

# STATE OF ALASKA

## Department of Natural Resources

### Division of Geological & Geophysical Surveys

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#### Drift miners - Alaska's incurable optimists

By Tom Bundtzen, DGGs mining geologist

An oldtimer once said, "if you want to make it as a miner, keep your needs few and desires simple."

Those wise words may not apply to operators of many of the sophisticated and expensive mechanized placer mines currently working throughout the 49th State, but they still characterize a small but colorful segment of the Alaskan mineral industry---the underground drift miner.

Small drift mines are now or have recently operated in the Wiseman, Innoko, and Fairbanks mining districts. Deep exploratory work is also being conducted in other districts, such as Tenderfoot, near Delta Junction.

Drift mining is defined by Wolff (1968) as the underground mining of frozen placers through the use of drifts, shafts, and stopes. This method was employed throughout much of interior Alaska during the early gold-

rush years, especially in districts with deep, frozen deposits of organic muck and gravel that overlie gold-bearing bedrock paystreaks. Without tractors and modern mechanization, taken for granted today, the only access the early miners had to these deeply buried pay zones was drift mining.

#### Numerous drift mines 75 yr ago

According to Purington (1905), there were at least 330 drift mines operating in the Fairbanks district alone in 1905 and several hundred more throughout the rest of Alaska. Even in the more lucrative pre-World War I years, drift mining was expensive and usually required pay zones exceeding \$5/yard in value (at \$20.67/oz). Hence, many buried placer deposits were 'high graded' by the early drift miners.

After World War I, cold-water thawing and hydraulic removal of overburden were used in conjunction with large-scale dredging by the



*Main tunnel level, WRV drift mine.*

USSR&M Company and others; these efforts managed to mine ground previously worked by Alaskan drift miners.

#### Not complex

Most Alaskan drift mines have never been particularly mechanized. Almost all drift mining was (and is) conducted during the winter, when ground conditions are stable.

Larger operations usually had a self-dumping machine (one famous type invented in Alaska became known as the 'Fairbanks self-dumper'), ore cars underground on rails, a 'gin' pole, and a steam engine, which supplied both steam for underground thawing and power to hoist the pay gravels to the surface, where they were stacked for summer sluicing.

Small operators used hand-operated windlasses to hoist 'ore' to the surface and small steam boilers to thaw the ground. In primitive operations, wood or coal fires were used to thaw ground. The resultant thawed gravel from both types of operation are usually 'hand mucked' with pick and shovel.

Wild River Ventures drift mine,  
Wiseman district

Wally and Bonnie Gordon operate an underground drift mine in the Wise-

man district. Their reasons? Well, in their own words, "to get to work all the time, to put supper on the table---beans if nothing else---and to become intimately involved with the art of mining." Wally Gordon said of their exploration, which began in the fall of 1980:

"On Oct. 15, 1980, we broke ground (4'x4' in the clear), thawing with wood fires, hoisting with a hand-turned windlass using 5-gallon cans as buckets, busting large rocks with a sledgehammer, and as we got deeper, using kerosene lamps for lights.

"On Dec. 20, at a depth of 33'1" we found our first color. On we go.

"On Jan. 12, 1981, we hit bedrock at 38.9'. The bedrock had a slight slope at which point, based on values by panning samples at night, I decided to case the hole and then drift with the bedrock. I did not want to case the hole if we did not get a showing of values. On Jan. 17, we started our casing at the bottom on bedrock and stacked the rest of it from bottom to top. On Jan. 28, we completed the casing.

"On March 25, we finished for the season with 22.5' of drift, adding another 10.5' of depth as bedrock descended sharply, making a total footage for the season of about 65' of overall tunnel. I may also add, at this point we lost air circulation for



*Self-dumping plant (steam powered), WRV drift mine.*

our wood fires for thawing.

"On April 1 we closed the shaft.

"In May we ran our stockpile and were able to put beans on the table.

"From June 1st to mid-September we did some surface mining on the headwater claims, enjoyed the sun and again put beans on the table.

"On Nov. 7, we reopened the shaft and upgraded our operation by the use of a small generator for lights, a small air blower for ventilation, and a heavy-duty fuel drum with pipe and hose and made our first efforts at the steam age.

"Our work continued through winter although it was much slower, as we encountered many very large boulders as we approached the true floor of the channel and had to pound our way through most of them.

"On April 7, 1982, we closed the hole with about 85' of shaft. And again more depth. Again in May 1982 we had our dump pile. Hence, more beans."

During the summer of 1982, the Gordons installed a self-dumping machine, a gin pole, doghouse boiler, an enclosed hoist shack, and underground equipment to extract the pay zone.

The Gordons' WRV drift mine is likely the only year-round operational metal mine in the 49th state—even if it isn't a large-scale one.

#### Boob Creek Ventures, Tolstoi district

Deep placer ground is being evaluated by underground drift mining methods at Boob Creek, in the Tolstoi district of western Alaska. The pay zone is 35 to 50 ft below a thick cover of frozen muck.

Boob Creek is a perennial drainage with shallow gradient (and resultant water problems). Adequate water for large-scale mining is available only until mid-summer.

