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DGGS Staff Heads for Bush

Beginning late this month, DGGS earth scientists will pack their rock hammers, C rations, and mosquito dope and head for another summer in the field. Personnel and tentative projects are listed below.

Thomas K. Bundtzen, mining geologist

Will spend about 40 days on mineral appraisal of the north flank of the central Alaska Range with W.G. Gilbert, principal project investigator. Will also spend a few days evaluating some known mineral prospects in the Delta area.

Richard D. Reger, mining geologist

Will spend 30 days field checking initial air-photo interpretation of surficial deposits in the Delta Planning area (Eielson AFB to Canwell Glacier and Lake George to Delta and Tanana Rivers) with J.T. Kline in cooperation with Dave Carter of the U.S. Geological Survey, Menlo Park. Work will be conducted with some helicopter support provided by the U.S. Geological Survey.

Will spend about 25 days mapping surficial geology in the Healy D-1 and Mt. Hayes D-5 and D-6 quadrangles along the northern flank of the Alaska Range to fill in the map coverage. Will be accompanied by Kline and work in cooperation with Gilbert. Field work will be supported by helicopter for 10 days and by foot the rest of the time.

Will map surficial deposits in the Susitna River Basin

with D.L. McGee and Kline for about 25 days to provide engineering geology information for an anticipated population increase there. Field work will be confined to the road networks this first year. Effort includes 3 days of field checking photo-geologic lineaments with M.W. Henning in the Talkeetna Mountains.

Cleland N. Conwell, mining engineer

Will continue the 1975 cooperative program with the U.S. Geological Survey in which Alaska's coal resources are examined. In the program, samples are collected from various fields throughout the state and sent to the USGS labs in Denver, where they are analyzed for major oxides, trace elements, forms of sulfur, moisture, ash, and calorific values. The results are entered into the computerized coal data bank in Washington, DC. The analyses will help predict the environmental effects of burning various coals and will assist in measuring catalysts and deleterious substances. Specific areas to be investigated this year are the upper Susitna basin, the Healy basin, and possibly the west bank of the Yukon River.

Will inspect several mines, including the site of the U.S. Borax molybdenum find near Ketchikan (March M&G Bulletin), the barite mine near Petersburg, and the gold-dredge operations near Nome.

Steve W. Hackett, exploration geophysicist

Will tentatively conduct a gravity survey and collect samples for rock density and susceptibility in the Brooks Range, specifically in the Ambler River, Survey

Pass, and Baird Mountains quadrangles; this will require about half of the available field season. Base camps will be at Dahl Creek, Walker Lake, and the upper Noatak River.

Other efforts will include gravity and ground magnetic profiling on the north flank of the Alaska Range with W.G. Gilbert (below) and a regional gravity survey and sample collection in the lower Cook Inlet area with W.M. Lyle.

Wyatt G. Gilbert, mining geologist

Will complete a 2-year field investigation of the central Alaska Range. A major part of the work will involve detailed geologic mapping in the northeastern and northwestern Healy quadrangle, and evaluation of mineral resources of the north flank of the Alaska Range. In addition, geophysical and surficial geology studies are planned. Personnel will include Bundzen, Reger, G.R. Eakins, Hackett, and Conwell.

William M. Lyle, petroleum geologist

Will head the DGGs half of a cooperative effort with the USGS in evaluating the lower Cook Inlet. Ten days will be spent investigating the Tertiary, Cretaceous, and Jurassic sedimentary rocks on Kodiak Island; 4-5 days will be spent around Cape Douglas, on the upper Alaska Peninsula; and the rest of the 33 days in the field will be spent at Snug Harbor, on the west side of the Cook Inlet. McGee and Ross Schaff will join the party. The USGS will send Irv Palmer, John Wills, and Les Magoon. An FH-1100 helicopter will be used as support.

Geochemistry as a Prospecting Tool by Alfred F. Trites

(This is the eighth of a series from The Mining Record [Jan. 29, 1975]. The author is a consulting geologist in Denver—Ed. note.)

Mobility of Chemical Elements

Before discussing the use of soil sampling as related to specific types of ore deposits, the matter of mobility of the different elements under normal weathering conditions should be considered. During the weathering of a mineral deposit certain elements are dissolved in the process, the degree of solubility depending upon the element. Upon being taken into solution, these elements move outward from their source. Some are reprecipitated as secondary minerals at varying distances from their original site, others are carried away completely by ground waters and surface waters.

Geochemists recognize the importance of knowing the relative mobility of the various elements and have found the mobility to be affected somewhat by the chemistry of the terrain. For convenience some have described the degree of mobility as mobile, intermediate, and immobile. They have also found that the same element behaves differently during the weathering process if the terrain is acidic rather than basic in rock types. Zinc and silver have been classified by H.E.

Hawkes and J.S. Webb in "Geochemistry in Mineral Exploration" as mobile in acidic, siliceous environments, such as in granites, quartzites, or rhyolites. Under more basic environments, such as limestones or dolomites, zinc and silver become intermediate in their mobility. It can be seen from this that soil anomalies of either zinc or silver can be expected to occur closer to the actual deposit in veins occurring in a limestone than in a granite.

