AREAS OF RESPONSIBILITY AND SOURCES OF INFORMATION

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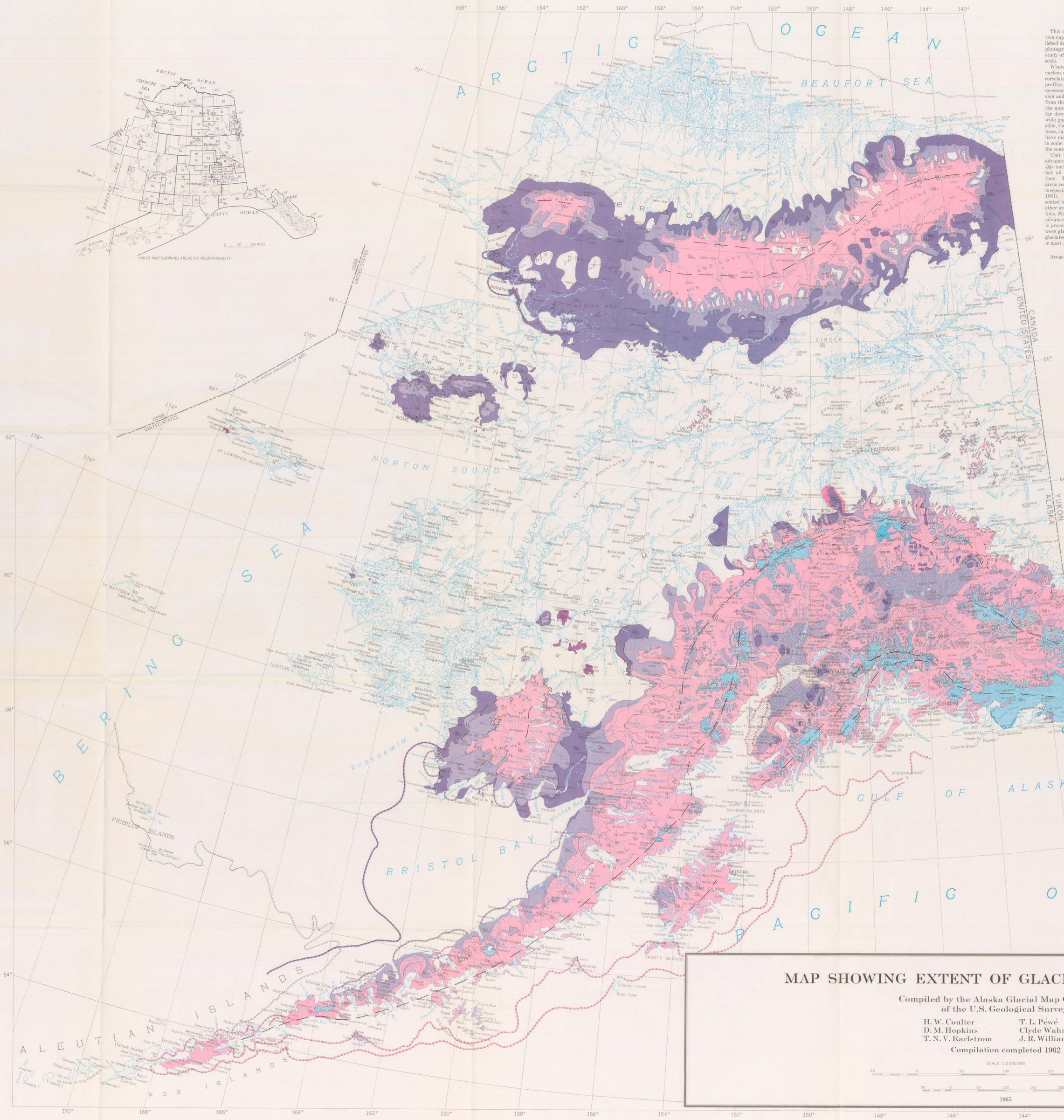

MAP SHOWING EXTENT OF GLACIATIONS IN ALASKA

Compiled by the Alaska Glacial Map Committee
of the U.S. Geological Survey

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Compilation completed 1962

SCALE 1:2 500 000

1965

BASIS OF INTERPRETATION

This map is based largely upon photogeologic interpretation supplemented by fieldwork in many areas and by published descriptions of a few areas. Where stereoscopic aerial photographic coverage is not adequate, the map is based on study of photomosaics and of topographic maps at 1:250,000 scale.

Wherever possible geologic correlations are based on radiocarbon-dated stratigraphic sequences. Drift sheets were correlated locally on the basis of comparable soils, weathering profiles, and surface boulder counts. More commonly it was necessary to depend upon similarities of topographic expression and upon analogous sequences of moraines that extend from the very young glacial features near existing glaciers to the most recently occupied cirques, to the very old features far down the valleys and in the adjoining lowlands. The wide gaps between areas where field checking has been possible, the different rates of erosion, and the thick mantles of loess, lake sediments, outwash, or vegetation in some areas have made statewide correlation difficult and have resulted in some unresolved correlation problems between Alaska and the conterminous United States.