Starting in 1981, partners Doug Sherrer and Frank Walters sank a number of drift shafts during early exploratory work; in the spring of



*Frank Walters enters shaft, Boob Creek drift mine.*

1983, they intersected a 7.5-ft-thick fluvial gravel layer with promising values about 44 ft down the shaft. The miners then stockpiled pay for summer sluicing.

I had the pleasure of visiting their operation last June to conduct a prospect examination. Equipment consisted of a small, rebuilt steam boiler for thawing, picks, shovels, and a 6-in.-wide Hungarian riffled sluice box. A hand windlass was the principal excavation apparatus.

I dropped down the shaft to examine the pay zone to determine if it was fluvial or colluvial in origin. However, about three quarters of the way down the frozen shaft I became wedged into a small, 12-14"-diam opening and couldn't move. It was then that I remembered: a) that last large pizza in Fairbanks, and b) the Woody Allen quote, "I don't want to achieve immortality through my work, I want to achieve immortality through not dying." After exasperating effort, I broke through to the bottom of the shaft, only to find it immersed in 3 ft of icy water. I quickly decided to head back up to the surface (and got stuck again on the way up).

The shaft was bailed out with a bucket and windlass, and I returned to the bottom and collected a large 50-lb sample. Subsequent panning attested



*Doug Sherrer pauses alongside rebuilt steam boiler, Boob Creek drift mine.*

to the rich values that Sherrer and Walters earlier had indicated. The deposit is indeed a fluvial gravel with subrounded to angular clasts, indicating that the ancient stream was quite immature.

Wood for the boiler is scarce in the Boob Creek region. An Iditarod Race sled-dog veteran, Sherrer hauls much of it to the mine site with his dogteam. At this preliminary stage, returns so far have been meager, but enthusiasm still runs high.

When recently asked about problems related to Alaskan mining, most operators single out government red tape, bureaucracy, transportation, and other impeding factors. Sherrer simply replies, "I have no complaints---just ambitions."

#### Other drift mining ventures

There are other drift-mining ventures in Alaska.

Compass Mining Company drove an adit into an old Pleistocene bench level in the Wiseman district in search of pay.

A partnership headed by Don Kiehl as of December 1983 had sunk 120 ft of shaft into very deep ground on Lower Tenderfoot Creek near Delta Junction. (Earlier pre- 'Great War' drift miners

encountered up to 190 ft of frozen overburdens in this district.)

There were drift-mining operations during the 1981-82 winter in the Fairbanks district, where pay zones are commonly over 100 ft below the surface.

#### Summary

The future of drift mining in Alaska on the short term will be confined to exceptionally energetic and skilled operators in remote districts. The limitations on the amount of gravel that can be extracted mandates that the ground be relatively rich if it is to be profitably mined at any scale. Overhead costs must be kept at an absolute minimum if one is to succeed. Much deep placer ground throughout Alaska has never been mined because of low gold tenor and other factors.

Successful application of new techniques---water-laser technology, water jetting, and cone sinking---could dramatically change the picture of drift mining in the north. All basically use the force of water to bring pay to the surface.

Some of these techniques will be discussed by experts at the 1984 Placer Conference in Fairbanks (p. 14). However, until such technologies become practical, I suspect there will be those treasured few underground drift miners who will 'keep on mucking.'

#### References

- Purington, C.W., 1905, Methods and costs of gravel and placer mining in Alaska: U.S. Geological Survey Bulletin 263, 273 p.
- Wolff, E.N., 1969, Handbook for the Alaskan prospector: University of Alaska Mineral Industry Research Laboratory, 457 p.



It's nice to work for the government. Not only do you get a pension, but you age quicker.

Denton named to head up new DNR  
Division of Mining  
(from Fairbanks Daily News-Miner, Jan. 17, 1984)

Pedro Denton, a University of Alaska graduate in mining engineering and a former state minerals director, will head the new Division of Mining under the Department of Natural Resources.

Commissioner Esther Wunnicke announced Monday she selected Denton from five finalists in a field of 40 candidates.

The new division will begin operations Feb. 1. Wunnicke has not decided whether Denton's office will be in Anchorage or Juneau.

Denton's division will have 42 employees, including eight mining-information personnel now working for the Division of Geological and Geophysical Surveys. The rest work in the Minerals section of the former Division of Minerals and Energy Management.

Denton, 51, headed the state's minerals section under DNR from 1966-77, and then contracted to provide technical assistance to the state in developing the surface-coal mining program in 1980-81. He worked as a commercial shrimp and halibut fisherman and for the Alaska Oil and Gas Association in 1978.

From 1960-65, Denton worked for the federal Bureau of Land Management's minerals program in Fairbanks. Prior to that he worked for several years for private mining companies. He graduated from Seward High School in 1952 and the UA in 1956.



City buildings to be tested for  
ability to withstand quakes  
(from Anchorage Times, Nov. 17, 1983)

The state seismologist and Anchorage officials have agreed to gather and analyze data on the movement of buildings in the city during earthquakes of 5 or more on the Richter scale.

