

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

AN INTRODUCTION TO THE GEOLOGIC LITERATURE
OF ALASKA



OPEN-FILE REPORT 76-235

This report is preliminary and has not
been edited or reviewed for conformity
with Geological Survey standards and
nomenclature

Menlo Park, California
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Introduction

The purpose of this report is to suggest some basic references on the geology of Alaska. In recent years, interest in Alaska and its resources has increased greatly and much of this interest is tied directly or indirectly to the geology of the state. The knowledge of Alaskan geology has accumulated to the point where a single publication covering the state in detail would be overpoweringly large.

The sum of Alaskan geologic information is increasing rapidly and it is likely that this trend will continue if not accelerate. New geologic data and newly discovered mineral deposits are being reported almost continuously and new, sometimes startling, interpretations of Alaskan geology are being made in rapid succession. As an indication of this trend, more than 80% of the non-serial publications cited here have been published within the last ten years and 60% within the last five years. The reader is warned that this report will almost certainly become out of date in the near future and that there is no substitute for a continuing awareness of the new Alaskan literature if one is to be fully informed.

"Geology of Alaska"

A number of attempts to synthesize the geology of Alaska have been attempted of varying length, viewpoints, and timeliness. These include:

Brooks, A. H., and Abbe, Cleveland, Jr., 1906, The geography and geology of Alaska: U.S. Geol. Survey Prof. Paper 45, 327 p.

Cobb, E. H., 1974, Synopsis of the mineral resources and geology of Alaska: U.S. Geol. Survey Bull. 1307, 53 p.

Smith, P. S., 1939, Areal geology of Alaska: U.S. Geol. Survey Prof. Paper 192, 100 p.

Williams, Howell (ed.), 1958, Landscapes of Alaska: Univ. of Calif. Press, Berkeley, 133 p.

Gates, G. O., and Gryc, George, 1963, Structure and tectonic history of Alaska in Childs, O. E., and Beebe, B. W. (eds.), The backbone of the Americas, a symposium: Amer. Assoc. of Petroleum Geologists Mem. 2, p. 264-277.

U.S. Geological Survey, 1964, Mineral and water resources of Alaska: Committee on Interior and Insular Affairs, U.S. Senate, 179 p.

Unfortunately, there is no recent comprehensive publication on the geology of Alaska.

Geologic Map of Alaska

A new geologic map of Alaska is now in preparation and part of it has been published in a preliminary (uncolored) form.

Beikman, H. M., 1974, Preliminary geologic map of the southwest quadrant of Alaska: U.S. Geol. Survey Misc. Field Studies Map MF-611, 2 sheets, scale 1:1,000,000.

Beikman, H. M., 1975, Preliminary geologic map of the southeast quadrant of Alaska: U.S. Geol. Survey Misc. Field Studies Map MF-612, 2 sheets, scale 1:1,000,000.

Beikman, H. M., 1975, Preliminary geologic map of southeastern Alaska: U.S. Geol. Survey Misc. Field Studies Map MF-673, 2 sheets, scale 1:1,000,000.

Beikman, H. M., 1975, Preliminary geologic map of the Alaska Peninsula and Aleutian Islands: U.S. Geol. Survey Misc. Field Studies Map, MF-674, 2 sheets, scale 1:1,000,000.

The following may serve for many purposes:

Dutro, J. T., and Payne, T. G., 1957, Geologic map of Alaska: U.S. Geol. Survey, 1 sheet, scale 1:2,500,000.

King, P. B., 1969, Tectonic map of North America: U.S. Geol. Survey, 2 sheets, scale 1:5,000,000.

King, P. B., 1969, The tectonics of North America - a discussion to accompany the Tectonic Map of North America, scale 1:5,000,000: U.S. Geol. Survey Prof. Paper 628, 94 p.

Bennison, A. P., 1974, Geologic highway map of the State of Alaska and the State of Hawaii: Amer. Assoc. Petroleum Geologists Map 8, 1 sheet, scale, 1:3,500,000.

Geological and Geographical Boundaries

Only infrequently are political subdivisions used in referring to geological areas in Alaska. The boundaries may be imposed by the geology but one of the common subdivisions of the state is by the name of the 153, topographic quadrangles (scale 1:250,000) of the state. Indices to these maps are shown in many references but the primary source is the U.S. Geological Survey topographic map index for Alaska. It outlines the boundaries of the 1:250,000-scale maps, 1:63,360-scale maps and the availability of smaller scale base maps and the date of publication. The most recent index, which is updated periodically, is:

U.S. Geological Survey, 1974, Index to topographic maps of Alaska: U.S. Geol. Survey, 1 sheet, scale 1:2,500,000.

Areas may also be referred to by mining or recording district terminology. This usage has a long history in Alaska and has been codified by the U.S. Bureau of Mines:

Ransome, A. L., and Kerns, W. H., 1954, Names and definitions of regions, districts, and subdistricts, in Alaska: U.S. Bureau of Mines Information Circ. 7679, 91 p.

