



The Unknown Explorers

They were the successors of Champlain, Hearne and Mackenzie in probing a vast, forbidding land. They toiled alone, and few today remember them or their work. To our galaxy of great Canadians, let us add the men of the Geological Survey of Canada. What we owe them, no one can say . . .

□ *"They were the last white men to see Canada first — as a land still in a large degree unknown. Their main job, nominally, was to sound and chart its endless tides of rock, but it inevitably fell to them to record its scattered people and their life, its birds, and animals, its flowers, trees and skies."*

So wrote the distinguished author Ralph Allen in 1962 about one of the most heroic and yet least-celebrated bodies of men in Canadian history, the men of the Geological Survey of Canada. Every schoolboy knows of Champlain and Hudson, but few Canadians of any age have even heard of these much later explorers who toiled and bled in the trackless solitude of the wilderness to give Canada a head start on the road to economic viability and scientific prowess.

Their legacy lies in the shafts and pits of some of the world's richest mines, and in the continuing rewards of the flood of investment and immigration that followed their discovery of Canada's immense mineral resources. And — just as important — in the hundreds of thousands of bits and pieces of country they brought back to Ottawa from strange, wild shores to build the backbone of a distinctively Canadian scientific tradition that still flourishes today.

They began their monumental work before Canada was even a nation, during the era of the old union of the present-day Ontario and Quebec. The first of them was William Logan, who set an enduring standard not only of scientific accuracy,

but of eccentricity. He was a rich man who dressed like a bum, and was more than once mistaken for an escaped lunatic. A short, wiry man with metal-rimmed spectacles and an avuncular, dazed, humorous look, he ranged over many thousands of miles of wilderness, measuring the Canada of his day by counting his own footsteps. He was a flute player, a singer of old Scottish songs, a raconteur, *bon vivant*, and a scholar. Above all, he was a scientist through-and-through.

Logan was born in Montreal in 1798 of wealthy Scottish parents. At 16 he left for school in Edinburgh; he spent 27 years as an expatriate before he found his life's work and came home for good. By that time he had become a geologist, a metallurgist, a surveyor, a master cartologist, and a world authority on the origins of coal. He had studied five languages, mathematics, chemistry and logic. He knew a fair bit about botany, zoology, and banking. He had managed a Welsh copper-smelting operation. He was a competent landscape artist, a frequent traveller on the continent, a social charmer, and a thorough gentleman of the old school.

In the early 1840s, he was also a middle-aged man whose main chance had come at last. For the Canadian legislature at Kingston resolved in 1841 "that a sum not exceeding one thousand five hundred pounds, sterling, be granted to Her Majesty to defray the probable expense in causing a Geological Survey of the Province to be made".

Now, all the burned midnight oil and scientific preoccupations of Logan's years as an expatriate suddenly made perfect sense. As a later Survey director put it, Logan had trained for the job "as if destined for it by the sure hand of Providence". Since he was at least as well-connected as he was well qualified, it took only till the Spring of '42 for him to wangle his way into the boss's chair of the new Geological Survey of Canada. There was little staff to boss, however. With only one assistant, Logan was responsible not only for geological exploration but also for topographical surveying and for nurturing the collection that would one day become Canada's superb National Museum.

He rarely sat in the boss's chair anyway. In the 27 years during which he ran the Survey, he was on the move indefatigably, penetrating into the deepest recesses of the Canadian bush and making maps of country no white man had ever seen before. He grew into an expert woodsman as he hammered the rocks to probe the hidden Eldorado beneath the grim mantle of the Precambrian Shield. With his rifle, he bagged fresh meat for whole survey crews. With his songs and stories, he entertained them. He was never more at home than among the trees, lakes and rivers of the great unknown.

A measure of his mettle in this setting comes through in a memoir by a companion on one of his expeditions of a stormy night on the shores of Lake Huron when Logan lost touch with his party. "Suddenly, a little after day had broken, he was perceived emerging from the bush, hammer in hand, occasionally pounding a rock as he advanced, and seemingly quite unconcerned, though his trousers were torn to rags, and his boots completely minus the soles. On asking him how he got through the night, he replied with the greatest *sang froid*, 'Very well'."

Not that he was immune to the torments of wilderness travel. He complained in his diaries about fly bites, scraped shins, and thirst so bad he couldn't eat. On the Gaspé coast in 1843, he shared a small wigwam with one stove, six Indians, two dogs and two cats. Outside, he endured "the abominable stench" of rotting fish offal and putrid whale blubber. "The rain is coming down harder and harder," he recorded. "The wind is beginning to blow, the sea to break heavily on the shore, and our tent to leak."

