Alaska's Heritage
CHAPTER 1-2: GEOGRAPHIC POSITION AND PHYSIOGRAPHIC FEATURES

Alaska's size, boundaries, and major physiographic regions

After the land bridge to Asia was submerged, Alaska remained as a peninsula located on the northwest tip of the continent of North America. It measures 2,400 miles east to west and 1,420 miles north to south. The total area is about 586,000 square miles. Alaska's coastline is over 33,000 miles in length. Alaska has an enormous continental shelf. This undersea area extends from the coastline to an edge where there is a sharp drop-off to a much lower ocean floor. The continental shelf in the Bering Sea is up to 400 miles wide. Alaska's continental shelf is about two-thirds of the total area of the other states' continental shelf. The shelf is home to many kinds of fish.

The physical geography of Alaska can be divided into four sections that are continuations of features of the western United States and Canada. These include, from south to north, the Pacific mountain system, the plateaus between mountains, the Rocky Mountains, and the Arctic and Great plains.

Alaska is the largest state of the union, one-fifth the size of the other states combined. The distance from the easternmost to westernmost point of Alaska is equal to the distance across the southern United States between the Atlantic and Pacific oceans. Nearly one-third of Alaska is located north of the Arctic Circle. The northernmost point of Alaska, Point Barrow, is about 1,300 miles south of the North Pole. The most westerly point of the mainland, on the Seward Peninsula in Northwest Alaska, is 51 miles from the continent of Asia. An Alaskan island off the Seward Peninsula, Little Diomede, is only three miles from the Soviet Union's easternmost border. On its east, Alaska shares a 1,538-mile border with Canada. The northern two-thirds of the Alaska-Canada boundary follow the 141st meridian. The southern third of the Alaska-Canada boundary follows the crest of the Coast Mountains to the head of Portland Canal. It runs down the middle of that waterway to Dixon Entrance, thence west to 134 degrees west longitude.

Alaska is surrounded on three sides by water. the fourth side, its eastern border, is mountainous. For this reason Alaska has been easier to reach by water than by land. Much of its past is a maritime history having to do with peoples' use of the oceans and their resources.

Oceans border Alaska

The Pacific and Arctic oceans border Alaska. The 70-million square mile Pacific Ocean is the world's largest ocean and touches all of the continents except Europe and Africa. The Bering Sea, north of the Aleutian Islands, is part of the Pacific Ocean. It is a cold, shallow sea with few good harbors. The Arctic Ocean occupies over five million square miles and touches Europe, Asia, and North America. This ocean extends north over the pole and contains an extensive ice pack. In summer the ice pack retreats slightly from Alaska's arctic coastline. In winter the ice pack again freezes to the shoreline. Two indentations of the Arctic Ocean, the Beaufort and the Chukchi seas, touch Alaska. The Arctic and Pacific oceans are separated from each other by the narrow Bering Strait.

The height of sea level along the coast rises and falls systematically. There are two cycles daily. These changes are called tides. Tides are caused by the rotation of the earth and the positions of the sun and the moon in relation to the earth. High tide is when the sea advances and reaches its highest level along the coastline. Low tide is when the sea retreats and reaches its lowest level along the coastline. The area along the coast between the highest and lowest tides is called the intertidal zone.

Tides vary from very high in Southeast Alaska, Cook Inlet, and Bristol Bay, to almost zero in the Arctic Ocean. Turnagain Arm has the second highest tides on the North American coast, exceeded only by the tides in the Bay of Fundy, Nova Scotia. Tides in Turnagain Arm can rise to a maximum of 42 feet.

At low tide food can be found in the intertidal zone on the beach, under stones, or in cracks. Shellfish and many types of seaweeds and grasses can be gathered.

Mountains divide Alaska

Much of Alaska's surface is covered by mountains. More than 20 per cent of the land is over 4,500 feet above sea level. Mountain ranges divide Alaska into five sections: the Interior, the Arctic, the Aleutian Islands, Southeast, and Southcentral Alaska.

