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*Mining information office.

DGGS Field Parties Report In

The various field parties of DGGS have reported in after a typical summer—that is, continuous rains, blown-down tents, mosquitoes, the vagaries of helicopter logistics, nightmares of canned beef stew, intractable bears, and, in one instance, temperamental horses. A synopsis of the progress in the mineral-resource and geologic-hazards investigations follows.

Coal Investigations

D.L. McGee and M.D. Howland concentrated efforts along the lower drainage of Coal Creek (near Beluga Lake) and the Sunshine Creek and Camp Creek areas near Chelatna Lake in a continuing program to evaluate the coal-bearing sediments of Alaska.

About 1 week was spent in examining a small area of coal-bearing Tertiary sediments in the Willow Creek area. The outcrop areas are small and the rank of the coals, which appear thin, is lignite or subbituminous C. The remaining time was spent examining the contact between the schist and the Arkose Ridge Formation in the southwestern part of the Talkeetna Mountains.

Hydrological Activities

Data from wells, lakes, and streams were collected in the Wasilla area for a proposed Hydrology Atlas series to be published by DGGS. These data are being collected in a cooperative study with the USGS Water Resources Division.

The new Chena River Recreation Area, near Fairbanks, was investigated for the Division of Parks. The purpose of the study was to identify and map areas that would pose potential danger in times of flood. The study also included finding recreational areas—particularly campsites—where flood dangers would be minimal.

DGGS also entered into a joint investigation with the USGS to examine the surface waters of the Beluga coal field. Stream discharges and water quality will continue to be studied.

Lyman Hills Project

During July and August W.G. Gilbert, assisted by G.M. Laird, completed geologic mapping and mineral resource evaluation of about 250 square miles along the Cheeneetuk River in the McGrath and Lime Hills Quadrangles. The study identified several Paleozoic carbonate units in high-angle and thrust contact with one another. Contrasting upper Paleozoic(?) units may provide evidence for lateral displacement along the Farewell fault. About 150 stream-sediment and rock samples were collected for geochemical analysis.

Lake Clark Project

During June G.R. Eakins, W.G. Gilbert, and T.K. Bundtzen completed geological mapping and mineral resource investigations of about 1,285 square miles in the Lake Clark Quadrangle. Bedrock units include Upper Silurian greenstone in the north-central part of the map area and pre-Cretaceous biotite schist in the southeast

part of the map area. Northeast-trending, northwest-dipping, interbedded marine volcanoclastic sandstone, siltstone, and shale of probable Upper Jurassic age is present throughout the area. Late Cretaceous-Paleocene quartz monzonite, diorite, dacite porphyry, rhyolite, basalt, and pyroclastic rocks intrude and overlie older rocks. The northern part of the map area contains a conjugate system of northeast- and northwest-trending high-angle faults. Several mineralized zones and pan-concentrate and stream-sediment anomalies containing copper, molybdenum, lead, silver, gold, tungsten, and tin are present in the project area. Recently released DGGS open-file report 118, "Preliminary bedrock geology and mineral resource potential of west-central Lake Clark Quadrangle," summarizes the results of this 2-year project (p. 8).

Surficial Geology of Lake Clark Quadrangle

J.T. Kline spent June 4 through 15 field checking photointerpretation of surficial geology in the Lake Clark B-4 thru -7, C-4 thru -7, and D-4 thru -7 Quadrangles. Several high-level deltas and kame deltas and extensive lacustrine deposits in the lower Koksetna River drainage indicate the presence of large late Wisconsinan glacial lakes. Faults that appear to have been active in Holocene time were investigated for evidence of recent movement. Evidence of relative extent and directions of movement of late Pleistocene ice was examined and a tentative chronology based on relative position and surface morphology of glacial features has been established. Mapping in the area is at a scale of 1:63,360. Final maps and a report are in preparation.

Norton Sound-Yukon-Kandik Regions

In this cooperative field project between the USGS and DGGS to evaluate oil and gas potential and geologic constraints in the western Alaska coastal areas, 8,000 feet of Cretaceous and Tertiary(?) sections were measured and 236 rock samples were collected. In addition, about 20 samples of basic volcanic rocks were collected from the St. Michael area for petrographic and chemical analyses. Fossils of plants and clams were also collected for refined age determinations of the sedimentary rocks.

Rocks of both marginal marine and nonmarine origins may have some oil or gas potential; however, lab analyses must be completed before publication. Areas to be documented will include Bethel, Nelson and Nunivak Islands, Great Ridge, Cape Romanzof, and the Eek Mountains.

A variety of surficial deposits were briefly inspected in coastal areas from Cape Rodney to Pastol Bay. The immediate objective was to provide ground truth for preliminary photointerpretation maps of the surficial geology. As part of this project, beach profiles were surveyed at selected stations previously surveyed by the USGS to compare changes. Geologic factors that should be considered in the event of future coastal development include storm flooding of low-lying coastal areas and potential ground ice in permanently frozen, uncon-

solidated deposits.

The combined 1-month field project was carried out by I. Palmer, J. Bolm, and T. Flett of the USGS and W.M. Lyle, J.R. Riehle, K.S. Emmel, and J.A. Morehouse of DGGS.

Surficial Geology of the Southwestern Talkeetna Mountains

J.T. Kline and E.M. Rhoads spent June 20 through August 8 mapping and field checking photointerpretation of the surficial geology and natural hazards in the upper drainage of the Little Susitna River. Horses were successfully used as a means of transportation during the project. Mapping is at a scale of 1:24,000.

Several derivative maps are planned to accompany the basic surficial geology map, including a natural hazard map, a map showing former glacial extents, a slope map, and a geologic materials map. Preliminary maps are presently being prepared and are tentatively planned for open-file release next spring. A geologic report and map of the entire proposed Hatcher Pass Recreation Area is planned for release in 1980.

West Shoreline, Lower Cook Inlet

Four DGGS personnel (K.S. Emmel, M.D. Howland, C. Price, and J.R. Riehle) together with B. Molnia (USGS) worked along the Cook Inlet shoreline from West Forelands south to Chinitna Bay for 1 week in June to delimit the extent, thickness, and physical characteristics of the various unconsolidated deposits in the area. Additional coastal-zone efforts were examining shoreline erosion and deposition and taking gravity measurements (at about 25 stations).

Preliminary conclusions are that most of the shoreline from West Forelands south to the mouth of Tuxedni Bay is actively eroding, although over small intervals the base of the seacliffs appears to be protected from waves by beach deposits. Tertiary rocks are exposed in seacliffs at Redoubt Point and up to 3 miles south of the mouth of Katchin Creek in Redoubt Bay. Between those areas (as well as in seacliffs at West Forelands) is a pebble- and boulder-bearing diamicton that has given rise to numerous mudflows and landslides, especially along seacliffs between Harriet Point and Redoubt Point.

Lab analyses will include microscope examinations, mechanical analyses, and one radiocarbon age determination. All data will be included in preliminary photointerpretation maps of the surficial deposits, available in 1979.

