

June 27th, 1973.

INTERVIEW WITH DR. FRANC. R. JOUBIN
re BRALORNE MINE, BRIDGE RIVER, B.C.

On June 26th from 11:00 a.m. to 12:00 noon and on June 27th from 9:00 to 11:00 a.m. I discussed the exploration possibilities at Bralorne with Dr. Joubin in the Bralorne office.

Dr. Joubin reviewed the two Dr. D.D. Campbell reports and made the following comments:

(1) Dr. Joubin agreed that the Cadwallader Fault structure was probably one of the best known in Canada at the present time for the discovery of economic gold of quartz vein occurrence. This observation was based on past performance and general geological conditions. Dr. Joubin pointed out that the general favourable environment could very likely extend some miles to the southwest ^{east} and that the same association of rocks present at Bralorne-Pioneer occurred again at McGillivray some 20 miles away to the southwest ^{east}. He suggested, as a sideline, that Bralorne should probably think in terms of reviewing all existing data about other mines in the district situated in this general direction.

(2) Dr. Joubin agreed that Dr. Campbell's recommendation concerning exploration above the 8 level at Bralorne was probably okay as a first approach, since it was relatively inexpensive, but that the main target should be below 8 level and, more particularly, at extreme depths in the various mines.

He outlined his views as to the general rock structure consisting of the Fergusson over-thrust sediments dipping to the northeast

and the Cadwallader serpentine fault zone dipping to the southwest. He felt that these met and formed a peak at the Pacific Eastern property situated in the southeast part of the camp and that the "roof" was quite broad at Bralorne, i.e. much higher than the present surface, and was situated at intermediate elevations at Pioneer. He stated that while he was in the Bridge River camp, he had not actually determined the ridge at which these two structures met in terms of topography and relative elevation, but that he felt this was an important consideration in any overall geological evaluation.

(3) Dr. Joubin noted that there was an absence of appreciation in Dr. Campbell's reports of the 27 vein in the Pioneer mine and also the fact that, in his opinion, the transverse faults were important. Likewise, Dr. Joubin emphasized the ribboning structure in the quartz vein as being always associated with economic gold values. He compared it to similar conditions at Grass Valley in California and Cripple Creek in Colorado as representing continuous movement during or before mineralization.

(4) Dr. Joubin also noted that in Dr. Campbell's report there was no mention of albitite dykes which constituted the end face of the soda-rich granites and, in his opinion, had a very close relationship to gold mineralization.

Dr. Joubin doesn't believe that the soda granites are completely unproductive. He again sited the 27 vein as an example. He also noted that there was a definite improvement in the gold content of the veins as they approached the soda granite and that the re-sealing of fractures by the albite faces is important.

(5) Dr. Joubin stated that core drilling of 'A' size gave extremely good results and that there was no reason to use any larger size core. Diplomatic questioning regarding poor core recovery at Bralorne did not alter this opinion.

Subsequently, Dr. Joubin touched briefly on the Bacon & Crowhurst report. He made the following comments:

(1) In principle, Dr. Joubin agreed quite strongly with the approach that the 51 vein be explored in detail on the way down through the mine and that, should sufficient ore be found, the mine could be placed in production on these discoveries. He also gave the impression that it was obvious that the 77 vein should be pursued below the present workings.

(2) Dr. Joubin again noted that there was a basic indifference to the Pioneer mine possibilities, but said that the Pioneer vein structures had, in his opinion, fallen off drastically in gold content and were undoubtedly uneconomic at the present time.

He pointed out, however, that there should be excellent exploration chances in the areas between the Pioneer and the Bralorne workings. He produced a long section, which is now in Bralorne's possession, showing the downward continuation of the 27 vein beyond the stoped areas. This was outlined by one or two diamond drill holes from the long crosscut driven out at the Bralorne 26 level elevation. He stated that the vein had been intersected and, although low values were outlined, he felt that there were good possibilities for the discovery

of further orebodies. He marked on the map the approximate position of these drill holes and suggested that the records be searched for this information.

(3) Dr. Joubin stated that he was in no position at this time to make any comment as to the estimated costs but felt that the projected Bacon & Crowhurst costs were reasonable and probably adequate.

(4) Dr. Joubin said that, in his opinion, the ore predictions were also reasonable, based on conservatism.

(5) Dr. Joubin felt that the area between 16 level and 20 level and 51 vein should also receive attention, although he said he realized that this area was situated a long way from the Crown shaft and would probably be explored later.

Dr. Joubin made the following general observations:

(1) During Dr. Joubin's time at Pioneer, he had compiled general geological sections and projections over the whole camp. He suggested that these be re-examined in light of the current price of gold. He made particular reference to the possibilities toward the Pacific Eastern mine and said that, in his opinion, this area deserved further exploration. He stated that difficulties regarding unsuccessful negotiations with Noranda, who held the ground at the time that he drove the 24 Pioneer level out in this direction, curtailed to a large extent serious work.

(2) Dr. Joubin discussed the fact that the 27 vein narrowed down in the bottom of the Pioneer mine and by the time that the 24 level

elevation had been reached, the ribbon structure had disappeared and little or no gold was present. The quartz vein continued and drilling below the workings disclosed strong structural conditions probably representing thrust movement along curved surfaces producing quartz lenses.

(3) Dr. Joubin discussed exploration of the Taylor vein which was carried on very close to the surface. He personally carried out the initial work and is curious as to whether the 451 Bralorne level fully explored and delimited the ore possibilities at a later date. He said that there was some shallow high-grade erratic ore stoped during his time at Pioneer.

(4) Dr. Joubin reiterated that he felt very strongly about the genetic relation between the albitite dykes and the gold mineralization. He quoted similar conditions in Yukon-Alaska gold placer deposits. He said that the discovery of fine-grained disseminated arsenopyrite in albite dykes had always been an excellent indication of gold values close by and was always worthy of further attention.

(5) Dr. Joubin mentioned that he had written a paper for the World Geological Congress and that he had also written a paper for the Western Miner about 1942, both of which he felt contain a lot of useful information.

(6) Dr. Joubin thought that the possibility of using geo-chemistry on the surface between Pioneer and Bralorne should be considered. He said that Dr. Warren from U.B.C. had found anomalous situations there some years ago but that these had never been properly explained. A little underground work had been done in this area and Dr. Joubin himself

had drilled some holes from the surface. A tangle of parallel veins with erratic values had been discovered but he admitted that most of these values were contained in sludge samples. Some surface trenching had been done but Dr. Joubin thinks that the work has not been finished.

(7) Dr. Joubin reviewed briefly the King mine. He said that the possibilities, in his opinion, were not good in this area.

(8) Dr. Joubin noted the fact that mariposite and scheelite usually appeared at the extremities of the vein systems, and this was usually considered a bad sign for economic gold mineralization. He also pointed out the presence of sphalerite was always considered to be a good association and was invariably accompanied by the better gold values.

(9) Dr. Joubin discussed the interpretation of diamond drill results. He said that core intersections should most definitely not be relied upon for grade determinations. This corresponds exactly, of course, with the observations made by the Bralorne staff who consider that diamond drilling should be conducted for structure, chiefly the presence of quartz veins, and that the proper calculation of gold content can only be made after drifting along the veins has been completed.

In about two months time, after Dr. Bacon and Paul Weishaupt have had an opportunity to firm up a lot of exploration ideas, he would be willing to discuss the general program and perhaps offer helpful advice. It is recommended that this procedure be followed because obviously Dr. Joubin possesses a lot of experience in the area.