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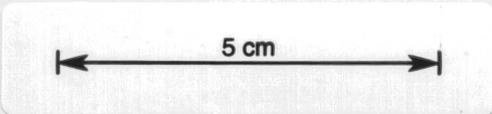
Further Samples From Beaconsfield Nickeliferous Clay

by Terence D. Hughes

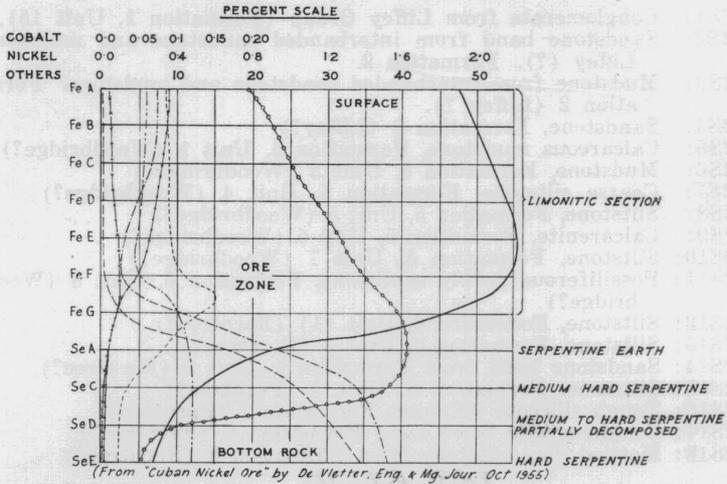
For some years now, Mr. W. Pitulej of the Ben Lomond Mining Company has been investigating nickel deposits near Beaconsfield. At first he concentrated on the serpentine, particularly where it had been altered to a curious black and white rock, containing hornblende and grossularite and named by Baker and Edwards (2) rodingite.

When the nickel content of various samples of the rock proved disappointing, attention was transferred to the clay overlying the serpentine. This clay occurs to a depth of up to 10 feet over wide areas. Comparisons were made of this material and that mined for its nickel content in New Caledonia. Consolidated Zinc Pty. Ltd. was approached and this company obtained an option over the prospect. More than 100 hand bore holes were put down by them and most of them bottomed on hard serpentine. Results were disappointing and the prospect was abandoned.

In this same area large tracts of laterite occur. None of this laterite cover was bored by Consolidated Zinc and this is the latest material to be investigated by Mr. Pitulej. At the time of my visit (20.8.58) very little trenching or boring had been done in this material. Subsequently, however, a long trench has been put in by bulldozer and an examination made and samples taken by geologist M. Stefanski of this Department.



