

CORRESPONDENCE AND NOTES

Archaeocyatha from the Krol–Tal succession (Lesser Himalaya): an invalid record

SIRS – The Lesser Himalaya is a critical region for the definition of the Precambrian–Cambrian boundary and for paleogeographic reconstruction. It is for this reason why the report of the occurrence of Archaeocyatha, typical lower Cambrian fossils, is so important. Recent interest has been expressed by various workers concerned with both types of studies (e.g. Kumar, Bhatt & Raina, 1987; Brasier & Singh, 1987).

The absence of reliable information on archaeocyathan localities in the Himalayan region makes the citing of archaeocyatha by I. B. Singh & V. Rai (1983, 1984) highly significant. These finds derived from the uppermost strata of the Krol Formation and underlie the Meishucunian–Tommotian fauna of the Tal Formation. They establish an early Cambrian (Tommotian) age for the uppermost member of the Krol Formation (Krol E).

The original studies were based upon three weathered-out specimens on which polished sections were prepared. The present study revises these and uses thin sections prepared from topotype material (Fig. 1d).

Critical examination of the original description shows that on the weathered surfaces, the authors considered the light material as a porous skeleton, while on polished surfaces the dark material is proposed as the intervallar skeleton. This is inconsistent with our observations; the light material is highly recrystallized (calcite and dolomite) while the dark material is interpreted as detrital filling displaying cryptalgal fabric, in columnar-like structures.

It is possible to compare the structure of columnar specimens with radial distribution, interpreted as archaeocyathan (Singh & Rai, 1983 pl. 1, figs 3, 6), with other figures of the same paper described as microstromatolites and *Epiphyton* (pl. 3, figs 9–11) for which we propose the same interpretation. M. Brasier & P. Singh (1987, p. 324) have already suggested that the figured specimens resemble thrombolitic fabric.

From what we can see, it is very difficult to establish if there were any skeletal structures present. We find nothing to suggest any of the distinctive shapes and differentiation into walls or boundaries that would be present in archaeocyaths.

These structures do not permit any precise dating of the rocks which include them. To date, there are no valid occurrences of archaeocyatha in India, as the earliest reports (Vologdin, 1959; Maithy & Gupta, 1981) appear to be microfossils or oolites (Zhuravlev, 1986).

We strongly suggest that interpretations of possible archaeocyaths be based on thin sections rather than polished sections alone. This will avoid similar misinterpretation.

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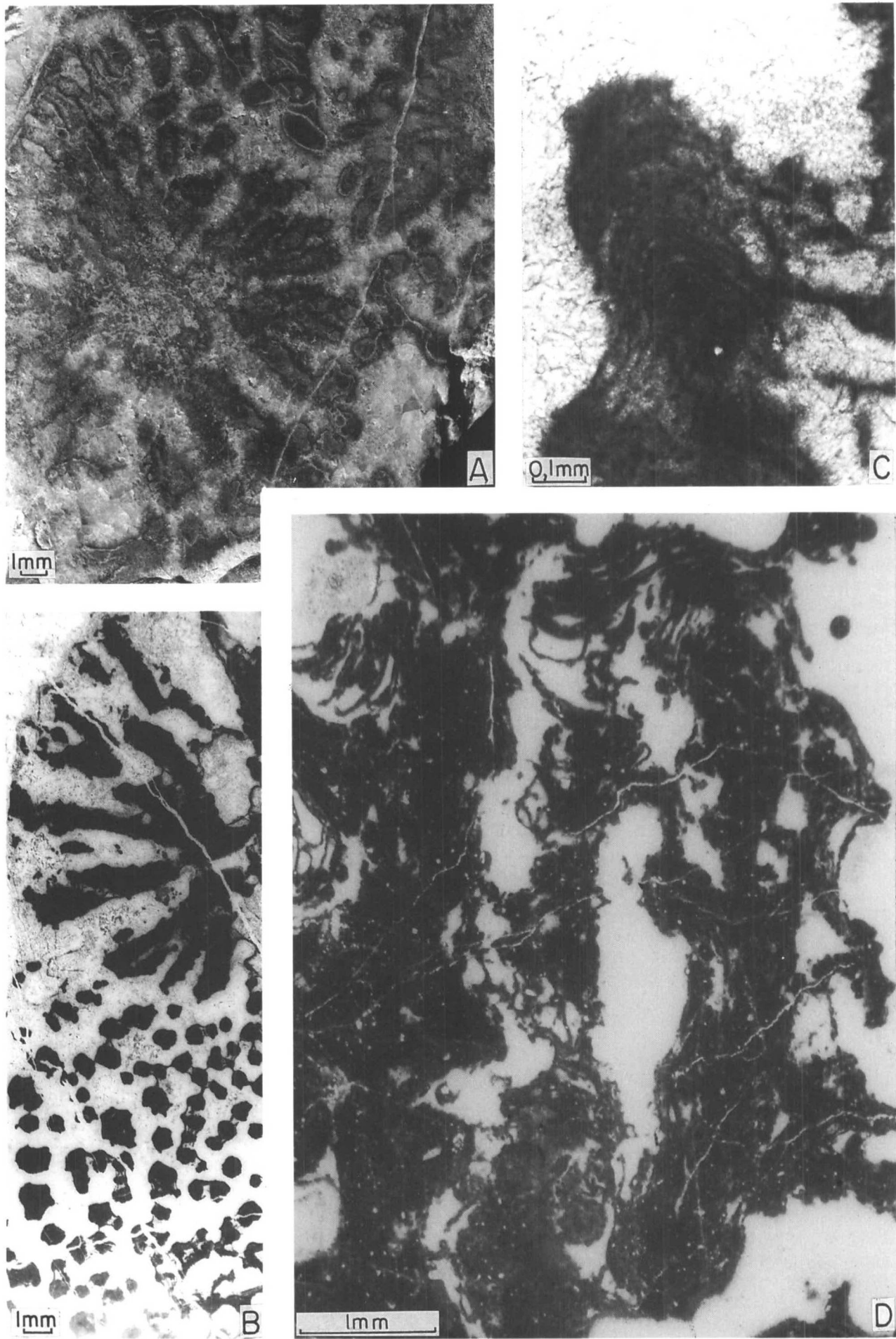


Figure 1. (a) Polished section of a so-called archaeocyathan cup figured in I. B. Singh & V. Rai (1983, pl. 1, fig. 6), showing the radial arrangement of the dark material; Lucknow University, no. 19763-2, $\times 5$. (b) Thin section made in a 'cup' showing the fan-like arrangement of the dark material; Lucknow University, no. 19763-1-2 T, $\times 5$. (c) Detail of a dark element of the same cup, with lamellar crystal fabric; thin section, Lucknow University, no. 19763-1-2 T, $\times 100$. (d) Detail of the dark infilling structures with crystal filaments and trapped clasts; thin section, Lucknow University, no. 19763-1-1 t, $\times 25$.