

Avoca struggles against a combination of problems

THE AVOCA MINE, 40 mi south of Dublin, is located in one of Ireland's great tourist attractions—the beautiful "Vale of Avoca" noted in the Irish poet Moore's "Meeting of the Waters." The mine is on the left bank of the Avoca River. The government has actively supported the operation, management and workers have kept costs down as much as possible, and Avoca has everything going for it—except ore grade.

The mine is currently producing from two underground lodes, the Pond and the South, and from an open-pit extension of the Pond ore. Mill heads average 0.64% copper and 7.16% sulphur, and concentrator recovery of the two values is 87% and 70%, respectively.

The pyrite and copper concentrates are trucked 7 mi to the port of Arklow. The pyrite concentrates, containing 48.5% S, are received by the government's Nitrigin Eireann Teoranta. The copper concentrates, containing 20% Cu, are shipped to Rio Tinto Patino SA in Spain and to Philipp Brothers AG in Sweden.

Avoca Mines Canada Ltd., the parent company, has not made a profit on the operations since they started up in November 1970—although not for want of trying. Judged by most operations, Avoca Ireland has performed well in the face of inflation; a dull—if not deadly—market, and lower than expected grades. The lack of profits has negatively affected search for better ore—which may be but a will-o'-the-wisp. The possibility of a takeover by a new owner may improve Avoca's prospects by the infusion of more money. (See box.)

Geology and mineralogy at Avoca

The massive sulphide orebody is thought to be of Ordovician age and is associated with island-arc acid volcanism—rhyolite, rhyolitic pyroclastics, volcanogenic and clastic sediments—within the Appalachian-Caledonian tectonic framework.

Submarine, late-stage volcanism, undeformed as a genetic model, has massive stratabound sulphide capping disseminated ore stockwork. There is low greenschist metamorphism, and the orebody is isoclinally folded.

The orebody, aligned northeast to southwest, is generally tabular and stratabound in both massive and disseminated forms, with 25° to 35° ore-limit plunges. The regional dip is 55° to 65° southeast. Massive sulphides are up to 60 ft wide and 1,500 ft along the strike length. Disseminated sulphides are up to 80 ft wide and 1,500 ft along the strike. The three significant types of mineralization are massive cupriferous pyrite; massive Cu, Pb, and Zn sulphides; and disseminated chalcopyrite in a quartz stockwork. The mineralization is considered to be of the "Kuroko" type.

The footwall and hangingwalls of the South lode are generally competent, while the hangingwall of the Pond lode is incompetent, leading to longhole open stoping in the former and sublevel caving in the latter. In general, the footwall contains medium- to coarse-grained chloritized and sericitized siliceous pyroclastics, while the hangingwall is medium- to fine-grained carbonaceous

Avoca mine factsheet

Owned by: Avoca Mines Ireland, a wholly owned subsidiary of Avoca Mines Canada Ltd. The major holder of the Canadian firm is Discovery Mines Ltd. (53.5%).

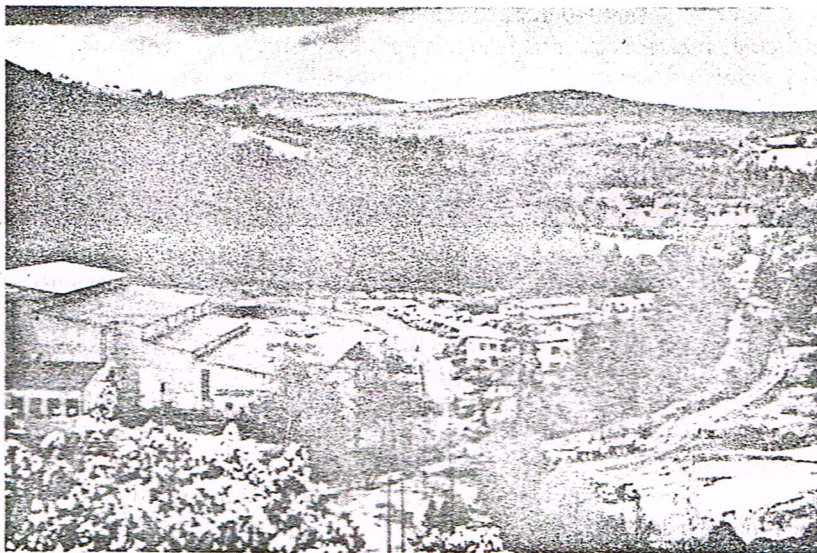
Production: 1976 mill throughput—1.855 tons per calendar day; copper production—7.2 million lb in concentrates; pyrite production—63,521 tons. Mining rate—2,000 tpd of ore from two underground lodes and one open-pit; ore grade—0.63% to 0.75% Cu.

Reserves, proven and probable: 3.2 million tons grading 0.8% Cu after allowance for dilution. East Avoca, currently not in production, is estimated to contain 40 million tons of 0.50% Cu ore amenable to open-pit operations.

Startup by present owners: November 1970, at initial cost of \$4.5 million and \$2.5 million in debt.

Mining method: Blasthole stoping, sub-level caving, and open pit.

Mineralization: Massive cupriferous pyrite, massive copper-lead-zinc sulphides, disseminated chalcopyrite.



Major mining equipment

Drills: Two three-boom Jarvis Clark MJM 21s with ES300 Tampella drills; Holman 90s; two Twin Long Toms— one tractor mounted, one on converted

ST2A; BBC 120F Copco/DH 123 Gardner-Denvers mounted on tracked rigs; Tamrock L500 on Zoomtrack rig.

Loading and hauling: Five Wagner ST4As, one ST8, one Terex R17.