

IV. *Note on a New Mode of Occurrence of Garnet.*

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GARNET is most commonly found in the form of separate crystals embedded in metamorphic rocks; occasionally, but comparatively rarely, in beds or veins. On a recent visit to the Pyrenees, in the Province of Catalonia, I found this mineral forming what appears to be a true dyke. I first noticed an outcrop of it in the steep banks of a brook, in one of the higher valleys of the main mountain chain. At this point it had the appearance of a vein, almost vertical and running nearly East and West; the wall rock was a highly metamorphic schist, so that its stratigraphical relation to the garnet could not well be made out; however, the general strike of the strata in this district is about East and West. At this point the dyke was about 2' thick; one of its walls was exposed, and appeared to have undergone a good deal of alteration, being darker in colour, more fissile and more friable than the shales at a little distance off; it had also been mineralised by the development in it of small disseminated crystals of iron pyrites. On crossing the brook, I found the same phenomena repeated at a point facing the above mentioned, and on top of the hill fronting and at a distance of some 300 yards from the first locality a third outcrop, all in the same direction, was visible; these three exposures were evidently all on the same dyke. On top of the hill the dyke was about 18" thick, and the wall-rock consisted of chloritic schists, containing embedded garnets and iron pyrites. At a distance of over a mile from this spot, but in a direction which I could unfortunately not determine, as heavy mists were obscuring the view, I found another outcrop of the same mineral. Here the dyke was very thick, measuring some 5½ yards across, of pure massive garnet rock, free from intermixture with any other mineral, except a little calcite occasionally near the walls. One wall of the dyke consisted of a mass of highly crystalline white limestone, traversed in places by thin films of amianthus. On the other wall an old level had been driven, which was completely blocked up at the time of my visit; the object of the level seems to have been to get what is probably the mineralised wall of the dyke, the minerals obtained being iron pyrites and zinc blende principally.

The garnet from these various localities seems to be exactly similar. It is massive crystalline and very free from impurity ; whenever any cavity occurred in the mass it was always covered with well-formed crystals, exhibiting usually the faces of the rhombic dodecahedron and the icositetrahedron ( $\infty 0$  and 202).

The mineral is rather brittle, its hardness seems low for garnet, and its specific gravity high, being 3.68 ; hence it is in all probability an iron garnet. Subjoined is a rough analysis:—

SiO <sub>2</sub>	...	88.56	88.42
Al <sub>2</sub> O <sub>3</sub>	...	15.64	
Fe <sub>2</sub> O <sub>3</sub>	...	9.75	
MnO	...	10.39	10.36
CaO	...	26.92	26.90
		96.26	

Magnesia, alkalis, water, &c., not determined.

Formula about 2 (SiO<sub>2</sub>, R<sub>2</sub>, O<sub>2</sub>) + 8 (SiO<sub>2</sub>, 2 RO).

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