Surficial Geology of the Wasilla-Palmer Area

R.D. Reger and C.L. Daniels spent June 20 through July 26 verifying photointerpretation and plotting surficial geology on newly released 1:24,000- and 1:25,000-scale USGS orthophoto base maps. Parts or all of eight quadrangles were completed this summer, including the Anchorage B-7NW, B-8NE, B-8NW, C-6SW, C-7SE, C-7SW, C-8SE, and C-8SW sheets. Initial photointerpretation and field checking were completed for the

Anchorage C-8NW and Tyonek B-1SE, B-1NE, C-1SE, and C-1NE sheets. Colored geologic and materials maps on orthophoto bases should be published next year.

Upper Kuskokwim Region Investigations

During July and August, T.K. Bundtzen, assisted by G.L. Laird and V.M. Ferrell, conducted inch-to-the-mile geologic mapping of several hundred square miles in the western McGrath and northeastern Iditarod Quadrangles. The study is a continuing project of the upper Kuskokwim region; field work should be completed by 1979.

The entire study area is underlain by the Upper Cretaceous Kuskokwim Group; subsequent heterogeneous intrusive-extrusive complexes of Latest Cretaceous to early Tertiary age have intruded the layered rocks and locally created pervasive contact metamorphic aureoles. Early to mid-Tertiary rhyolite flows, dikes, and pyroclastics evidently overlie the Kuskokwim Group west of the Takotna River.

The Roundabout Mountains and low ranges of hills east of the Kuskokwim River, mapped in part as Paleozoic by previous workers, is believed to be all of the Kuskokwim Group and felsic plutons. North-northeast trending faults and two periods of folding have deformed the layered rocks in the area. About 200 pan concentrates, stream-sediment samples, and mineralized rocks were collected for analyses, and several intrusive bodies are slated for $^{40}\text{K}/^{40}\text{Ar}$ age dating.

Brooks Range Investigations

A seven-man helicopter-supported crew spent 50 days in the Brooks Range continuing last year's geologic studies of the southwestern Wiseman Quadrangle and regional studies of Brooks Range igneous rocks. Detailed geologic, geophysical, geochronological, and geochemical field studies in the southwestern Wiseman Quadrangle will provide a mineral resource evaluation and geologic map of the 1,600-square-mile area. Geologic mapping is now three-fourths completed. Physical rock properties determined from over 100 oriented samples will aid in the interpretation of geophysical profiles constructed from 700 gravity and magnetic stations and from a recently completed aeromagnetic survey. M.W. Henning studied the type area of the so-called Skajit Formation and found that many of its original shallow-water sedimentary structures were preserved despite metamorphism. Fossils collected from the carbonates should provide additional chronological control of stratigraphic units distinguished by relict sedimentary structures. About 300 pan-concentrate and rock samples were collected for assay to complete the cooperative DGGs-USGS geochemical survey of the southwestern Wiseman Quadrangle.

Contact relations of six Brooks Range plutons were examined and samples of the plutons were collected in a petrographic, geochemical, and geochronological test to determine if the plutons are the source of those nearby stratiform 'volcanogenic' ore deposits that are valued in billions of dollars. Recently obtained uranium-lead dates (zircon) from some of the plutons and volcanic

rocks strongly support this hypothesis.

DGGs personnel were J.T. Dillon, G.H. Pessel, M.W. Henning, S.W. Hackett, and C. Price, assisted by D. Wells and K. Corbett.

'Right and Wrong' Now Delineated in Black and White

(from ALASKA Magazine, August 1978)

Two mountains on the Kenai Peninsula, named for a hiking mistake, have been named officially Right and Wrong mountains. The U.S. Board on Geographic Names accepted the names suggested by the Chugach Council of Camp Fire. Each year hikers leave the organization's Camp Kushtaka on Kenai Lake and hike up a mountain across the lake. Some groups over the years have taken a wrong turn and climbed the wrong peak. That mountain became Wrong Mountain and the original destination assumed the name Right Mountain. Right and Wrong mountains are west of Cooper Landing and north of Seward.

Regulations of Office of Surface Mining and Their Effect on Alaska to be Studied

By C.N. Conwell, DGGs mining engineer

As of May 3, 1978 the State of Alaska assumed the responsibility of enforcing the Surface Mining Control and Reclamation Act of 1977. Because many of the 'blanket' regulations do not take into account mines other than in the conterminous United States, Section 708 of the act provides for a separate study by the National Academy of Sciences and the National Academy of Engineering of surface coal mining in Alaska. Items that have been specifically recommended for study, which is to be completed by next August, include:

- 1) Alaska weather. As a state with both an arctic and subarctic climate, Alaska's weather affects mining and reclamation. There is a long winter season in which the temperature will not exceed 32° F.

- 2) Permafrost. The permafrost has many unique effects on mining. The two most important are: a) it may be preferable to place fill directly on the moss or protective cover to prevent the permafrost from melting and causing an even more unstable condition; b) when fine materials in permafrost are disturbed and start to melt, they will run with practically no angle of repose.

- 3) Glacial streams. The glacial streams in Alaska have a very high sediment load. The water-quality standard should recognize the quality of the receiving water.

- 4) Density of population. Alaska's sparse population and isolated area in which mining occurs should be considered in establishing standards. Many of the standards have been set for populated areas; for example, the regulations requiring the publishing of blasting schedules seems unnecessarily burdensome.

- 5) Great variation in daylight. Alaska has almost

total daylight in the summer months and very little in the winter months. Therefore, the regulation on blasting after dark should be adjusted to recognize these extremes—especially for areas above the Arctic Circle, where all winter blasting would be prohibited.

6) Spring breakup. Many streams run for only a month or two following the snow melt, and breakup could result in very restricted mining procedures related to both 'full-time' streams and intermittent streams.

7) Access. This also relates to the density of population. Mining areas in Alaska should have specific corridors and buffer zones for access.

8) Seasonal variation in demand for coal. At the Usibelli mine, the demand for coal is seasonal. The summer demand may drop as low as 1,000 tons a day, versus a fivefold increase in the winter. To maintain a stable staff, fairly large areas of coal must be opened by stripping during the summer months for mining during the winter.

9) Arctic and subarctic soils. Both A and B soil horizons are often missing in Alaska, and a layer of organic material may serve as an insulation pad above what would be ordinarily considered the C horizon, or weathered parent material. These soils usually require additions of the primary plant nutrients of phosphate, potash, nitrogen, or even lime for maximum agriculture use.

10) Stream and river-water temperatures. Alaskan waters are very cold, and cold water inhibits chemical reactions.

11) Land use. The postmining use of land can vary in Alaska with some special uses. For example, the high wall in Vitro West pit of the Usibelli mine now serves to protect Dall sheep from wolves. In other areas, mined land has been reclaimed for agriculture, particularly where the black muck or insulating cover of the tundra has been removed and a new vegetative cover established through use of the proper plant nutrients.

Title VII, Sections 801 through 806 provide for federal assistance to universities in coal-producing states for establishing and maintaining a coal laboratory. In August 1978, 32 universities were so designated, including the University of Alaska at Fairbanks.

