SHORTER COMMUNICATIONS

SUKINDA SANDSTONE—A KOLHAN

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Sandstone, which is found as isolated small occurrences to the north of the village Talangi, is found to overlie the Daiteri quartzite unconformably. The sandstone consists of greyish looking grains of quartz set in a cryptocrystalline quartz matrix. The present investigator correlated this with the Kolhan sandstone of Singhbhum (Mitra, 1959, 1961). The succession as proposed by the author (1959) is presented below:

STRATIGRAPHIC SUCCESSION IN SUKINDA

Alluvium
Laterite
? Grit with opalescent quartz and chromite-bearing sandstone
'Younger' ultrabasics with chromite
Cherts and silicified rocks
'Older' ultrabasics with chromite
Sandstone (Kolhans ?)
Ferruginous shales
Banded hematite quartzite, quartzite and cherts
Phyllites and shales
Quartzites and quartz schists (of Mahagiri)

A brief microscopic description of the concerned sandstone is given below.

The sandstone is nearly free from ferruginous mineralisation and does not contain grains of chromite, which occur in the south. The clastic grains of quartz are subangular to rounded and have preferred orientation. Cementing material is sericite and quartz-felspar aggregate. Sorting is poor and the interspaces between the clastic grains are large. Most of the quartz grains show strain shadows and contain dusty inclusions, as are found in Mahagiri quartzites. The grains are fragments of quartzite and show hatchured margins due to the eating up by sericite cement.

Another narrow patch of sandstone, occurring in the north-western foot hills of Mahagiri is found to contain angular fragments of chromite as well. Studies of this sandstone were taken up by the author, and representative slides were taken by Prof. van der Kaaden for studies in the U.S.A. Dr. T. P. Thayer made a comprehensive study of these along with those supplied by the late G. H. S. V. Prasad Rao about a decade back.

One of the samples (of Rao) was conglomeratic and the chromites in that were unquestionably detrital. The other sample was finely conglomeratic with detrital chromites. The author's samples fitted right with these. Some of the grains are well rounded, although a large number of grains are also euhedral. The limited range in grain sizes, from about 0.1 – 0.5 mm and angularity of whole uncrushed

sample suggest that they were not carried far from the source, namely the underlying ultramafic complex.

Much of the chromite grains are thoroughly crushed and many large grains have been pulled apart in the direction of foliation of the rock (quartzite). Mortar texture in the quartz is consistent with this stretching. The chromian mica (fuchsite) seems late, as it corrodes quartz grains and fills fractures in brecciated chromite grains. The sharp angularity of fragments of chromite in this metamorphic rock contrasts markedly with the rounded corroded borders of grains in dunite of alpine complexes. The deep red colour of chromite shows that it is not a hydrothermally formed variety, rich in magnetite.

Though some might argue that the chromite and mica were hydrothermally introduced, it is believed by Thayer and the author that the chromite is detrital, and the chrome-mica resulted from hydrothermal attack on chromite during metamorphism. The chromite in quartzite in the Selukwe district of Rhodesia is now explained as detrital, not hydrothermal as Sampson argued.

The chromite in this instance offers a valuable key to the relative ages of the rocks, whose contact relations are ambiguous. The detrital chromite bearing rock is therefore younger than the chromite bearing ultramafic intrusives.

The grit with opalescent quartz occurring as isolated patches shows very little effects of metamorphism. On the evidence of absence of silicification in it, it is correlated with the chromite-bearing sandstone of Kolhan age, as discussed.

The author's mapping of some part of Mahagiri and Daiteri quartzite as Kolhan sandstone younger than the quartzites, ultramafites and chromites in 1959 thus received corroboration from Thayer. Geologists of the Geological Survey of India working later (Chatterjee and Banerjee, 1964; Banerjee, 1971), however, neither observed two chromite horizons (stratigraphic) nor this younger sandstone. No other worker in this field so far has reported this sandstone, which occurs as distinct patches in the foot hills region of the Mahagiri range and in the south of the Daiteri range.

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