"When we learn how a structure responds in an earthquake, that gives us valuable design information for building in earthquake zones," explained seismologist John Davies, of the Alaska Division of Geological and Geophysical Surveys.

He said the measurements will help officials learn if buildings behave as they were designed to do during earthquakes and eventually will be used in zoning decisions and in evaluating building design for earthquake safety.

The data on building motion will be gathered with measuring instruments called "strong-motion accelerographs" already in place in some Anchorage structures, said Davies.

He said the state DGGs will provide the motion data to structural engineers, building owners, the city, the U.S. Geological Survey, and to federal and state officials.



EPA rules snag placer mines  
(from Anchorage Daily News, Jan. 13, 1984)

The Alaska Department of Environmental Conservation has suspended efforts to reclassify state streams to permit additional placer mining until it can get an explanation of new federal water-quality regulations.

Randy Bayliss, the chief of state Water Quality Management for DEC in Juneau, said Thursday the federal Environmental Protection Agency has proposed regulations that may sharply limit the state's flexibility to 'reclassify' streams to ease pollution-reduction standards.

Bayliss said the state last week stopped work on processing three pending stream-reclassification requests until state officials can meet with federal EPA officials early next month.

Bayliss said the state wants to see if current state water-quality regulations will satisfy the EPA. If not, the state may have to adopt the

more restrictive standards that could make it much more difficult for placer mining to take place.

Currently the state oversees the federal Clean Water Act in Alaska.

Miners now can have water-quality standards lowered on state streams if they can show the stream is not used for fishing, recreation, or as a source of drinking water. Under the new federal requirements, individuals may have to show that the streams won't be used for any of those purposes in the foreseeable future.

"Under the federal regs someone may have to show not only that there are no conflicting uses now, but that there aren't likely to be any in the future. It certainly will add another burden of proof and it could be quite a burden," Bayliss said.

Bayliss said the reclassification issue has not been a major one in the past, as the state received no requests for it in 1982 and only three last year. He said the issue could heat up, however, if state miners move to start production from placer claims in new areas.

Jim Jinks, deputy director for the Resource Development Council, said the issue is a thorn to miners. He said the change in federal standards takes away any state flexibility in managing its own resources and solving state problems. More importantly, he said, the EPA regulations could put a monumental burden on miners.

"All streams sometime in the next 100 million years could well be utilized as a source of drinking water or recreation. A miner will never be able to prove there will be no future effect. It is just ludicrous," Jinks said.

While the state could make no estimate of the number of claims potentially affected if the new requirements are invoked, Jinks estimated that over 1,000 claims on the Kenai Peninsula alone could be involved, and more in the interior.

Bayliss said the state has asked

EPA to review the state's current water-quality performance and to point out specific problems. With this information he said the state will explore alternatives to the existing and proposed reclassification process.

He said a decision may not be reached to govern the current requests for several months.

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Annette Anderson -

Alaska's Mining Woman of Year

By Rose Rybachek

(from Fairbanks Daily News-Miner, Dec. 6, 1983)

Alaska Women in Mining recently announced the winner of its first annual Mining Woman of the Year award, a woman who had "contributed enormously to the success of the mining industry." There could have been no more fitting recipient than Annette H. Anderson.

She was born in a sod home on a cattle ranch in Colorado. There, hard work was taken for granted. She met and fell in love with a Colorado miner, Tury Anderson, and they were married 58 years ago.

In the spring of 1941, Tury, Annette, and their two young sons, Bud and Garth, arrived in Fairbanks. Two weeks later found them in a tent camp at Manny Olson's Wolf Creek Mining Co., where Tury worked as a mechanic. For the next 14 years, the Andersons worked for other miners as well as on their own claims in and around the Fairbanks area.

During this time, Annette Anderson was busy. She did all the cooking for the various camps. As the official expeditor, she was responsible for keeping the camp supplied with food, fuel, machinery parts, and mail.

Anderson summed up all her years in the mining camps as wife, mother, cook, and general manager with the simple phrase, "hard work."

She had the reputation for 'setting a good table,' whether she was cooking for two or 16. She recalls some of the earliest 'bush refrigera-



tors.' Since there was no electricity, other methods had to be found for keeping food from spoiling. Most of these bush refrigerators consisted of boxes either over or in the creek waters, usually covered with wet burlap to make the most of the breezes flowing down the creek. Sometimes just a crock set into the cold creek water would suffice. Anderson recalls that the latter method had to be watched carefully---it must be moved to deeper water in dry times and rescued from rising waters during heavy rains.

Anderson claims she wasn't actually the greatest of shots, but she did shoot a wolf and a grizzly bear in defense of the camp. She also was charged with keeping the squirrel population down. At one camp, workers in the generator shed would blink the lights when a squirrel was spotted, and Annette would grab up her .22 rifle and go running. She says that a still target was hard to hit, but a moving one was a dead one.