Copper, cobalt, nickel, and molybdenum are recognized as intermediate in mobility under acidic conditions. Immobile elements under both conditions include iron and lead.

Such mobility differences should be kept in mind as you interpret your geochemical anomalies. For instance, lead anomalies should occur closest to the deposit, whereas copper and molybdenum would tend to spread out further from the source and zinc and silver would be dispersed even further in granite country rock. In limestone, iron and lead would still remain closest to the source.

Soil Sampling as a Clue to Gold Mineralization

Geochemical sampling at the surface has been helpful in indicating the presence of certain lode deposits of gold, as at Carlin, Nevada. The metal is found in anomalous amounts in the soils overlying placer deposits but I do not know of any significant study applied to placers.

Of course, if you are evaluating an area by the soils, the gold content itself should be determined in a sufficient number of samples to check its effectiveness. Its mobility is considered to be moderately high but not to the extent that it cannot be used. I have checked the literature but have not been able to find a background value for gold in soils. Hawkes and Webb have listed quite a range in various rock types. Sedimentary rocks range from a low of .005 to .009 ppm in limestone to a high of .01 to 1 ppm in black shale. Igneous rocks range from a low of .01 ppm in acidic volcanic flow rocks to .1 ppm in ultra-basic rocks.

It can be seen from these figures that, except for some black shales, the gold content of both igneous and sedimentary rocks normally is very low and any values in rocks or soils exceeding .01 ppm are possibly anomalous and would indicate that such areas should be examined with care. Some prospectors are using the difference between .02 and .04 ppm in delineating possible target areas for exploration. It may be seen from this that the accuracy of the analytical work for gold is very important.

Other elements considered especially helpful in determining the presence of buried gold deposits are mercury and arsenic. These are among the group described as indicator elements. The mobility of arsenic is regarded as low in general, thus the element is prone to remain near the ore body. Especially is this true where significant quantities of iron are present. The

arsenic tends to become immobilized with the formation of the iron oxides during the weathering process. The average arsenic content of soils is given by Hawkes and Webb as 5 ppm and the range from 1 to 50 ppm. The arsenic content in the soils may be increased 100-fold or more over gold ore bodies.

Mercury probably is not as easy to use as arsenic and geochemists are not in complete agreement on how it should be sampled. Because it is volatile, it may be liberated as a gas and travel for considerable distances, either vertically or laterally, from its source. Some geochemists believe the mercury vapors to be more diagnostic than the element or its compounds in the rocks or soils. Plastic hoods are used to capture the mercury vapors escaping at the ground surface. The mercury unites with pure silver in the apparatus and is later analyzed in the laboratory. This procedure is possibly too complicated and expensive for the average prospector. Air temperature and barometric pressure should be recorded and their effects considered in interpreting the results.

Not all workers will agree, but I have found the total mercury content of the soil samples to be useful in searching for buried gold deposits. Hawkes and Webb have reported a range of .03 to .3 ppm mercury in soils. Values as low as .08 ppm may be important in delineating target areas where the background is .03 or .04 ppm.

A work of caution should be given here. Mercury determinations should be made as soon as feasible after the samples have been collected. It has been found that samples stored separately for a period of time tend to lose some of their mercury values due to volatilization. Also, low grade samples may be contaminated by higher grade mercury-bearing samples if stored together.

Tract List Made Available for Proposed Offshore Oil and Gas Sale (OCS 45 in Bering Sea)

(from a BLM news release, Mar. 16, 1976)

A list of 299 tracts totaling about 1,682,389 acres (680,853 hectares) in the southeastern Bering Sea area offshore Alaska has been tentatively selected for intensive environmental study as the subject of a draft environmental impact statement. The area is proposed for an outer continental shelf oil and gas lease sale (OCS 45) tentatively scheduled early in 1977, the Department of the Interior's Bureau of Land Management announced today.

The list of tracts is available from the Manager, Bureau of Land Management, Alaska OCS Office, P.O. Box 1159, Anchorage, Alaska 99510, or the Bureau of Land Management (720), Department of the Interior, Washington, D.C. 20240.

BLM issued its call for nominations and comment on the southeastern Bering Sea OCS area on December 17, 1974, for an area totaling 3,619 tracts covering 20.6

million acres (8.3 million hectares). The tentative selection of 1.7 million acres was made from an area totaling 16.5 million acres (6.7 million hectares) which was nominated by the petroleum industry for consideration if a lease sale ultimately were held.

Selection of the 1.7 million acres was based in part on opinions of various concerned Federal agencies regarding the extremely sensitive and unique ecological habitat of Bering Sea offshore waters, BLM said.

Major U.S. and international commercial fisheries exist in this area, as do subsistence fisheries for the Alaskan natives. In addition, the St. George Basin, a subsea geologic area of that part of the Bering Sea under study, encompasses migratory routes and breeding and feeding grounds for many fish, mammal, and bird populations. The St. George basin is a prominent declivity (or downward sloping) in the broad, shallow shelf of this area of the Bering Sea regarded by scientists as being among the most biologically productive waters in the world.

