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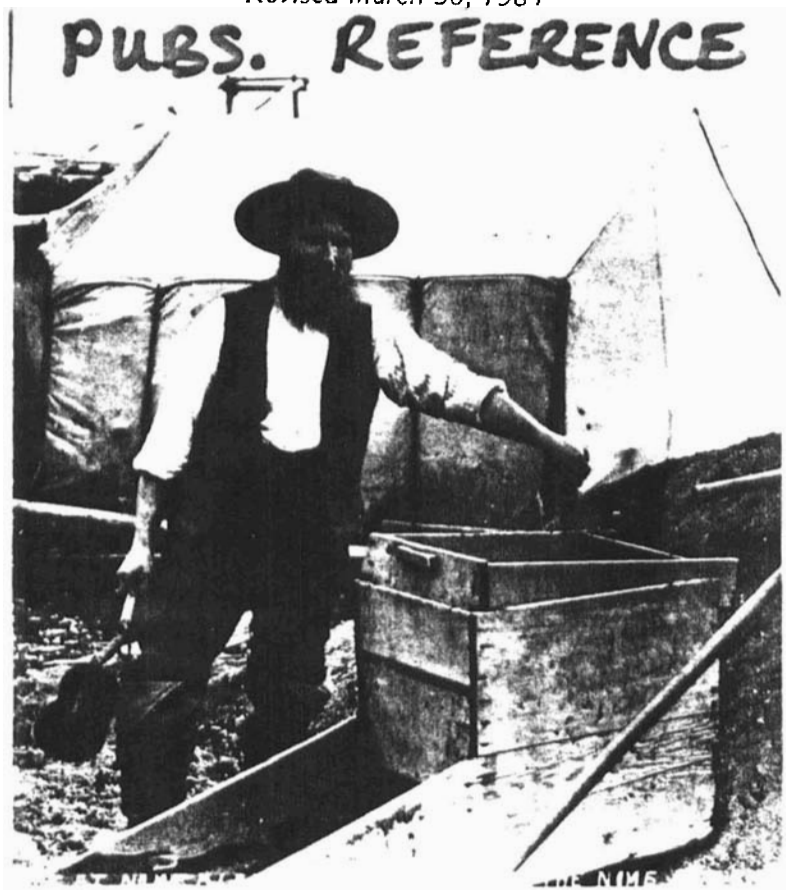
AMATEUR GOLD PROSPECTING

Revised March 30, 1984



INFORMATION CIRCULAR
18

DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

Alaska Department of
NATURAL
RESOURCES

STATE OF ALASKA
Department of Natural Resources
DIVISION OF GEOLOGICAL &
GEOPHYSICAL SURVEYS

According to Alaska Statute 41, the Alaska Division of Geological and Geophysical Surveys is charged with conducting 'geological and geophysical surveys to determine the potential of Alaska lands for production of metals, minerals, fuels, and geothermal resources; the locations and supplies of ground waters and construction materials; the potential geologic hazards to buildings, roads, bridges, and other installations and structures; and shall conduct other surveys and investigations as will advance knowledge of the geology of Alaska.'

In addition, the Division shall collect, evaluate, and publish data on the underground, surface, and coastal waters of the state. It shall also acquire, process, and file data from well-drilling logs.

DGGS performs numerous functions, all under the direction of the State Geologist—resource investigations (including mineral, petroleum, geothermal, and water), geologic-hazard and geochemical investigations, and information services.

Administrative functions are performed under the direction of the State Geologist, who maintains his office in Anchorage (ph. 276-2653). Other DGGS offices are at:

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Cover photograph: *Miner with rocker box works beach placers at Nome, 1901. Photo courtesy Anchorage Historical & Fine Arts Museum (B.70.73.101).*

AMATEUR GOLD PROSPECTING IN ALASKA

Many of the economic, political, and social events in Alaska's history during the last century are interwoven with seekers of precious metals, mainly gold.

Alaska's 31 million ounces of gold production (since 1880) ranks fourth among the 50 states. Production levels have fluctuated markedly, from 1.1 million ounces in 1906 to a low of 15,000 ounces in 1971. Production steadily declined after World War II because of the fixed $35/ounce price of gold.

At the end of 1974, the U.S. government again permitted the holding of gold in the United States. Although the world price declined from a high of $195 on December 30, 1974, to a low of $102 near the end of August 1976, production steadily increased until an estimated 174,000 ounces, worth over $70 million, were produced in 1982 by over 350 mining operations (including reactivation of six floating bucket-line dredges).

PANNING

Gold is not easily obtainable in paying quantities by simple means such as panning. Nevertheless, panning remains a good tool for prospecting.

The amount of gold in a cubic yard of gravel is small, and large volumes of gravel must be 'washed' to make a living wage or profit. Generally, a two-man operation with a bulldozer that moves up to 100 yards per hour is the minimum size for an operation to provide a return on the investment. Occasionally, small, high-grade paystreaks with grades exceeding $25/yard are profitably mined with suction dredges, Long Toms (beach mining), and even old-fashioned 'rockers.'

The average gold-bearing gravel mined in Alaska before 1961 yielded from 35 to 75 cents per cubic yard; comparable gravel deposits today average $4 to 8 per cubic yard. By selective panning, you may find gold-bearing gravel worth three or four times that much.

But before you rush out to buy a gold pan, consider that a cubic yard of gravel is 150 to 180 large pans full, and that it takes at least 5 minutes of steady, careful panning to work 1 pan down to the concentrate without losing it.