Although not of direct application to geology, the Alaska Statehood Act of 1958 and the Native Claims Settlement Act of 1971 have produced major changes in the ownership of the land in Alaska - changes which are still in progress. These changes direct much of the geologic work in the state. The U.S. Bureau of Land Management acts as the custodian of the federal lands in Alaska and is the instrument for transferring federal land to State, native, and private hands. They maintain land offices in Fairbanks and Anchorage where details of land ownership are easily accessible. As well, they publish a map that indicates the land ownership patterns in Alaska:

U.S. Bureau of Land Management, 1974, Alaska: U.S. Bureau of Land Management, 1 sheet, scale 1:2,500,000. (Note, however, that this map is more than a year old and is outdated in many areas.)

The Mapmakers, P. O. Box 145, Anchorage, Alaska, 99510 have recently published an updated land status map of Alaska which is current as of November 11, 1975.

An exhaustive (and often entertaining) compilation of the location and derivation of all features labeled on topographic maps of the U.S. Geological Survey in Alaska has been assembled by Orth:

Orth, D. J., 1967, Dictionary of Alaska place names: U.S. Geol. Survey Prof. Paper 567, 1084 p.

Geologic Map Index

The outlines of U.S. Geological Survey geologic mappings in Alaska is shown on the following:

Cobb, E. H., and Kennedy, D. L., 1967, Geologic map index of Alaska; 5th ed.: U.S. Geol. Survey, 25 p.

More recently, Cobb has tabulated all U.S. Geological Survey mapping by quadrangle:

Cobb, E. H., 1974, Geological Survey published maps (other than topographic maps) of Alaska indexed by quadrangle: U.S. Geol. Survey open-file report 74-84, 38 p.

There is no map or compilation which shows all geologic mapping from all sources for the state. Note, however, that there are summaries which are discussed subsequently of all the literature of Alaskan geology (which includes most maps) indexed by quadrangles, large regions, and the state as a whole.

Regional and Topical Summaries

The following list represents a selection of publications that either discuss the geology of large areas of Alaska or cover topical aspects of Alaskan geology. The material cited is hardly exhaustive and individuals may wish to include other publications, but these in particular have proved helpful in discussing the geology of Alaska:

Adkinson, W. L., and Brosge, M. M. (eds.), 1970, Preceedings of geological seminar on the North Slope of Alaska: Pacific Sec., Amer. Assoc. of Petroleum Geologists.

Barnes, D. F., 1976, Bouguer gravity map of Alaska: U.S. Geol. Survey open-file report 76-70, 1 sheet, scale 1:2,500,000.

Brew, D. A., Loney, R. A., and Muffler, L. J., 1966, Tectonic history of southeastern Alaska in Cunning, H. C., (ed.), Tectonic history and mineral deposits of western Cordilleras: Canadian Inst. of Mining and Metallurgy, p. 149-170.

Churkin, Michael, Jr., 1970, Paleozoic and Precambrian rocks of Alaska and their role in its structural evolution: U.S. Geol. Survey Prof. Paper 740, 64 p.

- Douglas, R. J. W. (ed.), 1970, Geology and economic minerals of Canada, 5th ed.: Canada Geol. Survey Econ. Geol. Report 1, 838 p.
- Ferrians, O. J., Jr., 1965, Permafrost map of Alaska: U.S. Geol. Survey Misc. Geol. Inv. Map I-445, 1 sheet, scale 1:2,500,000.
- Grantz, Arthur, 1966, Strike-slip faults in Alaska: U.S. Geol. Survey open-file report, 82 p.
- Grantz, Arthur, and Krischner, C. E., 1975, Tectonic framework of petroliferous rocks in Alaska: U.S. Geol. Survey open-file report 75-149, 26 p.
- Imlay, R. W., and Detterman, R. L., 1973, Jurassic paleobiogeography of Alaska: U.S. Geol. Survey Prof. Paper 801, 34 p.
- Johnson, P. R., and Harman, C. W., 1969, Environmental atlas of Alaska: Inst. of Water Resources, Univ. of Alaska, 111 p.
- Karlatrom, T. N. V., and others, 1964, Surficial geology of Alaska: U.S. Geol. Survey Misc. Geol. Inv. Map I-357, 2 sheets, scale 1:1,584,000.
- MacNeill, F. S., Wolfe, J. A., Miller, D. J., and Hopkins, D. M., 1961, Coorelation of Tertiary formations of Alaska: Amer. Assoc. Petroleum Geologists Bull. v. 45, p. 1801-1809.
- Miller, D. J., Payne, T. G., and Gryc, George, 1959, Geology of possible petroleum provinces in Alaska: U.S. Geol. Survey Bull. 1094, 131 p.
- Patton, W. W., Jr., 1973, Reconnaissance geology of the northern Yukon-Koyukuk province, Alaska: U.S. Geol. Survey Prof. Paper 774-A, p. A1-A17.
- Pewé, T. L., 1975, Quaternary geology of Alaska: U.S. Geol. Survey Prof. Paper 835, 145 p.
- Richards, H. G., 1974, Tectonic evolution of Alaska: Amer. Assoc. of Petroleum Geologists Bull. v. 58, p. 79-105.
- Wahrhaftig, Clyde, 1965, Physiographic divisions of Alaska: U.S. Geol. Survey Prof. Paper 482, 52 p.
- U.S. Geological Survey, 1970, The national atlas of the United States of America: U.S. Geol. Survey, 417 p.
- Ziegler, P. A., 1969, The development of sedimentary basins in western and arctic Canada: Alberta Soc. of Petroleum Geologists, 89 p.