The tentative selection area touches on migratory routes and/or feeding or fishing grounds to some degree, but many environmentally critical regions have been eliminated from considerations for leasing.

For example, not selected for ultimate lease sale consideration was approximately 1.8 million acres in an area of upwelling which brings to the surface nutrient-rich waters crucial to the biologic health of the entire Bering Sea area and to many north Pacific Ocean species.

A multi-disciplinary team of scientists and other environmental specialists based in the Bureau's Alaska OCS Office in Anchorage will begin preparing the draft environmental impact statement.

In order to obtain the maximum public input in the preparation of this statement, BLM will invite Federal agencies, State and local governments, and a wide variety of professional groups and private organizations to participate through in-depth consultation and coordination.

The impact statement will reflect early findings of an on-going intensive assessment or baseline study of the environment in this key Alaskan OCS area.

The proposed planning schedule released in June 1975 shows the lease sale for the Bering Sea tentatively scheduled for March 1977. The Alaskan OCS sales in this schedule are currently under review in an effort to find ways to better harmonize the needs of Alaska and the energy needs of the Nation. The State of Alaska has been asked to participate in this review.

All of the tracts are between 35 and 125 miles offshore in subarctic waters from 345 to 460 feet deep (105 to 140 meters). This area lies generally on a northwest-southeast line between the Pribilof Islands and the eastern end of the Aleutian Island chain.

The decision to target specific tracts for environmental study and write an impact statement which weighs potential impacts and considers alternatives

does not mean that these tracts will actually be offered in an OCS lease sale, BLM emphasized. It only means that the target area for an impact statement has been specifically pinpointed for study.

UA Cooperative Extension Center has d-2 Book

A free booklet describing the different proposals concerning d-2 lands is available. Individual copies of "Alaska's National Interest Lands (d-2) - A Summary of Current Congressional Proposals," are free; however, people requesting quantities of the report may have to pay a modest fee. To obtain your copy, write University of Alaska, Cooperative Extension Center, Fairbanks, AK 99701 (c/o Alan Epps).

DGGS Releases Special Report, Five Open-File Reports

A new special report and five open-file reports are for sale.

Special report 12, "Alaska's uranium potential," will be available in early June, according to the printer. Originally written in 1975 for the U.S. Energy Research and Development Administration by Gilbert R. Eakins of DGGS and Robert B. Forbes of the UA Geophysical Institute, this long-awaited report delineates the uranium potential of the state, section by section. Because it is so large (382 pages, 5 large blue-line plates—scale 1:1,000,000), the report with maps will sell for \$10, the cost of reproduction (all proceeds go into the state general operating fund). The report may be obtained from any DGGS mining information office (p. 1). Extra maps were made; they sell for \$4 per set. The abstract follows.

Of the various geographical regions in Alaska that were examined in an exhaustive literary search for the possibility of uranium—either vein type or sedimentary—six offer encouragement: the Copper River Basin, the alkaline intrusive belt of west-central Alaska and Selawik Basin area, the Seward Peninsula, the Susitna Lowland, the coal-bearing basins of the north flank of the Alaska Range, the Precambrian gneisses of the USGS 1:250,000 Goodnews quadrangle, and Southeastern Alaska, which had the sole operating uranium mine in the state.

Available from Petroleum Publications, 409 W. Northern Lights Blvd., Anchorage 99503, are the following new open-file reports:

AOF-71, Geochemistry of stream-sediment samples of the southwestern Ambler River quadrangle, Alaska, by G.H. Pessel (map—scale 1:200,000, 2 foldout tables, 3 pages text). \$4.60 postpaid, \$4.00 over the counter.

AOF-88, Geochemistry of stream-sediment samples of the southeastern Baird Mountains quadrangle, Alaska, by G.H. Pessel (map—scale 1:200,000, 5 foldout tables, 3 pages text). \$7.10 postpaid,

\$6.50 over the counter.

AOF-96, Geologic map of south Augustine Island, lower Cook Inlet, Alaska, by R.T. Buffler (map—scale 1:63,360, 3 pages text). \$3.30 postpaid, \$2.80 over the counter.

AOF-97, Preliminary geochemical report of the western Healy D-1 quadrangle and vicinity, Alaska, by W.G. Gilbert and J.T. Kline (map—scale 1:63,360, 1 page text). \$3.50 postpaid, \$3.00 over the counter.

AOF-99, Lode claim groups of the southwestern Brooks Range copper belt, Ambler River and Survey Pass quadrangles, Alaska (Filed prior to January 1976), by J.T. Kline (2 maps—scale 1 inch:1000 feet, 1 page text). \$5.80 postpaid, \$5.15 over the counter.

In a related matter, several DGGS staff members contributed to a recently released U.S. Geological Survey open-file report. "Bouguer gravity map of Alaska," a 1:250,000,000 compilation, listed P.L. Dobey, S.W. Hackett, W.M. Lyle, and G.H. Pessel as contributors. The open-file report (No. 76-70) may be examined at the USGS Anchorage office, 508 2nd Ave.

Ona McBride, mining information specialist in the DGGS Anchorage office, has some 1971 DGGS annuals left; they were thought to be out of print. Drop her a line (823 E. 4th Ave., 99501) and she'll be glad to send one. The DGGS 1974-75 biennial report is still available from any office; they are also free.

