

The geological and petrographic evidence suggests that the dumortierite is connected with late-stage pneumatolytic activity, the residual boron-bearing fluid having affected the earlier-formed pegmatitic rock and reacted with the feldspar, which appears to have been unstable at this stage. The sericitization observed is possibly connected with later tectonic movements in the area.

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*Geological Survey of Iran,
P.O.Box 1964, Tehran*

M. SABZEHEI

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Levyne in the Deccan traps

THE Deccan traps carry a wide variety of zeolites, mainly calcic, but levyne has not hitherto been reported from this area. However, a coarse-grained basalt flow of this age from near Bhopal, contains white tabular crystals, often in sheaf-like aggregates; these are optically uniaxial negative, n 1.490 to 1.491; this agrees with the characteristic optics of levyne, though the refractive index is rather less than that of Icelandic levyne (1.491 to 1.495, Walker, 1951), but like the latter the mineral is often accompanied by an altered fibrous material. Dr G. P. L. Walker kindly confirmed the identification while on a visit to this laboratory.

Fermor regarded the formation of these secondary minerals as a late magmatic process, but according to Nashar and Davies (1960) meteoric water plays a role in the formation of the zeolites. The levyne in the present area occurs in association with heulandite, whose temperature of formation is over 240 °C according to Fermor (1925), hence a source of hot meteoric water is required. According to Walker (1951), hydration of olivine, pyroxene, etc., by percolating meteoric water is an exothermic reaction and causes the formation of

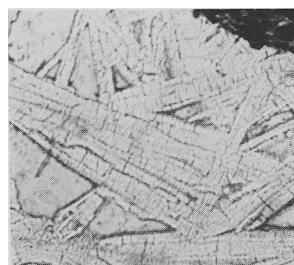


FIG. 1. Levyne in vesicles of the Deccan trap flow, Bhopal.

zeolites at a high temperature. The same process may well have operated in the present area.

*School of Studies in Geology
Vikram University, Ujjain
Madhya Pradesh, India*

A. C. CHATTERJEE

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On the ferroan gahnite of Mamandur, Madras State, India

GAHNITE occurs as segregations in quartz veins and quartzo-feldspathic gneisses in the base metal prospect in Mamandur area, South Arcot Dt., Madras State, India (Sheet No. 57 P/4; 12° 00' N, 79° 01' E). The occurrence of gahnite is restricted to the area of base metal mineralization, which could mean that the two are related in some way. The base metal mineralization is mainly localized in the biotitized amphibolite and is structurally controlled by a north-south trending vertical fault. The economic minerals in this area include sphalerite, chalcopryrite, galena, covellite, chalcocine, pyrrhotine, anglesite, etc. Along the strike of the lode towards the north-east, where gahnite occurs in the quartzo-feldspathic rock, the latter shows kaolinization up to a depth of three feet.

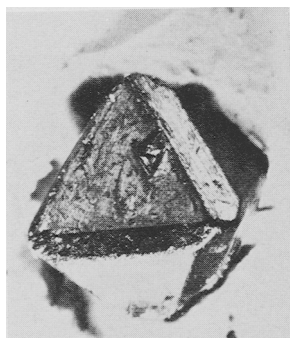


FIG. 1. Crystal of ferroan gahnite; $\times 15$.

The resistant nature of this mineral is evident from its occurrence as crystals (placer), while the associated rocks have been altered either wholly or partly and are highly friable. The soil samples collected from places as far as 500 ft from the main mineralized area (for detailed geochemical studies) contain fines of this mineral, the presence of which gives rise to anomalous zinc values in the soils of the area.

The mineral is dark greyish-green to greenish-black in colour, with a specific gravity of 4.50. The individual crystals, which vary in size from 1 mm-1.5 cm, are mostly octahedral with well-developed faces of the octahedron and dodecahedron (fig. 1).