

DAVID C. NUTT (1919–2008)

Captain David Clark Nutt USNR, 88, of Etna, New Hampshire, died on January 10, 2008, in Hanover, New Hampshire. Born in Cleveland on June 21, 1919, to Joseph Randolph Nutt and Elizabeth Hasbrouck Nutt, he graduated from Dartmouth College with a degree in botany in 1941. Two years later, he married Mary Louise (Babs) Wright. The couple moved to Etna in 1946.

Nutt led the team that made the first measurements of the composition of ancient air in Greenland ice in the 1950s, thus triggering the modern study of climate change in the polar regions. His team also measured the age of the Greenland ice, moved their sampling base from icebergs to ice tunnels at Thule, Greenland, and began the ice drilling methods that eventually led to retrieving complete ice cores to bedrock in Greenland and Antarctica. By now, these cores have reached back 110 000 years in Greenland and 740 000 years in Antarctica.

Analysis of trapped air in ice began in 1954 with the Norwegian physiologist Per F. Scholander, who worked with Greenland icebergs off the Labrador coast on board the oceanographic research schooner *Blue Dolphin*, of which Nutt was master, expedition leader, and chief scientist. One day while looking over the rail, Scholander asked why the glacial ice was fizzing. From his wide Arctic experience, Nutt told him that it was air that had been locked in under high pressure during the transition from glacial snow to ice and was now being released. “Put it in your Scotch, and you’ll have instant iced Scotch and soda,” he said. A contemporary photo shows him collecting a sample of fresh glacier ice by breaking off a piece of a handsome iceberg with a rifle shot fired from the deck.

Scholander was galvanized by the possibility that the air was old air, original with the ice, and reckoned that he could measure its CO<sub>2</sub> content, which would tell him about old atmospheres. The first paper reporting this success was published in *Science* in 1956 (Scholander et al., 1956). Further analyses of Greenland ice by Scholander and L.K. Coachman involved oxygen isotope measurements taken by W. Dansgaard in Denmark, and eventually, the first carbon-14 dating of ancient ice at the laboratory of Hessel De Vries in The Netherlands. Thus began the modern era of climate change research that led to the Nobel Peace Prizes of 2007. A summary history of the early publications on gas in ice is given in a note by Morse and Coachman (1983).

In further studies, Nutt used the *Blue Dolphin* to discover the annual cycle of thermal and compositional change in Labrador fjords. This work also involved measurements through the winter ice using dog teams for transport, and fall observations from small boats to capture the maximum warming of the bottom water. Nutt also helped to establish the U.S. Army Cold Regions Research and Engineering Laboratory (USA-CRREL) in Hanover, New Hampshire.

As a student from 1935 to 1940, Nutt accompanied Captain Robert A. Bartlett to the Arctic on the schooner



David Nutt at age 33 with Rolleiflex camera and rarely seen pipe, standing on the furled mainsail of Sch. *Blue Dolphin*, Labrador, 1952. Photo by S.A. Morse.

*Morrissey*. His resulting experience in navigation and seamanship qualified him for a direct commission in the United States Navy, and he was called to active duty in 1941 during the last semester of his senior year at Dartmouth. His first duty involved attending Local Defense School at the Boston Navy Yard, where he was allowed to sit his Dartmouth comprehensive examination in Botany and later released for graduation exercises. In 1942–43, he served in Greenland on the survey schooner USS *Bowdoin*, under Lt. Stuart Hotchkiss, charting the West Greenland waters for the construction of air bases to be used in ferrying fighter planes to England as part of the Bolero movement.

In 1944, after a tour studying mapping problems in the Pacific in the Navy Hydrographic Office in Washington, Nutt joined the survey ship USS *Sumner* (AGS-5), serving first as executive officer and then as captain. On that ship, he conducted surveys and cleared waters for navigation in the western Pacific at Ulithi Atoll (where 400 ships of class destroyer and above were accommodated in harbor), Guam, Iwo Jima, Leyte Gulf, Korea, China, and Bikini Atoll, where the ship prepared the harbor for the 1946 atomic bomb test. The *Sumner* saw action and won three battle stars. At Iwo Jima, Nutt climbed Mount Suribachi during the battle to set a survey signal there and by chance also visited his old college roommate, now Marine Captain Robert White, in his command post foxhole while Hell's kitchen was flying overhead.

In 1946 Nutt was released from active duty to the Naval Reserve with the rank of Commander and became attached to the Geography Department at Dartmouth College. In 1948, he acquired the schooner *Blue Dolphin*, refitted it for Arctic oceanographic research, and from 1949 to 1952 and again in 1954, surveyed the fjords and estuaries of Labrador. Dartmouth professor Elmer Harp Jr. joined the 1949 expedition as archaeologist and discovered evidence of the 4500–3300-year-old Maritime Archaic culture in Port au Choix, Newfoundland. With colleagues Nutt and Trevor Lloyd, Harp helped attract the Arctic explorer Vilhjalmur Stefansson, with his library of Arctic writings, to Dartmouth.

From 1957 to 1962 and again from 1965 to 1970, Nutt served as a governor (and as chairman in 1961–62) of the Arctic Institute of North America, and he also served on the boards of the American Polar Society, the New England Grenfell Association, and the Aviation Association of New Hampshire. He was president of the Early Sites Foundation and was awarded the Elisha Kent Kane Medal of the Geographical Society of Philadelphia for Arctic service. He was a selectman in Hanover and served several terms in the New Hampshire legislature.

Nutt and his wife Babs owned and operated Post Mills Airport in Vermont. In Etna, they gardened, raised sheep, maintained a maple sugar orchard and were tree farmers, winning the New Hampshire Tree Farmer of the Year Award in 1995. Babs, an accomplished sailplane and aerobatics pilot instructor, held the women's dual-seat glider altitude record of 35463 feet in a wave over Colorado. She predeceased David in 2006.

David Nutt is survived by four daughters, Mary Nutt of Socorro, New Mexico; Peggy Mitchell of Canaan, New Hampshire; Patsy Decker of Salisbury, Maryland; and Sally Nutt of McCall, Idaho; two sons, David Nutt Jr. of Edgecomb, Maine; and William Nutt of Enfield, New Hampshire; 12 grandchildren; and six great-grandchildren.

#### REFERENCES

- MORSE, S.A., and COACHMAN, L.K. 1983. Ocean chemistry during glacial time—a comment. *Geochimica et Cosmochimica Acta* 47(8):1539–1540, doi:10.1016/0016-7037(83)90315-0.
- SCHOLANDER, P.F., KANWISHER, J.W., and NUTT, D.C. 1956. Gases in icebergs. *Science*, New Series 123(3186): 104–105.

S.A. Morse  
 Department of Geosciences  
 611 North Pleasant Street  
 233 Morrill Science Center  
 University of Massachusetts  
 Amherst, MA 01003-9297, USA