Extract:

“Platinum Group Elements; what is new in 2004”

2004 Manitoba Mining and Mineral Convention - Dr. Peter Theyer

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The significance of considering remobilized platinum group elements (PGE) in addition to the traditionally targeted magmatogenic Ni-Cu-PGE mineralization is demonstrated in the following examples that have recently come to our attention in Manitoba.

The discovery of up to 10.6 g/t Pd and 5 % Ni in a massive pyrrhotite boulder of the Maskwa Open Pit waste pile... highlights the fact that explorationists shouldn't overlook the possibility that mineralization traditionally considered to be magmatogenic may be hydrothermally remobilized into economically significant deposits that may be at a distance from their origin.

Note: 1 g Pd was recently valued approximately US $ 6 (Nov. 10/04)

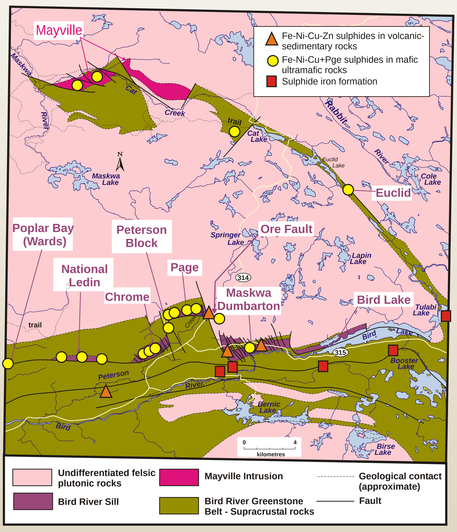

Figure 1: Geological map of part of southeastern Manitoba, showing the Bird River greenstone belt and the location of mineral occurrences discussed in this poster.

Bird River Sill

•Dumbarton Mine: (***Figure 1***) This Ni-Cu-Zn-PGE deposit is considered to have formed in at least two steps in which exhalative Fe-Cu-Zn sulphides bound in a sulphide facies iron formation were invaded by remobilized Ni-PGE-bearing fluids that originated from magmatogenic sulphides of the Bird River Sill.

• Maskwa Open Pit: (***Figure 1***) This Fe-Ni-Cu-PGE is a "classical" magmatogenic sulphide concentration at the stratigraphic bottom of an ultramafic rock layer. But a recent analysis of a massive pyrrhotite fragment (An equivalent fragment is shown in Fig. 2) from the pit's rock waste pile that returned up to 10.6 g/t Pd and 5 % Ni added a new very important twist to this deposit: Namely the existence of a layer(s) of pyrrhotite hosting substantial Ni and PGE concentrations remobilized into the deposits footwall.

Sample #	Au	Pt	Pd	Ag	Cu	Ni
	5 ppb	gpt	gpt	0.2 ppm	2 ppm	0.01%
47751	91	0.3	3.7	1.1	1323	2.95
47752	52	1.8	4.5	3.8	469	8.4
47753	57	2.6	4.4	4.0	298	7.42
47754	50	2.0	5.0	4.0	306	9.02
47755	36	1.9	4.7	4.2	251	7.82
47756	66	2.3	6.2	4.1	352	8.52
47757	37	2.2	5.4	4.0	511	8.4
47758	46	1.8	4.9	4.4	361	7.88
47759	80	0.05	0.2	3.3		1.33
47760	41	0.3	0.6	0.8	5650	1.41
47761	37	1.4	2.2	3.3	895	8.16
47762	41	2.3	5.0	3.9	565	7.24
47763	36	1.7	4.8	4.4	606	6.98
47764	39	1.6	4.2	4.2	553	7.5

Table 1 shows Pt, Pd, Ni and Cu concentrations in pyrrhotite-rich fragments of the Maskwa pit "waste rock" pile.

Table 1 (Data courtesy of Mustang Minerals Corporation) showing analyses of other sulphide-rich fragments collected from the Maskwa pit rock waste pile, proves that the sulphide layer(s) was Ni and PGE-rich but extremely Cu-poor (<0.1% Cu pers. comm. P. Wood, 2004). The fact that the surface of the rock waste pile contains a roughly "guesstimated" 3 % of pyrrhotite fragments indicates that the remobilized sulphide layer was of substantial size and tonnage).

•Ore Fault: (***Figure 1***) this mineral occurrence is interpreted as a faulted block of the Bird River greenstone belt containing sedimentary and volcanic rocks hosting a sill- like layer of ultramafic and mafic rocks of the Bird River sill.
The shear-hosted mineralization consists of Fe-Ni-Cu-Zn-PGE bearing sulphides believed to have formed in at least two pulses: Magmatogenic Ni-Cu-PGE concentrations mobilized into an existing Fe-Cu-Zn-bearing sulphide zone hosted by volcanic rocks (Ritchie, H.P. 1971).
The author compiled (Theyer, 1976) a list of sulphide occurrences in the Bird River sill that, in light of these new discoveries, merit renewed attention:
•Fe-Ni-Cu-Zn bearing sulphides: Cup Anderson; Beaver; Wento and Pay Ore
•Fe sulphides associated with sulphide iron formations up to this date considered to be barren: Tony 2; Tony 3; Bernic Lake; Silicified Zone; Gods Lake; Anomaly I; Paul; Lac; Duck;
•Magmatogenic Fe-Ni-Cu bearing sulphides in mafic to ultramafic bodies: Poplar Bay (Wards); Bird; Mayville; New Manitoba.

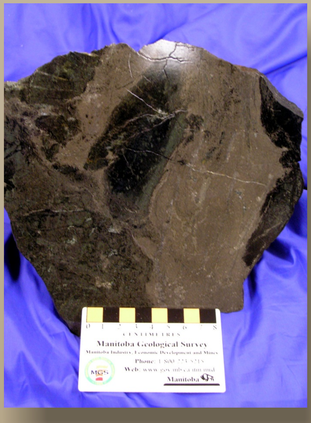

Figure 2: Photograph showing a section of a sulphide sample collected from the rock waste pile of the Maskwa open pit. A similar fragment from the same location contained 5 % Ni and up to 10.6 g/t Pd. Analytical results of other fragments in the vicinity are shown in Table 1.

References:

Ritchie, P.M. 1973: A study of the copper-nickel-zinc deposit of Bird River Mines Co., Ltd., southeastern Manitoba; M.Sc. thesis, University of Manitoba, 69 p.

Theyer, P. 1976: Evaluation of nickel environments in Manitoba; in Non-renewable resource evaluation program (NREP) : first annual report, 1975-1976, Canada Department of Energy, Mines and Resources; Manitoba Mines, Resources and Environmental Management, Mineral Resources Division, Open File Report 77-1, p. 33.

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