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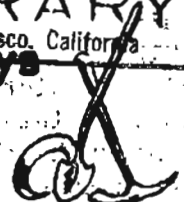
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William A. Egan - Governor

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BUBBLES AID GEOLOGISTS (Western Mining News)

Microscopic fluid "bubbles" trapped inside mineral crystals for as much as a billion years have been found by geologists to be useful clues in the search for ore deposits.

This was reported by the Interior Department in describing a newly published U. S. Geological Survey professional paper entitled "Composition of Fluid Inclusions." In a sense, said the author, Dr. Edwin Roedder of the USGS, the field inclusions or microscopic fluid "bubbles", might be considered as miniature Rosetta Stones or Dead Sea Scrolls of geology. They are clues to geologic events of the far past, when ore deposits were forming in baths of salty water. "Evidences of the formation of ore deposits lie in the common occurrence of microscopic droplets of fluids that became trapped in growing mineral crystals deposited by the hot water solutions moving through cracks in rocks millions or even more than a billion years ago," he said. "Since these droplets are 'fossil' remains of the fluids from which the ore deposits were formed, knowing in detail just what the fluids contain can provide a vital clue in the search for more ore deposits." However, he explained, it is not just a matter of reading a direct message from the past in a language we know. Scientists must decipher the changes that have occurred. Although the original material trapped in the inclusions was generally a homogeneous fluid, most inclusions have undergone complex changes in cooling to surface temperatures, resulting in formation of new phases, such as gas bubbles, new liquids or 'daughter' minerals.

The significance of much of the data obtained by researchers to date is seriously limited by problems of sample selection, extraction procedures, contamination and loss, he said.

"There is no known panacea for these problems," he said, "but regardless of their origin and history, inclusions do represent actual samples - the only samples we have - of former fluids existing at some time in the history of the earth."

"As such, they are important clues in understanding the geological *modus operandi*. Although these droplets are miniscule, they enable the geologist to tell a number of things about events of the past that would otherwise be completely hidden."

PROPERTY EXAMINATION

"Dry Creek Copper Prospect," a property examination in the Fairbanks and Healy quadrangles is completed by the Division of Geological and Geophysical Surveys, and will be released soon. Copies are available for inspection at Survey offices located in Juneau, Anchorage, Ketchikan, and College. Copies are available to the public at the cost of reproduction.

SURFACE MINING

(Conservation Report - National Wildlife Federation)
Report No. 33 Oct. 20, 1972 p. 355

Late in the 92nd Congress the House passed a relatively tough bill to control strip mining of coal. H.R.6482, the Coal Mine Protection Act, contained restrictive provisions, particularly one which would have sharply restricted mining the overburden on slopes greater than 20 degrees (Report No. 29, page 307). Inclusion of this provision would have reduced drastically the amount of land available for stripping, particularly in Appalachia. The bill passed the House with little difficulty but too late in the Second Session to be brought to a conference with the Senate, had that body passed its bill. The only chance for passage late in the session would have been for the Senate to accept H.R.6482 without change and this the Senate Interior Committee refused to do. Thus, it appears that surface mining will be another major issue in the 93rd Congress. Some observers believe that the public outcry for strip mining controls may result in the enactment of a bill in the 93rd Congress which is even stronger than that cleared by the House this year. A complete ban on stripping is viewed as a possibility.

LITTLE SQUAW GOLD

(Western Mining News)
October 27, 1972

Marmac Alaska Mines, new operator-lessee of Little Squaw's Alaskan properties, has been absorbed into Attila Resources, Ltd. which is quoted on the Vancouver market. Marmac now has a controlling interest in Attila. . . Little Squaw since Sept. 1 has staked claims along an additional mile of the Mikado shear zone, in northern Alaska's Chandalar Mining District, giving it full ownership along four miles of the mineralized zone. The firm also owns two miles of the Little Squaw mineralized zone.

THE MARKET FOR URANIUM

(The Mining Record)
By John G. Jebsen

The uranium business has seen a dramatic turnaround in the last six months since this study was first made. The cautious uncertain mood of last Christmas has been replaced by optimism and confidence in the future of uranium, caused by general recognition

of its vital role as a source of energy in the near future, as well as by a number of favorable developments. The AEC won't dump its stockpile after all, the price of uranium is firming up in spite of last year's slowdown in fuel orders, announcements of new nuclear power plants are up, and there are moves to cut the red tape causing their construction delays.