In the past few years, a number of publications have attempted to describe the total natural and man-made environment of the state, including its climatology, geology, hydrology, soils, biology, and the effects of the human activity:

Joint Federal State Land Use Planning Commission for Alaska,
1974, Resources of Alaska, a regional summary: 619 p.

Selkregg, L. L. (ed.), 1974, Alaska regional profiles, Southcentral Region: Arctic Environmental Information and Data Center, Univ. of Alaska, 255 p.

Selkregg, L. L. (ed.), 1975, Alaska regional profiles, Arctic Region: Arctic Environmental Information and Data Center, Univ. of Alaska, 218 p.

Bibliographies of Alaskan Geology

The primary bibliographic source for Alaskan geology is the Bibliography and Index of Geology and its predecessor:

U.S. Geological Survey, 1923-1967, Bibliography of North American Geology: U.S. Geol. Survey Bull., 746-747 (1785-1918), 823 (1919-1928), 937 (1929-1939), 1049 (1940-1949), 1195 (1950-1959), 1196 (1960), 1197 (1961), 1232 (1962), 1233 (1963), 1234 (1964), 1235 (1965), 1236 (1966), 1267 (1967), 1268 (1968), 1269 (1969), 1370 (1970).

Geological Society of America, 1969- , Bibliography and index of geology: Geol. Soc. of America, v. 33- .

However, the very completeness and bulk of these bibliographies make them cumbersome. The Alaska Division of Geological and Geophysical Survey has published a series of bibliographies that selects all the Alaskan material from the preceeding bibliographies.

Fritts, C. E., and Brown, M. E., 1971, Bibliography of Alaskan geology 1831-1918: Alaska Div. of Geol. Survey, 88 p.

Fritts, C. E., and Brown, M. E., 1971, Bibliography of Alaskan geology 1919-1949: Alaska Div. of Geol. Survey, 92 p.

Fritts, C. E., and Brown, M. E., 1971, Bibliography of Alaskan geology 1950-1959: Alaska Div. of Geol. Survey, 83 p.

Fritts, C. E., and Brown, M. E., 1971, Bibliography of Alaskan geology 1960-1964: Alaska Div. of Geol. Survey, 81 p.

Fritts, C. E., and Tuell, E. J., 1972, Bibliography of Alaskan geology 1965-1968: Alaska Div. of Geol. Survey, 112 p.

Fritts, C. E., and others, 1972, Bibliography of Alaskan geology 1969-1971: Alaska Div. of Geol. Survey, 94 p.

A convenient source for general references to the Arctic which includes history, biology, etc. as well as geology is the Arctic

Bibliography:

Arctic Institute of North America, 1953- , Arctic bibliography: McGill-Queen's Univ. Press, v. 1- .

The complete bibliography of U.S. Geological Survey literature is included in the following:

U.S. Geological Survey, 1961, Publications of the Geological Survey 1879-1961, U.S. Geol. Survey, 457 p.

_____, 1972, Publications of the Geological Survey 1962-1970, U.S. Geol. Survey, 586 p.

. . . as well as yearly supplements and the monthly publication New Publications of the Geological Survey.

There is also a much shorter bibliography compiled from the preceeding U.S. Geological Survey sources which includes only the Alaskan material and is updated periodically:

U.S. Geological Survey, 1974, Geologic and water-supply reports and maps, Alaska: U.S. Geol. Survey, 68 p.

A bibliography of literature of the Alaska Division of Geological and Geophysical Surveys is included in each of their annual reports. They also furnish a list of their open-file reports upon request.

Cobb has produced a series of open-file reports that tabulate various types of geologic information from various agencies by 1:250,000 quadrangle:

Cobb, E. H., 1973, Index of metallic mineral deposits of Alaska compiled from reports in open files of the U.S. Geological Survey and U.S. Bureau of Mines: U.S. Geol. Survey open-file report, 87 p.

Cobb, E. H., 1974, Geological Survey open-file reports on Alaska indexed by quadrangle: U.S. Geol. Survey open-file report 74-7, 116 p.

Cobb, E. H., 1974, Reports of the Alaska Division of Geological and Geophysical Surveys and predecessor agencies, 1913-1973: U.S. Geol. Survey open-file report 74-209, 112 p.

