Occurrence of pillow structure and metahyaloclastite breccia in amphibolites of Delhi Supergroup
Sirohi District, Rajasthan

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Introduction

Pillow structures and metahyaloclastite breccia within amphibolites of Delhi Supergroup over a strike length of 25 km, from Basantgarh in the north to Deri in the south, are reported. Type occurrences are found near Pipela (72°57'54" : 24°38'06").

Geological setting

Investigated area represents the southern extremity of Delhi synclinorium (Coulson, 1933) and exhibits occurrences of metapelites, quartzites, marbles, amphibolites and granites. Excluding the granites, all the lithounits belong to the Delhi Supergroup of rocks.

Meta-volcanosedimentary sequences around Pipela consist of amphibolites, biotite-muscovite-quartz schists, kyanite-chlorite-quartz schist, sericite-quartz schist and marbles.

Pillow structure and metahyaloclastites

Pillow structures are frequently preserved (Figs. 1 and 2) within schistose amphibolites. Pillows when undeformed are elliptical and balloon shaped. But, when deformed, they are irregular in shape. Pillows are identified by their shape, presence of marginal chilled zone and also by elliptical bands of vesicular structures. At places the vesicles are filled in with quartz and calcite. Pillows vary in size from 10 to 60 cm along their long axes. Most of the undeformed pillows have a marginal chilled zone which is 0.6 to 1.5 cm thick. Very often pillows show radiating and cross fractures and anastomising calcite veins.

Distinctive volcanic breccia having close resemblance to metahyaloclastite (Fig. 3) are found in the area in close association with the pillowed amphibolites. Metahyaloclastites consist mainly of pillow fragments of varying size and fragments of massive volcanics in a tuffaceous matrix (rich in chlorite, epidote and albite). Massive volcanic fragments always predominate over other framework elements.

Both the pillows and metahyaloclastites occasionally display clear sign of deformation as is evident from the development of foliation in them and flattening of the pillows.

EXPLANATION OF FIGURES

Figure 1. Plan view of Pillow structures in amphibolite.
Figure 2. Profile section of pillow structures in amphibolite.
Figure 3. Metahyaloclastite showing pillow and volcanic fragments (with vesicules) in tuffaceous matrix.
The present findings clearly point to the fact that at least a part of the amphibolites of Delhi Supergroup are ortho-amphibolites and are emplaced in submarine conditions.

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ANNOUNCEMENT

SEMINAR ON
GENESIS AND EVOLUTION OF STRATIFORM ORE DEPOSITS OF INDIA

A seminar on 'Genesis and evolution of stratiform ore deposits of India' jointly organized by the Jadavpur University and the Geological Society of India will be held at the Department of Geological Sciences, Jadavpur University, Calcutta 700 032 from 21st to 23rd June 1984. The topics of the seminar would be confined to (a) Iron ore deposits, (b) Manganese ore deposits, (c) Ore deposits of Base metals and (d) Deposits of Radioactive ores.

Please contact Prof. S. C. Sarkar, Convener and Head of the Department of Geological Sciences, Jadavpur University, Calcutta 700 032 for further details.