PRODUCT *PRODUIT*	PROVINCE OR TERRITORY *PROVINCE OU TERRITOIRE*	N.T.S. AREA *RÉGION DU S.N.R.C.*	REF. *RÉF.*
COPPER	British Columbia	93 M/1	CU 9

NAME OF PROPERTY *NOM DE LA PROPRIÉTÉ*: BELL COPPER (NEWMAN) (BABINE)

OBJECT LOCATED *OBJET LOCALISÉ* – Ore zone.

UNCERTAINTY *FACTEUR D'INCERTITUDE* 300 m

Lat. 55°00'10" Long. 126°13'50"

Mining Division *Division minière*: Omineca

District *District*: Cassiar

County *Comté*:

Township or Parish *Canton ou paroisse*:

Lot *Lot*:

Concession or Range *Concession ou rang*:

Sec *Sect.*: Tp. *Ct.*: R. *R.*:

OWNER OR OPERATOR/*PROPRIÉTAIRE OU EXPLOITANT*

Noranda Mines Limited

DESCRIPTION OF DEPOSIT/*DESCRIPTION DU GISEMENT*

The property is underlain by Jurassic Hazelton Group and Mid Cretaceous Skeena Group volcanic and sedimentary rocks, and by Eocene rhyodacite intrusions, some of which are coarsely to finely porphyritic, others are dense, massive or flow banded, and many are in part breccia pipes. Three normal northwesterly striking faults and several northeasterly striking faults occur in the vicinity. An Eocene plug of biotite-hornblende-plagioclase porphyry (BFP) was emplaced along a major block-fault, the Newman fault.

The orebody, which follows and overlaps the western and northern edges of the plug, is crescent-shaped in plan, dips steeply, and is 150 to 300 m wide by 1,000 m long. The arc-shaped southwestern limb terminates abruptly near the Newman fault; the northeastern limb extends 500 m to the east of the Newman fault. The orebody plunges inward at about 70° toward a focal point at a depth of about 800 m. A few drill holes indicate that the ore zone extends deeper than 700 m below surface. About three fifths of the ore is within the plug; the remainder occurs in adjacent rhyodacitic porphyry and tuff, siltstone, argillite, and andesitic volcanics. The major part

see Card 2 ....

Associated minerals or products *Minéraux ou produits associés* – Gold, silver.

HISTORY OF EXPLORATION AND DEVELOPMENT
HISTORIQUE DE L'EXPLORATION ET DE LA MISE EN VALEUR

The property is located on Newman Peninsula, in Babine Lake about 40 miles northeast of Smithers. The orebody is located about ¾ mile northeast of Newman Island, and about ½ mile northeast of old adits on the shoreline.

Showings on the west shore of the peninsula were staked by Mr. C. Newman in about 1913. Two adits, 40 and 66 feet long, were subsequently driven northeasterly at lake level.

The property was restaked in 1962 by Noranda Exploration Company, Limited following a reconnaissance geophysical survey which indicated a broad anomalous zone. Staking was done in the Newman, Linda, Lad, and other claim groups and subsequently expanded to about 180 claims. Detailed soil and silt sampling was carried out in 1963 and 3 short drill holes were put down, just short of the ore zone. The first drill hole put down in 1964 intersected the ore zone and during 1964 and 1965, 39,950 feet of diamond drilling was done in 132 holes. This work indicated 51,000,000 tons of ore averaging 0.5% copper, of which 46,000,000 tons averaging 0.5% copper could be mined by open pit. Design work for a mining and milling operation began in 1966 but was suspended the following year. Further exploration work during the period 1966 to 1969, inclusive, included geophysical and geochemical surveys and some 58,000 feet of diamond drilling.

Noranda Mines Limited in May 1970 began construction of facilities for a production rate of 10,000 tons per day; the mill was put into operation in October 1972. Before mining commenced, geological reserves were 116,000,000 tonnes averaging 0.48% copper, about 0.35 ppm gold and less than 0.005% molybdenum, to a 300 m depth and 0.3% copper cutoff (C.I.M. Spec. Vol. 15, pp. 245, 247). Mill capacity was gradually increased in subsequent years. About one sixth of the mined material grades 0.3 to 0.45% copper and is stockpiled. A strike closed the mine for a 29 week period during 1976. An October 1978 agreement to sell the property to Granby Mining Corporation, operator of the nearby Granisle mine, failed to receive approval of the Foreign Investment Review Agency and the agreement was aborted. A $20 million mine-mill expansion begun in May 1979 resulted in the mill capacity being raised from 15,000 to 17,000 tons per day in the latter half of 1980. Open pit reserves were reported

see Card 2 .....

