

George Gamow Biography

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Biography

Born on March 4, 1904, at Odessa in czarist Russia, George Gamow became interested in astronomy after his father gave him a telescope on his thirteenth birthday. Gamow went to the University of Leningrad, obtaining a Ph.D. in 1928. After working at various European universities, he came to the United States in 1934.

In 1938 German-American physicist Hans Bethe established the details of how stars produced their energy. Gamow built upon that, establishing a better understanding of stellar evolution by showing that as a star depleted its hydrogen, it would become hotter, not cooler as had been commonly accepted. The Earth wouldn't freeze when the Sun died; it would be incinerated.

Gamow also popularized and promoted the big bang theory of creation that had been put forward by Georges Henri Lemaître in 1927. Lemaître speculated that the outward expansion of the galaxies could be traced back to a "cosmic egg" that had exploded violently eons ago.

In 1948 Gamow worked out a theory on how the various elements of the universe could have been formed in a very short time following the big bang explosion. Eventually, Gamow had to admit he was probably incorrect; other theories about the formation of heavy elements found in stars seemed more plausible. More importantly, Gamow also had suggested that the big bang produced a "halo" of radiation throughout the universe that could persist even after the passage of many billions of years. The extreme heat generated by the blast would have cooled, but he suspected something should be detectable at just a few degrees above absolute zero, and that it would be severely red-shifted into the radio portion of the spectrum.

Seventeen years later, in 1965, Arno Penzias and Robert Wilson (1936-), employees of Bell Laboratories, were being driven to distraction by radio "noise" that was coming from all areas of the sky, making it very difficult to calibrate their horn-shaped radio antenna. It was eventually determined that the noise was characteristic of an object radiating at about 3° Kelvin.

Gamow's suspicion was confirmed, and the big bang cosmology emerged victorious over its competitor, the steady state theory. Gamow died three years later on August 19, 1968, in Boulder, Colorado.