For a number of years, Tury Anderson worked for the F.E. Co. on the creeks in the summer and in the shop during the winter. The last years they were involved with placer mining were spent on their property at Porcupine Creek in the Circle mining district. They spent from 1954 until 1978 developing their hard-rock mine, the Silver Fox mine, located just off the Elliott Highway above Fox Creek. In 1978 they deeded the Silver Fox Mine to the University of Alaska, where it is being further developed and used as an aid in teaching the mining programs.

During the summer of 1983, Tury and Annette were chosen as the King and Queen Regent of Fairbanks' annual summer celebration, Golden Days. They still catch the daily "gold quote" on the radio and remember their busy, hard, but satisfying life on the creeks of interior Alaska.

Annette and Tury have recently moved into the Pioneer Home in Fair-

banks. They had lived in Lemeta for a number of years, and are very happy in the land in which they chose to spend the rest of their lives.

Annette was recently asked if, during all their years together on the creeks, she had ever considered divorce. She answered, "No, never. But I did think of murder several times!"

Annette Anderson is a pioneer woman in the purest sense of the word.



Panel would allow new mining near park  
(from Anchorage Daily News, Jan. 20, 1984)

New mineral leasing may be allowed in the Kantishna Hills after a proposed 5-year moratorium expires in 1989 under draft recommendations prepared by a joint state-federal study team.

A second recommendation of the panel, however, is that the state take no action to encourage new mining in the Dunkle Mine area, a second area now located inside Denali National Park.

The Alaska Land Use Council will decide in May whether to accept the recommendations of a group led by the National Park Service or to change the suggestions before sending them to Congress for consideration.

The study team considered a half-dozen options, ranging from recommending that the government buy out all 150 existing claims---an option that would cost between \$80 million and \$180 million---to removing both mineral zones from the park.

Miners made clear to the study team during hearings last summer they preferred the removal of the mineral zones from the park since it would make mineral production much easier to accomplish.

Environmentalists, however, wanted all mining stopped, citing their concern with the effects of placer mining on water quality, recreational hiking, and the park's caribou herd.

Neither side was satisfied with the recommendations by the study

group.

"We know there are proven mineral zones there," said Jim Jinks, deputy director of the Resource Development Council. "By these regs we're putting a rather strong cap on the mineral potential of the area. We should remove the deposits from the park and let miners develop them under existing environmental regulations if we want to help our economy around 1995, when we'll need the development."

Jack Hession, Alaska representative for the Sierra Club, said the recommendations also were unacceptable to his group. He said he believes it was Congress' intent that mining be stopped in the park. And he said he hopes the land-use council will recommend the appropriation of money to buy out the existing leases when they act on the issue this spring.

The 115,000-acre Kantishna Hills area is located to the northwest of the former boundary of Mt. McKinley National Park, but inside the new preserve. The 20,000 acres in the Dunkle Township lie on the southeast boundary of the park preserve.

Chuck Gilbert, an Anchorage-based recreation planner for the Park Service, said the study group decided in favor of continuing present mining and possibly permitting its expansion the Kantishna Hills. But the group stipulated that area miners must improve their mining techniques and start meeting federal water-quality standards within the next 5 years. If they don't meet the standards, no expansion of leasing should be permitted, the group maintained.

If water quality is improved, then the report recommends that lode deposits be leased in the Clearwater Fork drainage and parts of the Moose Creek, Glacier Creek, and Caribou Creek drainages. Placer mining would be permitted in parts of the drainages, but not in the Clearwater Fork drainage, a prime spawning area for the main fall chum-salmon run in interior Alaska.

In the Dunkle Mine area, the group recommended that no action be taken to permit an expansion of mining in the historic district given the possible effects on the Denali caribou herd, which has been declining in strength in recent years and now stands at 1,000 animals.

There are now 10 to 15 placer gold operations and three small-scale lode-mining operations in the Kantishna Hills, where over 85,500 ounces of gold have been produced over the years. Dunkle, a coal district that produced some 59,000 tons of coal before mining slowed in 1959, since has been noted for several base- and precious-metal prospects.

State hopes coal will plug future money gap  
*(from Associated Press, Nov. 1, 1983)*

With Prudhoe Bay oil expected to begin drying up by the end of the decade, Alaska is digging in for the long haul by trying to develop some of its enormous coal reserves for Asian markets.

Alaska, which fastened its foundations to gold then topped off its treasury with oil revenues, is going to the ground again for much of its economic future. The state estimates that its buried bonanza of minerals includes up to 48 percent of the nation's and 22 percent of the world's coal reserves.

Officials casting wary glances at a glutted world oil market and declining pools of crude in Alaska's biggest-producing field began to fashion a surface coal-development policy in the early 1980s.

Total identified Alaska coal resources range up to 160 billion short tons (2,000 lb per ton), while possible resources amount to as much as 5.5 trillion short tons, officials said.

"Reservoir studies indicate the Prudhoe field will go into a decline by the late '80s or early '90s," State Geologist Ross Schaff said Monday from



Anchorage. "There's a lot of structure up there, a lot of optimism, but the odds are against finding another super oil field like Prudhoe Bay.

"So we hope to diversify our resource base. And there's just no question that there's a lot of coal in Alaska," he said. "We're being called the nation's Saudi Arabia in terms of coal."