The Brooks Range extends east to west across northern Alaska, separating the Arctic region from the rest of Alaska. This range is the northern extension of

the Rocky Mountains of North America. Mountains and ridges in this range are sharp and narrow. Summit areas are small. The highest peak in the Brooks Range is Mount Michelson, 9,239 feet high.

The highest mountains found in Alaska are located in the Alaska Range. This range is a continuation of the Pacific mountain system of the western North and South Americas. The Alaska Range forms a great crescent across southern Alaska. It separates Southcentral Alaska from Interior and Southwest Alaska. It also separates Southeast Alaska from Southcentral and Interior Alaska and from Canada. The Alaska Range extends from Southeast Alaska northwest then turns to the southwest across the Alaska Peninsula to the Aleutian islands. Mountains in this range average over 5,000 feet high . The highest mountain in North America, Mount McKinley, is part of the Alaska Range. It towers 20,320 feet.

Rivers are routes through the mountains

Rivers serve as corridors through most of Alaska's mountain ranges. The Stikine, Taku, Taiya, Unuk, Alsek, and Chilkat rivers penetrate the Coast Mountains of the Southeast Alaska mainland. The Copper, Susitna, and Matanuska rivers cut through Southcentral Alaska's mountains. These rivers flow into Cook Inlet and Prince William Sound, two large bays of the North Pacific Ocean. The mainland of Southwest Alaska is drained by the Kvichak and Nushagak rivers. These flow into Bristol Bay, a part of the Bering Sea. Interior Alaska is dominated by the Yukon and Kuskokwim rivers. The longest river in Alaska, the Yukon, begins in mountains in Canada and flows over 1,400 miles to empty into the Bering Sea. The Yukon River and its tributaries drain almost one-third of Alaska. South of the Yukon River, the Kuskokwim River flows from western slopes of the Alaska Range to the Bering Sea. In Northwest Alaska, the major rivers are the Noatak and Kobuk. They flow from the southern and western slopes of the arctic mountains into Kotzebue Sound, a part of the Bering Sea. Flowing into the Arctic Ocean are the Colville, Sagavanirktok, and Canning rivers. The bays, sounds, and rivers on the west and northern coasts of Alaska are ice-choked nearly as long as the Arctic coast is.

Rivers that carry water from glaciers are swollen and silt-laden in summer when the glaciers are melting. In autumn when the glaciers are no longer melting, the rivers are clear and their water level is lower.

Overland passes and portages connect coast and interior areas

Where rivers are not easily traveled or do not cut through the mountains, people have used natural overland passes or developed trails. The Chilkoot Pass between the head of Lynn Canal in Southeast Alaska and the interior is a well-known natural overland route. Among the better-known overland routes is western Alaska's Kaltag Portage. It connects Norton Sound and Interior Alaska by by-passing the Yukon River delta. Another important portage connects the Yukon and Kuskokwim rivers at the east end of the Yukon-Kuskokwim delta.

Many islands are part of Alaska

The Alaska Peninsula reaches southwest from mainland Alaska toward the Aleutian Islands. The mountainous, treeless islands ex-tend from the tip of the Alaska Peninsula west more than 1,100 miles almost to the Siberian coast. There are six major islands and hundreds of smaller islands in the chain. The major islands are Unimak, Unalaska, Umnak, Atka, Adak, and Attu. North of the Aleutian Islands, in the Bering Sea, are the Pribilof Islands. They are best known as the breeding grounds of fur seals. Other important islands in the Bering Sea are St. Lawrence, Nunivak, and St. Matthew islands.
Almost 3,600 square miles in area, Kodiak Island is Alaska's largest island. It is located southwest of the Southcentral Alaska mainland and east of the Alaska Peninsula. It is separated from the Alaska Peninsula by Shelikof Strait and from Southcentral Alaska by the Gulf of Alaska.

