time, the Lameta sediments of the study area do not contain lithic elements like carbonaceous matter/sulphides, etc. which could have produced reducing conditions in favour of deposition of radioactive minerals from the radioactive waters. This explains the absence of localization of radioactive minerals in the ossiferous sediments of the area. They might have, however, localized elsewhere depending upon the presence of suitable agents for reducing uranium and other radioactive minerals.

As regards the source of radioactive minerals, a critical look at the geology of the area and its vicinity is required at the first instance. The granites and pegmatites, over which the ossiferous sediments lie, could have themselves been the source of mineralization. At present there are no indications to show that such was the case. However, radioactive Tuwa hotwater spring (30 km from the study area) is located in pegmatite. Thus, the possibility of pegmatites being the provenance for recycling of uranium cannot be ruled out. An alternate source for radioactive waters could be the acid igneous rocks of Deccan Trap Formation. The highly oxidizing conditions present during the post-trappean period could have oxidized the uranium which was subsequently substituted in the apatite lattice of the dinosaur fossil bones.

Further conclusions concerning the origin of radioactivity in dinosaur bones and extent of radioactive-bearing beds cannot be drawn unless detailed investigations are carried out. Occurrence of uranium in dinosaur bones may merely be a local phenomenon or there may be several deposits in the vicinity. The answer to this question lies in further work. The present author is, however, inclined to believe that the presence of high radioactivity in dinosaur bones of Rahioli area opens up a new area for the search of radioactive minerals in Western India.

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MIDDLE KROL STROMATOLITES FROM THE NAINITAL AREA, KUMAUN LESSER HIMALAYA

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THE Middle Krol is a well-marked horizon of the Krol Belt extending over 300 km from Solan (HP) in the west to Nainital in the east. In the Nainital syncline (table 1) it comprises maroon shales, marl and siltstone with lentiform biohermal dolomitic limestone showing a variety of sedimentary structures such as small-scale cross laminations and wave and current ripples. An assemblage of well-developed stromatolites from the Middle Krol in the Balia nala and Nihal section has been identified (figure 1).

Stromatolites from the Sherwood Member of the Upper Krol have been described earlier[1-4] and their age assignment varies from Precambrian to late Palaeozoic. However, Misra[4] attributed the varied