Still, it's one thing to have the coal, another to sell it. And the coal demand currently is down, Schaff said.

"The world economy is still recessed somewhat and with it the demand for coal," Schaff said. "Domestic consumption in general makes up a fairly small percentage of coal use. Something around 8 percent of the coal used is for residential purposes.

"In Alaska, that would not begin to chip away at the resource base," Schaff said. "So we look to exports."

Joe Usibelli, who operates Alaska's only existing coal mine, said he "wears the black belt of optimism," and characterizes the current coal market as "stable" rather than in a slump.

"We'll be doubling our production next year, which means doubling Alaska's production, so I don't see it as a slump," said Usibelli, 44, president of Usibelli Coal Mine Inc., near Healy. "Still, the entire coal situation isn't any too good.

"There are a lot of aggressive people out there pursuing the coal market, especially on the Pacific Rim ... South Africa, Australia, us. But of all the states," he said, "Alaska's the only one to be in a unique position to take care of the market because of its geography and resources."

Usibelli, whose company has signed a 15-year contract to deliver 800,000 tons of coal annually to the Suneel Shipping Co. of Korea to fuel new electrical generators, said politics plays a role as large as economics in developing new markets.

"Korea and Japan especially want

to have more dependence on coal and less on oil," he said. "They also want to be less dependent on just one source. So they look to the U.S. as a stable nation---and one with a balance-of-trade problem that they'd like to help solve."

But Usibelli cautioned that even though his company and several others are continuing to expand and explore, new overseas markets for Alaskan coal won't be developed overnight.

The state recently awarded a \$970,000 contract to dredge a portion of Seward Harbor to prepare a site for loading deep-draft Korea-bound coal ships. The \$3.6 million loading facility is designed to transfer coal---much of it from the Usibelli mine---from rail to ship.



#### Alaska's Resource Conference set for mid-February

'A Northern Development Strategy' is the theme for the fourth annual International Conference on Alaska's Resources, to be held February 15 and 16 at the Sheraton Anchorage Hotel.

About 30 speakers from throughout the U.S., Canada, the Pacific Rim, and Europe will discuss the potential of further development of Alaska's petroleum, agriculture, fish, timber, and mineral industries.

Key issues addressed will include the needs of trading partners, government policies, transportation systems, science and technology, repeal of the Jones Act, and the possibility of exporting North Slope oil.

The conference, organized by the Resource Development Council for Alaska and the state Department of Commerce and Economic Development, represents a major step in establishing clearcut goals for resource development in Alaska.



#### Mine reclamation plan approved (from Fairbanks Daily News-Miner, Dec. 31, 1983)

The federal government has given final approval to a state plan to



in 1983, a tally that is "real low," said mining-information specialist Mildred Brown.

Most of the mining activity for the past quarter was concentrated in the areas of Mt. McKinley, Fairbanks, and Talkeetna.

The claims by recording district are:

	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
Fairbanks	492	263	652
Barrow	1	4	0
Manley Hot Spr.	0	11	26
Nulato	32	31	63
Mt. McKinley	61	100	1,365
Nenana	39	0	6
Rampart	0	7	0
Ft. Gibbon	59	0	0
Kotzebue	1	4	189
Talkeetna	521	80	80
Palmer	20	4	15
Nome	52	29	13
Seward	29	0	25
Juneau	19	1	8
Haines	108	0	44
Petersburg	0	210	0
Wrangell	1	0	0
Ketchikan	48	0	6
Sitka	4	8	2
Anchorage	15	7	0
Iliamna	66	49	0
Bristol Bay	0	85	0
Seldovia	0	31	0
Cordova	12	0	0
Chitina	12	0	0
Valdez	0	30	0
Bethel	0	9	0
Totals	1,592	963	2,494

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#### New faces dot DGGS offices

Four new employees were added to the DGGS Anchorage staff in the last quarter: clerk-typists Maggie Wright and Irene Cutts, supply officer Bob Michels, and geological assistant Ellie Harris.

Wright and Cutts handle most of the public traffic, including phone calls. Michels will maintain DGGS

supplies and help set up field camps; he will also aid in organizing a DGGS core-storage facility at Eagle River, which will be a central depository of core samples collected from dry holes drilled throughout Alaska by the USGS, private industry, and the state. (Once the storage facility is built---renovations of existing buildings will take place this summer---researchers will be able to check out or examine core samples.)

Harris, who is assisting geologist Gil Mull in regional mapping of the northern Brooks Range, came to Alaska from Wisconsin, where she got a BS degree in geology from UW-Oshkosh. Ellie recently moved to Anchorage from Fairbanks, where she worked for the U.S. Bureau of Mines.

Wright has been in Alaska 2 years and comes from Springfield, Illinois. Maggie plays a mean game of softball; her team won the state championship last summer.

Cutts has lived in Alaska "off and on for the past 11 years." A grandmother of three, she comes to DGGS from Wrangell, where she taught primary school. Irene enjoys painting, dance, the theater, and singing.