Perhaps the most significant development came in March when the AEC rescinded its plan to dump the 50,000 ton stockpile on the open market, and decided instead to feed it through its enrichment plants. They will now operate with 0.275% U235 tails assay, but the customers will still furnish uranium and pay for enrichment work on the basis of 0.20% tails. By feeding in more uranium than the customers furnish and by leaving more U235 in the tails, the AEC's electricity savings will offset the cost of the stockpile, and they can also increase capacity and postpone the time at which new, commercial, enrichment plant will be needed to around 1982.

There is one fly in the ointment so far as uranium producers are concerned. The AEC had announced last year an enrichment schedule based on 0.25% tails beginning 7/1/73, and it now appears they will continue at 0.20% instead. This means a decrease in uranium requirements of nine per cent, or about 40,000 tons if projected through 1985.

On the other hand, the latest AEC forecast of uranium requirements, made in December, is up about four per cent, and so the net decrease in requirements, including the effects of the lower tails assay, amounts to only five per cent. The forecast from 1972 through 1985 is now for 463,700 tons U308 as compared to the previous 486,800 tons.

Several other events have affected the industry. In the first quarter of this year eight new nuclear power plants were announced as compared to five in the same period last year. At this rate 1972 will be a record year and will confirm the AEC projection of 150,000 Mw nuclear power in 1980.

The price of uranium in future contracts has been inching up to over \$8/lb, after 1976, which would be equivalent to about \$7 in 1971 dollars, as compared to last year's \$6-6.50. This confirms the projection made in the December study in spite of the fact that contracts for future delivery were much smaller than anticipated in 1971, thereby still leaving some low cost uranium available for sale.

Some utilities and manufacturers are obviously not making fuel arrangements for their new plants and others have reduced their commitments. Net new forward commitments in the 11-month period ending 1/1/72 were only 5,500 tons U308 as compared to 23,600 tons in the preceding 12 months. As a result domestic and export forward commitments have actually declined, after 1971 deliveries of 13,300 tons, from 91,300 tons on 2/1/71 to 83,500 tons in 1/1/72. And the portion of new reactor cores ordered for which no uranium has yet been procured rose from 14% to 24% in the same period. This situation can be expected to change shortly as the utilities are prompted by, among other things, the firming of prices and the overcoming of delays and uncertainties of licensing and environmental impact statements.

Other utilities, wishing to secure sources of supply, are now actually getting into the uranium business. TVA has made an exploration agreement with American Nuclear Corp., and Carolina Power and Light has purchased uranium reserves in the ground from Federal American Partners. This trend can also be expected to increase concentrate purchase commitments.

Congress, having recognized the existence of the energy crisis, is now considering legislation to permit construction of nuclear power plants before obtaining environmental impact statements, saving months of lead time. (Mostly because of the National Environmental Policy Act, not one single license to start construction or operation has been issued since last summer's Calvert Cliffs decision which required stricter compliance with the Act.) The AEC is also acting to speed up the red tape by adding to its regulatory staff and by streamlining licensing procedures.

The AEC has released some new statistics since the December study was made: As of March 31, 1972, there were 134 nuclear power plants built or ordered for a total capacity of 112,503 Mwe. Of this number, 23 were operable with a capacity of 10,007 Mwe. Comparable figures 18 months earlier were 86,689 Mwe and 5,775 Mwe.

Ore reserve additions for 1971 were augmented by late submissions of data which increased the estimate used in the December study from 22,000 tons U308 to about 40,000 tons (still not final). Inasmuch as these submissions came from the well known discoveries in New Mexico, the increase is not surprising, nor does it alter the statements about declining success rates made in the December study.

SYMPOSIUM ON ROCK MECHANICS

(Newsletter of the Council on Education In The Geological Sciences) Number 47 October 1972

The 8th Canadian Symposium on Rock Mechanics will be held November 30 and December 1 in Toronto. The theme of the Symposium is "Tunneling in Rock." The \$25 registration fee includes a copy of the proceedings. Students may register for \$5. For further information, write: 8th Canadian Symposium on Rock Mechanics, c/o The Mining Association of Canada, 20 Toronto St., Ninth Floor, Toronto 210, Ontario, Canada.

