

Surveying History in Canada's North

By Gil Parker

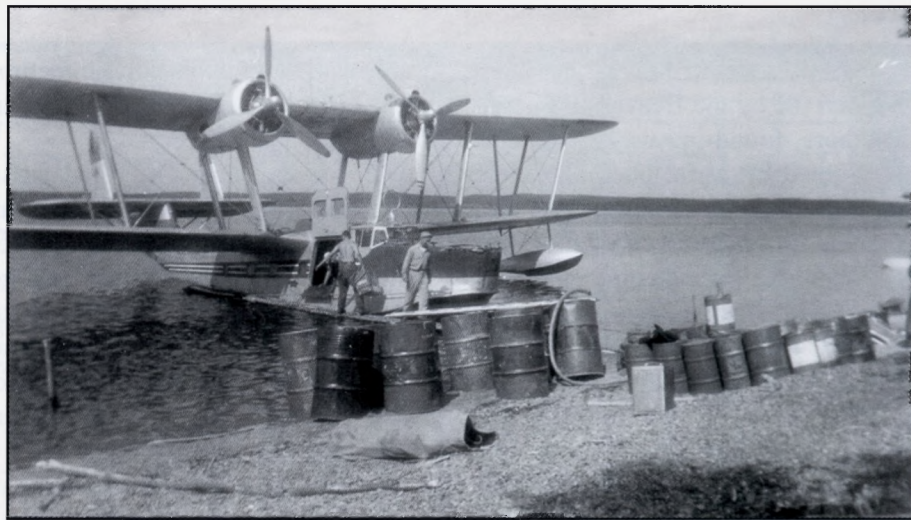
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In the 1950s, I worked summers for Topographic Surveys of Canada. University students looking for work could save money for next year's tuition if they went where they couldn't spend anything. I chose survey work in Canada's north for that reason and for the isolation and excitement of the wilderness.

Mapping was done from air photos, but these had to be connected to actual features on the ground. A topographic survey was used to establish ground control points to tie in the aerial photography. We covered the ground in a hurry because the distances were great and there was little need for precision. The Geodetic Survey of Canada did that later. My brother worked for Geodetic for several summers. They were much more interested in accuracy, spending a week or more at a single station, reading the angles at night using lights and transits.

Our summer season started in the south. We moved north as the ice melted, allowing access to lakes for our float-mounted aircraft. One year, we started by flying out of the town of Peace River, and eventually completed a strip across to Fort McMurray. We camped on the riverbank, long before there was a bridge across the Athabasca River or the huge, tar sands oil-extraction plants on the other side.

Our party was made up of about 15 men, using a fixed-wing aircraft and two helicopters. We would establish a wilderness camp of ten tents, including a cook shack/dining hall and an office. The helicopters transported surveyors to hilltops where they read angles to other stations. Initially, we just used a transit to measure angles between



Stranraer flying boat loading supplies. Credit. Gil Parker

several hills in a parallel network, a system called "triangulation". Calculations established the lengths of the sides of these triangles. That was my job, working with logarithmic tables in a hot and dusty office tent.

In 1957, we had a new electronic device called a *tellurometer*. This unit had a dish that sent a pulse to the next station where it was reflected back by another dish. The pulse travel time gave us the distance directly, allowing us to use a single survey line, replacing the triangulation network. To ensure accuracy of the survey, we tied each end of the line to a feature that had been previously located, or used a night time shot on the stars.

Moving north, we shipped our camp gear and barrels of helicopter fuel in a Stranraer flying boat and camped on a small lake near Fond du Lac, Saskatchewan. That aircraft had a legendary history of use during World War II as a surveillance aircraft, but it also tended to "porpoise" on landing if the pilot didn't hit the water at the correct angle. We were told that it was the last Stranraer in service; perhaps that was the reason.

One night the other student woke with horrible stomach pains. Gord Armstrong, our party chief, figured it was appendicitis. Our Beaver, that workhorse aircraft of the North, was ready to go at daybreak. They were in Yellowknife by noon and he was operated on right away. Not everyone has an aircraft handy when that happens.

To anchor one survey line, we had to find a marked point on the Alberta-Saskatchewan border on the south side of Lake Athabasca. Three of our party flew down there and tried to locate it from department records. But our best assistance came from an old hermit who lived there. For line of sight, I was cutting a tree with a power saw and sensed someone near me. A little man with a grey beard growing in and out of his overalls peered at me with a grin on his weathered features. He turned out to be of Slavic origin and had lived in New York, which was probably why he was now living on Lake Athabasca. He told me stories of encounters with bears, of running his trap line in winter, and of having only one visit per year when a plane brought supplies and took his furs. He was a self-sufficient fellow; he also knew where to find our survey pin!