Age of Howard: Two Months. Me: Ten (from *The Ore Bin*, March 1976)

*The Tumult and the shouting dies,
The captains and the kings depart—*

It was grand while it lasted. Who could have guessed that a tongue-in-cheek offer to provide genealogical services for Pet Rocks would find column space even in a small-town weekly? The idea was sent to Phil Brogan, a columnist for the Oregonian, who sent the story to the paper. The Oregonian front-paged it; the wire services moved it nationally; and in one week newspapers, radio, and television all over the country picked it up.

Then the Pet Rock owners began coming in, wanting to KNOW their rock: "How old is it?" "Where did it come from?" "How did it get that way?" Of course we had no form to record this information, but geologists and their secretaries are good improvisers and in a few hours we had a supply of certificates, a rubber stamp that said "GENUINE," and a square of black velvet for the Pet Rock to rest on during the consultation. All this, plus a brochure on rocks and minerals of Oregon, for \$1.00.

As the media did its work across the country, Pet Rocks arrived from nearly every state in the union. They came in envelopes, mailers, little fancy boxes, tubes, and

big fancy boxes—by parcel post or first class, and some even Registered with “return receipt requested.” Most people included a news clipping—as if they doubted the offer was real. Quite a few letters arrived with the clipping and a dollar—but no rock. We are experts, but working up a genealogy on an unseen rock described as “round and gray” exceeds our not inconsiderable abilities.

Our low public profile has now been elevated a bit. Most Pet Rock owners had never heard of the Department and were amazed to learn that we cared about rocks, landslides, volcanic eruptions, sand and gravel, fossil fuels, even about vacation places.

The public, we found, value an escape from reality for a buck and were glad to learn about rocks, minerals and geologic phenomena along with it. We learned some psychology with our Pet Rock Genealogy caper, too. Most of the letters were clever, some straight business, others rather chatty, but the one we like the best came from Secaucus, New Jersey, which, after the usual request that the rock, named Howard, be returned promptly and unharmed, ended with, “Age of Howard 2 months, age of me 10.”*

Texas Firm to Fly Radiometric and Magnetic Survey in Alaska for ERDA'S National Uranium Resource Evaluation Program (from ERDA News Release, Mar. 30, 1976)

A \$568,800 notice of award has been sent to Texas Instruments, Inc., of Dallas, Texas, to conduct an airborne radiometric and magnetic survey in Alaska for the Grand Junction (Colorado) Office, Energy Research and Development Administration (ERDA).

The notice of award, signed with Bendix Field Engineering Corp., ERDA's prime contractor at the Grand Junction facility, specifies that Texas Instruments will survey 24 National Topographic Map Series quadrangles—three two-degree quadrangles and 21 three-degree quadrangles (mostly in southwestern Alaska—Ed. note). The Dallas company, using an instrumented DC-3 aircraft, will fly 20,500 line miles on 6.25-mile (10 Km) spacing oriented on an east-west direction, and with 25-mile spacing on north-south tie lines. Nominal ground clearance will be 400 feet.

The aircraft will carry a scintillation gamma-ray detection system with sufficient theoretical sensitivity to detect changes in concentration in broad sources of one part per million (PPM) of uranium at a level of four PPM, two PPM of thorium at the eight PPM level, and 0.25 percent potassium at the one percent level. The plane will carry multichannel analyzers, a magnetometer, and digital instrumentation to record outside tempera-

ture and barometric pressure.

The survey will take about 56 days of flying time, and—weather permitting—is scheduled for completion about the end of October 1976. The Texas Instruments report will be published by quadrangles and placed on open file as soon as the airborne gamma-ray and magnetic survey data reduction is completed and the reports are written.

The contract with Texas Instruments is part of the ERDA Grand Junction Office on-going National Uranium Resource Evaluation (NURE) program, which includes the development and compilation of geologic and other information to assess the magnitude and distribution of uranium resources in the United States, and to determine areas favorable for the discovery of uranium.

Bureau of Mines Seeks Contractor

(from the Fairbanks Daily News-Miner, Apr. 15, 1976)

The Bureau of Mines is seeking contractors qualified to evaluate the mineral potential of some 7 million acres adjacent to Mt. McKinley National Park and 2.6 million acres near Lake Clark.

The areas are part of federal lands totaling 83 million acres that the Interior Department has proposed to include in the national system of parks, refuges, wild and scenic rivers and forests under section 17 D(2) of the Native Claims Settlement Act.

The department proposes the Lake Clark area as a new national park by the department, while the Mt. McKinley area includes proposed additions to the park, plus adjacent federal lands.

The bureau is seeking proposals from mining consultants and engineering firms familiar with Alaskan conditions. The proposals should be submitted to the branch of contracts and grants of the Bureau of Mines, Washington.

Commission Responds to “No Mining Bill”

(from Alaska Construction & Oil, April 1976)

The Joint Federal-State Land Use Planning Commission for Alaska has unanimously adopted a recommendation to the U.S. House of Representatives that a part of Glacier Bay National Monument be excluded from a bill that will ban all future mining activities within six National Parks and Monuments.