Michels last worked for the DNR Division of Management. An avid outdoorsman, Bob has lived in Alaska 10 years and enjoys cross-country skiing, Civil War history, and numismatics.

#### And in Fairbanks...

In other personnel moves, three familiar faces left DGGS this quarter. Chemist Tom Benjamin, 3-year veteran of crushing and analyzing rocks in the DGGS assay lab, left DGGS to accept a job in a private firm in Fairbanks.

Also leaving were two clerk-typists, who accepted promotions with other state-government departments, Marlyene Gesin to Transportation and Doris Isaacson to Labor. Gesin was replaced by Kara Ohlund, a former DGGS student intern; Isaacson's position was unfilled at press time.

New in Fairbanks is Liana Rose Garbowski, a last-minute tax deduction for DGGGS mining clerk Sandy Garbowski and her husband, Henry. The 8-1b, 9-oz girl, born December 29, is their first child.

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#### DGGGS publishes report on Pillar Mountain, 10 IC's during quarter

The results of a DGGGS-sponsored study of Pillar Mountain, which abuts the city of Kodiak and has a long history of localized ground failure, are now available. Geologic Report 57, 'Pillar Mountain landslide - Survey monitoring system, Kodiak, Alaska,' presents the readings and results of instrumentation placed on the mountain. Written by project chief R.G. Updike, geologist in the DGGGS Eagle River office, Geologic Report 57 has 16 pages of text, a 1:2,400-scale plate, and an appendix. The report, last in the Geologic Report series, sells for \$2.

#### Information Circulars

DGGGS also published two new information circulars and updated eight others this quarter.

New is IC-17, 'Coal resources of Alaska.' The 9-page booklet gives the history, production figures, rank, and prospects of coals of the 49th State.

Also new is IC-28, 'Uses of geologic maps explained.' This IC consists of a sample geologic map with map data presented in a Q-and-A format on the other side of the plate.

Another foldout brochure is IC-12, 'Services of DGGGS.' As the title implies, the 2-page pamphlet briefly describes the services of DGGGS and how the State Geological Survey aids the public. Other IC's that were updated this quarter are:

.IC-1, 'Proper claim staking.' This booklet describes how to stake a mining claim on either state or federal land.

.IC-8, 'Consultants available for

work in Alaska,' is a 10-page list of firms that solicit business with Alaska's mining community and the types of services they offer.

.IC-11B, 'List of informal reports issued by DGGGS' (38 p.).

.IC-14, 'Mining laws applicable in Alaska,' has been updated to reflect the latest changes in regulations and laws pertaining to federal domain, state land, and annual labor.

.IC-16, 'Alaska map information.' This 3-page guide lists the categories of Alaskan maps available over the counter at both the USGS and DGGGS.

.IC-21, 'Geologic hazards information - Sources and consultants,' describes the types of geologic hazards found in Alaska; it also contains a directory and table of consultants to contact for further information (21 p.).

.IC-25, 'Information on water and water rights in Alaska,' is a 5-page list on where to find data on water quality, surface and subsurface water, and water rights in Alaska.

All IC's are free.

#### Brooks Range paper

Also publishing this quarter was Anchorage-based geologist C.G. (Gil) Mull. His 46-page paper, 'Tectonic evolution and structural style of the Brooks Range, Alaska: An illustrated summary,' was printed in Geological Studies of the Cordilleran Thrust Belt, vol. 1 (ed., R.B. Powers), by the Rock Mountain Association of Geologists, 1982. The paper is available for inspection at any DGGGS office.

#### Permafrost Conference Proceedings

In a related vein, the proceedings volume of the Fourth Internal Permafrost Conference, held in Alaska last summer, has been printed.

The book, 'Permafrost: Fourth International Conference, Proceedings,' is now available for \$65 (U.S.)

prepaid from the National Academy Press, 2101 Constitution Avenue, N.W., Washington, D.C. 20418. The 1,524-page volume contains 276 papers covering a wide range of engineering and scientific topics.

These include roads, embankments, airfields, excavations, frost heaves, ground ice, hydrology, ecology mapping, planetary permafrost, remote sensing, periglacial features, soil mechanics, pipelines, piles, terrestrial and subsea permafrost, and others. The volume was produced in conjunction with the Conference, which was held in Fairbanks in July 1983.

The first four guidebooks in the Permafrost Guidebook series are still available from DGGs. Contact 'Editor,' DGGs Fairbanks office (p. 1) for title and price information.

#### 'Thirty summers and a winter'

The University of Alaska has published a book by Evelyn Mertie, widow of long-time USGS Alaskan geologist John Mertie.

The 180-page book, edited by Ernie Wolff and Bruce Campbell of the UA Mineral Industry Research Laboratory, is a year-by-year diary of Mertie's career in Alaska, which began in 1911.

Despite several typos (including one in the foreword, which acknowledges the contributions of DGGs's Tom 'Bunteen'), 'Thirty summers and a winter' is an engrossing account of the Territory, its citizens, and the travails of the pioneer geologist.

'Thirty summers and a winter' is available from the UA Bookstore, University of Alaska, Fairbanks, AK 99701, for \$12.50 plus \$1.50 handling fee.

