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AS GOOD AS GOLD

(Reprinted from Metals Week, April 15, 1974)

Even though gold has risen 289% since the beginning of Jan. 1972, the graph (p. 2) shows how very closely copper, lead, zinc, and silver prices on the LME have been staying in relation to gold.

Zinc, which peaked at 87.3¢ on Dec. 4, 1973, is the only metal to significantly change its basic price relationship with gold by more than 40%. But during the last two months all four metals are returning toward their Jan. 1972 price ratio to gold.

Such close tracking of inter-metal price ratios is indicative of strong speculative activity (rather than producer/consumer price hedging in a physical market where supply and demand are the traditional price factors). Traders are turning into a twin-breed, one engaging in straight hedging and the other switching from copper to silver to zinc, or whatever, as the market opportunity arises. However, only 10% of the LME turnover is speculative, according to LME chairman Frederick F. Wolff (MW, Apr. 8, p6). Another feature in today's market is currency shunting whereby a holder of yen might move into copper before cashing in the copper for deutschemarks.

The effects of market sophistication, currency nervousness, and speculation on the price of gold have, in turn, carried through to the LME, Comex, and the Mercantile Exchange. Traders even report that mercury and nickel are now being used as speculative commodities. So the old adage "as good as gold" also applies to copper, lead, zinc, and silver--at least on the LME.

Footnote: The graph is plotted using the METALS WEEK price database from Jan. 1972 to the end of Mar. 1974. It shows the index of the ratios of the weekly average cash prices for each metal to the London gold final quote. (The ratio in the first week of Jan. 1972 is equal to 1.0.)

THE SMALL MINER: THE MINER'S CREED

by Arden L. Larson, President, Multi-Metals, Inc.
(Reprinted from The Mining Record, October 10, 1973)

Perhaps the most difficult time in the life of a small miner is that time when he is discouraged. We are all full of our ups and downs but when we are down we feel like taking a case of powder and blowing the hole shut. We live a life full of hardship and many disappointments. More often than not, we must take these rough times alone and that is the worst part.

Many of us turn to our family for encouragement, others turn to religion. We all turn to ourselves. We are all alike in many ways, we are miners. As miners we all exhibit a character so typical of our American heritage that we know why our country is so strong.

Many of you have visited my mill and read the creed that I have on my wall. Most of you have wanted copies of it. I can not claim this creed as an original, it came out of an unknown mining journal that I read several years ago. As soon as I read this creed I copied it and have lived by it ever since. When I get very discouraged I read it carefully, pick up my chin and my spirits and tackle the problem at hand. I am taking the liberty of introducing you to this creed in the hope that it can give some of you a pat on the back or a kick in the pants (which ever you need). It is:

Remember patience and perseverance are our trademark, hard work and hardship our life, and happiness and success our destiny.

BIRTH ANNOUNCEMENT

The Mines Bulletin, in keeping with its continuing tradition of hard-hitting, timely journalism, is proud to announce the arrival of Deborah Leigh Klein, 6 lb. 4 oz. She was born last March 25. Mother, daughter, brother Timothy, and father, DGGS stratigrapher Robert, are all reportedly doing fine. Congratulations, Bob and Janet.

AEROMAGNETIC FLIGHT PROGRAM BID LET

The Geometric Corporation of Palo Alto, California was the low bidder for the DGGS 1974 Aeromagnetic Field Program contract. Their bid of $5.95 per line mile was lower than three competitors: Aero Service Corp., Geoterrex Ltd., and LKB Resources.

Areas to be flown in the 1974 program are the western Brooks Range and the Ambler River and Baird Mts. quadrangles. The areas will probably be flown in June and July.

For the first time, the data will be digitally recorded in the aircraft and will be processed and contoured on maps by a high-speed digital computer. (Previous aeromagnetic flight programs have used analog recorders.) The finished aeromagnetic maps will be made available to the public in early 1975, following a general announcement of sale in the Mines Bulletin.

EVACUATION OF UNNAMED GLACIAL LAKE CONTRIBUTED TO 1971 MATANUSKA VALLEY FLOOD

by Don L. McGee, DGGS Petroleum Geologist

In August 1971, a flood occurred in Alaska's Matanuska Valley. It was caused by heavy precipitation and the breaking of a moraine dam, and resulted in extensive highway damage near the confluence of Granite Creek and the Matanuska River, 15 miles downstream (Anchorage D-6 quadrangle).

The west tributary of Granite Creek heads in several glaciers that contribute a substantial amount of water to the system. A small unnamed lake, 3/4 mile long and 1/2 mile wide, with about 1647 acre-feet of water, had been formed behind an end moraine about 2 miles downstream. It was the breaking of this dam and subsequent dumping of the lake that caused much of the damage. Fortunately, there was no habitation near the mouth of the creek, and no human life was lost during the peak flood period.

History

There were several periods of recognized glacial advance and retreat in the broad valley in which the lake was formed. The youngest glacial advance carried within its front the material to form the unconsolidated dam. This poorly sorted material ranged in size from very fine silt to 6-foot boulders. The natural dam extended across the valley for about 1/3 mile, and was over 500 feet wide near the discharge point.

As the glacier retreated, water filled the depression behind the dam to its spill point, and a 46-acre lake with a maximum depth of 94 feet was formed. When the spill point was reached, the excess water drained over the dam, forming a small glacial stream that flowed relatively slowly over the flat upper surface of the dam and increasingly faster down the steeper foreslope of the end moraine. The stream probably began excavating a V-shaped channel early in its history, and large boulders either remained in place or were dropped into the channel by the excavation of fine material. The velocity of the water at this time was not high enough to remove the boulders.

