

# A GREAT WOMAN EXPLORER: LOUISE A. BOYD

## Large of Spirit

Sprinkled throughout the world's oceans are thousands of named seafloor features. Many of the major features have received names that associate them with some other geographic feature such as Mid-Atlantic Ridge, East Pacific Rise, or Aleutian Trench. Many of the smaller features have received names commemorating scientists, explorers, bathymetrists, hydrographers, research or survey vessels, and even crew members of those vessels. Of the names of these lesser features, hundreds are named for men who made contributions to knowledge of the sea. However, a review of both the official names of the IHO GEBCO Subcommittee on Undersea Feature Names (SCUFN) and that of the United States Board on Geographic Names Advisory Committee on Undersea Features finds less than twenty names that can be unambiguously associated with women, and of those, only a handful that contributed to knowledge of the oceans. The only examples of the latter that this author is aware of are Louis A. Boyd Bank, Tharp Fracture Zone (named for Marie Tharp of physiographic mapping fame), Mammerickx Seamount (named for Scripps Institution of Oceanography bathymetrist Jacqueline Mammerickx), Valerie Guyot (named for Valerie Craig, wife and professional partner of Harmon Craig, Scripps geochemist and chemical oceanographer), Klenova Seamount (named for pioneering Soviet marine geologist Maria Klenova), and Betty Seamount (named for Elizabeth Shor, historian of the Scripps Institution of Oceanography.)

The first of the above features was the very first deep sea feature named after a woman explorer or scientist. It was named after Louise Arner Boyd (1887-1972), a remarkable woman who led a remarkable life. Her story began in 1877 with the discovery of a gold bonanza in the town of Bodie, California. Her father made a fortune here in subsequent years and, by the time of her birth in 1887, her family was living in an exclusive community north of San Francisco. Because of the death of her two brothers in the early 1900s, Louise became the sole heir to the family's USD3,000,000 fortune (approximately USD36,000,000 in 2013) upon the death of her parents in 1919 and 1920 respectively. Having an adventurous spirit, Louise soon tired of the life of a socialite. In 1924, she had her introduction to the far north as a tourist on a small Norwegian passenger ship that visited Spitsbergen. Following that excursion, she resolved to return to the Arctic.

Beginning in 1926, Miss Boyd, as she was often referred to, began chartering small tough Norwegian vessels that were used in the sealing and whaling trade. The first of these vessels was the *Hobby*, a sealing vessel. This 1926 trip was a trophy hunting expedition and led to her being called the 'Arctic Diana' after she shot 11 polar bears. Later she was called 'The Queen of the Arctic.' She even had a limerick written in her honour that began: "There was a young lady named Boyd, Whom polar bears tried to avoid....".

Her 1928 expedition coincided with the news that the dirigible of Arctic explorer Umberto Nobile had crashed somewhere in the Arctic. This accident led the great Norwegian explorer Roald Amundsen to launch an aerial search for the crash site of the Nobile expedition. Amundsen was subsequently lost, never to be found. However, his disappearance prompted Boyd to put her chartered vessel under the direction of the Norwegian government in helping with search efforts for Amundsen. During this search, the *Hobby* traversed over 10,000 miles and proceeded as far as 81° 03' North Latitude, north of Franz Josef Land. In spite of the failure to find Amundsen or any trace of his aircraft, this was a transforming experience for Boyd and she devoted the rest of her life and much of her fortune to the scientific study of the Arctic. In her 1948 American Geographical Society publication, *The Coast of Northeast Greenland with Hydrographic Studies in the Greenland Sea*, she related, "Four times have I had the satisfaction of organising and conducting expeditions that successfully negotiated the belt of ice that guards the East Greenland coast and of bringing back in photographs, maps, collections, and written records, what I hope are worthwhile contributions to knowledge of that alluring region of fjords and glaciers and lofty, ice-capped mountains - its majestic scenery, its plant and animal life, its geology and physiography, and the ice in all its many and frequently changing summer aspects." The four times she referred to were expeditions in 1931, 1933, 1937 and 1938.

Although much of the work on these expeditions was terrestrial in nature, concerning the 1937 and 1938 expeditions, "Greater emphasis was ... put on the hydrographic work than had been the case on any of my previous expeditions, and a hydrographer, who was to be in charge of the sounding programme, current studies, and tide-gauge recording, was therefore added to my staff. "For all four of her science expeditions, Louise Boyd chartered the small Norwegian sealer *Veslekari*, or 'Little Kari' in Norwegian. This vessel was little, only 125 feet long with 27-foot beam and 14-foot draft.

