U. S. Geological Survey.

Correlation of the Tertiary rocks of Alaska.

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DEPARTMENT OF THE INTENIOR INFORMATION SERVICE

GEOLOGICAL SURVEY

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Department of the Interior announced today.

Geologists and geophysicists of the Geological Survey are participating in the First International Symposium on Arctic Geology which started January 11, in Calgary, Alberta, and will present a dozen scientific papers and several new maps and charts which illustrate United States research activities in the Arctic, the

SURVEY PARTICIPATES IN FIRST INTERNATIONAL SYMPOSIUM ON ARCTIC GEOLOGY

An exhibit on the physiographic provinces of Alaska has been prepared by Clyde Wahrhaftig using aerial photographs and up-to-date topographic maps now available for most of the State. This is the first comprehensive attempt in more than 50 years to outline Alaska's physiographic features and reflects a tremendous wealth of geologic and geographic information which has been obtained in the intervening time.

Twelve provinces are delimited and these in turn are divided into 60 sections on the basis of physiographic characteristics illustrated by selected aerial photographs, detailed topographic maps and an accompanying text. Material exhibited at Calgary will be available for inspection later at the Geological Survey Library in Menlo Park, Calif.

A Surficial Deposits Map of Alaska at a scale of 1:1,584,000 compiled by T. N. V. Karlstrom, will be exhibited at Calgary for the first time. In a paper to be presented at the Symposium, Karlstrom points out that it is now possible to appreciate fully the effect of precipitation on the size and distribution of ice fields that previously originated in the Pacific Coastal Ranges, and which flowed north and northwestward with dominant development on the coastal sides. He will also describe two areas, one on Kodiak Island and the other in the upper Cook Inlet area, that were surrounded by ice during the last two glaciations and which became refuges for plants and animals. These refuges previously were inferred from

distribution studies of regional plants and animals. The map will be available for inspection in the U. S. Geological Survey Library at Washington, D. C., after the close of the symposium.

Geologic studies of the Chukchi shelf off the Ogotoruk Creek area, northwest Alaska, designed to develop data on the feasibility and safety of detonating several nuclear explosives to create an underwater excavation that can be used for a channel and harbor will be reported on by D. W. Scholl and C. L. Sainsbury. The work was conducted by the Survey during the summer of 1958 on behalf of the U. S. Atomic Energy Commission.

W. E. Davies will describe permanently frozen ground in north Greenland which because of the aridity of the area contrasts sharply with the physical characteristics and surface features of previously studied permanently frozen ground in Alaska and Canada. Four major Pleistocene glaciations and two minor recent glacial fluctuations will be reported from the northeastern Brooks Range of Alaska by G. W. Holmes and C. R. Lewis.

The extent of the latest glaciation of northeast Greenland and the position of the Greenland Ice Cap during the subsequent deglaciation of the area will be described by D. B. Krinsley. Unusual "mud volcances" in the Copper River Basin, Alaska, will be reported by D. R. Nichols and L. A. Yehle. The cones formed largely before or during the latest major glaciation.

To assist in a better understanding of the geologic history of Alaska correlation charts of Paleozoic, Mesozoic and Tertiary rock units in that State have been drawn up by J. T. Dutro, D. J. Miller, Clyde Wahrhaftig, and Stearns MacNeil. In this work, fossils constitute the chief evidence in support of geologic age determinations. Following the Calgary symposium the Paleozoic and Tertiary charts (previously unpublished) will be available for public inspection at Survey libraries at Washington, D. C., and Menlo Park, Calif.

D. M. Hopkins and W. S. Benninghoff will present a paper on Upper Tertiary sediments in Alaska and northwestern Canada. Pollen grains and woody plants, indicative of a late Tertiary age have recently been discovered in carbonaceous layers interbedded with nonmarine sediments on the Seward Peninsula, Alaska, and on the north flank of the Alaska Range.