Panning is for prospecting, not production. If you don't believe it, try it with sand or fine gravel in a stream or over a tub of water. A well-filled No. 2 round-point shovel is a panful; mix iron filings or buckshot with the sand to simulate gold and carefully separate it. Time yourself for about a half dozen pans.

The pan remains a useful tool for the serious prospector and a recreational tool for the visitor. Big strikes are still made, but mainly by qualified prospectors, geologists, and engineers who systematically investigate, sample, map, and follow up anomalies with expensive drilling.

Instructions on how to build a rocker box are available in numerous books on prospecting. But be aware that most placer gold has worked its way to the bottom of the gravel filling, near bedrock, which may be 50 feet beneath the present stream bed.

The point of this is not to discourage you from panning for gold in Alaska. Enjoy the rugged country and historical mining districts while panning for gold—but don't count on it to pay for your prospecting trip, let alone your subsistence.

SKINDIVING

Skindiving for gold in Alaska is not new. Divers started coming from California several decades ago and have worked many of the accessible streams. There are no reports of great profits yielded diving for gold in Alaska.

Look for recently incised stream drainages in canyons flowing directly on bedrock. In many cases, canyons are so narrow that mechanized equipment cannot be used, and hand methods remain the principal means of production. Hence, an active stream bed suitable for diving may contain virgin ground.

LAND STATUS

About four-fifths of Alaska is closed to mineral entry, so it is very important to check the official land status of your area of interest. You should inquire at the Alaska Division of Land and Water Management or the U.S. Bureau of Land Management.

Mineral claims on lands classified as closed to mineral entry have no legal standing. Another reason for checking the land status is to ensure that you do not mine or prospect on someone else's land. In the old days, this practice was called claim jumping, and resulted in various forms of 'frontier justice.' Although the consequences are not as severe today, claim jumping remains illegal.

Mining property must be respected the same as property in a city. The bottom of some major streams now considered 'navigable' may be covered by legitimate mining claims. Do not assume that claims in remote areas are deserted, even though evidence of human activity is scant.

Sometimes, permission to do a little recreational panning can be obtained from claim holders or active mine operators if they are approached in an up-front manner.

LITERATURE AVAILABLE

Before you begin, you may want to investigate a little. The following literature contains helpful information for the beginning prospector.

'How to mine and prospect for placer gold'
U.S. Bureau of Mines Information Circular 8517
Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20404 (50 cents)

'Introductory prospecting and mining'*
by Leo Mark Anthony
Mineral Industry Research Laboratory (MIRL)
University of Alaska
Fairbanks, Alaska 99701
$14.50 (250 p.)

'Handbook for the Alaska prospector'*
by Ernest Wolff
Mineral Industry Research Laboratory (MIRL)
University of Alaska
Fairbanks, Alaska 99701
$8 (460 p.)

* Also available from Alaskan Prospectors &Geologists Supply, 504 College Road, Fairbanks, Alaska 99701.

'Placer mining in Alaska'*
by Donald J. Cook
Mineral Industry Research Laboratory (MIRL)
University of Alaska
Fairbanks, Alaska 99701
$11 (157 p.)

'Placer examination and principles'*
by John Wells
U.S. Bureau of Land Management Technical
Bulletin 4
$7.95 (209 p.)

'Guide for the Alaskan prospector'
by J.A. Madonna
Alaskan Prospectors and Geologists Supply
504 College Rd.
Fairbanks, Alaska 99701
$5.95 (88 p.)

'Placer deposits of Alaska'**
by E.H. Cobb
U.S. Geological Survey Bulletin 1374
$7.95 (213 p.)

'Metalliferous lode deposits of Alaska'**
by H.C. Berg and E.H. Cobb
U.S. Geological Survey Bulletin 1246
$7.95 (254 p.)

'Map of gold occurrences in Alaska'**
by E.H. Cobb (U.S. Geological Survey)
($2.50)

'Map of gold and silver occurrences in Alaska'*
by E.H. Cobb (U.S. Geological Survey)
($2.50)

**Out of print, but reprints available from Alaskan Prospectors & Geologists Supply.

The U.S. Bureau of Mines circular and the MIRL handbooks discuss necessary equipment for light prospecting. 'Placer mining in Alaska' provides a well-illustrated discussion of placer-mining methods and equipment in the state. The Madonna booklet is a very handy 'how-to' reference. The two U.S. Geological Survey Bulletins are general-purpose mining manuals.

Your local library or nearest U.S. Geological Survey office may have additional information.

SUMMARY

1. Do not attempt to prospect for other than recreation without first becoming generally acquainted with the mineral deposits, mining history, and mining laws of the area.

2. Don't expect a windfall, either immediate or long-range. The old-time prospectors were very thorough and very active. Placer gold was their objective. They were unlikely to have passed over many near-surface bonanza deposits. 'Colors' or a few nuggets from bench or stream gravels too lean to attract the original hand miners may be your best reward. Although new discoveries are possible and even probable, most placer gold lies at or near bedrock and may require much digging for discovery.

3. Check the land status. Land ownership and mineral-entry status must be known in the area you wish to prospect. Visit the local recorder's office, the Alaska Division of Land and Water Management, the Alaska Division of Mining, or the U.S. Bureau of Land Management to determine land status before beginning.

Before you begin your Alaskan prospecting venture, drop by the Division of Mines and DGGS offices in Juneau, Ketchikan, Anchorage, or Fairbanks (p. i) and ask about our other information circulars. They cover a variety of subjects, including claim staking, hand-placer mining methods, prospecting, general Alaskan mineral information, mining laws, and services of the DGGS. If you have questions that the receptionist cannot answer, any member of our staff will be glad to talk to you.

Good luck.