The hydrographer that accompanied the expedition was James M. LeRoy, a former officer of the United States Coast and Geodetic Survey. He oversaw all hydrographic activities. Of particular interest was overseeing a deepwater sounding instrument and recorder produced by Hughes and Son of London. This instrument subsequently became known as the Hughes Veslekari Type Echo Sounder and was used in many deepwater surveys conducted by other organisations. This machine was purchased by Miss Boyd in 1937 when the sounding instrument used in the earlier expeditions failed. The Hughes machine was rated to 1400 fathoms but, in fact, recorded to a maximum observed depth of 2053 fathoms from where a strong return was received. On 22 June 1937, shortly after installing the new sounding machine and while conducting trials of it offshore from Narvik, Norway, to the great surprise of all on board "... the sounder readings suddenly rose from normal sea floor depths to some 320 fathoms. The importance of keeping the sounder operating on a journey such as ours was thus further established, for it was soon evident that we had found a previously unrecorded ocean bank." To further delineate the bank, a buoy was anchored on its summit and lines run radially outward from it. The buoy position was determined by

astronomic observations. A check sounding was made with a wireline sounding machine that registered 589 metres while the Hughes machine read 585 metres. During the remainder of the 1937 field season, the *Veslekari* proceeded to Jan Mayen Island where it conducted surveys and then engaged in exploring the northeast coast of Greenland. After returning to Norway, a short expedition was made to Spitsbergen in September to carry sounding work into the far Arctic. Some relatively high-accuracy hydrographic surveys were performed in 1937 in some of the fjords of Greenland with hand lead and wireline machine during the summer explorations as well. These surveys were controlled by measuring baselines, establishing local triangulation networks, building signals, and positioning the survey boat by three-point sextant fixes.

The 1938 expedition was notable for having a 'portable' Hughes shallow-water acoustic sounding machine as well as the Hughes Veslekari instrument. This particular instrument was installed on a *Veslekari* motor dory and was able to record depths to 230 fathoms. For the time, it was also unique as its speed could be increased by a factor of six and record either in fathoms or feet. This machine was used for some reconnaissance surveys in a few Greenland fjords in 1938. The sounding vessel in these surveys was located by estimating direction and distance to the shoreline as shown on an existing map.

The body of work accomplished by Louise Boyd and the expeditions she financed is impressive. She was not a passive observer of the activities but expedition photographer, collector of specimens for the accompanying scientists, and even took turns while at sea standing watch monitoring the sounding instrument. She enlisted the assistance of the best scientific and engineering personnel to accompany her on these expeditions. Geology professor Richard Flint from Yale University, Yale graduate student A. Lincoln Washburn, assistant geologist, (a champion skier as well as academic who went on to become first director of the Arctic Institute of North America), and Henry J. Oosting, professor of botany and ecology at Duke University, were all members of this expedition. In contouring and interpreting soundings, Boyd enlisted the assistance of Harry Hess of Princeton University. Hess is recognised as one of the 'founding fathers' of the Theory of Plate Tectonics.

Today, climatologists and glaciologists use Boyd's Greenland work as baseline information. She was an innovator and used the best of equipment in her explorations. She was a social pioneer in leading the way to expand the role of women in the physical sciences and was the first woman (at least to this author's knowledge) to lead major oceanographic and geographic expeditions. Because of her knowledge of the Arctic, she was recruited by the US government to conduct secret research on radio transmission in the high Arctic in 1941. She chartered at her own expense and sailed on the legendary Arctic exploration vessel *Effie M. Morrissey* under Captain Bob Bartlett during this expedition. World War II curtailed her explorations, but she was not quite finished. In 1955, at the age of 68, she chartered an airplane and became the first woman to fly over the North Pole.

Oddly, she was able to transition easily to the life of a socialite whenever she returned to her home in northern California and was a community leader for both the city of San Rafael and Marin County. She was equally at home in an evening gown at social gatherings or in the garb of an Arctic explorer. She was described by one observer as "large of spirit." Indeed she was. She never married but left a legacy of Arctic knowledge that is still valuable today as well as her mark on the waters she sailed. She died penniless in 1972, having exhausted her fortune in the service of humanity and expanding our Arctic horizons.

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## More Information

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