The area in question lies on the Pacific Coast side of the Fairweather Mountain range, approximately 35 miles west of Glacier Bay and is known to contain valuable deposits of nickel.

The Commission made clear that their action is not a final position on this issue but felt that the resources of area merit a complete study prior to any final action. The inclusion of this area in a bill before the U.S. House of Representatives would foreclose all options on this

*PET ROCK GENEALOGY—Send \$1.00, your rock, and return postage to Oregon Dept. of Geology, 1069 State Office Bldg., Portland 97201

matter. Action is pending before the Public Lands Subcommittee, U.S. House of Representatives. The Senate has passed on the question and their action would close the entire monument to mining. The Commission is scheduled to discuss the issue at this month's meeting.

Alaska Seeks Buyers for Royalty Oil (from *U.S. Maritime Monthly*, April 1976)

Alaska Governor Jay Hammond announced that a nation-wide solicitation has begun to seek potential purchasers of State royalty oil who plan to process or use the oil within Alaska.

According to the Governor, "The solicitation, carried out by the Department of Natural Resources, has the objective of bringing to light all existing interest in processing or using North Slope royalty oil within Alaska, either for existing or new facilities. Because of the possibility of oil surpluses on the West Coast at the time Prudhoe Bay oil flows, the State must begin to immediately investigate all alternatives for the sale or use of its royalty share. The most important of these alternatives, of course, is in-State use."

The solicitation, contained in a letter signed by Commissioner Guy Martin, Chairman of the Alaska Royalty Oil and Gas Board, sets a deadline for receiving purchase proposals of June 10, 1976, at which time a sale will be considered based on the offers present at that time.

Binocular Prospect Reached (from a *Geneva-Pacific news release*)

Recently, a two-man team from Geneva-Pacific, Corp., Evanston, Illinois geologically sampled the long-time-studied but seldom-reached "Binocular Prospect" in the southern flank of the Wrangell Mountains, 250 miles east of Anchorage and 15 miles south of McCarthy.

Using a helicopter to reach the site, located in the McCarthy quadrangle, the men were able to take about 200 pounds of channel samples in less than 2 hours from a location once considered inaccessible. Modern methods have opened up the hard-to-reach areas of Alaska and given geologists and prospectors new frontiers to explore.

Technological advances have aided in the work of discovering what lies behind the copper stains of the Binocular Prospect. Assays from the channel samples, although considered minimum values due to their strongly weathered conditions, showed three samples to be more than 20 percent copper and several to be in the 5 to 12 percent range. One sample had a 29.45 percent copper content. Accompanying silver values of up to 1.5 ounces of silver per ton were also present.

Until recently, the rugged inaccessibility of the area had limited geological studies to long-range photography and to binocular viewing (hence its name). Martin

Radovan, an early prospector in the area, reached the mineral prospect in the summer of 1929. Radovan and his wife spent several months just carving a route in the sheer face of the mountain. The rest of the summer was spent collecting samples in the stained area which indicated potential copper mineralization.

Alaska has entered a new age where out-of-the-way areas can be reached more easily for mineral explorations. Even road access to the Geneva-Pacific Corp. claims has been improved, enabling the company to truck operating equipment and supplies to its base camp. The State of Alaska is working on maintenance on roads and bridges in the region. Geneva-Pacific has constructed 11.5 miles of basic roads in its claim area.

Doyon Still Sinking Exploratory Well (from the *Fairbanks Daily News-Miner*, Mar. 26, 1976)

Doyon No. 1, the first of four exploratory wells to be drilled as a result of the agreement reached last year between Doyon Ltd. and Louisiana Land and Exploration Co., was begun Feb. 17 and has been going down ever since, Doyon announced this week.

The exploratory well is being drilled in the Kandik Basin 160 miles east of Circle on land Doyon obtained under the Alaska Native Claims Settlement Act.

The Fairbanks-based Native regional corporation is the largest of Alaska's 12 regional corporations, and one of the first to get into the petroleum exploration business.

Parker Drilling Co. is under contract to drill the test well at the remote site. The drill rig is an all-new, enclosed, winterized unit capable of drilling to depths of 20,000 feet, yet it can be dismantled in sections for helicopter transport to later locations.

Parker built the rig in Texas, and it was shipped overland to Fairbanks where it was transferred to the drill site by Hercules aircraft.

"We are pleased with the Kandik operation in every phase to date," said John Sackett, president of Doyon. "Our agreement has a lot of tough environmental stipulations and LL&E is bending over backward to comply.

"Naturally, we hope to find gas and oil, but for the short-term we can say that the LL&E-Doyon agreement has created more than 150 jobs in the Kandik area, mostly filled by Alaskans both Native and white," Sackett said. "We are proud of that."

"We are working closely with the various governmental agencies and when we complete this adventure, it will be a job well done," he said.

The Kandik Basin is a virtually unexplored area north of the Yukon River and west of the Canadian border. State of Alaska figures estimate its speculative recoverable petroleum reserves at 1.5 billion barrels of oil and 7.3 trillion cubic feet of natural gas, although no actual exploration was done until the Doyon activities got underway last year.