Cobb, E. H., 1974, Selected U.S. Bureau of Mines reports on Alaska indexed by quadrangle: U.S. Geol. Survey open-file report 74-52, 40 p.

Cobb, E. H., 1974, Geological Survey published reports on Alaska, 1884-1914, indexed by quadrangle: U.S. Geol. Survey open-file report 74-345, 126 p.

Cobb, E. H., 1974, Geological Survey published reports on Alaska, 1915-1939, indexed by quadrangle: U.S. Geol. Survey open-file report 74-335, 159 p.

Cobb, E. H., 1974, Geological Survey published reports on Alaska, 1940-1959, indexed by quadrangle: U.S. Geol. Survey open-file report 74-261, 71 p.

Cobb, E. H., 1974, Geological Survey published reports on Alaska, 1960-1973, indexed by quadrangle: U.S. Geol. Survey open-file report 74-210, 163 p.

Cobb, E. H., 1975, Geological Survey and selected U.S. Bureau of Mines and Alaska Division of Geological and Geophysical Surveys reports and maps on Alaska released during 1974 indexed by quadrangle: U.S. Geol. Survey open-file report 75-128, 46 p.

So far as is known, there is no list of theses or dissertations based on Alaskan geological work. Neither is there a compilation of articles or notes of Alaskan mineral deposits or geology as found in newspapers and trade journals.

Keeping Current

At least part of the problem in working with Alaskan geology is the rapid accumulation of data and the difficulty for the neophyte to the scene to determine who's doing what and where. The Alaska Division of Geological and Geophysical Surveys publishes an annual report of their work which includes information on work in progress or not yet published. In addition, their monthly newsletter, Mines and Geology Bulletin, provides timely news on geologic and mineral development throughout the year and devotes a portion of a Spring issue to a tabulation of the projects to be undertaken that summer by Division personnel.

Each year in the late spring, the U.S. Geological Survey provides a summary of the projects active during the previous year and those to be undertaken during the following summer. This is published as a Circular and includes in varying degree, the results of the previous summers' work. The most recent of these Circulars are:

U.S. Geological Survey, 1973, United States Geological Survey,
Alaska Program 1973: U.S. Geol. Survey Cir. 683, 56 p.

Carter, Claire (ed.), 1974, United States Geological Survey
Alaska Program, 1974: U.S. Geol. Survey Cir. 700, 63 p.

Yount, M. E., (ed.), 1975, United States Geological Survey
Alaska Program, 1975: U.S. Geol. Survey Cir. 722, 58 p.

The U.S. Geological Survey also publishes a series of annual reviews which summarizes their work throughout the country. The most recent of these is:

U.S. Geological Survey, 1974, Geological Survey Research 1974:
U.S. Geol. Survey Prof. Paper 900, 349 p.

This publication includes short summaries of most of the geologic work in Alaska; much of it is new information that has not been published previously.

Stratigraphic Nomenclature and Radioactive Dates

The basic bibliographic source for stratigraphic nomenclature is the U.S. Geological Survey lexicons:

Wilmarth, M. G., 1938, Lexicon of geologic names of the United States (including Alaska), 2 vols.: U.S. Geol. Survey Bull. 896, 2396 p.

Keroher, G. C., and others, 1966, Lexicon of geologic names of the United States for 1936-1960: U.S. Geol. Survey Bull. 1200, 4341 p.

Keroher, G. C., 1970, Lexicon of geologic names of the United States, 1961-1967: U.S. Geol. Survey Bull. 1350, 848 p.

Levorsen has prepared an abbreviated list of stratigraphic names restricted to those in use only in Alaska that may be more convenient for many purposes:

Levorsen, J. S., 1973, Alaska geologic lexicon reference data: Alaska Div. of Geol. and Geophys. Surveys, 26 p.

Radiometric dates (not including radiocarbon dates) through 1975 have been tabulated by quadrangle:

Turner, D. L., Grybeck, Donald, and Wilson, F. H., 1975, Radiometric dates from Alaska - a 1974 compilation: Alaska Div. of Geol. and Geophys. Surveys Special Reprint 10, 64 p.

The radioactive dates in this compilation have also been plotted on a set of 1:1,000,000 maps:

Turner, D. L., and Wilson, F. H., 1975, Radiometric age map of Alaska - Southeastern Alaska: Alaska Div. of Geol. and Geophys. Surveys open-file map AOF-82, 11 p.

Turner, D. L., and Wilson, F. H., 1975, Radiometric age map of Alaska - Aleutian Islands: Alaska Div. of Geol. and Geophys. Surveys open-file map AOF-83, 10 p.

Turner, D. L., and Wilson, F. H., 1975, Radiometric age map of Alaska - Southwestern Alaska: Alaska Div. of Geol. and Geophys. Surveys open-file map AOF-84, 12 p.

Turner, D. L., and Wilson, F. H., 1975, Radiometric age map of Alaska - South-central Alaska: Alaska Div. of Geol. and Geophys. Surveys open-file map AOF-85, 12 p.