HISTORY OF PRODUCTION/*HISTORIQUE DE LA PRODUCTION*

From start of production in October 1972 to the end of 1974, 9,382,592 tons of ore were milled. From this ore 59,349 ounces of gold and 88,592,037 pounds of copper were recovered.

During the period 1975-1978 inclusive 15 139 500 tonnes of ore were milled. From this ore 2 511.940 Kg of gold, 7 161.528 Kg of silver, and 56 152 832 Kg of copper were recovered.

MAP REFERENCES/*RÉFÉRENCES CARTOGRAPHIQUES*

Geology of the Northern Babine Lake Area, Sc. 1":1 mile, Fig. 14; and Geology of the Newman Property, Sc. 1": 2,000 ft., Fig. 16, Report of Minister of Mines, British Columbia, 1965.

Map 69-1, Geological Compilation of the Smithers, Hazelton, and Terrace Areas, Sc. 1":4 miles, British Columbia Dept. of Mines.

Geology and Cross Section of Central Newman Peninsula, Sc. 1":2,400', Fig. 3, Spec. Vol. 15.

#Topography & Location of Bell Ore Zone, Sc. 1":3,000', Fig.2, Spec, Vol. 15.

Map 5242 G, Old Fort Mountain, (Aeromag.), Sc. 1":1 mile.

*Map 93 M/1, Old Fort Mountain, (Topo.), Sc. 1:50,000.

Map 93 L/16, Fulton Lake, (Topo.), Sc. 1:50,000.

REMARKS/*REMARQUES*

Comp./Rev. By *Comp./rév. par*	DMacR						
Date *Date*	01-81						

REFERENCES/*BIBLIOGRAPHIE*

Reports of Minister of Mines, British Columbia: 1913, p. 114; 1927, p. 150; 1964, p. 52; 1965, pp. 99-102+; 1966, p. 99; 1967, p. 105; 1968, p. 134.

Geology, Exploration, and Mining; British Columbia Dept. of Mines: 1969, p. 114; 1970, p. 170; 1971, p. 185; 1972, p. 426; 1973, p. 352; 1974, p. 266.

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Bell, A.M.; The Newman Project; Western Miner, November 1970, pp. 22-26.

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Bell Copper mine, Granisle operations become Babine Division; Canadian Mining Journal, May 1980, p. 67.

PRODUCT *PRODUIT*	PROVINCE OR TERRITORY *PROVINCE OU TERRITOIRE*	N.T.S. AREA *RÉGION DU S.N.R.C.*	REF. *RÉF.*
COPPER	British Columbia	93 M/1	CU 9

NAME OF PROPERTY *NOM DE LA PROPRIÉTÉ* BELL COPPER (NEWMAN) (BABINE)

DESCRIPTION OF DEPOSIT/DESCRIPTION DU GISEMENT (continued)

of the ore zone in the open pit consists of very intense quartz-sericite-pyrite-chalcopyrite mineralization in BFP and rhyodacite. Minor to moderate amounts of bornite occur throughout the orebody, but a well formed zone of bornite is not apparent. More than half of the chalcopyrite is finely disseminated and the remainder occurs as fracture coatings and in 2-8 mm quartz stringers with pyrite. The orebody contains two internal high-grade zones that are 80 to 100 m in diameter and average approximately 0.97% Cu. Molybdenum probably averages about 0.005%.

HISTORY OF EXPLORATION AND DEVELOPMENT (continued)
HISTORIQUE DE L'EXPLORATION ET DE LA MISE EN VALEUR

as 44,525,000 tons at 0.52% copper and 0.011 oz/t gold (Noranda Mines Limited, 1979 Annual Report).

With the purchase, in November 1979, of the Granisle mine some 5 miles to the southeast both operations were combined to form the Babine Division of Noranda Mines Limited.