Two Volcanoes Named Landmarks

(from the Fairbanks Daily News-Miner, Mar. 20, 1976)

Two of the more than 80 volcanoes in Alaska have been singled out for special national recognition by the Department of Interior.

Interior Secretary Thomas S. Kleppe recently announced the addition of Mts. Iliamna and Redoubt to the National Registry of Natural Landmarks.

Both snow-capped cylindrical cones are located in the Aleutian range and are included in the national park service's Lake Clark proposal.

Such landmark status aims at encouraging owners to preserve nationally significant natural values, but the designation does not affect ownership or use of the areas, a national park service spokeswoman said Friday.

The landmarks program was launched in 1963 and some 421 areas since have been recognized as natural landmarks.

Mr. Iliamna's summit is 10,016-feet high, with more than half the mountain towering above the rugged Aleutian chain. Ten glaciers radiate from its crown and although it has been exuding puffs of white smoke for several years, its present volcanic activity is minimal.

Strikingly visible from the shipping lanes of busy Cook Inlet, the mountain is located about 125 miles southwest of Anchorage.

Mt. Redoubt is about 160 feet taller than Mt. Iliamna and is the second-highest of the 76 major

volcanoes of the Alaskan Peninsula and Aleutian chain.

Its most recent volcanic activity occurred four years ago, and its base is about six miles in diameter. Visible from Alaska's largest city, Mt. Redoubt is located 110 miles southwest of Anchorage.

Northgate and Westfield Continue Alaska Drilling—65 Holes Completed

(from The Northern Miner, Mar. 18, 1976)

Northgate Exploration and Westfield Minerals have completed 65 holes from ice in the shallow offshore drilling program at their Daniels Creek gold placer concession near Nome, Alaska.

For the most part, these holes have been drilled in a grid covering five sections extending over an area up to 2,500 ft. from shore. This program is continuing and it is expected that in excess of 100 additional holes can be drilled in the approximate 3-week period before ice conditions deteriorate.

Some 400 samples have been assembled for quantitative test and assaying at the Lakefield Research laboratory in Ontario.

Assays from two 4-ft. sections of one hole are now available. Samples from these sections indicate a contained gold value at current prices of about \$77.50 per cubic yard in the upper 4-ft. section and the subsequent 4-ft. section running about \$7.50 per cubic yard or, averaged over the sampled 8-ft. section, a value in excess of \$42 per cubic yard. These assays should not be considered representative as visually this section appears to be the best to date.

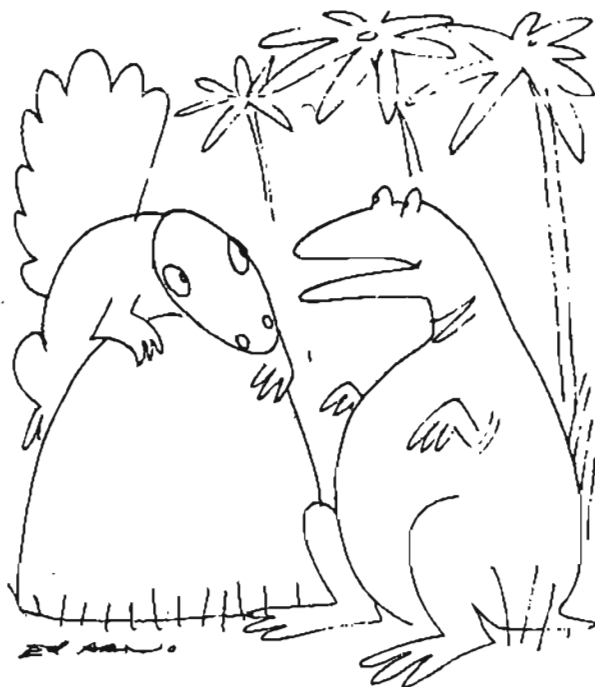
An Alaskan (U.S.A.) company, Westpark Exploration Ltd., was incorporated for this project and Westfield and Northgate jointly hold 66-2/3% of the equity in Westpark.

U.S. Borax Confirms Promising Find of Molybdenum

(from Alaska Business News Letter, Mar. 19, 1976)

Officials of U.S. Borax have confirmed widespread reports of a promising molybdenum find in the Ketchikan area, but the company stopped short of a commitment to develop the mineral.

The announcement in Ketchikan revealed results of an extensive exploration program conducted in Southeast Alaska over the past five years. The mineralized area was first discovered in the fall of 1974. The area covers almost one square mile and is located 45 miles east of Ketchikan at an elevation of 2,000 feet, five miles inland from tidewater. Drilling to date, according to company officials, indicates a potential ore body in excess of 100 million tons, most of it near the surface, which would permit open pit mining. The potential



"It could never work out for us; you're at the end of the Pleistocene period, and I'm at the beginning of the Mesozoic period."

for increasing the tonnage both laterally and at depth is considered excellent, and 235 claims have been filed in the area. However, U.S. Borax will be doing much more exploratory drilling and evaluation before a final decision is made on developing the deposit.