Turner, D. L., and Wilson, F. H., 1975, Radiometric age map of Alaska - Northern Alaska: Alaska Div. of Geol. and Geophys. Surveys open-file map AOF-86, 11 p.

Metalliferous Mineral Deposits

Information on Alaskan ore deposits is conveniently found in a variety of sources many of which overlap in their coverage. Some general summaries are:

Berg, H. C., and Cobb, E. H., 1967, Metalliferous lode deposits of Alaska: U.S. Geol. Survey Bull. 1246, 254 p.

U.S. Bureau of Mines, 1975, Alaska's energy and mineral potential: Alaska Field Operations Center, Juneau, Alaska, 7 p.

Clark, A. L., and others, 1974, Metal provinces of Alaska: U.S. Geol. Survey Misc. Inv. Map I-834, 1 sheet, scale 1:5,000,000.

Cobb, E. H., 1973, Placer deposits of Alaska: U.S. Geol. Survey Bull. 1374, 213 p.

Cobb, E. H., 1974, Synopsis of the mineral resources and geology of Alaska: U.S. Geol. Survey Bull. 1307, 53 p.

Cobb, E. H., and Kachadoorian, Reuben, 1961, Index of metallic and non-metallic mineral deposits of Alaska from published reports of Federal and State agencies through 1959: U.S. Geol. Survey Bull. 1139, 363 p.

Cobb, E. H., 1974, Index of metallic mineral deposits of Alaska compiled from published reports of Federal and State agencies through 1972: U.S. Geol. Survey, Nat. Tech. Information Service PB-233 217/AS, 590 p.

Hawley, C. C., 1973, Mineral belts and districts, prospective regions and land status in Alaska: The Mapmakers, Anchorage, 26 p.

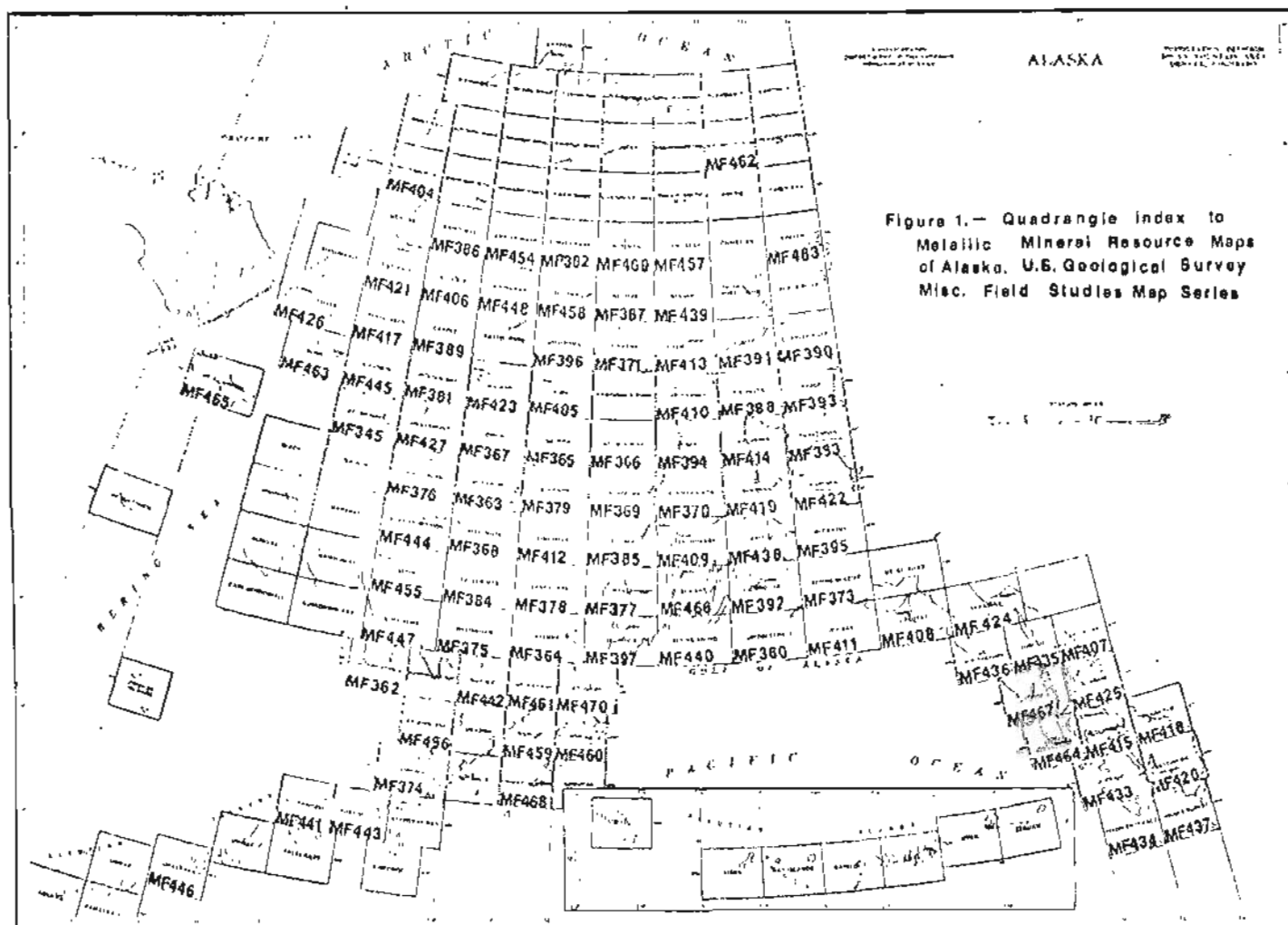
Cobb and others have published a set of 1:250,000 maps of Alaska that show the locality, commodity or commodities of interest, lode or placer, and production or lack of it for every known metallic mineral deposit in Alaska. This extremely useful compilation is published in the Miscellaneous Field Studies (MF) series of the U.S. Geological Survey. Rather than cite each individually, Figure 1 on the next page indicates the number of the appropriate MF map for each quadrangle.