UAF Graduate-Level Geology Curriculum Named for First Half of School Year

Students of the Solid-Earth Sciences Program of the University of Alaska—Fairbanks recently started back to school. Among the courses available in the graduate-level Geosciences Department are fundamentals of snow and ice in the environment, geophysical data analysis, astrogeology and planetology, geology of Alaska, crystal chemistry, and ancient Recent sedimentary environments.

The semester runs from September 13 to December 20.

UA Mining Courses Offered

The University of Alaska will offer Mining Extension courses in 10 Alaska communities during the 1978-79 academic year, according to Dr. Earl H. Beistline, Dean of the UA School of Mineral Industry.

Four-week Basic Prospecting courses for beginners will be conducted in Dillingham (beginning 9/25), Fairbanks (10/23), Ketchikan (11/20), Sitka (1/3), Eielson (1/29), Cordova (2/26), Delta Junction (3/26), Anchorage (9/18), Eagle River (11/20), Elmendorf (1/3), and Wasilla (3/13).

In Anchorage, 2-week courses in Geochemical Prospecting (9/18) and Mineral Evaluation (11/6) will be offered. A 3-week course in Rock Identification and colored stones will be held in Anchorage (4/10), Elmendorf (1/30), and Eagle River (2/20), and a 1-week course in Environmental Factors Related to Mining will be given in Anchorage (5/8).

All Mining Extension classes are held in the evening Monday-Friday for 3 hours per session; weekend field trips are arranged by the instructors. Any interested person may attend. For additional information, contact the Dean, School of Mineral Industry, University of Alaska, Fairbanks, 99701 (ph. 479-7388).

Mining of Manganese from Seabeds Must Have Federal Support—GAO

Unlimited seabed deposits of manganese nodules could benefit the US economy in the next decade, but the potential cannot be realized without federal support, according to the General Accounting Office (GAO). In a recent report to Congress the GAO recommended that the Office of Management and Budget designate a primary federal authority to determine the federal role and develop a comprehensive program to implement federal responsibilities in line with national objectives. Mining companies have spent at least \$140 million to develop deep ocean mining technology and will probably invest \$2.1-\$3.1 billion on starting up commercial operations. GAO pointed out two major problems faced by US mining firms which will probably delay mining if left unresolved. The primary problem was said to be a need for mining site tenure at specific locations guaranteed by federal law or international agreement. The second problem is the need for the government to conduct environmental studies and to develop environmental regulations before mining begins to insure that mining equipment, techniques and refineries are acceptable. GAO also stated that seabed mining could make the US a net exporter of nickel, manganese, cobalt and copper and turn a projected \$6-billion balance of payment deficit into a surplus by the year 2000.

Think! It may be an interesting experience.

Grubstake Costs Rise 'Somewhat'
(from Report of the Alaska Territorial
Mine Inspector, 1922)

The following list constituted a season's grubstake for an Alaskan prospector more than half century ago. The figures are Fairbanks prices (pre-Alaska Railroad). Considering the amount of flour and bacon, perhaps the prune allotment could be increased?—Ed. note.

Quantity	Article	Fairbanks Prices
10 lbs.	Apples, dried	\$ 3.00
1 box	Apples, fresh	6.00
10 lbs.	Appricots, dried	4.00
50 lbs.	Bacon	27.50
10 lbs.	Beans, lima	1.75
15 lbs.	Beans navy	2.25
1 doz.	Beef, corned, 2 lb. cans	5.50
80 lbs.	Fresh beef	24.00
1 doz.	Beef, roast, 2 lb. cans	5.50
48 lbs.	Butter, canned or salt pkd.	28.80
1 box	Candles	4.50
6 bots.	Catsup	2.75
10 lbs.	Cheese	4.50
40 lbs.	Coffee	18.00
1 cs.	Corn, canned	5.50
1 cs.	Eggs	18.50
100 lbs.	Flour, graham	8.00
200 lbs.	Flour, white	16.50
50 lbs.	Ham	25.00
10 gal.	Kerosene	7.00

20 lbs.	Lard	5.00
1/2 cs.	Loganberries, canned	4.50
10 lbs.	Macaroni	1.25
1 doz.	Matches, caddies	1.75
50 lbs.	Meal, corn	4.00
4 cs.	Milk, canned	28.00
1 gal.	Molasses	1.75
50 lbs.	Oats, rolled	4.50
25 lbs.	Onion, dried	2.00
1 cs.	Oranges, fresh	16.50
1/2 cs.	Peaches, canned	5.25
10 lbs.	Peaches, dried	3.25
1/2 cs.	Pears, canned	5.25
1 cs.	Peas, canned	5.50
1/2 cs.	Pineapple, canned	5.25
15 lbs.	Pork, salt	3.75
200 lbs.	Potatoes, fresh	15.00
5 lbs.	Powder, baking	3.00
10 lbs.	Prunes, dried	2.50
10 lbs.	Raisins, bulk	3.00
20 lbs.	Rice	2.50
1 doz.	Salmon, 1 lb. cans	4.50
5 lbs.	Salt	.35
2 bots.	Sauce, Lea & Perrins	1.50
2 doz.	Soap, Ivory	5.00
2 pkgs.	Soda, baking	.60
1 lot	Spices, assorted	1.00
1/2 cs.	Strawberries, canned	5.25
50 lbs.	Sugar, granulated	5.50
1 cs.	Syrup, Log Cabin	14.00
5 lbs.	Tea	4.50
1 cs.	Tomatoes, canned	6.00
1 bot.	Vinegar, concentrated	1.25
	Total	\$391.50

New Claims Total 4,075

Mining activity showed a substantial increase in the number of new claims filed during the past 3 months. A total of 4,075 claims were processed for the months of May, June, and July, an increase over the 2,314 claims filed during the last quarter; 3,285 were filed during the same period last year. Totals by recording district are:

Fairbanks	848	Nome	492
Barrow	639	Seward	48
Manley Hot Spr.	7	Juneau	523
Mt. McKinley	56	Haines	6
Nenana	78	Petersburg	320
Ft. Gibbon	90	Wrangell	18
Kotzebue	422	Ketchikan	241
Talkeetna	53	Sitka	201
Palmer	19	Glennallen	4
Bethel	9	Homer	1

Seen on UA bumper sticker: "Black holes are outa' sight."

**Mineral Potential is Found in Parts
of Proposed Alaska Wilderness**

(from Engineering/Mining Journal, June 1978)

There is significant potential for deposits of gold, copper, zinc, and silver in parts of the proposed Tracy Arm-Fords Terror Wilderness in Alaska, according to a recent 282-page report by the U.S. Geological Survey and the USBM. The proposed wilderness area covers about 1,250 sq mi in the Tongass National Forest on the southwest side of the Coast Range Mountains in south-east Alaska. However, the area of mineral potential has not been included in the Southeast Alaska wilderness proposals recently reported upon favorably by the House Interior and Insular Affairs Committee, as part of its overall work on Alaska National Interest Lands.

Gold mining began in the area in the 1860s, and about 27,000 oz of gold and a similar quantity of silver have been produced since then from lode deposits at the Sumdum Chief mine at Sanford Cove.

