On the absence of cobalt in Cornetite from Katanga, Belgian Congo.

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IT has been proved by the work of Messrs. A. Hutchinson and A. M. Macgregor, recently published in this Magazine (1921, vol. 19, pp. 225–232) under the title 'On cornetite from Bwana Mkubwa, Northern Rhodesia', that the only difference—if any—between the Rhodesian mineral and the original cornetite from Katanga consists in the presence of cobalt as determined by Professor G. Cesàro in the crystals from the Étoile du Congo mine. It may be of interest to give here the results of my researches on the chemical composition of the cornetite from the Étoile du Congo mine in Katanga.

The material examined consists of rather flattened, peacock-blue crystals adhering to a talc-bearing rock of whitish colour. The rock is sparsely dotted with very small, black spots, which can be clearly distinguished only with the aid of a lens. My attention had previously been drawn to similar black spots in the plancheite of the Tantara mine, Katanga; and I was able to prove that the presence of cobalt in this plancheite is due to the black mineral. This black mineral, which I identified as heterogenite, has been recently found in larger amount in the Étoile du Congo mine.[1]

I accordingly wished to verify if the supposed presence of cobalt in cornetite may not really have been due to such minute, black spots clinging to the crystals of this mineral. Several crystals were therefore selected under a Zeiss binocular and carefully freed from any other minerals. On so doing I never found cobalt in the cornetite crystals. On the other hand, the black mineral always gave the reaction for

[1] A. Schoep, Bull. Soc. Chim. Belg., 1921, vol. 30, p. 207; Min. Abstr., vol. 1, p. 243.

cobalt; and moreover whenever the black mineral was in contact with the cornetite I obtained the same cobalt reaction.

For the purpose of detecting the presence of cobalt, I made use of the microchemical reaction with mercurithiocyanide, which gives in solutions containing cobalt beautiful blue, orthorhombic crystals of cobalto-mercurithiocyanide. In the presence of copper, mercurithiocyanide yields yellowish-green crystals of cuprimercurithiocyanide. But this reagent can be used for detecting cobalt in the presence of copper: if there is much more copper present than cobalt, the cuprimercurithiocyanide crystals appear first.