A new series of open-file reports has been initiated by Cobb that builds on the preceeding series of maps. Every metallic mineral occurrence in the quadrangle is discussed systematically with a short summary or excerpt for each citation pertinent to that occurrence in the reports of the Geological Survey, the U.S. Bureau of Mines, and the Alaska Division of Geological and Geophysical Surveys as well as a short overall summary for each occurrence. The first publications of this series are:

Cobb, E. H., 1975, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Bendeleben quadrangle, Alaska: U.S. Geol. Survey open-file report 75-429, 120 p.

Cobb, E. H., 1975, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Teller quadrangle, Alaska: U.S. Geol. Survey open-file report 75-587, 142 p.

Cobb, E. H., 1975, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in five quadrangles in west-central Alaska (Hughes, Kotzebue, Melozitna, Selawik, Shungnak): U.S. Geol. Survey open-file report 75-726, 58 p.



Cobb, E. H., 1975, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in northern Alaska: U.S. Geol. Survey open-file report 75-628, 106 p.

Cobb has also presented a series of maps by commodity that shows every known occurrence of that commodity in the state:

Cobb, E. H., 1962, Lode gold and silver occurrences in Alaska: U.S. Geol. Survey, Mineral Inv. Resources Map, MR-32, 1 sheet, scale 1:2,500,000.

Cobb, E. H., 1964, Iron occurrences in Alaska: U.S. Geol. Survey Mineral Inv. Resources Map MR-40, 1 sheet, scale 1:2,500,000.

Cobb, E. H., 1964, Industrial minerals and construction materials occurrences in Alaska: U.S. Geol. Survey Mineral Inv. Resources Map MR-41, 1 sheet, scale 1:2,500,000.

Cobb, E. H., 1970, Antimony occurrences in Alaska: U.S. Geol. Survey Mineral Inv. Resources Map MR-52, 4 p.

Cobb, E. H., 1970, Bismuth occurrences in Alaska: U.S. Geol. Survey Mineral Inv. Resources Map MR-53, 2 p.

Cobb, E. H., 1970, Mercury occurrences in Alaska: U.S. Geol. Survey Mineral Inv. Resources Map MR-54, 2 p.

Cobb, E. H., 1970, Uranium, thorium and rare-earth elements in Alaska: U.S. Geol. Survey Mineral Inv. Resources Map MR-56, 3 p.

Cobb, E. H., 1974, Molybdenum occurrences in Alaska: U.S. Geol. Survey Mineral Inv. Resources Map MR-59, 3 p.

Cobb, E. H., 1974, Cobalt occurrences in Alaska: U.S. Geol. Survey Mineral Inv. Resources Map MR-61, 2 p.

Cobb, E. H., 1974, Copper occurrences in Alaska: U.S. Geol. Survey Mineral Inv. Resources Map MR-62, 18 p.

Cobb, E. H., 1974, Nickel occurrences in Alaska: U.S. Geol. Survey Mineral Inv. Resources Map MR-63, 2 p.

Cobb, E. H., 1975, Occurrences of platinum-group metals in Alaska: U.S. Geol. Survey Mineral Resources Map MR-64, 2 p.

Cobb, E. H., 1974, Tin occurrences in Alaska: U.S. Geol. Survey Mineral Inv. Resources Map MR-65, 4 p.

Cobb, E. H., 1975, Tungsten occurrences in Alaska: U.S. Geol. Survey Mineral Inv. Resources Map MR-66, 5 p.

Cobb, E. H., 1975, Zinc occurrences in Alaska: U.S. Geol. Survey Mineral Inv. Resources Map MR-67, 9 p.

Cobb, E. H., 1975, Chromite occurrences in Alaska: U.S. Geol. Survey Mineral Inv. Resources Map MR-68, 2 p.

Cobb, E. H., 1975, Lead occurrences in Alaska: U.S. Geol. Survey Mineral Inv. Resources Map MR-69, 12 p.

