

later brackish water conditions ultimately culminating in well established marine conditions. The present find also suggests that the Gondwana sedimentation along the east coast was more extensive than hitherto believed, and there is every possibility of finding Gondwana sediments below the Cretaceous outcrops along the Coromandel coast.

REFERENCE

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CARBONATITE DYKE IN MYSORE STATE

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This note records the occurrence of carbonatite in Mysore State for the first time. The carbonatite is located about half a kilometre west of Hogenakal Falls ($12^{\circ}07' : 77^{\circ}47'$) in Kollegal Taluk, where it occurs as small lenticular bodies of varying petromineralogy and texture, emplaced along a deep crustal fault (Grady, 1971). The carbonatite which extends in the north for a considerable distance in Tamil Nadu (V. Srinivasan, personal communication) is exposed for over a length of 2 km with a width of about 5 to 10 metres, south of Cauvery river. Further southerly extensions are lost under the Cauvery alluvium.

The Archaean terrain around the Hogenakal Falls consists of biotite-gneisses (migmatites), charnockites, norites, dolerites and linear aplo-granite bodies. The carbonatite-syenite-orthoclase dyke complex is emplaced within the migmatites. The regional strike of the rocks is NNE-SSW with moderate easterly dips. The major faults as well as intrusions follow the *wegsamkeit* direction. Intense deformation is evidenced in the area by ultra-mylonitisation of charnockites and crushing of dolerites and aplo-granites.

The carbonatites are of three main petrological types: (1) pure calcitic sövites (2) diopside-biotite-apatite sövite (silico-carbonatite) (3) and carbonatite agglomerate. The pure microcrystalline calcitic sövite is a fine grained grey to pink rock analysing 53.50% CaO and 0.10% MgO. Sometimes the rock grades into feldspathic sövite containing phenocrysts of brick-red orthoclase. Silico-carbonatite is the most common type. It is a medium grained 'gritty' rock of pink, dark green and dark grey colours, and is composed of calcite mosaic, diopside, biotite, apatite, orthoclase-micropertthite and sodic plagioclase with accessory allanite, monazite and opaques. The apatite is of pink and yellow colours and forms about 10% of the rock. The vent agglomerate consists of a silico-carbonatite matrix in which are embedded rounded pebbles of syenite and coarse feldspar (Fig. 1). The pebbles show varying degrees of metasomatic alteration, such as microclinisation of orthoclase and conversion of biotite to a confused aggregate of pyriboles.

The metasomatic changes around the carbonatite are rather atypical (Heinrich, 1966, pp. 90-92) in that a diopside syenite zone surrounds the carbonatite in place of the common fenite, rich in alkali pyriboles. The diopside syenite is made up of

diopside, orthoclase-microperthite, sodic plagioclase with minor amounts of biotite, calcite, sphene, apatite and epidote. The syenite is bounded by a zone of coarse grained pink orthoclasite. The orthoclasite encloses thin lenticles of diopsidites. Where the orthoclasite dyke is absent, diopside syenite is seen as irregular patches within the migmatite, around the carbonatite lens.



Figure 1. Carbonatite agglomerate, Hogenakal area, Mysore State.

The sequence of events visualised for this carbonatite occurrence is:

- (1) Formation of subcrustal faults
- (2) Felspathisation (orthoclasite dykes)
- (3) Emplacement of carbonatite
- (4) Metasomatic changes around carbonatite.

From its mode of occurrence as a fracture controlled dyke, its lack of association with alkali complexes and true fenites, prevalence of agglomeratic structure and atypical alterations, it can be concluded that the carbonatite of the Hogenakal area is a subvolcanic dyke rock at its present level of surface manifestaitic (Heinrich, 1966, p. 326).

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