George Gryc will deliver a progress report on the tectonic map of Alaska being compiled at a scale of 1:2,500,000. This map will show rock structures and earth forms resulting from deformations of the earth's crust. The format, particularly the type and portrayal of information to be shown, closely follows that used for the "Tectonic Map of the United States, exclusive of Alaska and Hawaii", now in press.

Other scientific papers to be presented include: "Geophysical studies on ICY Drifting Station Bravo (T-3), 1958 to 1959" by D. Plouff, G. V. Keller, F. C. Frischknecht, and R. R. Wahl which summarizes preliminary results obtained from

gravity, magnetic, seismic, resistivity, and electromagnetic measurements while T-3 drifted more than 1,000 nautical miles in the Arctic Ocean; "Mechanical aspects of the contraction theory of ice wedge polygons" by A. H. Lachenbruch which provides a mathematical analysis in support of the generally accepted theory that ice wedge polygons result from freezing of water in seasonally recurring thermal contraction cracks; and "Electrical resistivity studies on the Athabasca Glacier, Alberta, Canada" by G. V. Keller and F. C. Frischknecht, a report on the use of galvanic and electromagnetic resistivity techniques for measuring ice thickness and in determining structural and textural changes within the glacier.

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		NORTHEAST	COAST OF GUL	F OF ALASKA	KODIAK		ALASKA PENINSULA							
SERIES	SOUTH- EASTERN ALASKA	KATALLA DISTRICT	YAKATAGA AND MALASPINA DISTRICTS	LITUYA DISTRICT	DISTRICT		PORT MOLLER- UNGA ISLAND AREA AND WEST	CHIGNIK BAY	COOK INLET	MATANUSKA VALLEY	CENTRAL ALASKA RANGE	CENTRAL ALASKA	SEWARD PENINSULA	ARCTIC COAST
PLIOCENE				Marine sandstone, siltstone, and hilite	Marine tilde, sandstone, and sittame	Beds on Kanaga and Adak	Intermittent erosion, volcanism Beds west of Cold Bay (marine)	Intermittent erosion, volcanism			Beds near Johnson River (nonmarine)		Gravel (nonmarine)	Nuwok formation of Dall, 1919
MIOCENE		Kalalila	Yakataga formation (marine)		Marine sandstone and sustone	Beds on Tanaga ——————————————————————————————————					Nenana gravel			(marine)
OLIGOCENE		formation (marine)	Poul Creek formation (marine)			On Unalaska Crinoid-bearing beds on Rat Island and beds on Amchitka	Beds in Balboa Bay (marine) Unga formation (marine) Upper Stepovak series of Palache, 1904 (marine)	Meshik formation (nonmarine)						ŕ.
EOCENE	Coal-bearing beds of Eccene age, overlain by Eccene and possibly younger volcanic rocks	(marine) Stillwater Kunhtaka formation (nonmarine) marine! (nonmarine) marine (nonmarine)	Kulthieth Iormation (nonmarine/marine)		Nonmarine coal- bearing beds	(Egenn winner, 1956 own is press)	Menai (7) sandstone, shale, conglomerate, conglomerate (7) commander (7)	Nonmarine coal-bearing beds	Kenai formation (nonmarine)	Tsadaka formation (nonmarine)	Coal-bearing formation (nonmarine)	Beds of Eagle- Woodchopper- Coal Creek belt Beds near Chicken Beds in belt from Hess Creek past Rampart to Mission Hill near Tanono		Sagavanirktok formation (nonmarine)
PALEOCENE	TRUES AND ANTA	CRETACEOUS	CRETACEOUS	CRETACEOUS						Wishbone formation (nonmarine)		Basaltic volcanic rocks near Fairbanks? Beds near Fairbanks Creek (All nonmarine, Inter-relations unknown)		6
UNDER- LYING BEDS	TRIASSIC OR OLDER	OR OLDER	OR OLDER	OR OLDER	CRETACEOUS		UPPER CRETACEOUS	UPPER CRETACEOUS	CRETACEOUS	UPPER CRETACEOUS	CRETACEOUS			