The Mineral Industry Research Laboratory of the University of Alaska has summarized the metallic mineral deposits of a number of large areas of the state. These publications have an introductory section which includes a summary of the geology of the area and a computerized tabulation of all known mineral deposits in the state based on both published sources and claim location:

Heiner, L. E., and Wolff, E. N., 1968, Mineral resources of Northern Alaska: Mineral Industry Research Lab., Univ. of Alaska, Report 16, 306 p.

Lu, F. C. J., Heiner, L. E., and Harris, D. P., 1968, Known and potential ore reserves, Seward Peninsula, Alaska: Mineral Industry Research Lab., Univ. of Alaska, Report 18, 105 p.

Heiner, L. E., Wolff, E. N., and Grybeck, Donald, 1971, Copper mineral occurrences in the Wrangell Mountain-Prince William Sound area, Alaska: Mineral Industry Research Lab., Univ. of Alaska, Report 27, 179 p.

Wolff, E. N., and Heiner, L. E., 1971, Mineral resources of Southeastern Alaska: Mineral Industry Research Lab., Univ. of Alaska, Report 28, 334 p.

The regional studies are complemented by a computer tabulation of every known mine, prospect, and claim in Alaska - the Minfile. This tabulation does not include a textual description of the geology of the deposits but there is an extended discussion of the computer program. The tapes of the data are also available through M.I.R.L.

Heiner, L. E., and Porter, Eve, 1972, A computer processable storage and retrieval program for Alaska mineral information, 2 vols.: Mineral Industry Research Lab., Univ. of Alaska, Report 24, 814 p.

It might be convenient if there was some comprehensive source for information on the data collected or even the localities worked by private industry. Understandably, they are reticent to make this information available, but some information is often available through their staking activity. Records on mineral claims are conveniently available in the Kardex files maintained by the Alaska Division of Geological and Geophysical Surveys in Fairbanks. The material is indexed by quadrangle with an individual entry for every claim that has been recorded in the state of Alaska. The entry includes present and past ownership, location, history of activity, the status of assessment work, and the commodity of interest. The file can be examined in its entirety only at Fairbanks but all material in it can be photocopied at cost.

Oil, Gas and Coal

The information on Alaska's oil, gas and coal resources are spread through a variety of sources, many of which have already been cited. The following are especially useful in addition to those mentioned previously:

Barnes, F. F., 1967, Coal resources of Alaska: U.S. Geol. Survey Bull. 1242-B, p. B1-B36.

Carter, R. D., Denman, J. M., and Pierpoint, J. G., 1975, Geological literature on the North Slope of Alaska, 1969-1974: U.S. Geol. Survey open-file report 75-384, 81 p.

Klein, R. L., and others, 1974, Energy and mineral resources of Alaska and the impact of federal land policies on their availability-oil and gas: Alaska Div. of Geol. and Geophys. Surveys open-file report AOF-50, 18 p.

Lyle, W. M., and Bragg, N. J., 1974, Coal bibliography for Alaska: Alaska Div. of Geol. and Geophys. Surveys open-file report AOF-41, 31 p.

Maher, J. C., and Trollman, W. M., 1970, Geologic literature on the North Slope of Alaska: Amer. Assoc. Petroleum Geologists, 133 p.

McGee, D. L., and O'Connor, K. M., 1975, Mineral resources of Alaska and the impact of federal land policies on their availability-coal: Alaska Div. of Geol. and Geophys. Surveys open-file report AOF-51, 29 p.

Miller, K. J., Payne, T. G., and Gryc, George, 1959, Geology of possible petroleum provinces in Alaska: U.S. Geol. Survey Bull. 1094, 131 p.

Petroleum Publications Inc., Anchorage, is the commercial outlet for well logs in Alaska as well as a variety of other information related to Alaskan mineral development. For instance, they serve as the source for the Alaska Division of Geological and Geophysical Surveys open-file reports and they publish The Alaskan Scouting Service, a weekly summary of oil, gas and mineral developments in the state.

Well logs and well cuttings of all wells upon which information has been released to the public are also available for examination at the Anchorage offices of the Alaska Division of Geological and Geophysical Surveys.

Aerial Photography and Space Imagery

Aerial photography is available for almost all of the state although it is held by a number of federal agencies and commercial

outlets. The format of the photography varies and there may be some delay in obtaining the material.

Two different approaches may be used to determine the availability and ordering information for photography of any given area. The first involves talking with a topographic engineer that has personal knowledge of Alaskan aerial photography and access to the photoindices. The U.S. Geological Survey headquarters a topographic engineer at 218 "E" Street, Anchorage, Alaska and several at the Federal Center, Denver, Colorado. For many geologic purposes, the U.S. Geological Survey photography is sufficient and one need only examine the index produced by the 30th Engineer Group of the U.S. Army to select the needed photographs. This index can be examined in Anchorage at the address given above and at the offices of the U.S. Geological Survey, O'Neill Bldg., University of Alaska, Fairbanks, Alaska 99701.

