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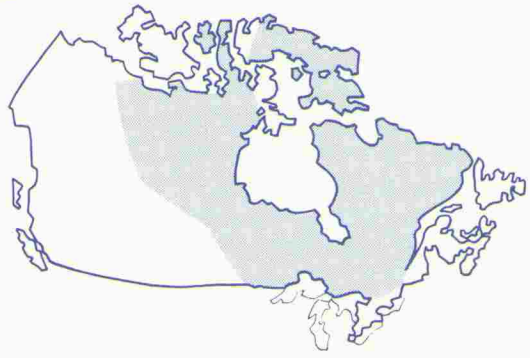
The Canadian Shield

It takes up half the country on the map, and a special place in the consciousness of Canadians. Rugged and unconquerable, the Shield is a challenge — a good challenge for a people to have in their midst . . .



☐ It is inconceivably old, many hundreds of millions of years older than the mountains, the plains, the seabed, or the first traces of life on the planet. Born of the cataclysmic convulsions of the earth after it had solidified from a molten mass, the Canadian Shield dates back at least 2½ billion years. It has since been wrung by contractions of the earth's crust, jolted by subterranean upheavals, crushed and clawed by Ice Ages, and eroded by the weather of countless centuries. But though scarred, bent and battered, the Shield has stood intact throughout the ages. Geologically, it is the solid foundation of our country. The same might be said of it historically and culturally as well.

The Shield is the largest surface of Precambrian rock in the world, "Precambrian" meaning before the era 600 million years ago to which life on earth can be traced by the presence of fossils in rock formations. Precambrian rock underlies all the continents, but in most places this armoured plating of the globe is covered with layers of newer rock and soil, or with mountains that have burst up from the inner earth. Compared to the Canadian Shield, the world's great mountain ranges are the merest infants. The Rockies, for instance, emerged some 150 million years ago; the Himalayas, 60 million years ago. The *youngest* parts of the Shield are 700 million years old.

Its gnarled highlands were once mountains themselves, and there are still some towering peaks of Precambrian rock in Labrador, New Quebec, and Baffin Island. But for the most part, four Ice Ages, each lasting about 100,000 years, have ground the ancient mountains down to their imperishable roots. In Canada, this elemental bedrock takes up almost half of the national land mass — some 4.7 million square kilometres or 1.8 million square miles of it, an area bigger than the entire Indian subcontinent. It also covers sections of New York, Michigan, Minnesota and Wisconsin.

Its immensity in Canada alone is hard to picture. It stretches vertically for half a hemisphere from the United States border to beneath the polar ice cap. From east to west it sweeps in a broad arc from the Atlantic Ocean on the coast of Labrador to the Arctic Ocean in the westerly reaches of the Northwest Territories. It covers all of Labrador, 95 per cent of Quebec, 70 per cent of Ontario, 60 per cent of Manitoba, 50 per cent of the Northwest Territories, 35 per cent of Saskatchewan, and a thin slice of Northern Alberta.

Nearly all of this is an untamed wilderness inhabited only by wildlife — dense boreal forest, sparsely-wooded taiga, barren tundra. Only 10 per cent of Canadians live on the Shield. The rest are huddled along the southern border and the seacoasts, or scattered over the prairies. To most Canadians, the Shield is a good place to stay away from, except on a brief summer vacation. It is a strange and rather frightening place, haunted by

eerily dancing northern lights, the weird cries of loons, the chilling nocturnal calls of timber wolves. It is a lonely land, and as far as the majority of Canadians are concerned, it can stay that way.

There are, of course, more practical reasons for avoiding the Shield, reasons that go all the way back to the latest Ice Age. Two great ice sheets many thousands of metres thick pressed down on it for scores of thousands of years. When the weather warmed up, the ice withdrew northward in a gradual movement lasting 6,000 years and ending in continental Canada 7,000 years ago. The sliding motion of this tremendous weight of ice scraped the Shield clean of its younger rock and arable topsoil, leaving all but small parts of it fit only to grow trees and other wild plants.

Throughout history people have settled where they could grow crops and raise animals, so the Shield held little attraction to anyone but nomadic Indians. The first European known to have set eyes on it, a Norseman named Biarni Heriulfson whose ship was blown onto the east coast of Labrador in 986 A.D., pronounced it a "worthless country" and sailed away. Moving along the south coast of the same Shield region in 1534, Jacques Cartier was equally unimpressed with its potential for human habitation. He wrote: "I did not find a cartload of earth though I landed in many places . . . In short I deem . . . that it is the land God gave to Cain."

