

which it is closely associated. Nevertheless, it differs from hypersthene also in some of the optical characters,—in having lower indices of refraction and a different scheme of pleochroism.

To us, it appears that in the mineral assemblage noticed in these granulites, there is a gradational series ranging from an orthorhombic amphibole (anthophyllite) to an orthorhombic pyroxene (bidalotite). Consequently, it is necessary to make further X-ray studies of a series of these mineral grains selected from different specimens of the rock and ascertain whether *all* of them would show a definite 'amphibolic' structure, irrespective of variations in the cleavage angles and differences in optical characters. Till the results of such investigations are available, we would hesitate to accept that the mineral we have described as bidalotite is actually an orthorhombic amphibole, allied to anthophyllite (gedrite).

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### BIDALOTITE

IN the year 1937, we described<sup>1</sup> from certain biotite-cordierite-hypersthene granulites from Mysore, a new orthorhombic pyroxene, bidalotite; the reasons why we considered it as a pyroxene and not an amphibole, were further discussed by one of us (B. R.) in 1945.<sup>2</sup> A few years later, Rabbitt<sup>3</sup> from his X-ray studies of the mineral, pointed out, however, that the mineral reveals an 'amphibolic' structure, and therefore that bidalotite should be considered as an orthorhombic amphibole, corresponding to anthophyllite. Apart from the X-ray studies, the one other criterion which has been chiefly relied upon to classify the mineral as an amphibole is the inclined cleavage angle noticeable in some of its sections.

Quite recently, we took an opportunity to examine again a few more slides of the mineral under the microscope, and these reinvestigations have confirmed our original observation that while the diamond-shaped cleavages of amphiboles are noticeable in a few grains, the characteristic rectangular pyroxenic cleavages are seen in many. The grains examined by Rabbitt in his X-ray studies were probably those of the former group; the question as to what type of X-ray structure the grains with rectangular cleavages would reveal, still remains.

In this connection, we would like to point out further that the mineral which we have described as bidalotite differs from anthophyllite in many of its optical characters,—in its higher indices of refraction; lower birefringence; colour, intensity, and scheme of pleochroism; and smaller optic axial angle. In view of these significant differences, it is difficult straightaway to accept that our bidalotite is the same as anthophyllite. On the other hand, as already pointed out in our 1937 paper, bidalotite resembles in many respects the hypersthene with

1. Rama Rao, B. and Rama Rao, L., *Proc. Ind. Acad. Sci.*, 1937, **5** (6), 290-96.
2. Rama Rao, B., *Mysore Geol. Dept. Bull.*, No. 18, 1945, pp. 19-20.
3. Rabbitt, J. C., *Amer. Min.*, 1948, **33**, 304-05.