PLANNING CONFERENCE

The Alaskan Geological Survey recently participated in a three day, second annual Alaska Earth Science Planning Conference, held on the University of Alaska Fairbanks campus.

"In general, participation in the Conference ensures that investigations by various agencies, institutions, and individuals are coordinated so as to avoid duplication of overlap," said Dr. Thomas E. Smith, mining geologist with the Alaskan Geological Survey. Smith continued, "The conference also provides a vehicle for promoting cooperative relationships between investigations. A third objective of the conference is concerned with advance scientific communication; participants were enthusiastic in conveying preliminary data and concepts arising from their current studies--well before they would appear in technical journals."

Participating agencies also included the Geophysical Institute, U. S. Bureau of Mines, U. S. Geological Survey, Institute of Marine Science, and the U of A Geology Department.

NEW REPORTS ON ALASKAN GEOLOGY

The Bibliography and Index of Geology (v. 36, no. 6, June 1972) published by the Geological Society of America contains the following Alaskan entries:

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Mass movements, grain-size distribution, erosion and transportation, Alaska

Case, J. E.; Barnes, D. F.; Plafker, George; others, 1972, Gravity Survey and Regional Geology of the Prince William Sound Epicentral Region; In The Great Alaska Earthquake of 1964, Geology, Parts A-B, p. 123-134, illus. (incl. geol. sketch map): N. A. S., Washington, D. C. (Reprinted from U. S. Geol. Surv. Prof. Paper 543-C) *Stratigraphy, structure, gravity anomalies, regional gradients, Alaska*

Coulter, H. W.; Migliaccio, R. R., 1972, Effects at Valdez; In The Great Alaska Earthquake of 1964, Geology, Parts A-B, p. 359-394, illus. (incl. maps, under separate cover): N. A. S., Washington, D. C. (Reprinted from U. S. Geol. Surv. Prof. Paper 542-C) *Geologic setting, drainage, submarine slide, displacements, ground breakage, damage to structures, Alaska*

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Eckel, E. B., 1972, Effects on Air and Water Transport, Communications, and Utilities Systems; In The Great Alaska Earthquake of 1964, Geology, Parts A-B, p. 704-731, illus.: N. A. S., Washington, D. C. (Reprinted from U. S. Geol. Surv. Prof. Paper 545-B)

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Eckel, E. B., 1972, Lessons and Conclusions; In The Great Alaska Earthquake of 1964, Geology, Parts A-B, p. 747-792, illus., (incl. sketch maps): N. A. S., Washington, D. C. (Reprinted from U. S. Geol. Surv. Prof. Paper 546) *Tectonics, environment, hydrologic effects, glaciers, sea waves, damage, beneficial effects*

Engdahl, E. R.; Tarr, A. C., 1970, Seismicity of the Amchitka Island region [abstr.]: *Earthquake Notes*, Vol. 41, No. 4, p. 9

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Foy, J. V.; Bishop, E. E.; Duggan, M. Y.; others, 1972, The Great Alaska Earthquake of 1964, Geology, Parts A-B: N. A. S., Washington, D. C., 834 p., illus. (incl. maps, under separate cover) *Compilation of papers cited in this Bibliography under the separate authors*

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Hansen, W. R.; Eckel, E. B., 1972, Setting and Effects of the Earthquake; In The Great Alaska Earthquake of 1964, Geology, Parts A-B, p. 5-43, illus. (incl. sketch maps): N. A. S., Washington, D. C. (Reprinted from U. S. Geol. Surv. Prof. Paper 541) *Time, magnitude, epicenter, duration, extent, aftershocks, physiography, effects on tectonics, communities, transportation, magnetism, ecology*

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Kachadoorian, Reuben; Plafker, George, 1972, Effects on the Communities of Kodiak and Nearby Islands [abstr.]; In The Great Alaska Earthquake of 1964, Geology, Parts A-B, p. 539-540: N. A. S., Washington, D. C. (Reprinted from U. S. Geol. Surv. Prof. Paper 542-F)

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Woodzick, T. L.; Willis, D. E., 1971, Strain-energy release in the Aleutian region; 1900-1970 [abstr.]: Earthquake Notes, Vol. 42, No. 3-4, p. 11

