

the mattes obtained by smelting the ores of the several deposits, copper and nickel being concentrated in almost exactly the same proportion. It has been found in the case of the Scandinavian deposits that although the proportion between pyrrhotite and copper pyrite may vary considerably from day to day, the average for a considerable run is pretty constant.

RATIO OF NICKEL TO COPPER IN SOME OF THE MOST IMPORTANT
NORWEGIAN AND SWEDISH MINES.

Name of Mine.	Content of Copper corresponding to 100 parts of Nickel.	Percentage of Nickel and Cobalt in the pure Pyrrhotite.
Graagalten mine.....	75-80	About 2'5
Klefra mine.....	55	" 2'75-3'0
Erteli mine.....	45-50	" 3'0
Bamle district.....	35-40	" 3'5-4'0
Flaad mine.....	37	" 4'5
Senjen mine.....	35-40 (about)	" 3'5-4'0
Dyrhaug mine.....	30-35	" 3'8-4'2
Beiern mine.....	20-25 (about)	" 7'0

Prof. Vogt also draws attention to the fact that the average proportion of nickel to copper in the Norwegian ores is about 100 to 40 or 50, and that in the Piedmontese occurrences about the same proportion holds good, while in Canada where the associated igneous rocks are of a somewhat different character, there is often relatively more copper, 100 parts nickel to 100 or even 150 of copper being found in some deposits, while in others the ordinary Norwegian proportion still holds good.

In Norway there are some 40 gabbro masses with which deposits of nickeliferous pyrrhotite are associated, these being the largest nickel deposits in Europe. The gabbro, which is undoubtedly an igneous rock, is composed of plagioclase feldspar and a rhombic pyroxene, thus belonging to the variety of gabbro known as Norite. These masses of gabbro occur in the Archean schists, generally intruded between the layers or beds but often cutting across them. The Norite of all the masses shows a remarkable tendency to differentiation, so that one and