"Almost all of the mineralization within the wilderness study area occurs in the western metamorphic belt

parallel and adjacent to the southwest side of the Coast Range batholithic complex," the report said. "The present study has identified two areas of mineral resource potential for gold, copper, zinc, and silver within this belt in the study area. These are the Sumdum Glacier mineral belt and the Endicott Peninsula area. Several deposits with in-place metal values great enough to attract serious exploration are probably present."

Commercial metal values

The Sumdum Glacier mineral belt extends for 32 mi along the southwest side of the Coast Range batholithic complex and contains three known mineralized areas of importance: the newly discovered Sweetheart Ridge gold-copper occurrence, the Tracy Arm zinc-copper prospect, and the Sumdum copper-zinc prospect. These three deposits have economic potential and warrant further exploration, the report noted.

"A 147-ft-long portion of the Sweetheart Ridge mineralized zone is estimated to contain 7,300 tons of inferred ore for each 100 ft of depth that averages 0.23 oz per ton of gold and 0.7% copper.

"The Tracy Arm zinc-copper deposit is estimated to contain 187,000 tons of inferred ore averaging 3.42% zinc, 1.42% copper, 0.43 oz per ton silver, and 0.008 oz per ton gold.

"The Sumdum copper-zinc prospect is estimated to contain 26.7 million tons of inferred ore averaging 0.57% copper, 0.37% zinc, and 0.30 oz per ton silver."

The authors of the report estimate that only 20% of the belt has been examined closely enough to find deposits exposed on the surface that are similar in size to the three known major deposits. Assuming the same density of deposits in the remaining 80% of the belt, 12 more similar outcropping deposits are probable in the area.

The second area of mineral resource potential, the Endicott Peninsula, has been prospected since 1869, and several occurrences have long been known: the Point Astley zinc-silver deposit, the Sumdum Chief gold mine, the Taylor Lake prospects, the Holkam Bay gold prospect, and the Windham Bay gold lodes and placers. "Favorable geology and a history of significant production make this large and little-explored area favorable for the discovery of significant new deposits, but exploration is likely to be difficult and expensive," the report said.

Copies of the report, "Mineral Resources of the Tracy Arm-Fords Terror Wilderness Study Area and Vicinity, Alaska," (USGS Open-File Report 77-649) may be purchased from the Open File Services Section, Branch of Distribution, U.S. Geological Survey, P.O. Box 25425, Federal Center, Denver, Colo. 80225; telephone (303) 234-5888. Prices are \$5.50 for microfiche copies and \$59.25 for paper copies.

UA Alum Named Director of USBM

(from Dept. of Interior news release, July 13, 1978)

Acting Interior Secretary James A. Joseph today commended President Carter's nomination of Roger A. Markle to be Director of the Bureau of Mines upon Senate confirmation.

Markle, 44, has been president of the Western Division of the Valley Camp Coal Company in Salt Lake City since 1974, highlighting an executive career which includes broad experience in management, tax, legal, accounting and financial aspects of the mineral industry.

"Mr. Markle's background and experience eminently qualify him to direct the many important programs of the Bureau of Mines in a period when the Nation needs sound decisions on critical minerals problems," Acting Secretary Joseph said. "I look forward to his contributions and counsel as an important member of the Interior Department's executive team."

Before joining Valley Camp Coal Company, Markle served from 1965 to 1974 in positions of increasing responsibility with Standard Oil Company of Indiana, including manager of mine development, exploration manager, manager of mining, assistant coordinator of mining, and senior mining engineer. From 1962 to 1964 he was an instructor of adult education in mining and prospecting classes at the University of Alaska. From 1958 to 1961 he was with Alaska Mines and Minerals, Inc., as general superintendent, chief mining engineer and mill superintendent.

Markle has a B.S. degree in Mining Engineering from the University of Alaska, 1959; an M.S. in Mine Management from Stanford University, 1965, and an M.B.A. from the University of Chicago, 1971. He and his wife, Mary, live in Salt Lake City.

First New Geologic Map of Alaska in 21 Years

(from Dept. of Interior news release, June 26, 1978)

A new multicolor geologic map of Alaska—the first in 21 years—has been prepared and is now available for purchase, the U.S. Geological Survey announced today.

The wall-size map (printed on two sheets together measuring 42x80 inches) is a summary by the USGS of the present knowledge of the geology of Alaska. It shows major fault systems and more than 100 geologic rock units. As a basic tool in the broad-gage understanding of the geologic characteristics of the state, the map will help earth scientists to explore for metal deposits and mineral fuels and to evaluate and assess environmental concerns.

An entirely new compilation produced during seven years of research by USGS geologist Helen M. Beikman, Menlo Park, Calif., the new map summarizes data gathered by more than 100 geologists who have worked

You Think You're Lost?... There are six streams in the Kilbuck-Kuskokwim Mountains and nine on the Seward Peninsula named Camp Creek.

in Alaska since 1890.

"If we compare this map with the previous map by the USGS in 1957," Beikman said, "we can see that tremendous progress has been made in the past two decades in understanding the complex geology of the state.

"Alaska remains, however, the least known, geologically, of the 50 states," Beikman said, "although we have been able to fill in most of the geologic blank spaces that were left on the previous map. Much of the improvement comes from the increased pace of 'on-the-ground' studies made possible by the use of helicopters. Nevertheless, there are still areas that we have only a "broad brush" knowledge of—places where we've only been able to sketch the geology.

Issued in two sheets at a scale of 1:2,500,000 (1 inch equals about 40 miles), the map shows more than 100 readily identifiable geologic units, major fault systems, as well as a brief description of the rock units portrayed, an index map showing principal sources of data, and a list of references. It was prepared cooperatively with the Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys.

Copies of the map, "Preliminary Geologic Map of Alaska," issued in two sheets, are available for \$3.50 per set by mail from Branch of Distribution, U.S. Geological Survey, Box 25046, Federal Center, Denver, Colo. 80225; or over the counter from Public Inquiries Offices of the USGS at 508 Second Ave., Anchorage, AK 99501.

Pillar Mountain Slide, Kodiak: History of the Problem and Proposed Future Studies

As a consequence of the removal of about 300,000 cubic yards of material from the base of the southeast face of Pillar Mountain near Kodiak, downslope movement was renewed on December 5, 1971 on ancient, seemingly inactive landslide deposits. The apparent large size of the unstable mass and its location above the populated shoreline 3,000 feet southwest of the City of Kodiak have caused considerable concern for the safety of people and property, not only immediately below the unstable area, but also around the shore of the harbor, which could be affected by large slide-induced waves.

A 4-year study by the USGS (R. Kachadoorian) and the Alaska Department of Transportation (W. Slater) was initiated in July 1972 to monitor displacements of survey control points and in September 1972 to monitor data from two slope indicators. Their work has been informally observed these past 2 years by DGGS personnel as part of our commitment to evaluate geologic hazards in Alaska. In early May 1978 State Geologist Ross Schaff received a prepublication copy of USGS open-file report 78-217, which summarized the results and presented the conclusions of the joint effort. Kachadoorian and Slater's report was reviewed by DGGS

personnel, who also visited the site.

An expanded program of geotechnical investigations, slope-stability analyses, and computer modeling of slide-induced waves has since been developed by the USGS and Army Corps of Engineers and proposed to the Kodiak Island Borough and the City of Kodiak. Estimated cost of the project is about \$1 million, a sum which greatly exceeds known local and state funding sources. Monies to support the proposed program have yet to be identified within the various governmental agencies.