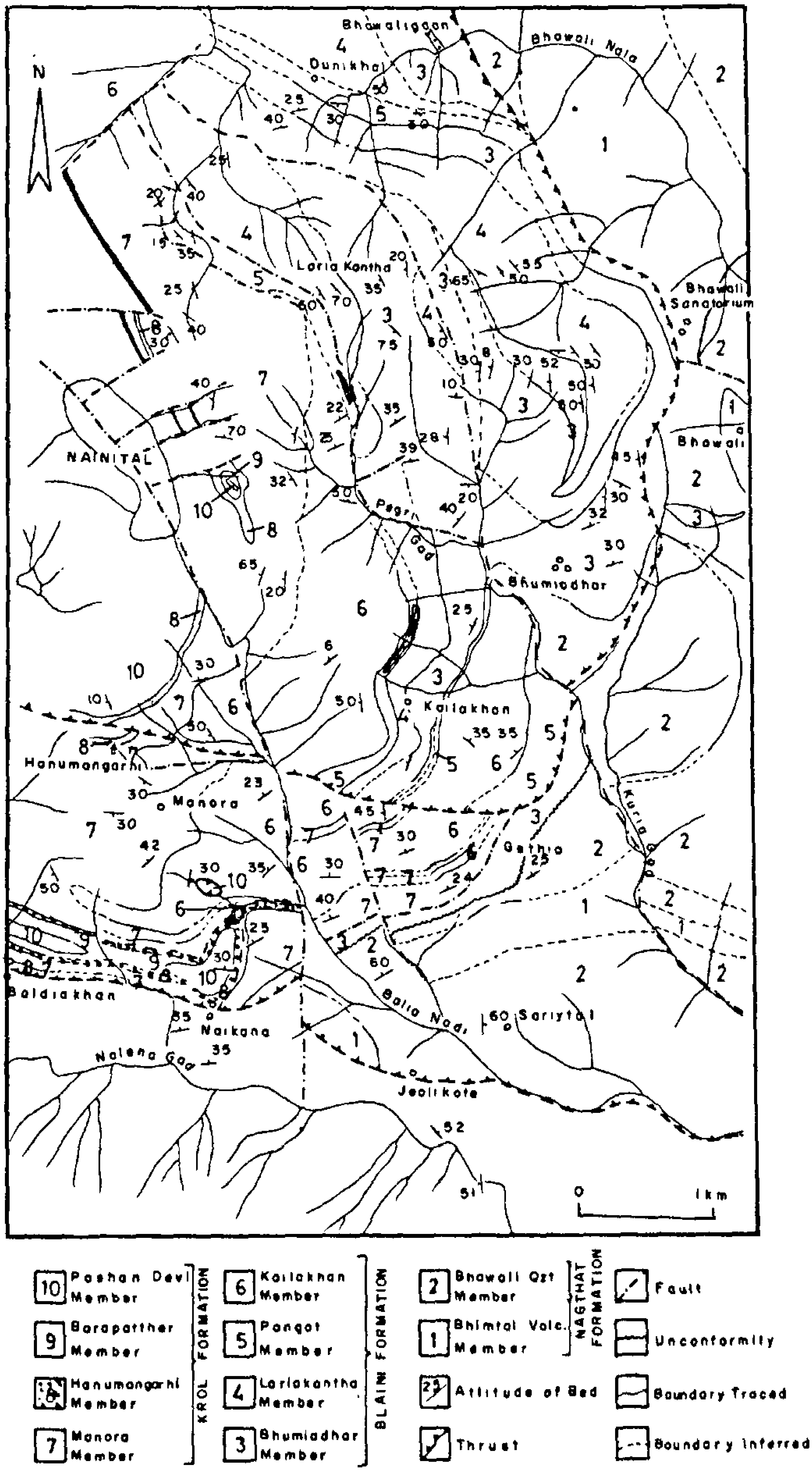


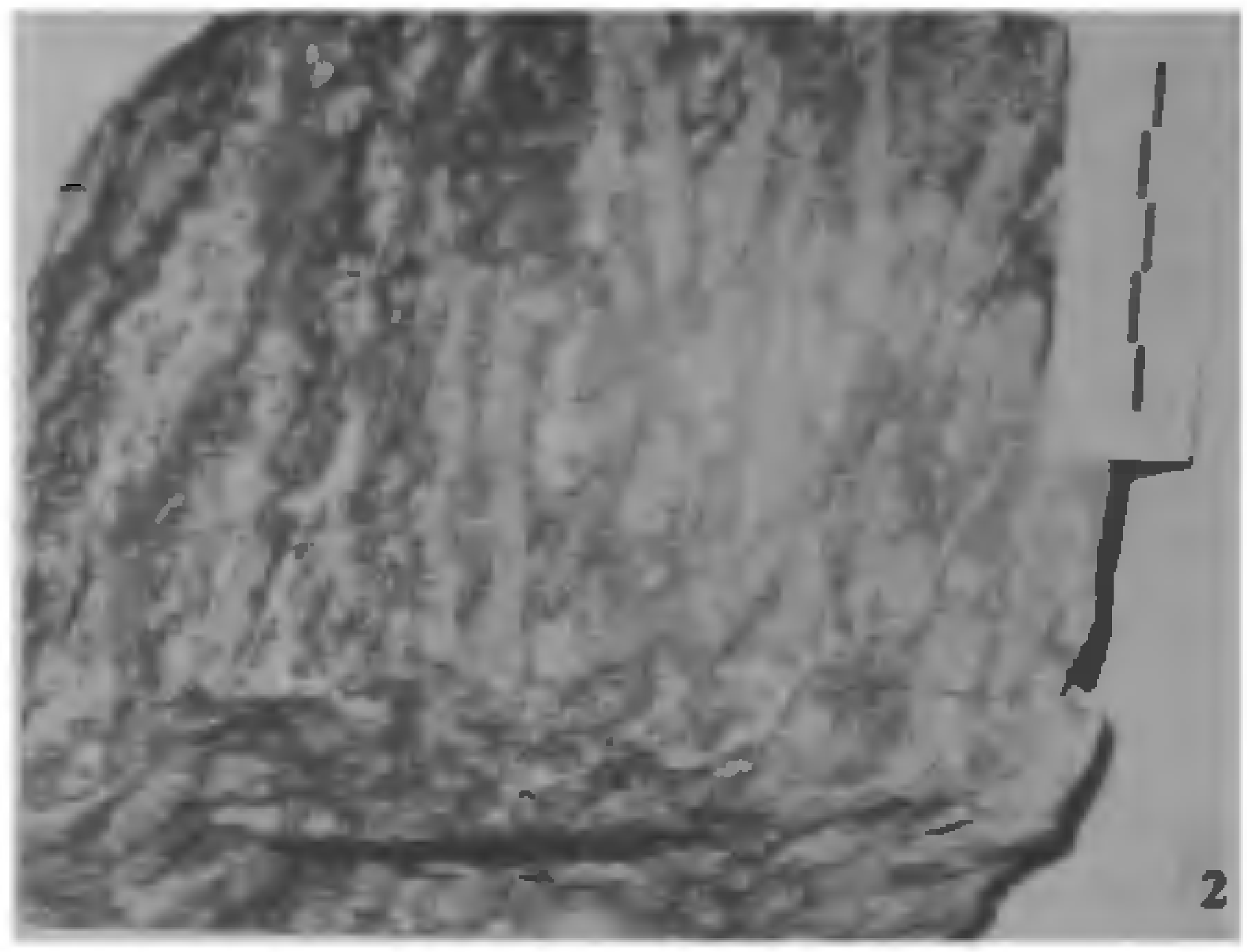
Figure 1. Geological map of the area east of Nainital, Kumaun Lesser Himalaya showing the Stromatolitic Middle Krol Formation.

