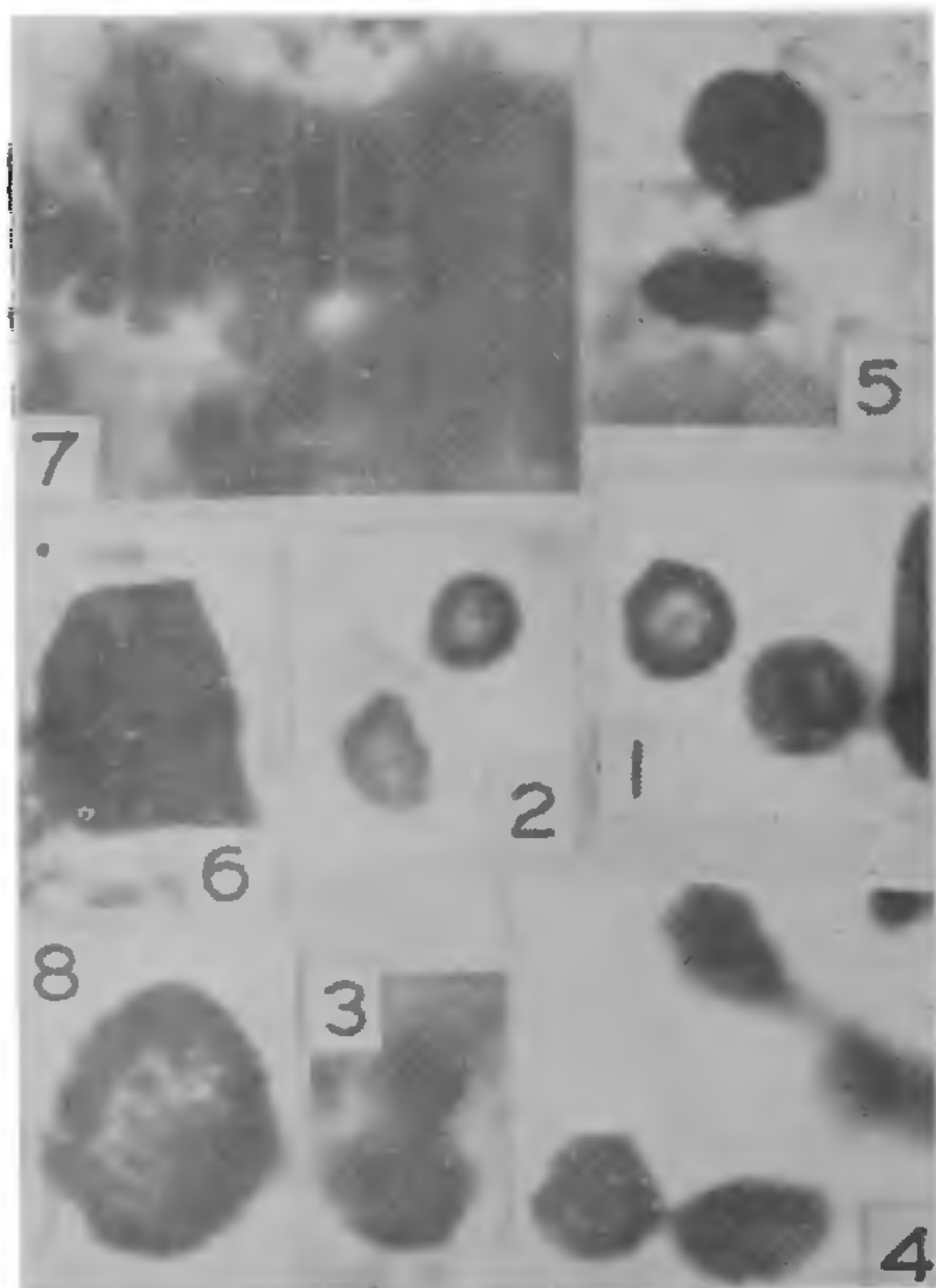


MICROFOSSILS AND CELL DIVISION IN
PROTEROZOIC STROMATOLITES FROM
THE ARAVALLI SUPERGROUP, RAJASTHAN

BANERJI has reported the presence of five different types of stromatolites, *Collenia columnaris*, *C. kusiensis*, *C. symmetrica*, *Baicalica prima* and *Minjaria calceolata* from the middle part of Matoon Formation of the Aravalli Supergroup. Subsequently he has also described *Eomycetopsis robusta*². The present study of the thin sections of prolific stromatolitic horizon in the black phosphorite belonging to Matoon Formation of the Aravalli Supergroup shows the presence of microfossils and their cell division. The alternate laminar region of the stromatolites shows the presence of microscopic biological remains. The material was collected from Jhamarkotra, 25 km south-east of Udaipur city. The deposit extends to a strike length of 16 km with an average width of 15 m of phosphorite horizon. Aravalli Supergroup has been dated to be older than 1500 million years. Crawford⁴ considered that the base of the Aravalli Supergroup could not be older than 2500 to 2590 million years.

The following types of biological remains are found:

- (a) Spheroidal microfossils, measuring 3–6 μm in size, and occasionally with internal organic contents (Figs. 1, 2) and smooth organic wall.



FIGS. 1–8. Slide No. 5736 preserved at the Birbal Sahni Institute of Palaeobotany, Lucknow). Figs. 1–5 and 8, $\times 2,000$; Fig. 6, $\times 500$; Fig. 7, $\times 1,000$.

The interesting feature of these microspheroids is the preservation of various stages of binary division. The individuals are preserved as hour-glass shaped structures in which the division is nearly complete (Figs. 3–5). Thirty per cent of the cells observed in the population are in the process of division. Such divisional patterns have also been convincingly documented in the Proterozoic fossil records (Licavi and Cloud⁶; Gloubic and Hofmann⁵). Often these spheroidal cells are found enveloped into a sheath (Fig. 6). Inside this sheath the cells are arranged irregularly and loosely (Fig. 7).

- (b) The other microfossils are also spheroidal, measuring 8–12 μm . Organic wall shows thickening-like structures (Fig. 8). The forms are comparable to *Huronispora microreticulata* (Barghoorn and Tyler³),

In conclusion, it may be stated that the Aravalli stromatolites have been built by spheroidal microfossils most probably algal in affinities and these microorganisms have been fossilised in the midst of biological activity.

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**CERCOSPORA LENSII SP. NOV.: A NEW
SPECIES OF CERCOSPORA ON LENTIL**

LENTIL is an important pulse crop of Madhya Pradesh. This year (1977–78) several diseases have appeared in epidemic form due to untimely rains at frequent intervals. A close examination of diseased leaves revealed the presence of water-soaked central and marginal spots which later increase in size with sparse amphigenous fungal growth. When such leaves are placed in moist chamber, abundant fungal growth appeared on these spots within 24 hours. Microscopic examination of such spots revealed the presence of a species of *Cercospora*. Species delimitation of *Cercospora* is largely and primarily based on host¹. So far no species of *Cercospora* are reported on *Lens esculenta*