In an independent attempt to more precisely determine the extent of the landslide, DGGS is initiating a modest program of measuring displacements among a network of survey points on the unstable slope of Pillar Mountain. These ground-surface control points will be precisely resurveyed every 2 weeks and displacement data will be continuously evaluated. Principal investigator will be geologist R.G. Updike.

State Geologists Plug Multiple Use of Lands

The following letter was sent to U.S. Senator Henry M. Jackson, Chairman of the Energy and Natural Resources Committee by Arthur A. Socolow, past president of the Association of American State Geologists.—Ed. note.

August 18, 1978

Dear Senator Jackson:

On behalf of the Association of American State Geologists, representing the State Geological Surveys of all 50 states and Puerto Rico, I respectfully submit to you the following resolution, passed at the recently concluded 70th Annual Meeting of the Association at Jackson, Wyoming:

Whereas, the Association of American State Geologists believes that the wise use of America's resources is of preeminent concern and that a continuing strong national economy depends on this, and

Whereas, there is a deep national interest in public land policy, and

Whereas, it is important to insure that our nation's public lands will bring maximum benefit to all citizens of our nation,

Therefore, be it resolved that the Association of American State Geologists favors multiple use of our public lands over single use wherever possible, and, Be it further resolved that there is an urgent need that further single-use classification of public lands be withheld until there is obtained for each subject area a total assessment of resource values based on balanced scientific studies and appropriate review of all factors, including timely demonstration that the action taken is in the highest public interest, and

Be it further resolved that provision should be made for a viable mechanism to return single use classification lands to multiple use when changing priorities or significant new developments warrant it.

We sincerely hope that you will be able to support the worthy purpose of this resolution.

Respectfully submitted,
Arthur A. Socolow

Lake Clark Geology, Chignik Coals Documented

An open-file report summarizing the results of a 2-year study of the Lake Clark area, a special report on Chignik coals, and three updated information circulars highlight this quarter's DGGs publications activities.

The open file details the preliminary results of the State's geological mapping and mineral resource investigations, which covered about 1,285 square miles in the rolling northern Lake Clark area in southwestern Alaska. Zones containing anomalous amounts of copper, molybdenum, lead, silver, gold, tungsten, and tin were found.

Also released was an open-file report on the geophysical characteristics of the Wiseman Quadrangle, in the southern Brooks Range. The reports can be obtained from any mining-information office (p. 1).

·AOF-118, "Geological map of the west-central Lake Clark Quadrangle, Alaska," by G.R. Eakins, W.G. Gilbert, and T.K. Bundtzen, includes two plates (a geologic map and geochemical map, scale 1:125,000), and 15 pages of text and sample analyses. It costs \$3.

·AOF-117A, "Physical rock property values for selected rock types, southwestern corner, Wiseman Quadrangle, Alaska," by S.W. Hackett, consists of one blueprint plate, scale 1:125,000. It costs \$1.50.

·Special report 8, "Herendeen Bay—Chignik coals, southern Alaska Peninsula," by C.N. Conwell and D.M. Triplehorn, has two plates and 15 pages and costs \$2. The abstract follows.

There are 17 separate beds in the Herendeen Bay—Chignik coal fields, and they appear to have marked changes in character, thickness, and ash content. The coals are high-volatile B bituminous with a high ash content (about 20 percent), but a washed product can be produced with less than 10 percent ash and a Btu value of 12,000. The areal extent of the field is greater than previously reported, extending from Pavlov Bay over 200 miles northeast to Dog Salmon River. The coal field is near tidewater.

Three updated information circulars, IC-5, "General Alaskan mineral and energy information;" IC-6, "Alaskan prospecting information;" and IC-11, "List of reports issued by DGGs;" are also available. All are free.

For Sale: One Old Mining Camp (from Fairbanks Daily News-Miner, July 11, 1978)

Gold was the lure of Nabesna, and now the historic mining camp tucked away in the towering Wrangell Mountains is being sold, reluctantly.

The three miles of tunnels which miners punched into the rock of White Mountain produced some 70,000 ounces of the yellow metal and a like amount of silver before they were sealed in 1946.

The Nabesna gold mine, as did many others, fell victim to spiraling production costs and a fixed price for its principal product.

Also on the block are the business district of Northway, a community of 400 about 250 miles southeast of Fairbanks, and the 240-acre Cantwell townsite 185 miles north of Anchorage.

Floyd and Diane Miller are asking \$1 million for their three blocks at Northway. The four Anchorage businessmen who own Cantwell (pop. 300) want to sell it for \$795,000.

Owner Kirk Stanley of Anchorage's Ptarmigan Co. says the 5½-acre Nabesna townsite has been divided into 13 tracts, each holding at least one of the some 20 buildings still standing.

Included are bunkhouses, the post office, a mess hall, the mine headquarters, a machine shop, and the house of ill repute, a log cabin built by a prospector at the turn of the century.

Three of the tracts, which range in size from 4,500 to 18,000 square feet and in price from \$4,500 to \$17,000, already have been sold.

Stanley, whose minerals exploration company bought the town in 1966, says he has mixed emotions about selling the town.

"I really don't want to sell it, but I can't afford to maintain it, and it will gradually disappear as others have," he said.

"It's a unique part of this country's history, and the buildings represent a backward glance at a way of life that is gone and will never come again.

"Nobody has lived there for 30 years, and I suppose it could be called a 'ghost town,' but it doesn't seem a very fitting title." Vacant as it is, its name still appears on every map of Alaska and in every world atlas.

"It's at the very end of (45-mile) Nabesna Road, and in some ways the rest of the world just passed by it."

The first official survey in Alaska, following purchase, was done by Captain Charles Raymond of the Corps of Engineers, which was then under the War Department. On August 7, 1869, he made observations at Ft. Yukon on the Yukon River, proving that the Hudson Bay Company Trading Post was well within U.S. territory.

The U.S. imports about 75 percent of its bismuth. Western Alaska has potential commercial deposits.

BLM Lists New Filing Requirements
(from Northwest Mining Association Bulletin, July 1978)

The following table lists dates for filing claims at U.S. Bureau of Land Management offices. The two BLM offices in Alaska are at 555 Cordova in Anchorage and Fort Wainwright in Fairbanks.

