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KHEWRA SANDSTONE OR KHEWRA FORMATION?

Introduction

Various names for the dominantly shale and sandstone strata exposed immediately above the Salt Range Formation have been proposed so far. These included, as also mentioned by Shah (1977, page 6), 'Purple sandstone series' by Wynne (1878) and 'Khewra group' by Noetling (1894). The Stratigraphic Committee of Pakistan has formalized the name of these strata as 'Khewra Sandstone' (Shah, 1977). Nevertheless, the problem is technically unsolved due to contravention of the established international codes of stratigraphic nomenclature in naming these strata. Therefore the name for these strata needs to be reformalized in order to be compatible with the internationally accepted nomenclature.

Stratotype

Along Khewra Gorge (lat. 32° 70′ N, long. 73° 00′ E) in the eastern Salt Range (see Tanoli and Haneef, this volume, Fig. 1).

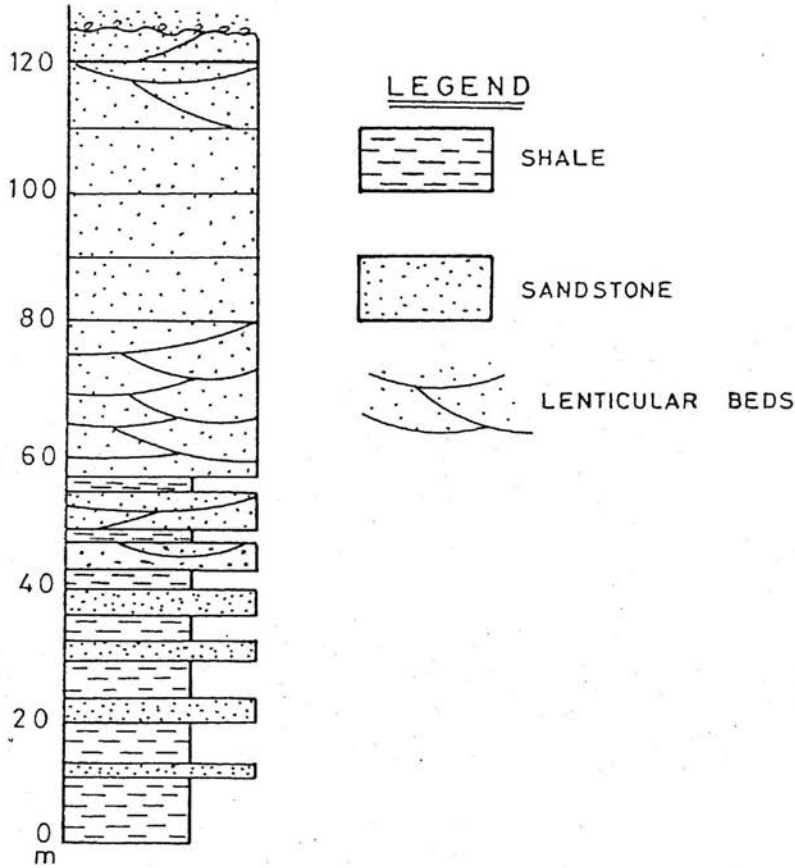

Fig. 1. Stratigraphic column of the Khewra Formation at the stratotype.

