side, shows the more complex ones are of a distinct yellower shade of colour than the others.

In the case of silver iodide, however, the change which ensues when mercuric iodide combines with it is so striking, that it seems very remarkable this combination has not before been proved to be possible. The iodide of silver is, as you are aware, of a very pale yellow colour, and the effect of a solution of mercuric iodide upon it is to heighten its colour instantly to a very deep good yellow. As in the case of the detection of alkaloidal matter, however, by the mercuric iodide test, it is necessary to avoid excess of either potassic iodide or mercuric chloride in this reagent when we wish to prepare these double metallic iodides, a circumstance which may account for the fact that they have not hitherto been formed.

ART. LXXXIV.—*On the Composition of the Silver Ore of Richmond Hill* By WILLIAM SKEY, Analyst to the Geological Survey of New Zealand.

[*Read before the Wellington Philosophical Society, 24th February, 1877.*]

THIS ore was discovered in the year 1875, by Mr. James Washbourne, and a sample of it (No. 1692) was forwarded to the Colonial Laboratory as an iron ore, with the request that its richness in this metal might be ascertained, but upon being examined by me it proved to be more of a lead than an iron one, and besides, argentiferous to a remarkable extent, no less than 185 ounces of silver being present in it, as calculated upon the ton. This interesting fact was duly announced, and, in consequence, numerous other samples of ore from this locality were transmitted here for assay, and the results of these, though varying greatly, (from 32 ozs. 15 dwts., to 596 ozs. per ton,) showed unmistakeably that silver exists in the Richmond Hill district in considerable quantity, and that by careful selections from the several lodes now opened, silver-mining should pay there, and pay well. The precise position of the lode, from which the first sample was taken, is, according to the prospectors of it, one mile above Richmond Hill, five miles more or less bearing S.S.W., crossing the Parapara River three miles south of Collingwood. The lode from which the specimen was taken, that yielded at the rate of 596 ozs. of silver per ton, is about seven inches thick, and the specimen itself weighed upwards of nine pounds, and upon this I have, in accordance with instructions, performed the complete quantitative analysis, which forms the leading subject of my paper; this ore, of all the specimens to this time received here from Richmond Hill, being supposed to best represent the mineralogical character of the silver-bearing ore of the lodes there to this

time opened out. The following are its principal mineralogical characters :—

Massive, nearly homogeneous, cleavage irregular; brittle; structure confusedly crystalline; colour black generally, but in some parts reddish; has the lustre of molybdenite; hardness about 4·5; specific gravity, 4·317.

At a low heat (a little under that of redness) it fuses readily in parts, and with much intumescence.

The sample analyzed contained 15·4 per cent. of siliceous matter, principally quartz, also a little oxy-sulphide of antimony, both of which are thrown out in the analytical results stated below.

ANALYSIS.

Sulphide of	Lead	36·12
,,	Antimony	22·20
,,	Bismuth	Traces.
,,	Copper	19·31
,,	Iron	13·59
,,	Zinc	5·87
,,	Silver	2·39
,,	Manganese	·52
		100·00

The proportion of antimony sulphide to the other sulphides is about as 2 to 7, and its formula appears to be $Sb^2 S^3 + 6$ (Pb. Cu. Zn. Fe. Ag. S.), that of Tetrahedrite is $Sb^2 S^3 + 4$ (Pb. Cu. Fe. Zn. Ag. S.)

After comparing it with the Tetrahedrites very carefully I am led to look upon it as belonging to this group of minerals, although it diverges from any variety of it heretofore announced, and this to such an extent that I have no hesitation in making a new variety of it, to which I would give the name of Richmondite, after the hill in which it occurs, this being in accordance with Dr. Hector's suggestion to me on the subject. It is distinguished from other varieties of this very variable mineral by containing a low proportion of copper, for which lead appears to be substituted.

ART. LXXXV.—*On a useful modification of common Writing Ink.* By WILLIAM SKEY, Analyist to the Geological Survey of New Zealand.

[*Read before the Wellington Philosophical Society, 24th February, 1877.*]

THE subject of the improvement of our common Writing Ink *(ferro-gallic ink)* has lately been forced upon me by the proceedings here of a certain gentleman, a vendor of pens. These pens were alleged by him to be, at