Unit Qg_5 includes all areas that were glaciated during advances that culminated within the last 6,000 years. Unit Qg_4 includes areas glaciated at diverse (one or two?) times, but all were glaciated during post-Sangamon, pre-Recent time. The glacial advances represented by unit Qg_3 in many areas seem clearly to be events of Illinoian age; the evidence is especially well-documented in the Cook Inlet area (Karlstrom, 1961). It is equally evident that the glacial advance represented by unit Qg_3 on Seward Peninsula, and perhaps in some other areas, is an event of early Wisconsin (Iowan) age (Hopkins, MacNeil, and Leopold, 1961). Unit Qg_2 represents an advance in pre-Illinoian time in most areas, except where it is present on Seward Peninsula and a few other areas that were glaciated during Illinoian time. The areas of Qg_1 were glaciated during pre-Illinoian time; the age of that glaciation in most regions cannot be established more closely at present.

Qg_a

Areas covered by existing glaciers.

Qg_5

Areas covered by ice during glacial advances within the past 6000 years.

Qg_4

Areas covered by ice during glacial advances of late Pleistocene age.

Qg_3

Areas covered by ice during glacial advances of middle to late Pleistocene age.

Qg_2

Areas covered by ice during glacial advances of early to middle Pleistocene age.

Qg_1

Areas covered by ice during glacial advances of early Pleistocene age.

Qg_e

Areas covered by ice during glacial advances of early Pleistocene age that are represented by scattered deposits of till and erratics beyond the limits of recognizable moraines. Includes Mt. Susitna Glaciation of Cook Inlet area; Browne Glaciation of Nenana Valley; Iron Creek Glaciation of Seward Peninsula; and unnamed glacial advances in other areas.

Qg_f

Areas covered by ice during glacial advances of early Pleistocene age that are bounded by ill-defined but commonly recognizable moraines on which the details of glacial constructional relief are obliterated. Lakes where present are of secondary origin (thaw lakes, colluvial-or alluvial-dammed lakes); morainal ridges are commonly gullied; drainage is poorly integrated where the moraines lie in broad valleys or lowland areas; details of glacial erosional relief are greatly modified, but gross glacial erosional relief is well preserved. Includes Ekluta Glaciation of Cook Inlet area; Johnston Hill Glaciation of Bristol Bay area; Selatna Glaciation of the Upper Kuskokwim Valley; Show Fork Glaciation of Mount McKinley quadrangle; Healy Glaciation of Nenana Valley; Delta Glaciation of Delta Valley; Salmon Lake and Mount Osborn Glaciations of Seward Peninsula; Itkillik Glaciation of northeastern Brooks Range; and Chamberlin Glaciation of northeastern Brooks Range.

Qg_g

Areas covered by ice during glacial advances of early or middle Pleistocene age that are bounded by ill-defined but commonly recognizable moraines on which the details of glacial constructional relief are obliterated. Lakes where present are of secondary origin (thaw lakes, colluvial-or alluvial-dammed lakes); morainal ridges are commonly gullied; drainage is thoroughly integrated; details of glacial erosional relief are largely obliterated, but U-shaped valleys and faceted spurs remain recognizable. Includes Carlson Hills Glaciation in Cook Inlet area; Dry Creek Glaciation in Nenana Valley; Darling Creek Glaciation in Delta Valley; Nome River Glaciation on Seward Peninsula; Sagavanirktok River Glaciation in northeastern Brooks Range; and unnamed glacial advances in other areas.

Qg_h

Areas covered by ice during glacial advances of early Pleistocene age that are represented by scattered deposits of till and erratics beyond the limits of recognizable moraines. Includes Mt. Susitna Glaciation of Cook Inlet area; Browne Glaciation of Nenana Valley; Iron Creek Glaciation of Seward Peninsula; and unnamed glacial advances in other areas.

EXPLANATION

Qg_a — Areas covered by existing glaciers

Qg_5 — Areas covered by ice during glacial advances within the past 6000 years

Qg_4 — Areas covered by ice during glacial advances of late Pleistocene age

Qg_3 — Areas covered by ice during glacial advances of middle to late Pleistocene age

Qg_2 — Areas covered by ice during glacial advances of early to middle Pleistocene age

Qg_1 — Areas covered by ice during glacial advances of early Pleistocene age

Qg_e — Areas covered by ice during Pleistocene glacial advances of undetermined sequence

Qgl — Areas covered by proglacial lakes during parts of Pleistocene time

Localities formerly covered by glacial ice but are too small to map. *Age indicated by appropriate number; queried where interpretations are considered tentative.*

Outer limit of significant glacial advance. *Solid where well established; dashed where inferred from topographic expression; queried where evidence is lacking; dotted where inferred from submarine topography.*

300-foot submarine contour. *Definite shallow coastal shelf areas emergent in whole or in part during glacial maxima.*

Inferred position of former ice divide

Inferred direction of former ice movement

Contours on inferred surface of glaciers of late Pleistocene age. *Shown only in southeastern Alaska. Contour interval 1000 feet.*

Prominent moraines. *Shown only in areas 2, 4, 5, and 7.*

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