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Massive Sulfide Deposits of the Bathurst Mining Camp, New Brunswick, and Northern Maine

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Photograph of the Nepisiguit deposit, now referred to as the Austin Brook deposit, which was the first massive sulfide deposit discovered in the Bathurst Mining Camp and the first deposit brought into production. The deposit was discovered in 1909 by a local prospector, William Hussey, and began production as the Drummond mine by Canada Iron Corporation of Montreal in 1911 (Belland, 1992). Although the main target was magnetite iron formation that overlies most deposits of the Brunswick horizon, the Austin Brook deposit also contains massive sulfides of pyrite, sphalerite, and galena below the magnetite iron formation, which was first described by Young (1911). The Nepisiguit deposit comprised three separate zones and one was later found to be associated with the Brunswick 6 massive sulfide deposit (Lindeman, 1913). However, no assays for base metals were done and no further work was conducted in this zone until the 1950s. The property was optioned by M. J. Bolyen in the spring of 1952, an electromagnetic survey was undertaken by McPhar Geophysics in September, and subsequent follow-up drilling in October intersected 370 ft of massive sulfides of what was to become the Brunswick 6 deposit. The release of this news to the general public set off a staking rush that would turn the Bathurst Mining Camp into one of the most important mining camps in the world.

REFERENCES

Belland, M., 1992, The birth of the Bathurst Mining Camp: A development history of the Austin Brook iron mine and no. 6 base metal deposit, New Brunswick Department of Natural Resources and Energy Paper 92-1, 56 p.

Lindeman, E., 1913, Austin Brook iron-bearing district, New Brunswick: Geological Survey of Canada, Mines Branch Monograph 105, 15 p.

Young, G.A., 1911, Bathurst district, New Brunswick: Geological Survey of Canada, 105 p.

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Surficial Geology and Geochemistry

In the pocket at the back of the Monograph

1. Color geologic map of the Bathurst Mining Camp (1:100,000-scale) (van Staal et al., 2003, Fig. 1) (40" × 48")
2. Stratigraphic cross section of the Bald Mountain subbasin (Busby et al., 2003, Fig. 2) (26" × 36"; black and white)
3. Stratigraphic cross section of the Bull Hill subbasin (Busby et al., 2003, Fig. 3) (26" × 36"; black and white)
4. CD-ROM containing a GIS multiparameter, attributed and coregistered database (topography and drainage, satellite imagery, bedrock and Quaternary geology, geochronology, mineral deposits, airborne geophysics, surficial and rock geochemistry, geochronology, derivative maps of mineral potential) of the Bathurst Mining Camp, and tables and appendices of data from papers in the volume.

Selected VMS zinc deposits of the Bathurst Mining Camp 1 Brunswick No. 6 (144) 2 Heath Steele (395 / 396) 3 Caribou (444) 4 Stratmat Boundry, N5 (255 / 257) 5 Restigouche (139) 6 Halfmile (420) 7 Brunswick No. 12 (54). VMS-like zinc deposits outside Bathurst Mining Camp. 8 Nash Creek (1090) 9 Sewell Brook (986) 10 Gravel Hill (225). 48Â°00'00" N.Â Geological and genetic attributes of volcanic associated massive sulfide deposits of the Bathurst Mining Camp, northern New Brunswick- a synthesis. In Massive sulfide deposits of the Bathurst Mining Camp, New Brunswick and northern Maine. Edited by W. D. Goodfellow, S. R. McCutcheon, and J. M. Peter. Economic Geology, Monograph 11, p. 245â€“302. massive sulfide deposit, Bathurst mining camp, New Brunswick, with geophysical profiles across the deposit.124 7â€“5. Schematic diagram showing airborne and ground radiometric surveys.126 7â€“6.Â Volcanogenic massive sulfide (VMS) deposits typically have strong geophysical contrasts with their host rocks because of the substantial differences in physical and chemical properties between the deposits and the rock in which they form (Thomas and others, 2000). Such properties include density, magnetic intensity and susceptibility, gravity, electrical resistance, and acoustical velocity. Figure 7. Composite cross section of a VMS massive sulfide deposit showing alteration zones from the Bathurst mining camp, Canada. Zone 1, quartz plus Fe chlorite; Zone 2, Fe chlorite plus sericite; Zone 3, Feâ€“Mg chlorite plus sericite; Zone 3a, phengite plus chlorite; Zone 4, phengite plus Mg chlorite; Zone 5, sulfide zone. Modified from Goodfellow WD, McCutcheon SR, and Peter JM (2003) Massive sulfide deposits of the Bathurst Mining Camp, New Brunswick and Northern Maine: Introduction and summary of findings. Economic Geology Monograph 11: 1â€“16. VMS deposits are major sources of the base metals Cu, Zn, Pb, as well as Au and Ag. The Brunswick #12 and #6 and the Heath Steele orebodies within the Bathurst Mining Camp are hosted by the Tetagouche Group, a Middle Ordovician sequence of metamorphosed bimodal felsic and basaltic volcanic rocks with intercalated sediments deposited in a marine back-arc continental rift. The Tetagouche Group was developed at the leading edge of Avalonia and forms part of the Miramichi massif, a tectonic terrane in the central mobile belt of the Canadian Appalachians.Â It occurs as a number of massive sulphide deposits of varying sizes within the Nepsiguit Falls Formation which forms the basal part of the Middle Ordovician Tetagouche Group.