Table 1 *Lithostratigraphic succession in the Nainital syncline, Kumaun Lesser Himalaya (After Valdiya[3])*

Formation	Member	Lithology
Lower Tal	Giwalikhet	Calcareous and pyritous shales, green and black siltstone and grey limestone.
	Sherwood	Bluish grey stromatolite-bearing calcarenite and calc-siltite with carbonaceous grey-black subordinate shales.
	Bisht college	Fine-grained sericitic sandstone and red shales. The upper part is made of purple greywacke.
	Pashandevi	Massive dark blue to dark grey, locally ferruginous and spectacularly oolitic limestone.
	Barapathar	Greyish green and dark grey rhythmites with yellow-weathering marl and carbonaceous shales.
Middle Krol		Purple green shales with yellow-weathering limestone.
Lower Krol		Grey marls and slates.
Blaini	Infrakrol	Bleached pyritous and carbonaceous slates with intercalations of grey banded slates and siltstone.

morphology of the stromalites to varying environmental condition in the basin.

The present note dwells on the environmental and the age significance of stromatolites recorded for the first time from the Middle Krol. Occurring in micaceous purple marl, the stromatolites are closely packed stunted discrete columns 1–8 cm tall, generally have constricted middle part, wider (1.5 cm) in the lower (initial) part and thinning upwards (0.1 cm). The transverse sections are elliptical, the diameters vary from 0.2 to 2.5 cm (figure 3). Micaceous, silty, ferruginous, micritic and sparry sludge fill the intercolumnar space. Significantly, the columns exhibit branching, but sparingly. The daughter columns grow vertically from the widened top of the parent columns which is slightly constricted just below the point of branching. For the major part, the width remains uniform (figure 2). Under microscope the longitudinal sections show alternate dark carbon-rich and light micritic layers.