Mining Claims Located on or Before October 21, 1976

If mining claims were recorded in the proper BLM office during one of the following calendar years	Then the first filing of Evidence of Assessment Work or Notice of Intent to Hold must be filed on or before these dates	Subsequent filing of either Evidence of Assessment Work or Notice to Hold must be filed on or before these dates
1976	On or before December 30, 1977	On or before December 30, 1978, and on or before December 30 of each sub- sequent year thereafter
1977	On or before December 30, 1978	On or before December 30, 1979, and on or before December 30 of each sub- sequent year thereafter
1978	On or before October 22, 1979	On or before December 30, 1980, and on or before December 30 of each sub- sequent year thereafter
January 1 through October 22, 1979	On or before October 22, 1979	On or before December 30, 1980, and on or before December 30 of each sub- sequent year thereafter

Mining Claim Located After October 21, 1976

If mining claims were located during one of the following calendar years	Then the first filing of Evidence of Assessment Work or Notice of Intent to Hold must be filed on or before these dates	Subsequent filing of either Evidence of Assessment Work or Notice to Hold must be filed on or before these dates
1976	On or before December 30, 1977	On or before December 30, 1978, and on or before December 30 of each sub- sequent year thereafter
1977	On or before December 30, 1978	On or before December 30, 1979, and on or before December 30 of each sub- sequent year thereafter
1978	On or before December 30, 1979	On or before December 30, 1980, and on or before December 30 of each sub- sequent year thereafter

Alaska Miners to Convene in Late October

This year's Alaska Miners Association Convention, which will open at the Captain Cook Hotel in Anchorage October 27, will have a new wrinkle. In addition to annual presentations and panel discussions relating to the Alaskan mineral picture, the AMA will offer two short courses—one for the prospector, the other for the professional geologist—which will precede the actual meeting agenda, according to C.C. Hawley, AMA Executive Director.

Dr. Alistair Sinclair, geochemist from the University of British Columbia, will teach a course in probability graphs and geochemical analyses. Designed predominantly for the professional geologist, this session will be worth 1/2 graduate-level credit or one continuing-education credit. It will begin at 7 p.m. Wednesday, October 25 at Alaska Methodist University and will end the next afternoon.

On Thursday morning, October 26, a 1-day prospecting workshop will offer sessions in placer-mining techniques, use of the small gold (suction) dredge, use of radiometric methods of exploration, and a talk on large-company exploration and how it relates to the prospector. This workshop will be held at the Captain Cook.

The regular 2-day AMA Convention gets underway Friday the 27th and will feature sessions devoted to the comparative elements of Yukon and Alaskan geology with speakers from the Geological Survey of Canada and the Department of Indian and Northern Affairs (YT). That afternoon, a series of papers on Alaskan geology will be presented by speakers from DGGs, the USGS, the University of Alaska, and the UA Mineral Industries Research Lab. Topics to be covered include the general geology of the Brooks Range, the Yukon-Tanana Upland and metallogeny of eastern Alaska.

That evening, Alaska's Congressman Don Young will be the speaker at an 8 p.m. banquet at the Cook. He will speak on Alaska's role in the U.S. energy and mineral scheme and its relation to U.S. law, according to Dr. T.E. Smith, AMA technical program chairman.

On Saturday morning, October 27, Alaskan energy will be discussed, with talks on Alaskan coal mining and on alternative energy sources and their relationship to the Alaskan miner. The afternoon session of the Third Annual AMA Convention will have a panel discussion on U.S. mineral policy, with several prominent authorities from both the private sector and the federal government.

That evening, U.S. Senator Ted Stevens will give a postbanquet talk on land and mineral problems in the 49th State. The banquet will begin at 8 p.m. at the Anchorage Westward Hotel.

For further information, write AMA, Box 78D, Star Route A, Anchorage 99501. Room accommodations should be handled by the conference attendees.

Smile! Later today you won't feel like it.

Gold-Plated Geologists

(from *Forbes* magazine, Mar. 20, 1978)

Twenty years ago, geologists in Texas were driving taxis; now they're driving Cadillacs. With the U.S. oil and gas hunt in full cry, exploration companies, big and small, are bidding frantically for expert help, especially those skilled in handling the new seismic methods for reading underground structures. (Geologists now read more computer printouts than they do rocks.) The big companies have lost scores in the last two years and Mobil is even suing Superior on charges that the latter stole 32 of its exploration staff. Smaller companies, which are having no trouble raising capital for drilling, are offering 15% to 30% raises on top of the \$24,000 or so a geologists with three to five years' experience with a big firm can command. Some wildcatters are even offering recruits a percentage of any discoveries they help make, something the big ones can hardly manage. All that the majors can do, in fact, is to point out how fast technology changes and how much geologists can lose by cutting themselves off from big-time research. Remember those taxicabs, the veterans warn.

USBM Announces Free Open-File Reports on D-2 Areas

The U.S. Bureau of Mines recently published the results of seven studies on the mineral potential of Alaskan D-2 lands. Five open-file reports, approved for publication by the Interior Department and being given away free, are:

- Open-file report 63-78, "Mineral investigations of certain lands in the eastern Brooks Range," by J.C. Barker (25 p.).
- Open-file report 64-78, "Mineral appraisal of the Wrangell-St. Elias region," by Anchorage Field Office staff (51 p.).
- Open-file report 65-78, "Geologic map and cross sections of the Red Dog Prospect, Delong Mountains, northwestern Alaska," by J.T. Plahuta (11 p.).
- Open-file report 66-78, "Mineral deposits of the Kanuti River area," by K.H. Clautice (15 p.).
- Open-file report 67-78, "Mineral data appraisal of the proposed Noatak National Ecological Preserve, Alaska," by Staff, Juneau Field Office (33 p.).
- Open-file report 87-78, "Mineral reconnaissance of the Porcupine River region: A summary report," by J.C. Barker and K.H. Clautice (20 p.).
- Open-file report 88-78, "Mineral deposits of the Tanana-Yukon Uplands: A summary report," by J.C. Barker (33 p.).

The reports will be free to the public while they last. They may be examined and picked up (as available) at Bureau of Mines offices in Juneau (Box 550, zip 99802); Anchorage (2221 E. Northern Lights Blvd., zip 99504);

and Fairbanks (205 Resources Bldg., University of Alaska, zip 99701).

Earlene L. Grose

DGGS was saddened by the unexpected passing away of Earlene L. Grose after a brief illness June 14. Earlene, the Juneau mining-information specialist, was born in New London, Minnesota, 44 years ago. She had worked for DGGS since 1974.

She is survived by her husband, Russell, and four children, Jill, 19; Michele, 17; Robin, 14; and Edward, 11.

Her quiet humor and wry irreverence will be missed by all who knew her.

Gold Tops \$200 an Ounce on World Market; Spurs Interest in Placer Mining (from All-Alaska Weekly, Aug. 4, 1978)

The rise in the price of gold on the world market to more than \$200 an ounce is encouraging to interior miners, most in the field agree. But that encouragement is tempered by discouragement over the restrictions imposed on the industry under terms of various environmental regulations.

Ernie Wolff of the Alaska Miners Association, asked for a comment on this point, said it wouldn't be printable. At the same time, in answer to the question whether the higher gold price was having an effect here, he responded, "It sure is." He said that just a few years ago, when gold was pegged at \$35 an ounce, "hardly anything was going on at all. There were a few old timers, and a few who didn't know any better." But now he says, "This summer, there must be about 2500 altogether employed in gold operations in the Interior. In Central alone," he said, "there must be 15 to 20 operations."

Dean Earl Beistline of the University of Alaska's School of Mines confirms an increasing interest in mining. "I think the increase has stimulated a lot of interest in the search for and mining of some previously uneconomic placer mines," he says, and adds, "This, however, is counterbalanced by the rules and regulations."