Logan continued this arduous life well into his later years. He did not retire until 1869, when he was 70, and by that time his brilliant work in geology and mapping had made him world-renowned. He had accepted a knighthood from Queen Victoria and honours from the Emperor of France as easily as he had once accepted roast porcupine and porpoise cutlets from friendly Gaspé Indians. He wore the numerous medals for scientific achievement he had amassed with all the natural dignity of an archduke.

Discovering a sudden heritage of vastness and geological wealth

It was time for a younger man to take over. Confederation had vastly expanded the Survey's role. Far to the west, gigantic new territories would soon become part of the new nation. Logan's successor, selected with his blessing, was a 45-year-old Englishman who had once run a similar geological survey in Australia, Alfred Selwyn.

Selwyn was a pock-marked, shaggy man so long-legged and skinny that his staff called him "The Tripod". He had already explored Nova Scotia for gold, iron and coal, penetrated the Upper Fraser Valley in British Columbia, and made a 2,300-mile loop on the Prairies by Red River cart, buckboard wagon, saddle horse and York boat.

He was also a snobbish, aloof and autocratic individual whose fiercely critical editing of field reports angered his subordinates. They called him "The Thing" and "The Prince of Liars" — and in time the men he had insulted or fired or reprimanded went after his hide.

His flaws as a leader got sensational exposure in 1884 when he and those who loathed him turned a Parliamentary hearing into a sensational orgy of insult, recrimination and revealed vendetta. Still, the Prime Minister, Sir John A. Macdonald, stuck by Selwyn. It was not till 1895 that the government superannuated the prickly Survey chief.

By then he had been running the show for 26 years. And, whatever his underlings thought of him, those years were a glorious time for Canadian exploration. His men fanned out to measure, map,

describe, illustrate, sniff, hammer, probe and, in the broadest sense, *discover* Canada's sudden inheritance of unknown vastness and its geological wealth. They journeyed up and down the raging rivers of British Columbia, in and out of cold Yukon valleys, over the deadly Barren Lands, down to the far islands of Arctic seas, across the perilous sterility of Ungava and the pitfalls of Labrador.

With Indians, Métis and French-Canadian paddlers to help, they covered hundreds of thousands of miles, travelled from sea unto sea unto sea, served as Canada's advance men in the remoteness of her own terrain. Only the native peoples, the missionaries, fur traders and a handful of explorers had preceded them. Farms, mines, lumber camps, immigrant trains and whole cities would follow in their paths.

The age of the brilliant amateur and the specialist wrapped into one

They linked the age of the brilliant amateur to the age of the specialist. Some had university degrees in geology but also knew enough natural history to make them astute collectors of plants, insects, fish, birds and animals. Others collected Indian and Eskimo artifacts, legends and vocabularies, and helped found anthropology in Canada.

"They practised and interested themselves in almost the whole gamut of outdoor sciences," Survey Director W. H. Collins wrote in 1926, "and their reports are storehouses of information regarding the topography, climate, fauna and flora, and native people, as well as the geology and mineral resources."

Robert Bell, who once described Selwyn as "ignorant, incompetent, and unscrupulous," was a classic example of the multi-talented Survey explorer of the late 19th century. A bitter intriguer in Ottawa who had led the campaign to have Selwyn deposed, he was a jack-of-all disciplines. In 1857, when he was 15, he explored the Saguenay country for the Survey and brought back an outstanding botanical collection. He earned degrees in both engineering and medicine, and he once

taught chemistry. He was a photographer, taxidermist, map-maker, and something of an astronomer. He was also among the first Survey explorers to collect Indian folklore. Bell tramped over more of Canada than any other man of his time and reported knowledgeably not only on mineralogy and geology but also on soil, seeds, crops, forests, water power, wildlife, vegetation, climate and ethnology.

In three days, a twin bonanza of dinosaur skeletons and coal

Such men sometimes drifted into the Survey because they loved the wilderness or felt the magnetism of the frontier or, at any rate, for reasons that hadn't much to do with their schooling. As a boy, Joseph Tyrrell kept a private zoo of creatures he had captured on the banks of Toronto's Humber River. He was training to become a lawyer when a doctor told him that, for the sake of his bad lungs, he should take to the woods. Tyrrell quit law, joined the Survey, and began his fantastic life as an explorer, historical scholar, mining tycoon, and survivor. He died full of honours at 99, having once declared, "It's a man's duty to live as long as he can."

