

GARTH DIGBY JACKSON (1929–2021)

Geological exploration of Baffin Island, the largest of the Arctic Islands, had its beginnings in 1577 with Martin Frobisher's misguided mining venture in Frobisher Bay (Hogarth et al., 1994) but did not flourish until the mid-twentieth century, when the Geological Survey of Canada (GSC), scientific expeditions, and prospectors initiated systematic investigations. A prominent figure in this activity was the GSC's Garth Jackson, who led the geological study of vast tracts of the Precambrian of central and northern Baffin Island in the period 1965–84 (Fig. 1).

Garth Digby Jackson was born in East Bolton, in the Eastern Townships of Quebec, on 7 April 1929, the son of Leonard and Ruth (Clark) Jackson. Study of Geology at McGill University culminated in award of a PhD in 1963. Following employment with Iron Ore Company of Canada, Garth joined the GSC in Ottawa as a regional geologist in 1958.

Garth's first field assignment with GSC was to map the Belcher Islands in Hudson Bay in the field seasons of 1958 and 1959. In those days, conditions for fieldwork in the Belchers were taxing: no permanent settlement existed, field parties had to be self-sufficient for most of the summer as resupply was possible only via the sealift in late August, and inter-island transport was by canoe or locally-chartered whaleboat, often in rough seas. Nonetheless, the project was successfully completed and the first geological map of the Belcher Islands was published in 1960.

It was in 1965 that Garth's decades-long association with Baffin Island began. Three years earlier, rich iron deposits at Mary River in the central part of the island had been discovered by a prospector, Murray Watts. Garth was assigned to investigate their geological setting in the 1965 field season. That work laid the foundations for a better understanding of the geology, further discoveries of orebodies, and eventual commercial development, now under way.

By 1966, the geology of two large areas of Baffin Island had been reconnoitered by helicopter: northwestern Baffin in 1963 and southern Baffin in 1965. After preparatory fieldwork in 1967, in 1968 Garth led the third large helicopter recce, Operation Bylot, which covered Baffin north of 69°N and east of 80°W and Bylot Island, a total area of 137,000 km². Fieldwork was carried out by five geologists and ten support personnel using two helicopters and an Otter aircraft. The area is underlain by a wide array of rocks of the Canadian Shield, exposed in terrain ranging from the mountainous, fiord-indented east coast to the interior lowlands. The geological results from a large part of the area, which includes the Mary River deposits, were published in a massive GSC memoir (Jackson, 2000); the geology is shown on five quarter-million scale maps.

In 1970 Garth headed Operation Penny Highlands, covering that part of Baffin Island lying between 66°N and 69°N and Cumberland Peninsula. The survey, over an area of 140,000 km², completed the helicopter reconnaissance of



Fig. 1. Garth Jackson, ca. 2002 (Photo by Steven Jackson).

Baffin Island. Half the area is occupied by granitic rocks that crystallized at high temperatures deep in Earth's crust.

Garth's last project in Baffin Island was a study of the Borden Basin, a 300 km-long rift structure containing a 6 km-thick sequence of Precambrian, mainly shallow-water sedimentary and subordinate volcanic rocks. Fieldwork was conducted over three field seasons in the 1970s and completed in 1984. The Borden Basin hosted the lead-zinc mine at Nanisivik, which operated from 1976 to 2002.

Garth participated in the Canada-USSR Arctic Science exchange program, which began in the mid-1980s (Fig. 2). Three trips to cratonic regions of Siberia and western Russia in 1985, 1988, and 1991 afforded Garth the opportunity to draw comparisons with equivalent terranes in Canada.

After retiring in the mid-1990s, Garth continued geological work in an emeritus or volunteer capacity in GSC until the end of 2019. In 2013 he published a comprehensive report on the Belcher Islands that incorporated results from his 1958–59 work and those of later workers (Jackson, 2013). The accompanying map, showing the islands outlining the limbs of closely-spaced folds, is one of the most striking ever published by GSC.

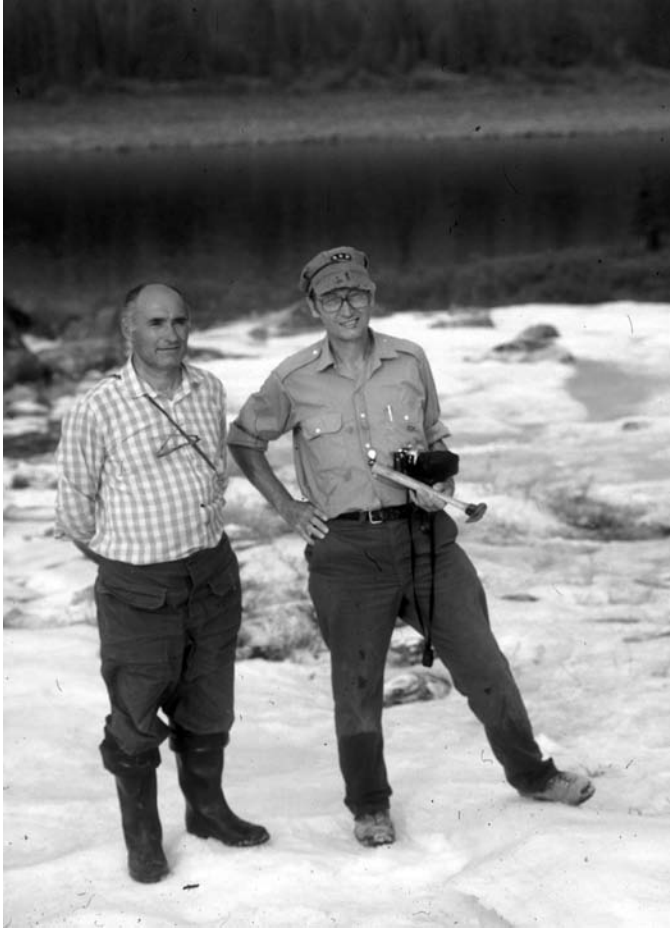


Fig. 2. Garth Jackson (right) and Professor Vassily I. Kitsul (Yakutian Institute of Geology) on a patch of *aufeis* on the Aldan River, Yakutia, August 1985 (Photo by Thomas Frisch).

Garth died suddenly and unexpectedly in Ottawa on 26 April 2021, aged 92. He will be remembered not only as a classically-trained field geologist of exceptional ability but also as a supreme generalist, who dealt with deep-level, contorted rocks with the same zeal as with high-level, unmetamorphosed strata. He had an uncanny ability to recall details of outcrops he had last seen years before. Additionally, Garth possessed the organizational skills required to efficiently run wide-ranging field surveys in remote locations. His legacy comprises numerous large- and small-scale maps, reports, and journal papers from an era of active geological exploration that is unlikely to be repeated.

Garth was predeceased by his wife Irene and is survived by brother Dale, children Valerie, Linda (Kevin), and Steven (Doxielyn), three grandchildren, and two great-grandchildren.

REFERENCES

- Hogarth, D.D., Boreham, P.W., and Mitchell, J.G. 1994. Martin Frobisher's northwest venture, 1576–1581: Mines, minerals & metallurgy. Canadian Museum of Civilization, Mercury Series, Directorate, Paper 7.
- Jackson, G.D. 2000. Geology of the Clyde-Cockburn Land map area, north-central Baffin Island, Nunavut. Geological Survey of Canada Memoir 440.
<https://doi.org/10.4095/211268>
- . 2013. Geology, Belcher Islands, Nunavut. Geological Survey of Canada Open File 4923.
<https://doi.org/10.4095/292434>

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