#### Glaciation papers

'Glaciation in Alaska - Extended abstracts from a workshop,' edited by Robert M. Thorson and Thomas D. Hamilton, has been published by the

Alaska Quaternary Center of the University of Alaska Museum.

The volume contains 17 extended abstracts from the Workshop on Glaciation in Alaska, held in March 1983. Abstracts from the workshop, which was the first time in 20 years that glacial geologists active in Alaska assembled to explore its glacial record, provide the reader with the most up-to-date summary of Alaska's glacial history. In addition to presenting a general framework for glaciation in various parts of Alaska, most authors addressed such concerns as the techniques for relative and absolute age dating, the paleoclimatic, paleogeographic, and tectonic implications of the regional sequences, and correlation with adjacent areas.

Copies may be purchased for \$7 from: The UA Museum Shop, University of Alaska, 907 Yukon Dr., Fairbanks, AK 99701.



#### DGGs releases Special Report 32, 'Map of Alaska's oil and gas basins'

Fresh from the printer is DGGs's Special Report 32, a six-color map depicting the oil and gas basins of Alaska.

The large (3- by 5-ft) map shows both onshore and offshore Alaska sedimentary basins that have oil and gas potential, said State Geologist Ross Schaff.

The new map, the result of a cooperative agreement among the federal and state governments and private industry, "summarizes the oil and gas basins of the 49th State for the first time," Schaff said.

The map, scaled at 1:2,500,000 (1 inch equals approximately 40 miles), has 24 seismic cross sections and 16 structural cross sections. Other data included are sites of significant wells that have been drilled in the basins. Special Report 32 also has two inset maps---of Prudhoe Bay and Cook Inlet---and a table on sed-

imentary sequences.

'Oil and gas basins map of Alaska' was compiled by geological consultant Arlen Ehm and drafted by Dan McMahon, both of Anchorage.

The map costs \$10 and is available for inspection and purchase at all at DGGS mining-information offices (p. 1).

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#### Annual Placer Conference to be held March 27-29

'Gold fever' is the theme of the sixth annual Alaska Placer Mining Conference, which will be held March 27-29 at the University of Alaska-Fairbanks.

Feathered speakers at the sessions are U.S. Sen. Ted Stevens (R-Alaska), who will speak at the annual banquet, held March 28, and DNR Commissioner Esther Wunnicke, who will speak at the luncheon that afternoon.

The conference, sponsored by the UA School of Mineral Engineering and the Alaska Miners Association, has a host of miners, researchers, and government officials slated to speak on a variety of issues important to the placer miner.

Preregistration fees are \$40, and must be paid by March 15. Registration after that will cost \$60. Tickets to the luncheon, banquet, and for a copy of the conference-proceedings manual are extra.

Topics slated for March 28 and 29 are placer potentials and deposits, recovery systems, sediment and turbidity, mining education, stream classification in both Yukon Territory and Alaska, and water quality. Mining areas that will be discussed include Circle, Fairbanks, Wiseman, Livengood, and the Yukon.

On March 27, there will be a strategy session and informal gathering of AMA members and conference participants.

Earl Beistline, former UA dean of mining, will summarize the conference.

For information, call (907)456-

2569 or 488-6453, or write AMA, P.O. Box 73069, Fairbanks 99707.

✕

#### Our Ganguer...

By Frank Larson, editor

Rodney Dangerfield is right: you get no respect---especially from kids. For instance, ever try to tell your kid how hard life used to be in the 'olden days'? It's tough....The old days did seem tougher, though. For instance, we had no school buses. (Remember slogging through the bitter cold to school, all bundled up like the little brother in the recent movie, 'Christmas Story'?) And cars ---even kids today have cars. When I was a kid, most families didn't even have one---but again, that was during 'The War,' as we called it. But having a car during WWII was sort of academic, because you couldn't buy tires or gas for it anyway. (You couldn't buy sugar or meat or shoes, either---you needed both money and ration stamps.) But us kids were dumb and happy. We were kept busy with 'The War Effort,' pulling weeds in the family plot (no, not the cemetery---the Victory Garden) and tearfully lugging wagons full of our favorite comic books to school for Paper Drives. Anything to help The War Effort---which brings to mind the toughest part of all: going without that scarcest, most precious commodity of all, Bubblegum....Try and tell your kid there was no bubblegum from 1942 to about 1946. That's right, kid, no bubblegum. None. Period....Where'd it go? Who hoarded it all? Who cornered the market? (Don't know, but strongly suspect it didn't go overseas to our GIs in foxholes, either.) The resins and whatnot normally found in bubblegum were probably contributed to The War Effort, too---for the manufacture of jeep tires and Mae Wests. (Does this give you the remotest hint of how good bubblegum is for your body?)...Anyhow, if you somehow managed to score a couple pieces of bubblegum back then, you secreted it, you



