the sea and shore merging under a wind-sculptured blanket of ice and snow.

It is surrounded by bleak land and few people. In July and August grain ships from northern Europe come to the port of Churchill, Manitoba, and barges from Churchill carry supplies to the tiny Inuit villages scattered around the Bay's edges.

The Bay has islands, all bleak, most uninhabited.

One, Marble Island, a pearly quartzite monolith streaked with rose, tan and gray which rises, free of vegetation, out of the water, was the last home of James Knight, commanding officer of the *Albany* and *Discovery*, who went looking for the Northwest Passage in 1719 at the age of eighty. His remains were found on the island forty years later. It hasn't been inhabited since.

Digges Island, with cliffs 600 feet above the Hudson Strait, has no people, but for a time each year it is the home of some 500,000 murres. They look like diminutive penguins and have a maniacal laugh. In the summer the chicks hatch on the narrow ledges of the cliffs, and then the entire colony swims through the Strait to the Atlantic and then down the coast to Labrador and Newfoundland, some 1,500 miles.

There are other non-human inhabitants scattered around. The polar bears spend the fall, winter and spring out on the Bay's ice, but when it breaks up in early July they are forced to come ashore. Some 500 of them, the largest concentration in the world, make their way up the western coast, reaching Churchill in the fall, where they ransack the town garbage dump and keep the inhabitants at home after sundown. When the Bay freezes, they go back out on the ice where they prefer to be.

The Bay has five species of seal and four of whale. It has about 9,000 belugas, and the native peoples are allowed to kill about 200 a year, for a skin and blubber delicacy called *muktuk*.

On and Off the Pacific Coast

Some twenty years ago the theory of plate tectonics revolutionized the scientific concept of the structure of the earth.

The theory has been greatly refined in recent years and much of the basic work has been done by Canadian and American scientists. Two, James Monger of Canada's Geological Survey and Charles Ross of Western Washington State University, have expanded it to account for certain coastal formations.

The original theory held that the crust of the earth is made up of seven large, rigid plates and several small ones. Five of the large plates carry the continents; two are under the oceans. The small ones may carry islands, underwater ridges or plateaus. The ones carrying continents have a relatively light granite crust about twenty-two miles thick under the land mass. Below that is a heavier basaltic crust about six miles thick. The ocean-carrying plates have only the basaltic crust. They all float on a plastic layer called the earth's mantle and move around slowly, sometimes colliding, sometimes drawing apart. When the present continents separated, the plastic mantle produced lines of basaltic volcanoes which became the mid-oceanic ridges.

When an ocean-carrying plate with a heavy basaltic crust collides with a continent-carrying plate, it may dive beneath it, generating great heat and forming arcs of volcanic islands above. The so-called "Ring of Fire" rimming the Pacific Ocean was formed this way.

When plates carrying continents collide the lighter crusts pile up, forming coastal mountains, the most spectacular being the Himalayan chain, which came into being when the plate carrying India bumped into the plate carrying Asia.

In 1971 Monger and Ross found fossils of one-cell sea animals called fusulinids in the mountains of British Columbia. The small creatures had lived hundreds of millions of years ago in the shallow seas that surround China, Japan and Indonesia.

Other scientists in other places found other rocks and fossils in unlikely places.

Monger and Ross made some bold suggestions.

Canada's West Coast, including the continental shelf and the Rockies (as well as most of Alaska, the coasts of Washington and Oregon and a lot of California), had arrived at their present locations rather recently, billions of years after the rest of North America had been formed.

Furthermore, since the fossils had originated in the south, the plate carrying them must have been moving north.

This challenged a basic assumption of the plate tectonics theory, that movements were east and west and that the North American Rockies had been formed when the Pacific plate moved eastward beneath the North American plate. The collision must have been more in the nature of a sideswipe.

The two scientists continued to accumulate evidence. They identified rocks and fossils, then compared them with adjacent geological layers. Fossils that had originated in southeast Asia, for example, were found just across a fault line from fossils from the Arctic; and the magnetic field preserved in the rocks on one side had been formed 350 million years ago, about 3,600 miles south of their present location, while those on the