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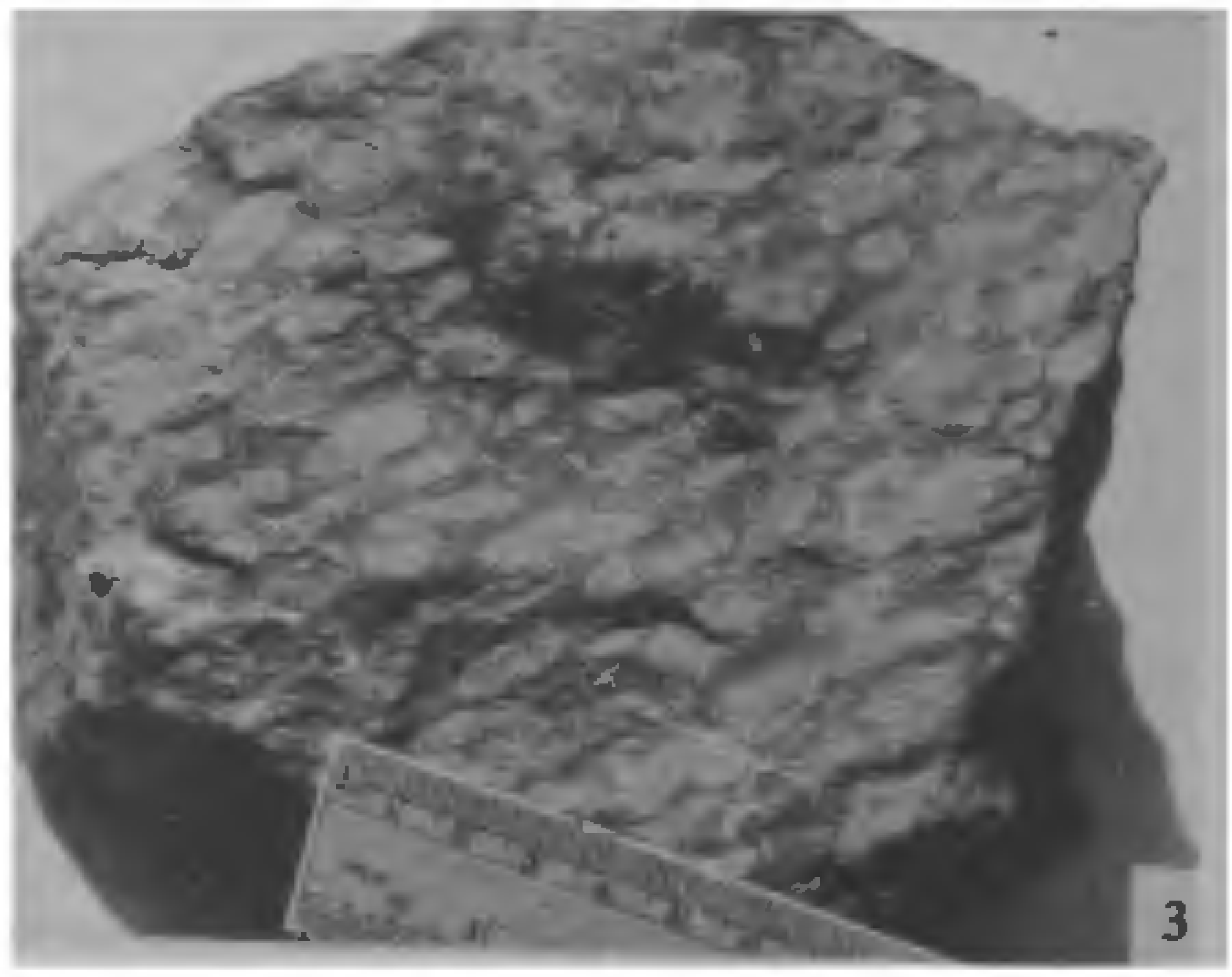

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Figures 2 and 3. Longitudinal section of *Baicalia*. The columns show branching and the middle part being constricted. Locality — along Balia nala about 5 km SSE of Nainital; **3.** Transverse section of *Baicalia*. The intercolumnar space is filled with sludge made of mica, silt and micrite.

The form strongly recalls Baicalia[5], which range from 1350 ± 50 to 950 m.y.[6]. Similar forms are known from the Lower Shali Limestone, Deoban Formation, Gangolihat Dolomites[7,8] and Jammu Limestone of Vaishnodevi[9]. Thus stromatolites of the Middle Krol are similar to the known Middle Riphean forms from the inner Lesser Himalayan autochthonous belt. However, there is certain morphological difference viz. the Krol forms are smaller in size and have less prolific development.

The presence of *Baicalia* suggests that the Middle Krol sedimentation took place in the Middle Riphean times.

Stromatolites have extensively been used as environment indicators[10,11]. These columnar-branching stromatolites are known to form inside the intertidal environment. The associated sedimentary structures such as small-scale cross laminations, wave ripples and the presence of intrabasinal pellets corroborate intertidal environment[2,4]. The red pigmentation is due to the presence of haematite. Kharakwal and Bagati[12] postulated a penecontemporaneous diagenetic process involving *in situ* alteration of drab iron into haematite giving red coloration of the sediments.

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BOLETUS EDULIS BULL. EX FR.—AN EDIBLE MUSHROOM NEW TO INDIA

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Boletus edulis Bull. ex Fr. an edible bolete, is regarded a prized delicacy in the West and is consumed in Himachal as well, but to a lesser extent. Pickled specimens stay longer and are relished the most. The species, though quite common, has not been described from India so far[1–4]. The specimens have been deposited in the Herbarium, Department of Biosciences, H.P. University, Shimla (HPUB).

Boletus edulis Bull. ex Fr. Syst. Myc. **1**: 392. 1821. Figure 1.

