

= Mary Amdur =

Mary Ochsenhirt Amdur (February 18 , 1921 ? February 16 , 1998) was an American toxicologist and public health researcher who worked primarily on pollution . She was charged with studying the effects of the 1948 Donora smog , so she specifically looked into the effects of inhaling Sulfuric acid by experimenting on guinea pigs . Her findings on the respiratory effects related to sulfuric acid led to her being threatened , to her funding being pulled , and to her losing her job at the Harvard School of Public Health in 1953 . Undeterred by the setback , she carried on her research in a different role at Harvard , and subsequently at MIT and New York University . Despite the early controversy related to her work , it was used in the creation of standards in air pollution , and towards the end of her life she received numerous awards and accolades .

= = Early life = =

Mary Amdur was born in 1921 in Donora , Pennsylvania . She received a bachelor 's degree in chemistry in 1943 from the University of Pittsburgh , moving to Cornell University to study biochemistry at the postgraduate level . She received her PhD in biochemistry in 1946 , writing her thesis on the " Role of Manganese and Choline in Bone Formation in the Rat " . After achieving her PhD , she worked at the Massachusetts Eye and Ear Infirmary before joining Philip Drinker 's team at Harvard School of Public Health in 1949 . By 1953 she had married another scientist in the field , Benjamin Amdur , with whom she had a son , David .

= = Research = =

The American Smelting and Refining Company (ASARCO) funded Drinker to investigate the 1948 Donora smog , as the company had an interest in showing that its primary pollutants (sulfuric acid and sulfur dioxide) had not significantly contributed to the damage it caused . In the middle of 1953 , Amdur and her husband developed a method of spraying a combination mist of sulfuric acid and sulfur dioxide into humid chambers containing guinea pigs to investigate the damage that it would cause to their lungs . Guinea pigs were used as they breathe more deeply through their mouths than smaller rodents which breathe through their noses . The Amdurs bought their own guinea pigs for the mini project , and spent a holiday weekend doing the investigation .

Amdur presented the results of the experiment , that inhaling the combination mist led to dramatic effects on breathing , loss of weight and lung disease , to the American Association for the Advancement of Science at their annual meeting in December 1953 . She then wrote a damning paper on the effects of lower levels of sulfuric acid on humans , levels similar to those of the 1948 smog . The paper , and her attempt to present the associated findings to the American Industrial Hygiene Association , caused her many difficulties . Amdur was accosted and threatened by two thugs in an elevator at the association 's 1954 annual meeting . She presented the findings regardless . As Drinker received funding from ASARCO , the company 's management assumed that they would hold sway over what was published . When Amdur returned from the meeting , Drinker demanded that Amdur remove her name from the paper and to withdraw it from The Lancet , despite the fact it had already been accepted . Amdur refused Drinker 's demands , so her position on his staff was removed and she was left to find new work . The paper was never published .

She quickly found a new untenured research associate role under James Whittenberger , Chair of Physiology at Harvard School of Public Health , working with Dr. Jere Mead . She continued the research on air pollution , which she began under Drinker , until she left the school in 1977 . Partly because of the difficulty in obtaining tenure at Harvard , both for herself and for her colleague Sheldon Murphy , and partly because she needed to work with engineers to produce suitable combustion products , she moved her research to the nearby Massachusetts Institute of Technology (MIT) and accepted a promotion to lecturer , securing funding for 12 years . When she moved , her new focus was the role of metals in the inhalation of sulfuric acid . Dissatisfied with the attention the research received at MIT , she moved to the Institute of Environmental Medicine at New York

University in 1989 as a senior research scientist , where she remained until her retirement in 1996 .

= = Awards = =

In 1953 , Amdur was inducted as a member of Delta Omega Honorary Society in Public Health . In 1974 , she received the Donald E. Cummings Memorial Award from the American Industrial Hygiene Association in recognition of her lifetime contributions and application of her knowledge in the field . The American Academy of Industrial Hygiene Council awarded her the Henry F. Smyth Jr . Award in 1984 for identifying and fulfilling research needs within the industrial hygiene profession . In 1986 she received the Inhalation Section of the Career Achievement Award from The Society of Toxicology . She received the Herbert E. Stockinger Award from the American Conference of Governmental Industrial Hygienists in 1989 In 1988 she gained , the Mid @-@ Atlantic Section , Society of Toxicology Ambassador Award . Then in 1997 , she was awarded the Merit Award from the same society , in celebration of her achievements throughout her life and her contributions to Toxicology .

= = Death and legacy = =

Amdur died on 16 February 1998 of a heart attack while returning from a holiday in Hawaii . At least three societies wrote obituaries and a toxicology book was dedicated to her memory . A Toxicology Society Award was set up in her name by students and colleagues . The award , the Mary Amdur Student Award is presented for the Inhalation and Respiratory Specialty Section . She is considered the " mother of smog research " and her work had " a major role in the development of air pollution standards . "