Ken Merrill of Alaska Prospectors and Geologists Supply says that the rise in the price in gold, which started last Friday, is apparently responsible for much greater traffic through his store. "I think in the last few days there have been a lot more people in, looking into what it might take." He added that in his opinion, these people are "really" interested. "They're people who wouldn't have been interested before."

Asked if his store catered mostly to the small miner, Merrill said no. He said they furnish everything from

small dredges to large pumps, and engines and other supplies used by both large and small operators. "We get a good cross section," he said.

He also said that he believed that one of the effects of the increasing price of gold is that large holders are hanging on to their gold in the hope of even higher prices.

Dan Egan, of Alaska Gold Company, however, sounded a less optimistic note. His operation consists currently of two dredges currently working at Nome, and two more, one in Fairbanks, the other in the Koyukuk which are not currently working.

He said the company is not at the present time considering making any changes in the operation to take advantage of the high price of gold. He said while he could see it "could create a little flurry for small miners" a dredging operation the size of his is different. He said "It would take a lot of study....you can really lose your shirt in this business."

He said he felt that a trend has not yet been established. And, like Beistline and Wolff, he mentioned "the environmental situation which imposes very extensive and restrictive regulations on the industry....to the point," he said, "of shutting down operations."

The price of gold rose to \$203.50 an ounce on Wednesday on both the London market and in New York, where Handy and Harman set its base price for gold at the same level.

The decline of the dollar in most world markets is responsible for the increase in the value of bullion, since investors generally turn to gold during periods of monetary instability.

A number of foreign banks have intervened to support the dollar.

In Europe, the central banks have bought dollars on the foreign exchanges to keep their own currencies from rising too rapidly against the dollar. And in Japan, the Bank of Japan has made massive purchases to try to control the drop. But, despite these efforts, the dollar continues to lose ground against the yen on the Tokyo foreign exchange.

It is important to Japan to keep the yen from rising too rapidly against the dollar because the United States is a major export market for Japan. A more expensive yen makes Japanese goods less competitive on the American market.

But in Switzerland, the president of the Swiss National Bank, Fritz Leutwiler said further increase in the price of gold was inevitable, and added that Swiss authorities believe the control of inflation takes priority over attempts to support the dollar.

Nevertheless, since the price of oil is pegged to the value of the dollar, there have been some rumblings from the OPEC countries that oil prices may be raised, or another currency substituted for the dollar.

There were 18 lawyers, 6 doctors, 2 breweries, and 30 saloons in Juneau in 1898.

Mining Claims on State Land Must be Filed with DMEM

In accordance with state statutes (AS 38.05.020 (b)(1); register 51, 11 AAC 86.130, effective 9/4/74), all mining claims staked on state land must be filed for record with both the district recorder where the claim is located and the 'Director, Division of Lands' within 90 days of location-notice posting. Since then, however, a new division, the Division of Minerals and Energy Management, has been created, and the claimant must file there (323 E. 4th Avenue, Anchorage 99501; ph 279-5577).

Land status can also be checked at DMEM.

They Said It....

"This move (recent Alaska Legislature tax hike on oil) raised considerable doubt about expectations for investments in further developing Alaska's vast storehouse of natural resources."—*Sohio News and Commentary*.

"It is not an exaggeration to say that this nation is on a regulatory rampage. The Federal Register, in which assorted rules and regulations are proposed and promulgated, ran to well over 65,000 pages last year—a staggering increase over the 21,000 pages only ten years ago."—J. Allen Overton, President, American Mining Congress.

"More than any other single causal factor, EPA regulations can be directly credited with foreclosing hundreds of businesses and industries, including such venerable names as Youngstown Sheet and Tube to name just one, and the escalation of basic steel and energy costs."—J.W. Blakely, *Independent Coal Leader*.

"The hard-rock people won't be satisfied unless they have access to everything."—Interior Department Secretary Cecil Andrus, speaking of pending d-2 legislation.

"It seems the government is taking on sovereignty the world hasn't seen since the days of the English crown."—Sen. Ted Stevens, speaking of pending d-2 legislation.

"What tangible benefits will accrue to the remaining 90 percent of the American public who will not be able to enjoy Wilderness but must share the costs with those who will?...Our past experience tells me that we will be sitting around with little or no energy wondering what the hell happened. Meanwhile, the Sierra Club types and their counterparts in government will be cruising off the slopes and the beaches well fueled and us, well fooled."—C.R. Watson, Chairman, American Association of Blacks in Energy.

"People who have come to Alaska, worked hard, and grubbed out a living feel resentment toward people whom they call 'Lower-48 meddlers.' People here take a

proprietary attitude. They say, 'Don't tie our hands.' They forget that we all own Alaska."—John Kauffman, in *Coming into the Country*, by John McPhee.

"Some of their (Udall's House Interior Committee) eunuchs—I guess they call them aides—came up to the mine for a while. I talked to them and even went up to Fairbanks to testify. But it was like they weren't even listening. I guess it don't make much difference what an old man like me thinks."—Kantishna miner Earl Pilgrim, in *Cleveland Plain Dealer*, Aug. 13, 1978.

"It's not just a question of land with them (the Alaskan miners), but a way of life. I'm attracted to these people and to their lifestyle. I'd like to be a miner myself someday."—Brock Evans, chief Washington lobbyist for the Sierra Club.

"Information on adjacent areas need not be included in the application until such time as it is made available from an appropriate Federal or State agency; provided that the permit shall not be approved by the regulatory authority until such information is available and is incorporated into the application."—Proposed regulation (para. 779.13[a]) affecting surface reclamation for Dept. of Interior Office of Surface Mining.

"Great consternation has been caused in the oil regions of Pennsylvania by the recent decline in the price of petroleum to less than a dollar per barrel. It is generally admitted that these ruinous prices are a natural and unavoidable result of the immense overproduction, and in some quarters the belief is expressed that if there is no other way of curbing the desire to sink new oil wells more rapidly than new markets can be found, a still further decline will in the end prove beneficial by warning all whom it may concern of the folly of glutting the market with excessive quantities of a product such as petroleum."—*Scientific American*, August 1878.

'From Ketchikan to Barrow'....

(Selected notes from *ALASKA Magazine*, August 1978)

Ropes may be used to restrain icebergs from the 300-foot-high face of Columbia Glacier, if the volume of ice shed by the Prince William Sound glacier increases. Columbia Glacier spills into the sea a few miles north of the route followed by oil-laden tankers traveling from the Valdez pipeline terminal.

Scientists, who have studied the glacier intensively for the past 2 years, fear it may be beginning a major recession, and that the volume of ice shed by the glacier could reach 1 cubic mile per year.

Although the icebergs could be roped and towed from the tanker route, a preferred solution, according to a Coast Guard study reported by the Associated Press, would be to stretch 10-inch-wide, 2½-mile-long nylon ropes just under the surface of the water. The barrier, which would cost an estimated \$30 to \$35 million, would hold back the icebergs until they melted 5 to 10 days later.

PORT HEIDEN—The U.S. Geological Survey is studying Aniakchak Crater near here as a natural laboratory in volcanological studies. The caldera, formed when a volcano as high as 8,000 feet collapsed on itself about 3,500 years ago, last erupted in 1931. That May, ash fell on Chignik, about 45 miles away, at a rate of 1 pound per square foot per hour and ash was reported as far away as 300 miles from the site.

