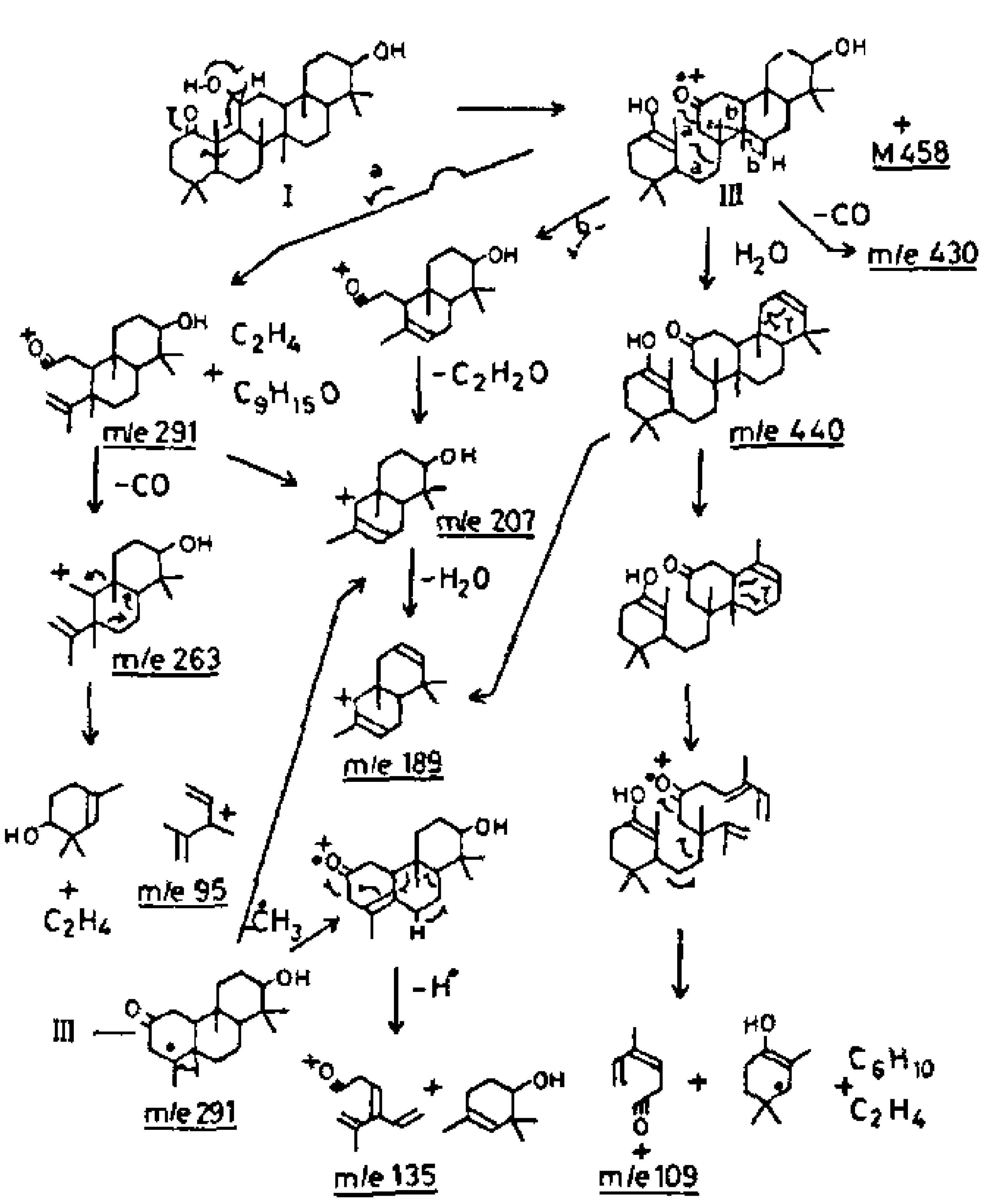
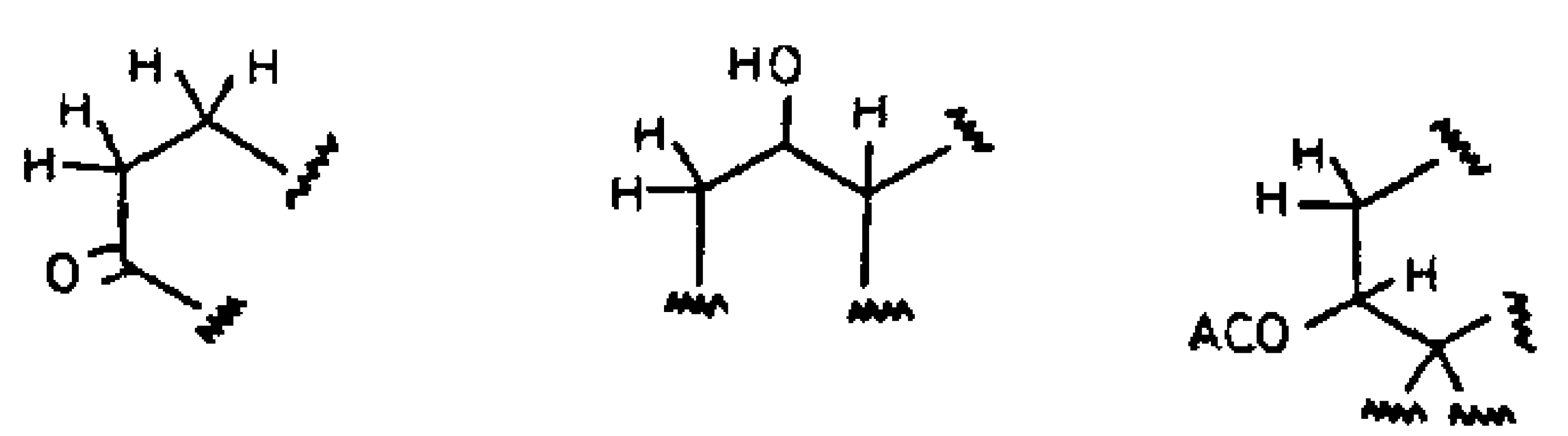
Scheme - I

