The Life and Times of the H-W Orebody Formation

From a presentation made by Cliff Pearson, Chief Geologist, Myra Falls Operations

The H-W orebody is thought to have formed hundreds of millions of years ago, through processes similar to those taking place in the Juan De Fuca Ridge area off the west coast of B.C. right now.

Recent newspaper articles have related the mining industry's interest in current scientific studies at the Juan De Fuca Ridge - indicating how these studies would aid our exploration efforts. This led a gentleman from Denman Island to write a letter to the Editor questioning these statements and saying that attempts to relate current ore-forming processes to those that produced the H-W orebody "stretched his imagination". This is, in fact, what such scientific study should do - stretch our imaginations and help us in the process of discovery.

Discovery

Looking through Company memoranda I found that the discovery of the H-W orebody was generally noted by a terse statement such as: "With the Lynx Mine ore reserves declining, an aggressive exploration program was started in 1979. This program was very successful in locating a massive sulphide deposit that is now the H-W Mine". All true, as far as it goes, but this factual statement misses the essence of exploration - the need for creativity and the value of experience. The Science Centre in Seattle recently had a feature display on "Creativity", defining it in the following way:

- seeing patterns and anomalies
- challenging assumptions
- making connections
- seeing in new ways
- taking advantage of chance

The H-W discovery didn't just happen it was "created" by:

- seeing patterns in rock (stratigraphy)
- seeing anomalies (trace element studies and alternation zones)
- challenging assumptions (statements like "in the unlikely event we find anything at depth, we won't be able to mine it")
- making connections (Myra-Price fault)
- taking advantage of chance (spending money on drilling)

The H-W Discovery Hole was made December 16, 1979 and we knew it was an orebody December 17, 1979 when we observed management driving up and down the road past the drill, pointing out likely headframe locations. In general, though, discovery leads to:

Delineation

Discovery tells us that "something" is down there, delineation gives us a better idea of what that something is - generally through a process of more and more drill holes, bulk sampling and physical examination. This process, however, at best samples only a minute proportion of the orebody - often less than 1 part per million and from that minute sample all manner of crucial decisions are made. What makes this process work, when it works, is the science of statistics, the use of experience (comparing to other orebodies we have known) and the predictability of "Mother Nature".

"Delineation" Example

Let's imagine that this whole area, Anchor Inn and all, is covered suddenly with volcanic sediments to a depth of 1,000'. Don't worry, we are assuming that this happens after we have all left.

Thousands of years later, a geological (or archaeological) team is mapping the area by drilling holes down to this "favourable horizon" - looking for hotels (perhaps because they had pubs attached).

On a typical exploration drillhole spacing we would be very "lucky" to drill one hole through this hotel and on an ore delineation drillhole spacing would have two to three drillholes as our only database. From whatever information these drillholes provided, the geologist would be expected to estimate what this hotel (Anchor Inn) contained - how many rooms, how many restaurants, how big the pool, the name of the person at the front desk, etc. - having physically sampled only one part per million of what's physically here.

An interesting corollary here is that the drilling pattern might start to "map out" the town and they would start to recognize that hotels were concentrated on the coastline between residential areas to the west and ocean sediments (beach front) to the east, thus defining our main exploration targets - much as we have done at the Myra Falls property. (looking for orebodies of course, not paleo-pubs!)

Exploitation

If the evaluation leads to a production decision, the curtain rises on the "final act" making it all work. This is where mining skill and judgement

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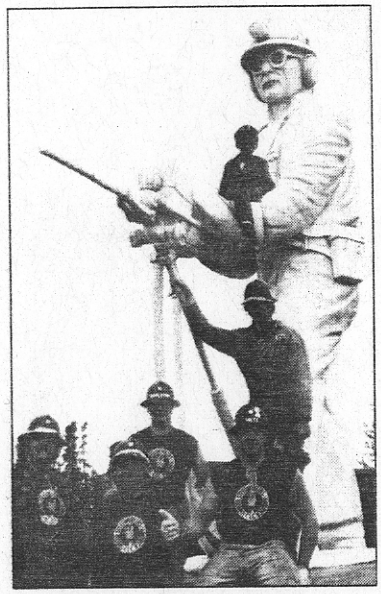
Westmin Miners Win at Thompson

Merv Templeton, Former Westmin Employee was successful in wrestling away the NATIONAL KING MINER title from Inco for the first time since the event started in Thompson, Manitoba 20 years ago. The King Miner is the competitor who shows the most consistency in maintaining the lowest score in all 12 events. Congratulations to our winning team and to the new National King Miner, Merv Templeton!



From Left to Right

Dan Lefebvre; Greg Hartle; Merv Templeton, National King Miner, Danny Hiltz and Dennis Yarjau, Campbell River King Miner.

Miners Win Gold

The 6th Annual Mining Competition was held Saturday, June 30th. The Campbell River King Miner award was won by Dennis Yarjau, Electrician, H-W Mine, for the third consecutive year.

Dennis Yarjau surrounded by all his winning trophies.

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is vital at the interface between the physical reality of the orebody and the totality of our assumptions about it.

This is where the mine geologist and the mining professional work and where the need for creativity, flexibility and innovation is paramount. The mine is not a factory that can control its supply of raw materials – it must live with the orebody as it unfolds. We can control some aspects of the mining process, and we do that through:

1. Counting and measuring – enabling us to control costs, ground stability, mill recoveries, etc.
2. Sampling and predicting – as in the delineation stage, we sample a minute portion of the raw material. But now we can use our hard-won experience factors to achieve acceptable predictions of what we can produce. Once again, communication between departments is vitally important.

Renewal

Successful exploitation leads inevitably to depletion of the orebody, and long before that happens we must be exploring for replacements. We are at this stage with the H-W orebody, with multi-million dollar exploration programs in place – using experience from all stages of the H-W Mine's life, new knowledge from scientific study, creativity and diligence to search for the next H-W.

Conclusion

I would like to close with a quote from a man named Michael Chender, President of Metals Economics Group, Inc. He came into the mining industry late in life and, I think, gives us a fresh perspective on what mining is all about. "I feel very privileged to be in this particular industry. All of us, whether in the exploration, production, or financial end of the business, are directly and continually involved with the great drama of mankind.

On the one hand, any kind of geopolitical upheavals or changes in the world economic picture may directly affect our planning and operations. On the other hand, the development of our business is totally dependent on the way the earth happened to burp hundreds of millions of years ago.

Therefore, I'd like to point out one factor in the success of the feasibility study that you won't find in any textbook — a sense of humour, and the openness and flexibility it engenders. With the ups and downs, the bizarre twists and turns, the "eurekas" and the bitter disappointments that are part and parcel of prospecting and developing the earth's wealth, it takes guts and humour to stay with it".

Strathcona Park Challenge Cup

From Left to Right

"The Scissorbill": Tim Whillans, Engineering – Back Packer; Mike Petrina, H-W Mine – Canoeist; Duncan Kerr, H-W Mine – Cyclist; Mike Mular, Mill – Canoeist and Paul Lamoureux, Purchasing – Runner. Westmin placed third in a field of eight teams.