PERTEMUAN PERSATUAN
Meetings of the Society

Ceramah Teknik (Technical Talk)

Geochemical Exploration for Gold Mineralisation in Malaysia

A.G. GUNN

Laporan (Report)

Mr. Gunn's talk held at the Geological Survey Department, Kuala Lumpur on 6 May 1995 attracted about 30 members of the GSM and staff of the GSD. The speaker was in Malaysia briefly to deliver his talk in Kuala Lumpur and at the Geological Survey Department in Ipoh before proceeding to Townsville, Queensland to attend a major geochemical conference there. His talk in Kuala Lumpur was jointly sponsored by the Society and the GSD.

Summary

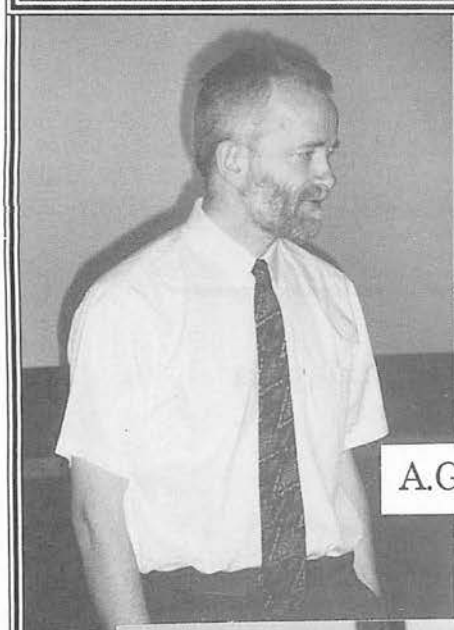
The talk of the primary gold output from Malaysia is derived from the by-product of the Mamut porphyry copper mine in Sabah. Significant production is also derived from epithermal siliceous replacement deposits in the Bau district of Sarawak. In Peninsular Malaysia, current gold production comes from small alluvial workings. However, primary mesothermal lode gold deposits are being worked in Kelantan and Pahang. Raub, Kuala Lipis and the Selangor-Negeri Sembilan border areas have also been mined. Mineralisation has also recently been discovered at Lubuk Mandi and Mersing.

Mesothermal lode-style gold mineralisation were studied in the GSD-BGS programme to determine the optimum exploration methodology. Favoured sites of mineralisation are areas of high strain within fault- and shear-zones subsidiary to major regional strike-slip faults oriented north or north-northwest. At Raub, the north-south oriented ore zone has been mined over a strike length of 6 km to a maximum depth of 335 m. Discontinuous high grade ore shoots occur sporadically in zones of repeated late brittle deformation where multiple episodes of veining and recrystallisation have taken place. Low grade disseminated ore may form a near continuous envelope around the rich ore shoots. At Lubuk Mandi, gold was introduced into the vein system contemporaneously with galena and sphalerite. In contrast, at Penjom a complex ore mineral paragenesis has been established with gold associated or intergrown with galena, molybdenite, chalcopyrite and a range of Bi, Pb, Ag and Au telluride minerals. Hydrothermal alteration around the gold-bearing veins is generally of low intensity and of limited areal extent.

The exploration methodology of the GSD-BGS programme is discussed which includes panning of heavy mineral concentrates, stream sediment, soil sampling and shallow pitting. Geochemical methods can be utilised effectively to detect potentially mineralised regional structures and to pinpoint targets for detailed sub-surface investigation. As and Pb are potentially useful pathfinder elements. Catchment geology should be taken into account during data evaluation due to varying background concentrations of these elements in different lithologies. The dispersion mechanisms of these elements in the secondary environment will generally differ from that of gold. The study highlighted the severity of the nugget effect associated with lode gold mineralisation and the difficulty of obtaining a reliable estimate of the gold contents of geochemical samples. Considerable potential exists for the discovery of mesothermal lode gold deposits in Peninsular Malaysia.

Jimmy Khoo

Technical Talks



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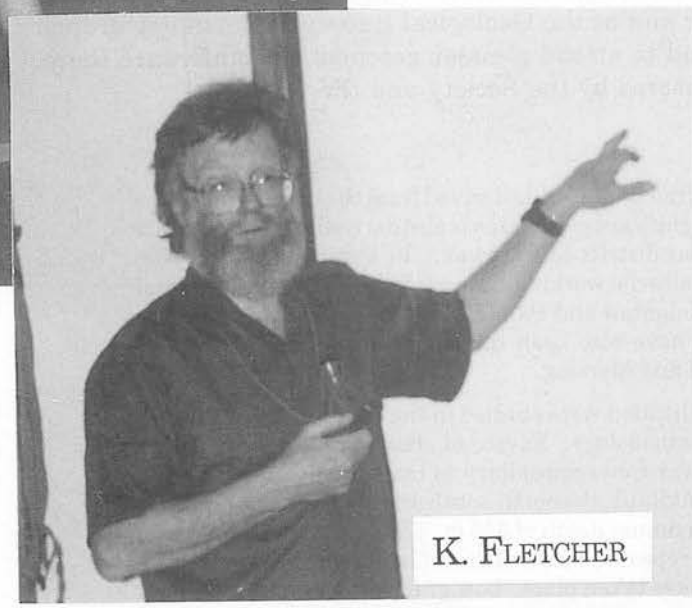

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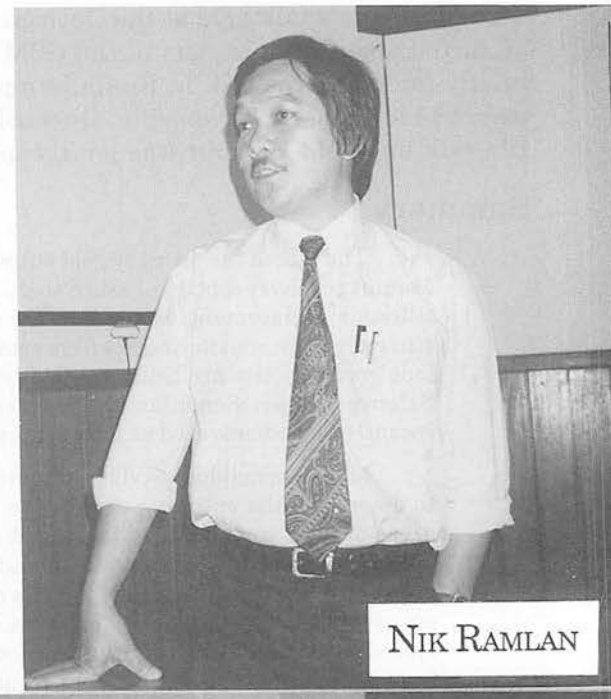

NIK RAMLAN