NEW MINING CLAIMS

Number of claims	Creek or Area	Quadrangle	Date Notice Posted
1	Inmachuck River	Bendeleben	September 1972
12	Granite Creek	Bendeleben	August 1972
71	North Fork Chandalar River	Chandalar	Aug. & Sept 1972
5	Roberts Creek	Chandalar	August 1972

29	Thru Creek	Chandalar	August	1972
3	St. Marys Creek	Chandalar	September	1972
4	Tobin Creek	Chandalar	September	1972
6	Big Creek	Chandalar	September	1972
1	Spring Creek	Chandalar	September	1972
5	Big Squaw Creek	Chandalar	September	1972
4	Half Dollar Creek	Circle	June	1972
6	Deadwood Creek	Circle	August	1972
3	Hope Creek	Circle	August	1972
2	Sumner Creek	Circle	August	1972
18	Harrison Creek	Circle	August	1972
2	Birch Creek	Circle	August	1972
2	Butte Creek	Circle	August	1972
5	Bachelor Creek	Circle	May	1972
5	Preacher Creek	Circle	May	1972
1	Mosquito Fork	Eagle	August	1972
4	Forty Five Pup	Eagle	July	1972
2	Fortymile River	Eagle	July	1972
1	Charley River	Eagle	May	1972
3	Chicken Creek	Eagle	July	1972
4	Gilmore Trail	Fairbanks	September	1972
46	Susitna River	Healy	August	1972
17	Minerva Mountain	Ketchikan	June	1972
1	Skoogy & Twin Creek	Livengood	May	1972
5	Steamboat Creek	Livengood	August	1972
1	Lucille Creek	Livengood	July	1972
15	McCarthy Creek	McCarthy	June	1972
8	Nelson Mountain	McCarthy	July	1972
1	Golconda Creek	McCarthy	August	1972
20	MacLaren River, West Fork	Mt. Hayes	August	1972
3	Quigley Ridge	Mt. McKinley	August	1972
8	Bond Creek	Nabesna	June	1972
4	Nikonda Creek	Nabesna	August	1972
122	Monte Cristo Creek	Nabesna	August	1972
1	Kelsall River	Skagway	August	1972
5	Big Hurrah Creek	Solomon	May-July	1972
1	Peters Creek	Talkeetna	July	1972
2	Bird Creek	Talkeetna	July	1972
9	Kashwitna River, North Fork	Talkeetna Mountains	August	1972
96	Watana Creek	Talkeetna Mountains	August	1972
8	Watana & Jay Creeks	Talkeetna Mountains	August	1972
5	Eureka Creek	Tanana	September	1972
1	Boulder Creek	Valdez	August	1972
1	Slate Creek	Wiseman	July	1972
7	Smalley Creek	Wiseman	August	1972
2	Canary Creek	Wiseman	August	1972
2	Alder Creek	Wiseman	August	1972
3	Koyokuk River, Middle Fork	Wiseman	August	1972

METAL MARKET

<u>Metals</u>	<u>Nov. 6, 1972</u>	<u>Month Ago</u>	<u>Year Ago</u>
Antimony ore, stu equivalent			
European ore	\$7.35-8.35	\$7.03-8.16	\$8.64-10.00
Barite (drilling mud grade			
per ton)	\$18-22	\$18-22	\$18-22
Beryllium powder, 98Z, per lb.	\$54-66	\$54-66	\$54-66
Chrome ore per long ton	\$24-27	\$24-27	\$25-27
Copper per lb.	50.6c	50.6c	52.9c
Gold per oz.	\$64.51	\$64.27	\$42.90
Lead per lb.	14.5c	15.0c	14.1c
Mercury per 76# flask	\$255	\$255-270	\$283-286
Molybdenum conc. per lb.	\$1.71	\$1.72	\$1.72
Nickel per lb.	\$1.53	\$1.33	\$1.33
Platinum per oz.	\$130.42	\$139.56	\$120-125
Silver, New York, per oz.	184c	172.1c	140.1c
Tin per lb.	178.3c	181.3c	167.1c
Titanium ore per ton (Ilmenite)	\$30-35	\$30-35	\$30-35
Tungsten per unit	\$55.00	\$55.00	\$55.00
Zinc per lb.	18.0c	18.0c	17.0c

State of Alaska
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 Division of Geological Survey
 P. O. Box 80007
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FIELD INVESTIGATION
 IS THE FIRST STEP IN
 RESOURCE DEVELOPMENT



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