Cost of construction of an open pit mine, a concentrating plant to process 30,000 tons of ore per day, and a dock and other support facilities is estimated now at about \$250 million. The project, if brought into production, would employ 700 to 1,000 during the construction phase and about 500 workers on a full-time basis thereafter. Ketchikan would be the mine's major supply base.

Correction....

The March M&G Bulletin quoted the Western Miner magazine in their January 1976 issue (p. 24): "Since the closure of the Kennecott Copper operations in 1938 there have been no hard rock mines working in Alaska, and the main activity is in a coal mine and several gold dredges."

Two Bulletin readers wrote us and pointed out the error in that statement. Mr. Don Ross of Ketchikan questioned the article. He was a partner in the highly successful Ross-Adams uranium mine near there, and got to wondering about his residency. Last he had heard, he said, Ketchikan was still in Alaska.

Another astute reader, Ms. Rose Palmquist, of Anchorage, said that the Kenai Chrome Company conducted hard-rock chromite during the 1950s. Not only that, she said, but the company paid back in full its substantial government loan in record time.

Thank you for your response and for setting us straight.

Scientists Eye Steaming Mount Wrangell (from USGS Earthquake Information Bull., Jan-Feb. 1976)

Increasing amounts of steam being emitted from the summit crater of 4,317-metre Mount Wrangell in the Wrangell Mountains of Alaska are being watched closely by scientists of the U.S. Geological Survey (USGS) and the University of Alaska.

The Wrangell Mountains are a spectacular range of the Pacific Mountain system in south-central Alaska, characterized by striking relief with several peaks higher than 4,500 metres, and deeply glaciated valleys.

Mount Wrangell has been a special target for observation for the past 20 years because the heat flow has been slowly increasing and the number of fumaroles in the mountain's summit caldera has increased steadily during that time. This year, however, the flow of heat and the amount of steam being emitted increased at a much greater rate and a much larger number of fumaroles have developed—indications of an increasingly

"restless" volcanic mountain.

The picked-up tempo of volcanic activity at Mount Wrangell has spurred an intensified monitoring program by three scientists who have been making periodic observations of the mountain during the last decade: Dr. Carl Benson, a professor at the University of Alaska's Geophysical Institute; Dr. Tom Miller, an igneous petrologist, and Larry Mayo, a glaciologist, both of the U.S. Geological Survey's Anchorage, Alaska office.

Benson, a veteran observer of Mount Wrangell, has made at least one field trip a year to the top of the mountain to conduct his investigations. Miller and Mayo have supported Benson's ground observations by making observations from aircraft.

The scientists have been focusing their attention on the summit caldera of Mount Wrangell, an irregular oval about four miles long and two miles wide, covered with ice.

The scientists report that the recent activity at Mount Wrangell is marked by an increased melting of snow which has destroyed ice dams that normally do not melt. The ice dams had held back the water in one 50-metre diameter lake at the caldera. With the destruction of the ice dams, water from the lake has been released into the surrounding ice field. Another sign of the increased volcanic activity this year, the scientists said, is the increase of the height of steam columns coming from fumaroles; steam from one fumarole was observed to reach a height of about 35 metres.

If the heat continues to increase, several mudslides could develop, the scientists said. They strongly emphasized, however, that if mudslides should develop, the slides would not pose any immediate threat to people or property. The nearest town is Glenallen, about 240 kilometres to the west, with a population of about 2,000. A closer area, about 89 kilometres to the west, is now undergoing intense development because of work on the Alaska pipeline. About 6,000 people are in construction camps in that area.

Although the increased activity at Mount Wrangell does not necessarily mean that an eruption will take place, the scientists would like to determine the causes of the present increase of heat flow from the mountain, and attempt to pick up some clues about its future behavior.

No eruptions from Mount Wrangell have been noted in recorded history; however, geologic evidence indicates that gaseous and lava eruptions have taken place in the last 2,000 years. During the last 60 million years, the geologic history of the area has been dominated by volcanic activity; in fact, much of the scenic grandeur of the range is attributable to the widespread occurrence of these recent volcanic rocks, mostly lava flows.

Mount Wrangell is the third volcano in the United States undergoing a special monitoring by USGS sci-

entists. Mount Baker, in northwest Washington, has been emitting unusually large amounts of steam and ash clouds since about mid-March and Mauna Loa, on the Island of Hawaii, after a quiet period of 25 years, erupted fountains of lava July 5-6 of last year.

Augustine Aftermath?

(from NW Mining Association newsletter, March 1976)

All environmental awareness should be focused on the Alaska Volcano eruption which was in the news recently. Several thoughts come to mind:

- Which agency will sue for degradation of the environment?
- Will the effect on man receive equal billing with the effect on the birds, bees, fish and posies?
- Will the suit be filed in Rome, Salt Lake, Palestine, New Delhi.....?
- Will the suing agency's bright young counsel walk over the affected waters to view damage first-hand?
- Will the suit acknowledge that Mother Nature regurgitated more particulates and SO₂ than all of mankind has produced in its many thousands of years?

Environmental life sure do get tedious, don't it?