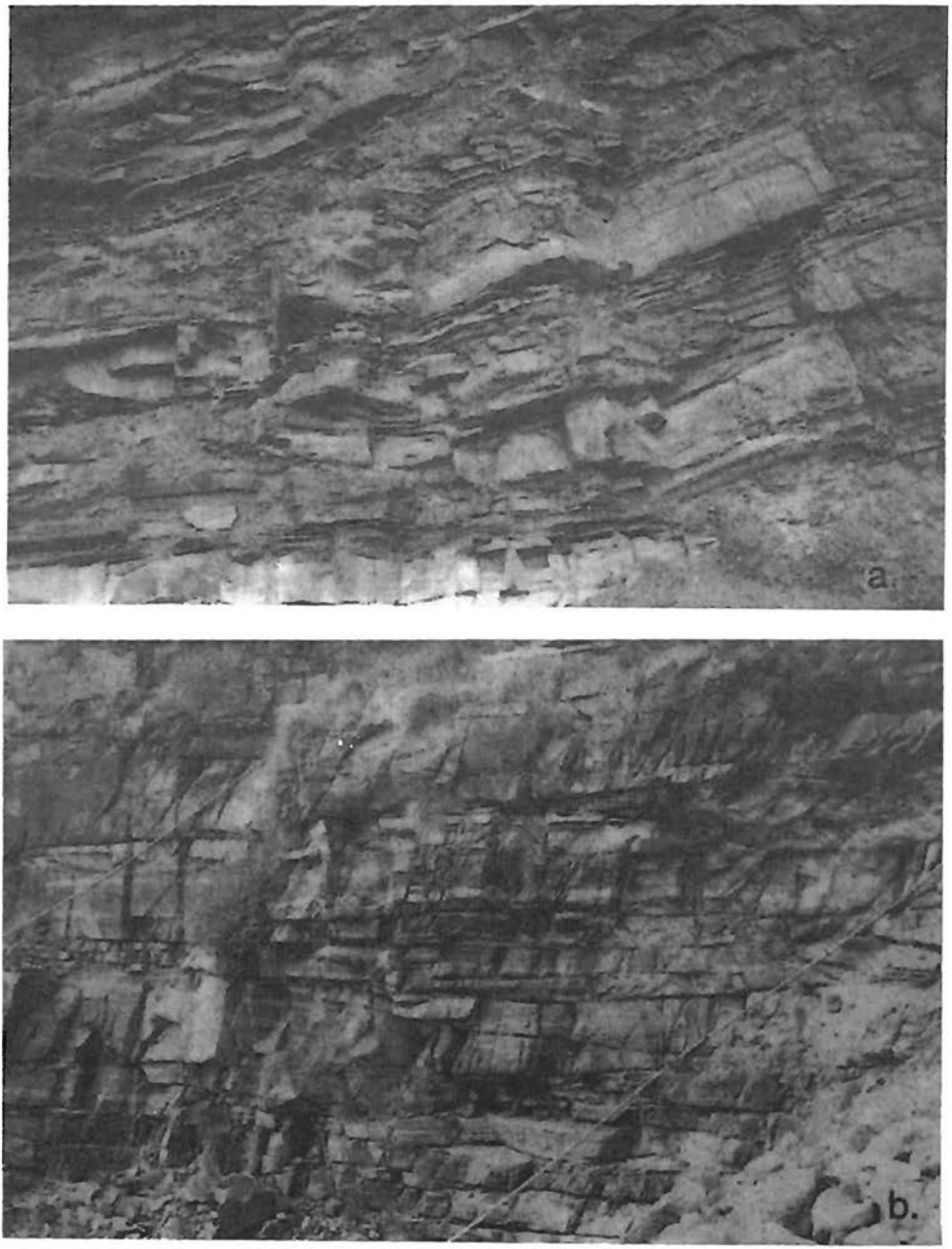

Fig. 2. Lithology of the Khewra Formation at the stratotype. (a). Sandstone and shale interbeds in the upper-lower and lower-middle portion of the formation. (b). Pinching sandstone beds of the middle and lower-upper portion of the formation.

Lithology

The basal portion of the formation at the stratotype consists of dominantly reddish coloured shale. The lower-middle portion consists of alternating reddish shale and maroon sandstone beds, with sandstone on increase upward (Figs. 1 & 2). The upper portion of the formation consists of thick (3.5-4 m) sandstone beds with no or negligible shale partings. Among the primary sedimentary structures synaeresis cracks, symmetrical, asymmetrical to rarely more complex lunate type ripple marks, ball and pillow structures, various kinds of cross-bedding ranging from larger planar to trough and small scale climbing ripples are present. Possible rain-prints and rare burrows are also present.

Thickness

At the type locality in Khewra Gorge the formation is *ca.* 125 m thick.

Lower and upper boundaries

The Lower contact of the Khewra Formation has variously been regarded as unconformable i.e. thrust contact by (Sahni, 1947) and conformable (Gee, 1945 and Shah, 1977). Present author's observations endorse the latter view. The upper contact of the Khewra Formation with the overlying Kussak Formation at Khewra Gorge, however, apparently appears a paraconformity (Tanoli and Haneef, 1988). Although Shah (1977) did not mentioned explicitly the nature of this contact but he implied it as conformable.

Age

Shah (1977) regarded the age of the Khewra Formation as Early Cambrian.

Remarks

The name Khewra Sandstone is inappropriate because it contravenes all the established codes of stratigraphic nomenclature, for example, see North American Commission on Stratigraphic Nomenclature (1983). In defining a formation lithology such as sandstone, limestone, etc. should preferably be avoided as a name or some part of it. The 'Khewra' nevertheless, is a geographic locality where these strata are well-exposed. Therefore 'Khewra Formation' is an appropriate name and is formally suggested to replace the previously used 'Khewra Sandstone' for the lower Cambrian strata in the Salt Range.

References

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