or Nagasaki . After the fighting ended , he was part of the Manhattan Project team sent to Hiroshima and Nagasaki to inspect the bomb damage .

= = Princeton = =

After the war , Reynolds accepted an offer of an assistant professorship at Princeton University . He would spend the rest of his career there , being promoted to associate professor in 1951 , and then to professor in 1959 . John Archibald Wheeler interested him in cosmic rays . Reybolds was director of the Princeton 's High Energy Physics Program from 1948 to 1970 . He initially recruited Ronald Rau from Caltech and Joseph Ballam from the University of California . Ballam eventually became a professor and division head at the SLAC National Accelerator Laboratory , while Rau went on to become Chairman of the Physics Department at the Brookhaven National Laboratory . Reynolds later hired Sam Treiman , Giorgio Salvini , Riccardo Giacconi , Val Fitch and Jim Cronin . His reputation for spotting and hiring talent was assured when Giacconi , Fitch and Cronin won Nobel Prizes .

For his cosmic ray research , Reynolds attempted to grow large organic crystal scintillators to use as ionized particle detectors . Scintillators are luminescent materials that , when struck by an incoming particle , absorb its energy and scintillate ? emit light . They are used in many areas of scientific research . He was frustrated by cracks in the crystals , and attempted to get around the problem by dissolving them in liquid . To the surprise of many , the liquid was just as effective as crystal scintillators . Today , liquid scintillators are in widespread use in nuclear , biological and medical research . He also developed automated X @-@ ray detectors for collecting data on protein structures .

Interest in environmental issues increased in the late 1960s , and in 1970 , Princeton established Princeton 's Center for Environmental Studies . Reynolds was appointed as its first director . Under his leadership , it investigated a number of unusual inter @-@ disciplinary topics , such as energy conservation in buildings , indoor air quality , the relationship between nuclear power and nuclear weapons , and the decision @-@ making process in environmental issues

Although most of his career was at Princeton , he spent some time in England , where was a Churchill Fellow at Cambridge University in 1973 and 1974 . He was later a visiting Senior Research Fellow at the Laboratory of Molecular Biology at Oxford University , and a visiting professor at Oxford Research Unit of the Open University , from 1981 to 1982 , and a Royal Society Guest Research Fellow at Oxford University in 1985 .

Reynolds became the Class of 1909 Professor of Physics in 1978 , and Professor Emeritus 1987 . For 31 years he combined his interest in the sea and science by working during the summer at the Marine Biological Laboratory in Woods Hole , Massachusetts , where he studied marine bioluminescence . He also worked at the Woods Hole Oceanographic Institution .

Reynolds died from cancer at his home in Skillman , New Jersey on April 19 , 2005 . He was survived by his wife , Virginia , and his four sons , G. Thomas , Richard , Robert and David .