College has New Office Hours for Claim Information

The mining information office in College is now open to the public from 1 to 4 p.m. only. This reduction in hours of public access has been necessitated because the office, in the words of information specialists Carole Stevenson and Pat Dieterich, "is being booted into the midst of the 20th century."

The mornings are now being devoted to converting the information now on the Kardex file onto a new microfiche system. The Kardex information has been transferred to a computer, and the computer listings are being reformatted to be compatible with the microfiche. With the new system, the data previously contained on the Kardex (name of claim owner, claim name, and coordinate description) will be quickly shown on the microfiche screen—all cross referenced. The microfiche is now installed and operational—for some of the claim information, that is.

The mining information girls are also using the mornings to help convert all the DGGGS documents currently on file onto microfilm. The College office will later obtain a microfilm reader and printer—possibly late this year.

The staff thanks the public for the patience already exhibited, and asks your continued cooperation in bearing with them during the coming months. The resumption of regular office hours will be announced in a future M&G Bulletin.

Our Gangue.....

by Frank Larson, DGGGS editor

After a long winter, it's finally that time of year—You know: When a young man's thoughts turn to mush (well, at least ordinary young men). The young bucks of DGGGS, however, do not idly while away their time on traditional thoughts of birds on the wing, Elysian fields of flowers, or maidens in gossamer gowns walking on the heather. No indeed. To them, the budding Alaskan springtime brings visions of scintillometers, helicopters, chalcopyrite, and messplates of hot steaming Dinty Moore beef stew....Aberrated? You bet. Not only that, but the passage of time accentuates this bizarre behavior....June and July will find them clambering up near-vertical faces of mountains, battling wind in their faces and rain down the back of their necks, fighting neverending swarms of mosquitoes, and voraciously digging into their home-cooked daily swill—smiling happily all the while.....As time wears on, though, life in the bush will begin to pall and our young men will begin to see mosquitoes, bears, and dancing cans of stew in their sleep. Oh, it's not that they miss the commonplace sights of civilization—the bright lights, the hustle and bustle, the ubiquitous Alyeska trucks. No, it is other things, little things, that they begin to miss.... August will find them wistfully recalling such urbane trappings as a hot shower, a frosty brew, a meal without a bunch of white and yellow lumps swimming in a brown mess, or the boon companionship of a female (and she wouldn't even have to be a fellow geologist).... September will find "termination dust" on the hills and the DGGGS young bucks back in civilization, with haircuts and clean undergarments, sitting at their desks, painstakingly writing (well, printing) essays on how they spent their summer vacations....But do you know, by the time Thanksgiving rolls around, they may be found in the stores, staring wistfully at the pretty stacks of canned beef stew and thinking about the coming spring? Incredible....Alaska Gold Company (UV Industries) hopes to have their second gold dredge (no. 6) in operation this summer (and, depending on the price of gold, they may decide to put in a third dredge, but it would have to be transported to the Nome area—a consideration might be the idle dredge in Ester, near Fairbanks). The sole dredge they had operating for part of last summer, the No. 5, accounted for 7,791 ounces of the yellow stuff....Well, 'tis time to bid farewell to our young men for the summer. Now don't worry about anything back here in town, gangue. Just go do your thing. Go run up and down the mountains with your knapsacks full of rocks (the Beatles once wrote a song about you guys, you know—it was called "Fool on the Hill"), and ol' Frank will handle your problems for you—problems like comforting lonesome wives and girlfriends and helping the new Anchorage brewery get off to a running start. (After all, what're friends for?).....Cheers.

Metals Market

	<u>April 30, 1976</u>	<u>Two Months Ago</u>	<u>Year Ago</u>
Antimony ore, stu equivalent			
European ore	\$ 21.50-23.00	\$ 17.00-18.50	\$ 21.25
Barite (drilling mud grade			
per ton)	\$ 17-28	\$ 17-28	\$ 17-21
Beryllium ore, stu	\$ 40-42	\$ 40-42	\$ 30.00
Chrome ore per long ton (Transvaal)	\$ 36-42	\$ 36-42	\$ 35.00
Copper per lb. (MW-prod.)	\$ 0.70	\$ 0.63	\$ 0.63
Gold per oz.	\$128.40	\$131.20	\$170.75
Lead per lb.	\$ 0.22	\$ 0.19	\$ 0.245
Mercury per 76-lb. flask	\$132.00	\$125-130	\$159.00
Molybdenum conc. per lb.	\$ 2.90	\$ 2.62	\$ 2.43
Nickel per lb. (cathode)	\$ 2.20	\$ 2.20	\$ 2.01
Platinum per oz.	\$161.00	\$155.00	\$149.00
Silver, New York, per oz.	\$ 4.46	\$ 4.10	\$ 4.35
Tin per lb.	\$ 3.61	\$ 3.26	\$ 3.53
Titanium ore per ton (Ilmenite)	\$ 55.00	\$ 55.00	\$ 55.00
Tungsten per unit (GSA domestic)	\$ 86.00	\$ 81.93	\$ 84.21
Zinc per lb.	\$ 0.37	\$ 0.37	\$ 0.3885

State of Alaska
 Department of Natural Resources
 Division of Geological & Geophysical Surveys
 P.O. Box 80007
 College, Alaska 99701

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