Pileus 2–12 cm broad, broadly convex in age; surface dry, viscid when wet, glabrous, smooth, wrinkled to shallowly pitted; light yellowish brown to brownish or with darker shades of brown[2], dusted with a whitish bloom; margin regular, smooth, incurved when young; context firm, 10–15 mm thick, white, unchanging, smell pleasant, taste mealy; tubes 8–10 mm deep, adnexed but depressed around the stipe, pale whitish, yellowish white to olive yellow in age, unchanging; pores minute,

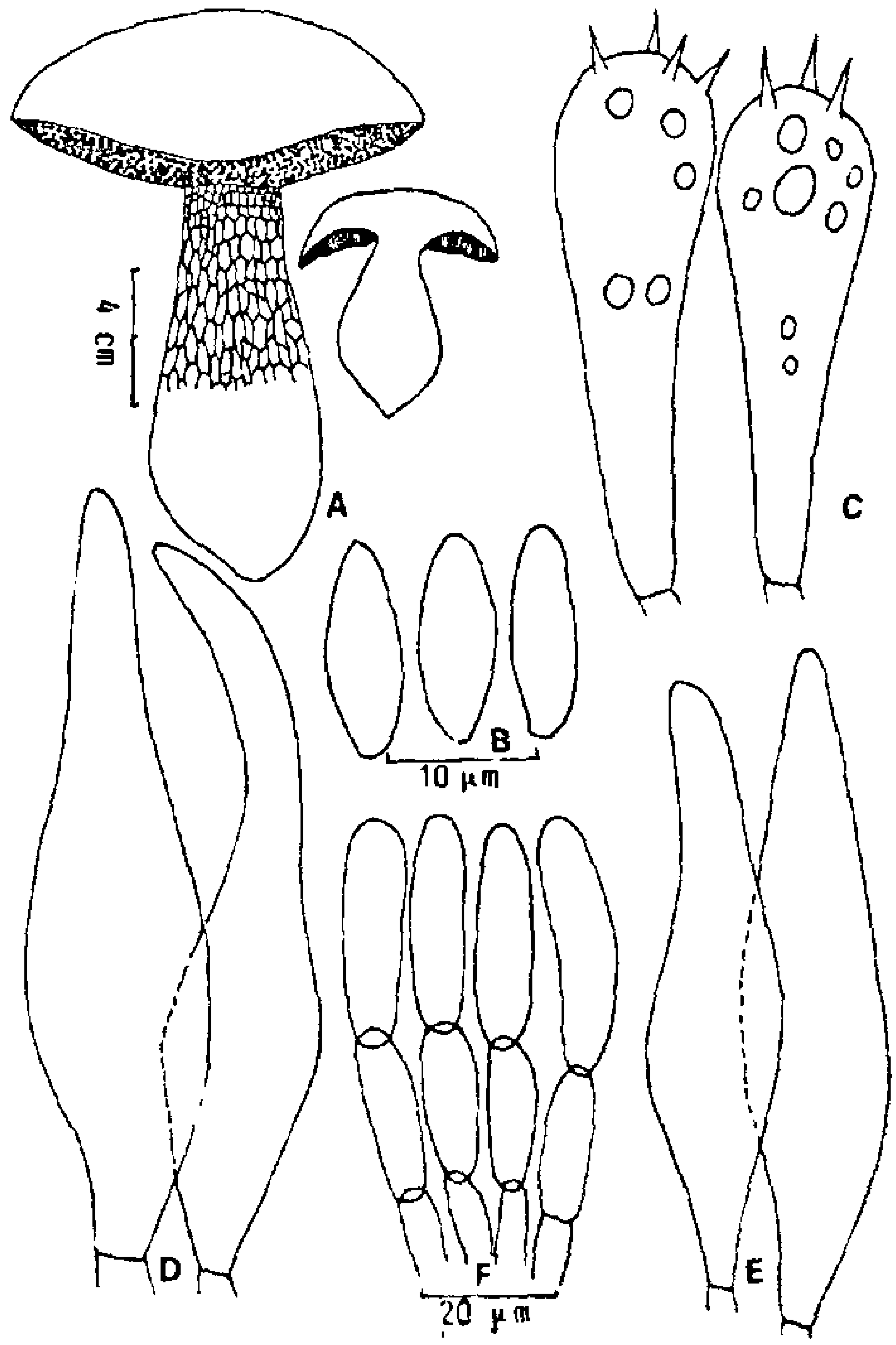

Figure 1A–F. *Boletus edulis* Bull. ex Fr. **A.** Basidiocarp and longitudinal section; **B.** Basidiospores; **C.** Basidia; **D.** Pleurocystidia; **E.** Cheilocystidia, and **F.** Pileus surface.