Later, we flew the Beaver to Norman Wells, full of gear and helicopter gasoline, so that I had to squeeze in on top of the cargo. In Norman Wells we commandeered an old tavern for temporary accommodations and waited for our party at the then unpaved airstrip. Since it had rained heavily, the DC3 picked up a lot of mud on landing. It had to be washed down before it could take off again.

Our next destination was the Old Crow flats, north of the Porcupine River. As a student from the south, I had never seen mosquitoes like the vicious insects of that marsh. Some days, I was sent to a hill station to

prepare it for the surveyors. I was dropped off by the Beaver at a nearby lakeshore, found my way to the summit guided by aerial photos and then set up a signal on an aluminum frame. The trees needed to be cut off to make a flat spot for the helicopter. Then, I'd hike back to the lake and wait. I enjoyed the independence and just being away from books and professors.

But, one night the plane didn't return. I fought with mosquitoes through twilight, their most active hours. Finally, about 3 am, the Beaver landed in the half-light of the morning. A helicopter had been damaged during a landing and the plane was needed to find it. Everyone, including me, survived.

We moved camp to Coal Lake, west of Aklavik, north of the British Mountains. We were above the tree line, near the Arctic coast.

When the weather was good, we worked 20-hour days flying transit-tellurometer lines and taking elevations using barometers. One rainy day when the clouds were down tight, the helicopters couldn't fly. Everyone was in their tents, catching up on sleep. Hiking behind the camp, I came over the ridge and spotted a huge herd of caribou coming toward me. These were the first I had ever seen and I think it was the same for them. I didn't

move as they filed past me, sometimes pausing to look at that strange looking and smelling "rock."

When about a hundred had passed me, I stood up and waved my arms. The pilots and Igmar, the cook, were jolted awake when the caribou charged through the tent camp. I spent hours observing the caribou that summer, sometimes running beside the herds. They seemed to know that I meant them no harm.

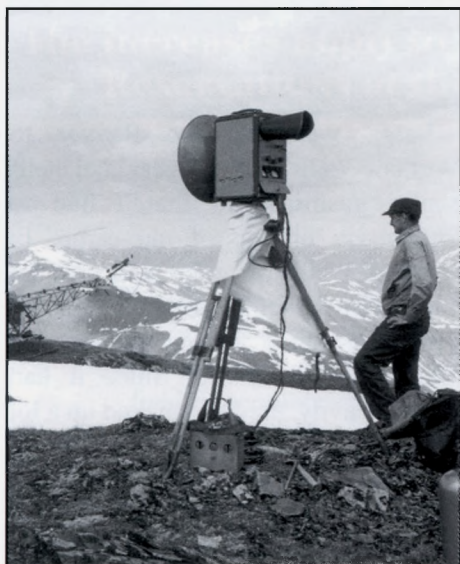
We had to tie in some survey points on Herschel Island, just off the coast. The other student and I flew over by Beaver and humped our signal marker up the highest hill. The tripod had to be visible to surveyors sighting it from hill stations on the mainland. On the way down we paid homage to the graves, marked with carved wooden slabs. The names told us that they had come from many countries in Europe, but the date of death on several was the same. The RCMP officer on Herschel told us they were sailors that worked on whaling ships that anchored nearby. They had been playing soccer on the frozen ice of the bay when a surprise blizzard came up. They couldn't find their way back to shore.

When we were ready to leave, the wind was so strong that we couldn't turn the Beaver around, so the pilot let her drift back, fending off small ice floes as we went. Then, he gunned the engine and we took off almost straight up, the wind actually pushing us backwards before we headed south. That night it snowed at camp, in mid-August!

My experience was not unusual for northerners, but was a wonderful introduction to the wilds for an urban student. When we met at university for fall classes, we compared our experiences. No one else had been to Herschel Island, or looked south across a little part of the Arctic Ocean!



Gil Parker is an engineer in Victoria and an author with published books on sister city relations, and on the connection between mountaineering and yoga.



A surveyor using a tellurometer. (L. Churcher, 1961) or NRCan. Geodetic Survey Division/RNCan. Division des levés géodésiques

Calendar of Events

February 18th to 20th, 2004

112th AOLS Annual Meeting
Marriott Eaton Centre
Toronto, Ontario
www.aols.org

March 28th to 31st, 2004

geotech event
Metro Toronto
Convention Centre
Toronto, Ontario
www.geoplace.com/gt

April 16th to 21st, 2004

ACSM Annual Conference
Nashville, Tennessee
www.acsm.net

May 24th to 27th, 2004

Canadian Hydrographic Conference
Ottawa, Ontario
www.chc2004.com

May 24th to 28th, 2004

ASPRS Annual Conference
Denver, Colorado
www.asprs.org/denver2004

May 27th / 28th, 2004

AOLS Statutes Exam and Professional Oral Exam / Professional Written Exam
Toronto, Ontario
email: admin@aols.org

July 8th to 11th, 2004

Council/AERC Summer Meeting
Windermere, Ontario
www.aols.org