The other approach is to contact the EROS Data Center, Sioux Falls, South Dakota, 57198. They will eventually hold the negatives of all U.S. Geological Survey aerial photography and have access through a federal computer network to all aerial photography flown in Alaska. As an aid to an evaluation of your needs, they have prepared a form Geographic Computer Search, which they will use to furnish a list of the photography that will fit user needs.

Similarly satellite data which are mainly from the LANDSAT (previously known as ERTS) satellite is available for almost all of the state. Three offices that have indices of all the available imagery as well as personnel available to discuss user needs and a comprehensive

collection of the actual products are:

EROS Applications Assistance Facility
U.S. Geological Survey
345 Middlefield Road
Menlo Park, California 94025
(415) 323-8111, ext. 2727

EROS Applications Assistance Facility
Geophysical Institute
University of Alaska
Fairbanks, Alaska 99701
(907) 479-7487

Public Inquiries Office
U.S. Geological Survey
508 Second Avenue
Anchorage, Alaska 99501
(907) 277-0577

The EROS Data Center in Sioux Falls, South Dakota, 57198, can also be contacted for remote sensing imagery in the same manner as for aerial photography.

Location of Publications and Sources of Information

Two distinct types of sources for Alaskan geologic information are usefully distinguished. Larger libraries undoubtedly offer the most direct access to the publications themselves. However, while they are conveniently catalogued and the libraries offer a wide range of material and services, they almost invariably lack professional geological staff. In contrast, the various State and Federal agencies often have professional staff available in their offices for assistance. Their library facilities are often limited, however, and the material is usually not catalogued. Professional staff members can frequently answer an esoteric question immediately from their own knowledge or

refer the questioner to one who can. They are, however, constrained by their other duties and generally must resort to referral to library sources for general questions that demand extensive literature research.

Two libraries in Alaska have most of the publications cited as well as a comprehensive collection of geologic literature. They are:

Elmer E. Rasmuson Library
University of Alaska
Fairbanks, Alaska 99701
(907) 479-7481

Consortium Library
University of Alaska - Anchorage
3211 Providence Drive
Anchorage, Alaska 99501
(907) 272-5522

The U.S. Geological Survey maintains a Public Inquiries Office in Anchorage that is specifically oriented toward answering questions from the public. It has a complete file of U.S.G.S. publications on Alaska and many of the others as well; it also acts as a sales agency for U.S. Geological Survey book publications and maps:

Public Inquiries Office
U.S. Geological Survey
508 West 2nd Avenue
Anchorage, Alaska 99501
(907) 277-0577

The Geologic Division of the U.S. Geological Survey maintains two offices in Alaska for their professional personnel:

Branch of Alaskan Geology
U.S. Geological Survey
1209 Orca Street
Anchorage, Alaska 99501
(907) 272-8228 or (907) 274-2133

Branch of Alaskan Geology
U.S. Geological Survey
O'Neill Building
University of Alaska
Fairbanks, Alaska 99701
(Mail: Box 80586, College, Alaska 99701)
(907) 479-7245

The headquarters of the Branch of Alaskan Geology is at the
Western Region Center of the U.S.G.S. at Menlo Park, California:

Branch of Alaskan Geology
U.S. Geological Survey
345 Middlefield Road
Menlo Park, California 94025
(415) 323-8111, ext. 2231 and 2234

Most of the professional staff of the Alaskan Branch can be reached
there. The Branch also maintains a comprehensive library of Alaskan
geologic literature in their Technical Data Unit (T.D.U.) at Menlo Park,
California, (415) 323-8111, ext. 2342.

The Conservation Division and the Water Resources Division of the
U.S. Geological Survey have offices in Alaska which handle much of
their work in the state:

Office of Area Geologist
Conservation Division
U.S. Geological Survey
800 "A" Street
Anchorage, Alaska 99501
(907) 278-3571

Water Resources Division
U.S. Geological Survey
218 "E" Street, Skyline Building
Anchorage, Alaska 99501
(907) 277-5526

The Alaska Division of Geological and Geophysical Surveys maintains
two offices in Alaska that are devoted primarily to geologic work:

Division of Geological and Geophysical Surveys
(P.O. Box 80007)
O'Neill Building
University of Alaska
Fairbanks, Alaska 99701
(907) 479-7062

Division of Geological and Geophysical Surveys
3001 Porcupine Drive
Anchorage, Alaska 99501
(907) 274-8062

The main center for U.S. Bureau of Mines work in Alaska is in
Juneau; there are smaller offices in Fairbanks and Anchorage:

Alaska Field Operations Center
U.S. Bureau of Mines
P.O. Box 550
Juneau, Alaska 99801
(907) 364-2111

U.S. Bureau of Mines
O'Neill Building
University of Alaska
Fairbanks, Alaska 99701
(907) 479-6807

U.S. Bureau of Mines
(P.O. Box 2059)
605 West 4th Avenue
Anchorage, Alaska 99501
(907) 265-5206