Hugh Bradner 1915–2008

Particle physicist turned oceanographer Hugh Bradner passed away on 5 May aged 92.

After receiving his PhD from Caltech in 1941, Bradner was recruited by Robert Oppenheimer to join the Manhattan Project, where he worked on a variety of activities, including developing instrumentation to study high explosives and planning the nascent laboratory and town of Los Alamos.

After the war, Bradner moved to the Lawrence Berkeley Laboratory and UC Berkeley, where he developed instrumentation used in atomic tests. He also took up high-energy physics, using photographic emulsion to study particle production at the 184-inch cyclotron. Among other things, he measured the cross-section for pion interactions in emulsion, establishing that they interacted strongly. He also worked on a device to analyse bubble chamber photographs and performed some of the first experiments with polarized proton beams, studying the scattering of 285 MeV polarized protons in different targets.

In the early 1950s, Bradner developed instrumentation for Operation Greenhouse atomic tests in the Marshall Islands. Installation required some underwater diving, and this stimulated an interest in diving equipment. Although the aqualung had simplified underwater work, ocean diving was still a very cold activity. Bradner experimented with neoprene, a synthetic rubber, and discovered that it would hold water well; this water would gradually warm up to body temperature. By 1954, he and his colleagues were marketing the EDCO Sub-Mariner suit, which was designed to keep divers warm. Although there is still considerable dispute about who invented the wetsuit first, it seems indisputable that Bradner was the first to develop it for underwater diving.

On the basis of this experience, in 1960 Bradner was recruited to the Scripps Institute of Oceanography in San Diego. There, he put his high-energy physics experience to work, developing a variety of instrumentation. Among other things, he worked on using seismographs to detect earthquakes caused by nuclear tests, but did not abandon particle physics. One article that he wrote in 1964 was on the generation of heat by neutrino interactions in the Earth. He later became a member of the DUMAND and NESTOR collaborations.

Although Bradner formally retired in 1980, he remained active in a variety of pursuits.