

Inquiry into Greenfields Mineral Exploration and Project Development in Victoria by the
Economic Development and Infrastructure Committee

Submission by Allan G. Rossiter PhD, consulting geologist

Mineral Prospectivity of Victoria

Gold

Victoria remains one of the great gold provinces of the world despite the inability in recent years of corporations to come to terms with the small size and inhomogeneous nature of the typical Victorian deposit. The purpose of this submission is to concentrate on commodities other than gold, but it should be pointed out that more work should be done exploring for large, homogenous gold deposits of the Fosterville type.

The gold in such deposits is too fine to see in a pan and so these orebodies could not be detected by the early prospectors. The relative lack of quartz would also have put the old-timers off the scent. Doubtless a number of such deposits remain undiscovered in Victoria. Careful examination of geophysical information could establish where unmapped faults occur and these could be investigated geochemically for gold anomalism. Geoscience Victoria would be well placed to carry out such work. The Cornella East prospect is of this type but has had virtually no work done on it for 15 years despite licences over it being renewed many times.

The deep-lead gold deposits of central Victoria have received little attention from mining companies in the last 20 years despite the enormous resource present. Perhaps it is time to examine whether new technology such as that developed for the continuous mining of coal seams could be applied. Certainly pumping technology has come a long way since these deposits were last mined.

Tungsten/tin/molybdenum

Recently, interesting molybdenum deposits have been found in the Corryong area, but opportunities for these metals exist further west as well. Central Victoria is not very far from northern Tasmania which hosts a world-class tin-tungsten province. Production and reserves at the Tasmanian deposits total 800,000 tonnes of tin and 200,000 tonnes of tungsten, together worth more than \$20 billion at current prices.

The granites of central Victoria overlap in age with those in (particularly northeastern) Tasmania. The largest tin deposits in Tasmania are of limestone replacement type and the largest tungsten orebodies are skarns. Given a paucity of limestone, central Victoria probably has more potential for porphyry and stockwork deposits and sheeted vein and greisen mineralisation.

There are many references on central Victorian topographic maps to tin, tungsten and wolfram. Known deposits of tungsten, tin and molybdenum are numerous, but production has only been small. There are tantalising references in the literature, such as E. J. Dunn's description of

“remarkable quartz-tourmaline breccias” of widespread extent in the Bellell Creek area. Given the combination of deep soil, thick bush and poor access in central Victoria, it would not be surprising if important deposits have been overlooked. The main tungsten mineral present is scheelite which is practically impossible to identify without an ultraviolet lamp.

The Wilks Creek, Tin Creek and Monkey Gully prospects all lie on a lineament which coincides with the median line of the Selwyn Block. At each, a soil tungsten anomaly approaching 2 km in length and up to 1 km wide is associated with granodioritic rocks. The presence of tin at Tin Creek implies an unexposed fractionated cupola, while the presence of molybdenum at Monkey Gully may be related to a buried trondhjemite intrusion.

Only one hole has been drilled at Wilks Creek and this encountered a post-mineralisation intrusion in the critical interval. The only hole at Tin Creek did not intersect the inferred cupola which is probably the best target at the prospect. At Monkey Gully recent more-detailed soil sampling indicates that the six drill holes drilled there probably did not properly evaluate the most prospective zone. The best intersection at Monkey Gully was 10 m @ 0.33 percent tungsten trioxide (including 6 m @ 0.43 percent). Molybdenum reached 0.39 percent over short intervals in the deeper parts of some holes.

Stream-sediment sampling in the Powelltown area has found tin and tungsten values up to 440 ppm and 105 ppm respectively that may be related to Aberfoyle-type mineralisation associated with the fractionated inner zone of the Tynong Granite. Mineralisation of this style (including greisens) and granodiorite-associated porphyry tungsten deposits similar to those in southeastern China appear to be the main targets in central Victoria. Geoscience Victoria should probably have carried out mapping in the areas of interest before bushfire regrowth.

Copper/lead/zinc

Island arc/rift rocks of Cambrian and Silurian age occur in Victoria and are prospective for volcanogenic massive sulphide, skarn, porphyry copper, and (probably) epithermal gold deposits. The Late Silurian volcanic rocks in the Benambra area are probably being adequately explored, but Cambrian rocks in western Victoria are much more extensive, are grossly under-explored and probably have far more potential. A proposed major effort by Geoscience Victoria to generate basic data for this region is most welcome and should be encouraged by the State Government.