Geology

The lithology of the end moraine is predominantly unconsolidated light yellow and gray silts. However, the material is not sorted and the grain size ranges from clay size to boulders several feet in diameter. Individual grains are angular, and the angle of repose of the walls of the breached portion of the moraine is high. After the deposition of the moraine forming the dam was complete, the glacier retreated to its present position. Landslides of angular blocky boulders of quartz diorite then occurred. These slides covered both the east and west ends of the moraine, and extended almost to the middle of it. Talus from the eastern ridge is prevalent; the entire east shore of the lake is talus, consisting of large, angular blocks of quartz diorite. Most of the talus slopes are old and support vegetation. There is no evidence of recent landslides that might have contributed to the breaching of the moraine.

Flood

The major flood period for the Granite Creek drainage was August 8-11, 1971. Precipitation totals of 3 to 6 inches were recorded in the Palmer-Talkeetna area (Lamke, 1972). Leakage through the moraine itself was minimal because of the lack of lateral permeability. However, the combined normal flow from the melting glaciers and the runoff water from the drainage area rapidly eroded the soft till material. The breaching of the till dam probably began near the foreslope of the moraine and progressed rapidly to the lake. Erosion, once the lake was reached, was very rapid, and over 400 million gallons of water were discharged in a few hours.

The flood scoured the bed of the west fork of Granite Creek clean of all vegetation. It removed much of the sand-size sediments, leaving a sterile boulder flood plain. During the peak flow, large boulders weighing several tons were carried hundreds of yards downstream and deposited on the flood plain. Further downstream, where stream velocities were lower, an alluvial fan was formed below the confining canyon. The Glenn Highway was washed out in several places. The highway embankment on both sides of the bridge was washed out, and further west a secondary channel washed out a section of the highway. There was deposition of sand, gravel, and boulders in both the original stream channel and the secondary channel (Lamke).

A small body of water remains in the area where the glacier had previously excavated below base level. The channel through which the lake evacuated is V-shaped, with steep walls and cuts to the base of the unconsolidated morainal material. Scattered boulders have fallen from the walls and form a part of the stream bed in the channel. Vegetation is reappearing along the stream bed.

Conclusions

Rapid discharge of water from both natural and manmade dams pose a hazard to any human activity in the drainage area below the dam. Poorly sorted till is subject to rapid erosion when exposed to large stream flows, and natural lakes in glacial environments should be examined before human activity is established in these drainages.

Statistics

- . Lake size: 46 acres; length, 3/4 mile; width, less than 1/2 mile.
- . Lake elevation: 3352 feet.
- . Elevation at bridge where Glenn Highway crosses Granite Creek: 490 feet (est).
- . Maximum water depth of lake: 94 feet, measured near outlet of present stream.
- . Average depth of water (entire lake): 35.8 feet.
- . Acre-feet: 1647.
- . Estimated water originally contained above base level: 430+ million gallons.
- . Maximum discharge of Granite Creek during flood period: 58,600 cfs (Lamke).

Reference

Lamke, R.D., 1972, Floods of the Summer of 1971 in South-Central Alaska; U.S. Geol. Survey Water Resources Division Open File Report.

DGGS OPEN-FILE REPORTS TEMPORARILY WITHDRAWN

All but one of the DGGS open-file report series documents (AOF's) have been temporarily withdrawn from the purchasing public. They will be reissued following reformatting and standardization. One report, AOF-44, "Estimated speculative recoverable resources of oil and natural gas in Alaska," by R.M. Klein, P.L. Dobey, and K.M. O'Connor (8. p., map sheet---scale 1:250,000, $2.00), will remain on sale. It may be purchased from Petroleum Publications, Inc., P.O. Box 2278, Anchorage, AK. 99510. Despite the temporary withdrawal, the public may inspect all AOF's at all DGGS offices, including the following one, which will soon be released:

- . AOF-46, Petrologic studies in the Fairbanks district: I. Molybdenum mineralization at the Silver Fox mine, by T.C. Mowatt.

Further details on AOF availability will be given in next month's Mines Bulletin.

IS THE NEXT CRISIS U.S. ORE IMPORTS?

(from The Mining Record, March 13, 1974)

CHICAGO, ILL. - The next shortage crisis to be inflicted on an already crisis-weary U.S. economy will likely involve imports of mineral ores vital to the expanding appetite of American industry. Ironically, the problem is not a matter of global shortages, but rather an inability to get sufficient quantities of these materials into the country to meet anticipated needs.

These observations have been drawn by Thomas N. Roseberry, President of Intec, Chicago economic and research consultants, after reviewing a series of studies on the problem conducted by the firm during the past five years. His conclusions are predicated on the fact that the U.S. is expected to import more than 60 million metric tons of ore (principally, iron and buaxite) annually in 1980, and has no docking facilities existing or planned to accommodate the growing fleet of superfreighters which have made transport of bulk goods today faster and more economical than at any previous time in the history of world shipping.

The Intec studies, Roseberry notes, indicate that there are presently 45 superfreighters (cargo-carrying vessels in the 100,000 to 260,000 deadweight tonnage range) hauling much of the 200 million metric tons of ore currently being transported by sea throughout the world. This total is expected to double by 1980, necessitating a need for 173 such ships at that time.

"Yet the United States does not possess a single functioning superfreighter berthing, nor plans to construct any in the foreseeable future," the consultant declares. "I believe we must begin municipal or private construction of these facilities immediately