stashed it, you hoarded it. And you gave none away, ever. Unless, of course, Mom commanded you to give some to your sister. (Failure of compliance was automatic dismemberment.) You chewed your gum all day, blowing enormous bubbles and painstakingly peeling precious postbubble bits from your nose and eyes. At night, you religiously placed the gum near your bed---and tried not to dream of hooded, black-clad bubblegum burglars, stealthily tiptoeing to your bedside---so that it would be the first thing you spied on awakening. If you forgot and fell asleep first, you had to have Mom cut it out of your hair in the morning. (But even hairy bubblegum was better than no bubblegum.)...Yes, to a kid in the early 1940's, Ecstasy was Bubblegum---that, and Summer.... Way back, When Times Were Tough.... In news notes around the state in the past quarter, the BLM opened more than 10 million acres of federal land on the Seward Peninsula to mineral leasing and entry in November. Another 2½ million acres were opened for nominations or proposals for sale or lease under the Federal Land Policy Management Act of 1976.... Also in November, the BLM said it found no significant adverse impact from a proposed transfer of federal lands along the Dalton Highway to state ownership. An environmental study has been made, and the next step is to publish legal notices to amend the BLM land-use plan for the highway corridor. The state is relinquishing more than a million acres near the Arctic National Wildlife Refuge in exchange for other lands.... Nerco Metals, a subsidiary of Nerco Minerals, of Fairbanks, bought out the interests of its limited partners in the Candelaria mine. The Nevada mine is one of the largest open-pit silver mines in the U.S.... DGGSer George McCoy was one of seven named to the Heritage Land Bank Advisory Commission by the Anchorage Assembly. McCoy, a hydrologist in the Eagle River office, is the noted bandleader of the Loose

Moose Polka Band ("available for all Matanuska Valley weddings, dances, and potlaches").... Curt McVee, veteran BLM chief, will retire on March 30. McVee, 54, has been BLM's Alaska director since 1971.... Earth Technology Corp. of Anchorage was awarded a contract to catalog artifacts collected from archaeological surveys in Denali Nat'l. Park over the past three decades.... Moderate quakes of 5.6 and 5.0 rocked sections of the Alaska Peninsula and the Aleutians on Dec. 27. No damage or injuries were reported.... In December, the USGS released a 1,900-page-long tome summarizing its findings on 45 million acres of land either already in the national wilderness system or studied for inclusion in it. Their findings? That two-thirds of the nation's wilderness areas studied have "some potential for mineral resources".... Feb. 25 is the magic date for Joe Usibelli. That's the cutoff date in the contract between the interior coal mine and Sunco Alaska, which plans to buy and ship Usibelli coal to South Korea.... Exxon plans to drill up to 16 exploratory wells in Norton Sound. Exxon, which won 10 offshore tracts in a federal lease sale last March, will probably spud the first two wells this summer.... And a tip of the hat to the DGGSer Crimestoppers Club. In a recent gold-theft case, the DGGSer assay lab came to the rescue of the authorities. Our lab personnel proved, beyond the shadow of a doubt, that the stolen gold did not emanate with the thieves, as they had alleged, but in fact came from the diggings of the plaintiff, a miner in interior Alaska. DGGSer sleuths involved in breaking the case were Nam Veach, who performed fire assaying on the purloined gold, Stu Rawlinson and Dunc Hickmott (particle-size analysis), Milt Wiltse (mineral ID), and Maria Polly (trace-element analysis). The defendant, when confronted with the evidence, pleaded guilty and now faces 5 yr in the Crowbar Hotel. Element'ry, what?.. Cheers.

Metals Market			
	Jan. 9, 1984)	3 Months Ago (10/10/83)	1 Year Ago (1/17/83)
Antimony metal per lb (NY dealer)	\$ 1.27	\$ 0.82	\$ 0.90
Beryllium ore, stu*	\$100-120	\$100-120	\$110-135
Chrome ore per long ton (Transvaal)	\$ 48-52	\$ 48-52	\$ 48-52
Copper per lb (MW-prod)	\$ 0.72	\$ 0.73	\$ 0.81
Gold per oz (Handy & Harman)	\$ 376.88	\$ 392.68	\$ 482.10
Lead per lb	\$ 0.26	\$ 0.25	\$ 0.23
Mercury per 76-lb flask	\$ 315.00	\$ 335.00	\$ 380.00
Molybdenum conc. per lb (MW oxide)	\$ 3.75	\$ **	\$ **
Nickel per lb (cathode)	\$ 2.20	\$ 2.06	\$ 1.78
Platinum per oz (MW NY dlr)	\$ 380.00	\$ 393.80	\$ 470.20
Silver per oz (Handy & Harmon)	\$ 8.44	\$ 10.29	\$ 12.23
Tin per lb (MW composite)	\$ 6.24	\$ 6.37	\$ 6.21
Titanium ore per ton (ilmenite)	\$ 70-75	\$ 70-75	\$ 70-75
Tungsten per unit (GSA domestic)	\$ 64.48	\$ 74.84	\$ 99.60
Zinc per lb (MW-US PW)	\$ 0.49	\$ 0.47	\$ 0.41

\* - Standard ton unit (20 lb).

\*\* - Climax-concentrate list price suspended.

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