They changed the Shield from a barrier to a bridge

Later immigrants saw what Cartier meant. In the wake of the retreating ice sheets there sprang up a jumbled mass of rugged, closely-crowded hills, interspersed with treacherous muskeg bogs, tortuously winding rivers and creeks, and an endless maze of lakes. To add to its forbidding topography, the Shield is swept by polar air, bringing excruciatingly cold and stormy winter weather and at best a four-month frost-free growing season. In the warmer months, its muskegs and creeks provide the ideal breeding grounds for swarms of bloodthirsty black flies and mosquitoes capable of driving men and animals mad.

In early times, only the boldest or most dedicated white men would venture out on the Shield: *coureurs de bois,* missionaries, explorers, voyageurs and fur traders. But this "worthless land" held treasures for those with the toughness and courage to seek them, the first being furs trapped by the Indians that could be sold for hefty prices overseas. To carry furs and trade goods back and forth, the traders and voyageurs made use of the system of rivers and lakes (including the Great Lakes) carved out on the land by the ice. By the time the trade reached its zenith in the early 19th century, the merchant-explorers of the Montreal-based North West Company had opened up canoe routes on the Shield and beyond clear to the Pacific and Arctic Oceans. By turning nature to their advantage, they turned the Shield from a barrier into a bridge.

The loggers who exploited the next bounty from the Shield also made the most of nature. Squared timbers from the boreal bush were floated down the northern tributaries of the St. Lawrence River to Quebec City for trans-shipment to markets abroad. In later times sawmills and pulp and paper mills would take advantage of the Shield's fortuitous combination of wood and water to develop Canada's largest industry.

The mineral riches of the Precambrian rock began to be developed in earnest in the 1880s. From then on, dogged prospectors fanned out all across the Shield to make successive strikes of base metals, gold, silver, iron, uranium, and other ores. Out of the bush rose a chain of mining towns from Labrador to the far Northwest Territories, bringing a human dimension to the Precambrian bridge between Eastern and Western Canada. The Shield today accounts for 40 per cent of Canada's mineral production, even though — because there are no fossils in it — it cannot produce coal, oil or gas.

The Shield does, however, contain a vast store of energy in its endless waters. Hydro-electric power from its roaring rivers and deep lakes was brought south largely through the ingenuity of Canadian engineers who overcame problems of long-distance transmission and ice. Power from the Shield, coupled with its minerals, spurred the growth of manufacturing industries in Central Canada. The Canadian financial community also grew around the Shield by supplying the capital needed for natural resource projects.

Canada's political history is tied to its economic history, and the massive bulk of the Shield has always loomed over Canadian economics. When the fur traders first traced the water routes to the West, Canada's political destiny began to take shape. "The North West Company was the forerunner of the present confederation," the great economic historian Harold Adams Innis wrote in 1930. "Canada emerged as a political entity with boundaries largely determined by the fur trade."

Its challenge was crucial to the growth of nationhood

Much against the popular wisdom then and now, Innis declared that the Canadian nation "emerged not in spite of geography but because of it." He maintained that Canada is not, as is generally assumed, an artificial state built in defiance of the natural lines of communications in North America, which are supposed to run north to south into the United States. On the contrary, Innis said, Canada developed a distinctive political heritage because the size, shape, climate and watersheds of the Shield funnelled the main lines of communications into the northern hinterland.

As historian W. L. Morton has pointed out, the heartlands of the United States and Canada could hardly be more different. To the south are rolling hills and wide and gentle pastures, one of the world's most fertile regions. By contrast, the heartland of Canada is "one of the world's most ancient wildernesses and one of nature's grimmest challenges to man and all his works."

The will to take up that challenge has been crucial to Canadian nationhood. Probably the most far-reaching decision made in the early years of confederation was to build the Canadian Pacific Railway across the top of Lake Superior, rather than taking the much easier option of connecting it to American lines that ran south of the Great Lakes from east to west. The Superior route meant that the fledgling nation would not be beholden to the U.S. for its transcontinental commerce; it could not be pressured into giving in to American political demands under the threat of cutting off its east-west lifeline. By meeting the challenge of the Shield head-on, Sir John A. Macdonald's government went a long way towards ensuring Canada's future independence from the United States.