As Pierre Berton wrote in *Great Canadians* (The Canadian Centennial Library, Toronto, 1965) it was Tyrrell who, "in the space of three quite incredible days in June of 1884, discovered first the dinosaur skeletons in Alberta's Red Deer Valley, and secondly a seam of bituminous coal on the present site of Drumheller. The first discovery was the single most important find of its kind on the continent; those priceless old bones grace the major museums of our time. The second discovery unearthed the largest coal deposit in Canada."

George Mercer Dawson was a hunchback midget by comparison with the burly Tyrrell. Dawson survived only until he was 52. He was no taller than a boy of 12, and his lungs were so poor even common colds threatened to kill him. He was nevertheless one of the toughest, most tireless and daring of all the tough, tireless and daring Survey explorers. Literally dwarf-like, he was figuratively a giant among both the explorers and scientists of 19th-century Canada.

Dawson wrote articles not only on several fields of geology but also on botany, zoology, history and anthropology. He was an artist, poet, lecturer, teacher, diplomat and, on any mountain trail, a martinet. In 1877, he covered thousands of miles of mountainous country in British Columbia without a map. He made his own as he went along. The gold rush capital of Dawson City was named after him. When he died, the *British Columbia Mining Record* eulogized "the little doctor" in verse. ("And tell him the boys he worked for, say, judging as best they can/That in lands which try manhood hardest, he was tested and proved A Man.")

When pickings were lean, a menu of seagull, marmot and polar bear

In Bell's eyes, Dawson was as hateful an interloper as Selwyn, but Bell had something in common with the little doctor, an eagerness to rough it in the bush. In the case of Survey explorers, "to rough it" was a euphemism. They performed feats of outdoor endurance that are scarcely believable in the age of comfort. They travelled by foot, dog team, Prairie schooner, cart, raft, pack-horse, mule train and canoes made of wood, bark or canvas. Their very survival amidst the endless perils of the wilds depended on their skills as woodsmen. R. G. McConnell, alone in the mountainous heart of British Columbia, patched his leaky boat with a mixture of sperm-oil candles, spruce-gum, bacon grease and gun oil.

Tyrrell had learned to shoot shortly after learning to walk. He was a shot-gun marksman from either shoulder and, with a rifle, could knock the head off a partridge from 100 feet away. He could snuff out a candle from 20 paces with a hand-gun.

Thanks mostly to Tyrrell, the men on the epic, gruelling and all-but-fatal foray into the Barren Lands in 1893 dined on deer, caribou, rabbit, ptarmigan, duck and, when pickings were lean, seagulls, squirrels, marmots and a polar bear.

Polar bear, he said, tasted like beefsteak fried in cod liver oil, and eating the bear's liver almost killed his brother James.

Though politicians chastised the Survey for its wastefulness, the field parties lived largely off the land and their leaders were Scrooge-like. Half a century after Bell's heyday as an explorer, Survey staff still talked of his "celebration" to end a tough season's work. For weeks, his men had lived on beans and bannock. Then they approached civilization again and pitched camp near a store. Bell went to the store, returned, and told the cook, "Joe, the boys have had a long, hard trip. They've worked well. They deserve a treat. Here's a can of tomatoes."

Nor were unpredictable menus the worst the explorers endured. In the autumn of 1893, Tyrrell and his men came within hours of losing their lives in a slow, agonizing, foodless southbound race against winter on Hudson Bay. Spray froze on their beards, ice sheathed canoes and paddles and, until the strongest of them staggered into Churchill, it appeared certain that if starvation didn't get them the weather would.

The explorers put up with danger, dirt, pain, loneliness, and unfriendly Indians. They left their families for months on end. Their pay was only half what they would have earned if they had quit the Survey, and some did quit. Those who stayed did so partly because, each year, the Survey plunged them back among the astounding sights and tantalizing mysteries of Canada's farthest frontiers.

It was with rich memories that, each November, the geologists swarmed back to Ottawa. They spent the winter working on their reports, swapping stories, grouching about their salaries and, in some cases, cursing the boss. They waited for spring-time when, once again, they would have the weather, the authorization, and the funds to answer the call of the wild. No men ever did more to tell the world about Canada or, for that matter, to tell Canada about Canada. And no one can measure how much we Canadians owe to them today.