GRAPHIC REPRESENTATION OF OCUJAL ORE



GRAPHIC REPRESENTATION OF BEACONSFIELD CLAY

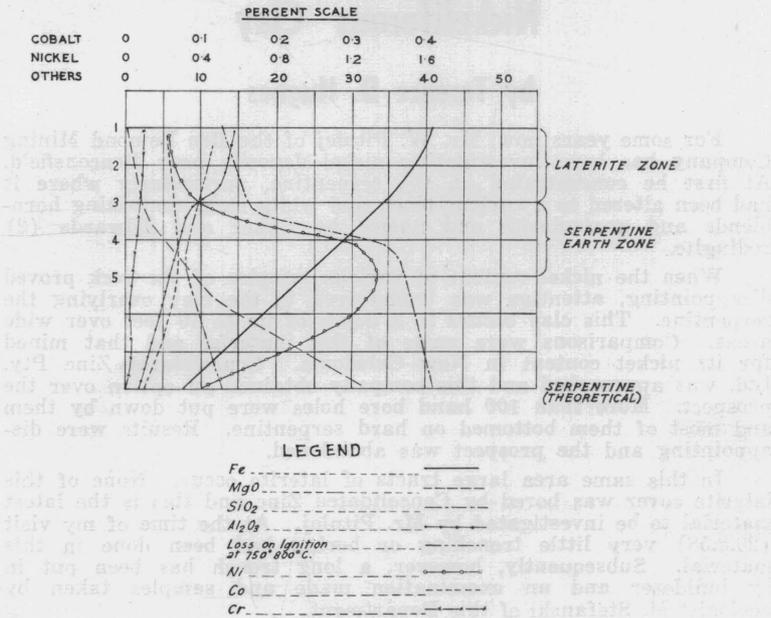


Figure 17

The areas covered by laterite in the vicinity of Anderson's Creek near Beaconsfield are shown in Plate 11 of Mineral Resources No. 9 (Asbestos in Tasmania) (5) and occupy several hundred acres. Much of this laterite has a thin coating of Pleistocene gravel consisting mainly of quartzite pebbles.

On this occasion, only a small section of the laterite and underlying material was examined but it is thought that the nickel values obtained are representative. The locality examined is in the vicinity of a peg marked F25 of the Consolidated Zinc Co. and is where the Beaconsfield municipal water supply race from Anderson's Creek has its deepest cutting on the south-east flank of Barnes Hill. Two composite samples were obtained, one from 1 to 3 three feet below the surface, and the second from 3 to 5 feet. These samples were taken from three spots over a length of about thirty feet; these spots were the wall of the race, a trench and a hand-bore. Number one sample consisted largely of iron oxide and may be called "red clay". Number two or "black and green clay" appeared to be mostly serpentine weathered in situ. In the wall of the race a transition may be seen between the weathered serpentine and this "clay". The one foot of overburden above these samples consisted of soil and iron gravel, partly magnetic.

An analysis of the two samples (each of which consisted of about 50 pounds of material) showed:—

	Sample 1	Sample 2
	%	%
SiO ₂	14.64	33.19
Al ₂ O ₃	13.69	7.23
Fe ₂ O ₃	52.40	38.95
FeO	2.21	2.46
Cr ₂ O ₃	3.50	2.51
TiO ₂	0.05	0.01
P ₂ O ₅	Nil	Nil
CaO	Trace	Trace
MgO	1.05	5.14
Ignition loss	11.94	8.39
NiO	0.33 (= 0.26 Ni)	1.49 (= 1.17 Ni)
CoO	0.06	0.07

The nickel is in the form of garnierite, a hydrous nickel silicate, with varying amounts of magnesium replacing the nickel.

The mineralogy is discussed in Mineragraphic Investigations Nos. 682 and 722 of the C.S.I.R.O. (1 and 2). An article by de Vletter (3) gives an account of the genesis of the Cuban nickel ore and a graphic representation of the content of several layers from the lateritic top down to the hard serpentine. This is reproduced here to show the similarity between this deposit and the Cuban one. The graph of the Beaconsfield deposit is very sketchy as only two analyses of the clay were made and a fairly theoretical analysis of the rock has been taken.

It would appear that the nickel content of these clays is not high enough to justify further development from an economic point of view. However, if for other reasons it is desirable to obtain more information as to grade and tonnage, then a hand-boring campaign should be instituted under the supervision of this Department.

References

1. Baker, G. 1957—Further Occurrences of Nickel and Chromium Minerals from Anderson's Creek Area, C.S.I.R.O. Mineragraphic Investigations, No. 722.
2. Baker, G., and Edwards, A. B., 1957—Nickeliferous Serpentine and Rodingite from Anderson's Creek Area near Beaconsfield, C.S.I.R.O. Mineragraphic Investigations, No. 682.
3. de Vletter, D. R., 1955—How Cuban Nickel Ore was Formed, Engineering and Mining Journal, Vol. 156, No. 10.
4. Hughes, T. D., 1957—Nickel near Beaconsfield, Tas. Department Mines Technical Reports No. 1.
5. Taylor, B. L., 1955—Asbestos in Tasmania, Tas. Department Mines Mineral Resources, No. 9.