No one knew at the time just what an incredible challenge they had accepted. Running down to the edge of the North Shore of Lake Superior was a wall of granite 1,600 kilometres or 1,000 miles long which had to be systematically blasted away with dynamite made on the spot. In the narrow gaps between the stubborn hills were broad, charging rivers to be bridged, and spongy muskegs in which it was all but impossible to gain a foothold. One patch of this ooze gulped down seven roadbeds and three locomotives before it was finally crossed.

The hardships endured by the railway workers as they smashed down the granite battlements were appalling. They laboured in some of the world's most bitter weather in winter, and, in summer, the incessant assaults of black flies. The Shield exacted a heavy toll of life among the railway navvies, as it had done among the fur traders and voyageurs in earlier times.

Canadians see themselves in the mirror of the North

The vicissitudes of the Shield have never changed much, modern technology notwithstanding. It remains "a place where people get lost, get bushed, get driven mad by insects in summer, can freeze to death in winter," as Barbara Moon put it in her book, *The Canadian Shield.* Yet there are much worse places in the world. The Shield harbours no volcanoes, and it is too rigid for serious earthquakes. There are no poisonous snakes or man-eating animals on it, and it is free of the environmentally-caused diseases that plague tropical lands.

Summer vacationers know its accessible areas as a peaceful and beautiful part of the world, with just enough danger surrounding it to make it exciting. The Canadian city dweller with a feeling for the north woods may find himself having winter dreams of speckle trout, blueberries, birches, whisky jacks, and moose quietly feeding in tranquil ponds.

Among a people who suffer (or think they do) from a lack of a distinctive identity, life on the Shield represents the things that are quintessentially Canadian — things like checked shirts, high-cut boots, tuques, parkas, packsacks, snowshoes, and bush aircraft. The human images associated with it are the stuff of Canadian mythology: the Indian trapper, the voyageur, the lumberjack, the prospector, the bush pilot.

According to W. L. Morton, the basic Canadian identity has been shaped by living in a northern frontier economy in which people constantly come and go from the wilds to the settled areas. "And this alternate penetration of the wilderness and return to civilization is the basic rhythm of Canadian life, and forms the basic elements of the Canadian character whether French or English, the violence necessary to contend with the wilderness, the restraint necessary to preserve civilization from wilderness violence, and the puritanism which is the offspring of the wedding of violence and restraint."

"The beauty of strength broken by strength and still strong"

The awesome presence of the Shield has left an imprint on the cultures of both language groups. Possibly the most famous of all Canadian novels, *Marie Chapdelaine,* is about a family trying to wrest a living from the cold and lonely country around Lac Saint-Jean. The Shield is in the foreground of novelist Hugh MacLennan's vision of his country: "This anomalous land, this sprawling waste of timber and rock and water . . . this empty tract of primordial silences and winds and erosions and shifting colours."

If MacLennan's description sounds somewhat sinister, he is in good company. Poet E. J. Pratt depicted the Shield as a sleeping reptile, "too old for death, too old for life . . . as if jealous of all living forms." Fellow poet James Reaney has written of "the feeling that Northern Ontario landscape gives you on a train journey, the feeling of a hostile, brooding presence." But the Shield has its own stern grandeur: "The beauty of strength broken by strength and still strong," as yet another poet, A. J. M. Smith, wrote.

Hammering out a national character on a hard anvil

"I know of no more impressive scenery in Canada for the landscape painter," A. Y. Jackson said of the North Shore of Lake Superior. "There is a sublime order to it — the long curves of the beaches, the sweeping ranges of hills, the headlands that push into the lake." Jackson was a member of the Group of Seven, who revolutionized Canadian art with their muscular rendering of their native landscape in the 1920s. "With bold impressionism [they] brought the Precambrian north into the Canadian consciousness and by their paintings made of its barren solitude an imagery of beauty and strength," Morton wrote. "In this pioneering spirit the painters achieved the first great conquest of the arts in Canada, in which they made Canadian experience an idiomatic part of universal experience."

The Shield is certainly part of the universal experience of Canadians, including those who have never set foot on it. "The land has moulded the people, not the people the land," D. M. LeBourdais wrote in *Canada's Century*. With its toughness and intractability, the Shield has served as the anvil on which the Canadian personality has been forged. If the Canadian society is a stable one, that is partly because Canadians spend much of their energies contending with the elements rather than contending with each other. If Canadians are a sensible people, that is partly because of the hard lessons their land and climate hold for the foolish, the careless, and the improvident. If Canadians are durable and resourceful, that is partly because the Shield has demanded these qualities from them. It is a good thing for a nation to have a challenge. The Shield presents a challenge of the most positive kind, and Canadians are fortunate that nature has placed it in their midst.

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