Southeast Alaska is another area composed predominantly of islands. This region stretches southeastward away from the rest of Alaska just as a handle does from a pan. It is often referred to as Alaska's panhandle. It extends north and south 600 miles and averages 120 miles in width. On the west are hundreds of islands that make up the Alexander Archipelago. Six of these islands are each over 1,000 square miles in area. They are Prince of Wales, Chichagof, Admiralty, Baranof, Revillagigedo, and Kupreanof islands. There are nearly 10,000 miles of shoreline along the islands and mainland of Southeast Alaska. The mainland is a strip of land separated from Canada by the crest of the Coast Mountains. Waterways, variously termed straits, channels, gulfs, sounds, bays, passages, and canals, separate the islands and mainland. Many of these waterways are sheltered from storms that frequently occur in the Gulf of Alaska. There are many treacherous passages with unmarked navigation hazards such as sharp rocks just under the water's surface.

Lowlands cover large sections of Alaska

In addition to mountains and islands, Alaska has several large lowland areas. These areas are broad, flat lands that are cut by many small meandering streams. They contain thousands of small lakes and bogs. They are the nesting grounds for a variety of waterfowl. The Yukon-Kuskokwim Delta in western Alaska is a major coastal flood plain. The delta, in the shape of a triangle, covers 25,000 square miles. Here the Yukon and Kuskokwim rivers deposit soil and sand eroded from areas they have passed through before they enter the Bering Sea.

Another lowland area covers much of the Seward Peninsula in Northwest Alaska. Other lowlands include the Yukon Flats and the Minto FIats in Interior Alaska, the area north of the Brooks Range ex-tending to the Arctic Ocean that is known as the North Slope or arctic coastal plain, and the Cook Inlet-Susitna River basin in Southcentral Alaska.

The North Slope is underlain by almost continuous permafrost. Permafrost is subsoil that remains frozen year-round. In most areas of Alaska north of the Arctic Circle permafrost is under almost all of the ground. South of that, permafrost is spotty or discontinuous. Large areas of Interior and Southcentral Alaska have discontinuous permafrost. Only the southern coasts of Alaska are completely free of permafrost. Permafrost can extend from a few inches below the ground surface to depths of 2,000 feet. In the discontinuous zone depths of permafrost can vary considerably within short distances. Permafrost impedes soil drainage. Melting of ice and snow on the surface and the subsequent thawing of the surface soil in the summer create thaw lakes. The location and size of thaw lakes changes annually.

Lakes are numerous in Alaska

Alaska has 94 freshwater lakes that have an area of 10 square miles or more. Iliamna Lake, 1,000 square miles in area, is the second largest freshwater lake entirely within the United States, exceeded only by Lake Michigan. Iliamna Lake is one of the deepest in Alaska with a depth of 1,000 feet in some areas. Becharof Lake, 458 square miles in area, ranks fifth in size of United States

lakes.

Earthquakes, tsunamis, and volcanoes change Alaska

The earthquakes that occur in southern Alaska are caused by stress. The stress builds up as the Pacific plate tries to slide under the North American plate in Southcentral and Southwest Alaska and to slide along the North American plate in Southeast Alaska. Approximately four per cent of the energy released annually by all earthquakes worldwide has an Alaskan source. Most Alaskan earthquakes occur within a 200-mile wide zone extending along Alaska's southern coast from the Aleutian Trench inland and along the Alexander Archipelago. North of the Alaska Range earthquakes occur only occasionally.

Tsunamis are ocean waves of great wavelength that are generated when a part of the sea floor is suddenly and violently displaced. Waves generated by earthquakes and volcanoes along the Alaska coast fan out across the Pacific and can do great damage when they hit the coasts of Japan, Hawaii, California, Oregon, and places as far distant as South America. The March 27, 1964 earthquake uplifted parts of the sea floor beneath Prince William Sound as much as 30 feet. This generated a tsunami that devastated the Alaska harbors of Valdez, Cordova, Whittier, Seward, and Kodiak.
Southern Alaska, from the Aleutian Islands to Southeast Alaska, is part of the "ring of fire" that circles the Pacific Ocean. At least 26 of the 57 volcanoes along the chain have erupted since 1760.

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