USGS scientists told the *Anchorage Times* that the caldera could erupt at any time and is good for study because it is icefree and in an area that is a geothermal energy storage reservoir at shallow depths.

Our Gangué....

By Frank Larson, DGGS editor

As shadows steal across the close of another halcyon summer, we reminisce. It was not an unusual summer. For instance....The DGGS Lake Clark field party lost 5 of its 10 days of helicopter time to weather and a couple of tents (including the mess tent) to gale-force winds... The Hatcher Pass party saw its team of pack horses roll down a hill and out of sight. (Roy and Dale, where are you when we need you?)....And the group near McGrath was harassed by bear with a preference for candy bars and Pilot Bread. (He ended up savaging half of the grub.)....But there were the summer's usual fare of lighter moments, too—Like the time in Lake Clark when an emaciated Tommy Bundtzen, who sat down by the fire to a hot meal of baked ham, suddenly did an unsolicited (and most realistic) rendition of the Mexican Hat Dance. Well, he had an incentive: the culinary artist (Yours Truly) had made a rather nippy batch of mustard to garnish it. To make it, take one handful of Colmans' yellow mustard, add one mouthful of beer, let sit 15 minutes, and *Voila*: Mmmmm....Nose-Runnin' Good. (Mother Larson's mustard is guaranteed to quickly, sanitarily purge all those ugly bodily orifices, you know.)....But don't get me wrong: Tom was not the only afflicted one who caused screams to cascade down the pristine mountain slopes (especially in the mornings). Jeff Kline, who headed the pack-train party in the Talkeetnas, had his share of wakeup vocal exercises, too—courtesy of his wrangler, UA geography prof 'Rocky' Rhoads, who believes (religiously) that a day without beans is a day without sunshine....Yes, camp cooking is an art that goes way, way back. With DGGS, for instance, you may start off the day with some of Gil Eakins' famous chunk-style pancakes or gum down a couple of Mitch Henning's chewy eggs. Lunch invariably consists of sardines, Pilot Bread, peaches, and mosquitoes. But at night, all over the state, you return, starved, for THE MEAL....For instance, if you were in one of Wyatt 'Coffin' Gilbert's camps, you gleefully reminisce (now that it's over) about his succulent Healy Delight. It's rather simple, really: Take one-half can of refried beans (the bottom, 2-day-old half, of course),

fold in the last three eggs in camp, and gently pour into a medium-hot frying pan. Heat it, gag, take pictures of it, and go to bed hungry. And then there's Dick 'Darth' Reger, who is reknowned for his Candied Spam. In this one, you dip thin slices of Spam into a sauce composed of brown sugar and vinegar, place into pan, heat, and serve. (Hint: On this one, you *never* volunteer for the Dish Detail)....For a little variety, try Greg 'Slade' Laird's famous Transylvanian Barbecued Chicken. Rated as a 3-star delicacy by the Interior Board of Cuisine (on a basis of 10), this entree is made as follows: Steal six young pullets, pluck, gently skewer on a peeled, green birch limb, tie wings and drumsticks to body with Johnsons' extra-fine unwaxed dental floss (preferably unused), and heat until charred (usually to the tune of 'Smoke Gets in Your Eyes')....No doubt about it, old pioneer Alaskan geologist Alfred Brooks would be proud of our crew for its willingness to rough it under adverse situations. Take mining engineer Cle Conwell, for instance. He sets out for the field with a hard hat, a fishing rod, and a frying pan. Then there's 'Sasquatch' Bundtzen, whose total field gear for the season consists of a tent, a rock hammer, a pair of clean socks, and a bag of Krusteaz pancake mix. (He then forgets to wear the socks)....But DGGS is represented by the other end of the spectrum, too. The troops in the field camps of 'General' John Dillon, a hard-driving, stern taskmaster, can expect, after completing their rigorous daily assignments, an evening repast of steak or prime rib, usually prefaced with a martini and a tossed green salad: The Affluent Society finds a home in the Brooks Range (which apparently categorizes the former field parties The Flatulent Society)....But, one somehow survives the seemingly endless summer without O.D.'ing on Maalox, writes up his field notes, fattens up during the winter, and finds himself looking forward to another season in the bush....As will Arco, which filed an exploratory drilling program with the USGS for drilling up to 28 wells in the lower Cook Inlet over the next 2 to 5 years. The drilling plans are required for federal offshore areas under new regs....Exxon brought in its third exploratory well at Point Thompson. This one, however, came in at a 248-bpd rate, much lower than the two wells flanking it (2,500 and 2,300 bpd)....The target completion date for the 35-cu-yd dragline at the Usibelli Mine is November. The largest piece of heavy equipment to ever operate in the state, the huge dragline moves by taking 7-ft 9-in. steps on 'feet' that are 56 ft long. Usibelli, incidentally, recently received a \$34.8-million contract from the Defense Logistics Agency to provide bituminous coal. The tonnage involved was not disclosed....And, in late August, the Reserve bank of India sold 24,856 oz of gold at \$254 per oz, a sizable jump over the \$145 price quoted in New York last year at this time—but still not worth the price of an intimate Coleman-lit dinner served in a serene twilight evening in the Alaska Range. (The soft murmur of cooling flies in the background is extra, of course.).....Cheers.

Metals Market

	<u>August 25, 1978</u>	<u>Three Months Ago</u>	<u>Year Ago</u>
Antimony ore, stu equivalent			
European ore	\$ 16.20-18.20	\$ 16.20-18.20	\$ 16.20-18.20
Barite (drilling mud grade			
per ton)	\$ 19-28	\$ 19-28	\$ 19-28
Beryllium ore, stu	\$ 40-42	\$ 40-42	\$ 40-42
Chrome ore per long ton (Transvaal)	\$ 54.00	\$ 54.00	\$ 56-61
Copper per lb. (MW-prod.)	\$ 0.68	\$ 0.64	\$ 0.60
Gold per oz.	\$198.25	\$173.99	\$145.35
Lead per lb.	\$ 0.327	\$ 0.31	\$ 0.31
Mercury per 76-lb flask	\$153.00	\$150.00	\$115.00
Molybdenum conc. per lb.	\$ 4.41	\$ 4.41	\$ 4.10
Nickel per lb. (cathode)	\$ 2.06	\$ 2.13	\$ 2.41
Platinum per oz.	\$264.20	\$222.00	\$162.00
Silver, New York, per oz.	\$ 5.41	\$ 5.05	\$ 4.40
Tin per lb., MW composite	\$ 6.43	\$ 5.78	\$ 5.47
Titanium ore per ton (Ilmenite)	\$ 55.00	\$ 55.00	\$ 55.00
Tungsten per unit (GSA domestic)	\$117.31	\$124.00	\$155.75
Uranium per lb., MW US			
spot oxide	\$ 42.50	\$ 42.5-44	\$ 41.50
Zinc per lb. (MW-US PW)	\$ 0.316	\$ 0.29	\$ 0.34

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 Division of Geological & Geophysical Surveys
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