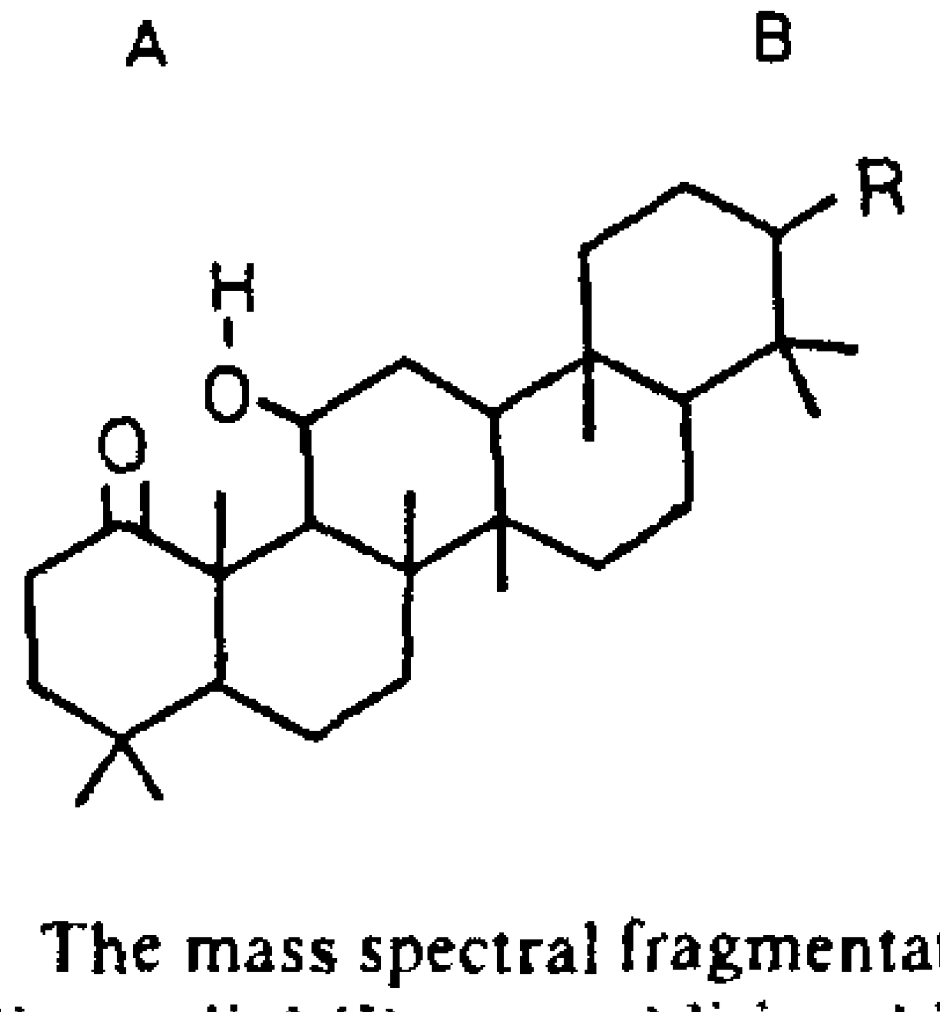


4.45 ppm (1 H, t, J = 8.0Hz) corresponded to the part strucures A, B and C respectively.

Considering the foregoing evidence and biogenetic implications the structures I and II are assigned for the triterpenoid and its monoacetate respectively, although it must be stated that no definite evidence is adduced for the placement of the oxygen functions.



A B C



I; R = -OH
II; R = -OAC

The mass spectral fragmentation pattern of coriandinonediol (I) gave additional information regarding its structural features. Besides, the molecular ion at m/e 458, the compound exhibited the characteristic peaks at m/e 440 (11.97), 430 (27.36), 291 (9.41), 263 (10.25), 207 (100), 189 (41.04), 135 (42.21), 109 (32.56) and m/e 95 (43.41), which may be rationalised as shown in Scheme I. It is interesting to note that the compound undergoes a thermal rearrangement I→III, before undergoing actual fragmentation. This further supports the close proximity of the hydroxyl and the carbonyl groups in the molecule.

8 November 1982

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SODA LAKE STROMATOLITES FROM GREGORY RIFT, EAST AFRICA

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WHILE there is considerable body of knowledge regarding marine stromatolites[1], there is a paucity of data in respect of lacustrine stromatolites. This note describes the stromatolites from the lacustrine littoral sediments of Lake Manyara (3° 30′S:35° 50′E) (figure 1), a soda lake presently having a spread of about 400 sq. km. This lake is the southernmost lake in the Gregory Rift Valley and is surrounded by Holocene

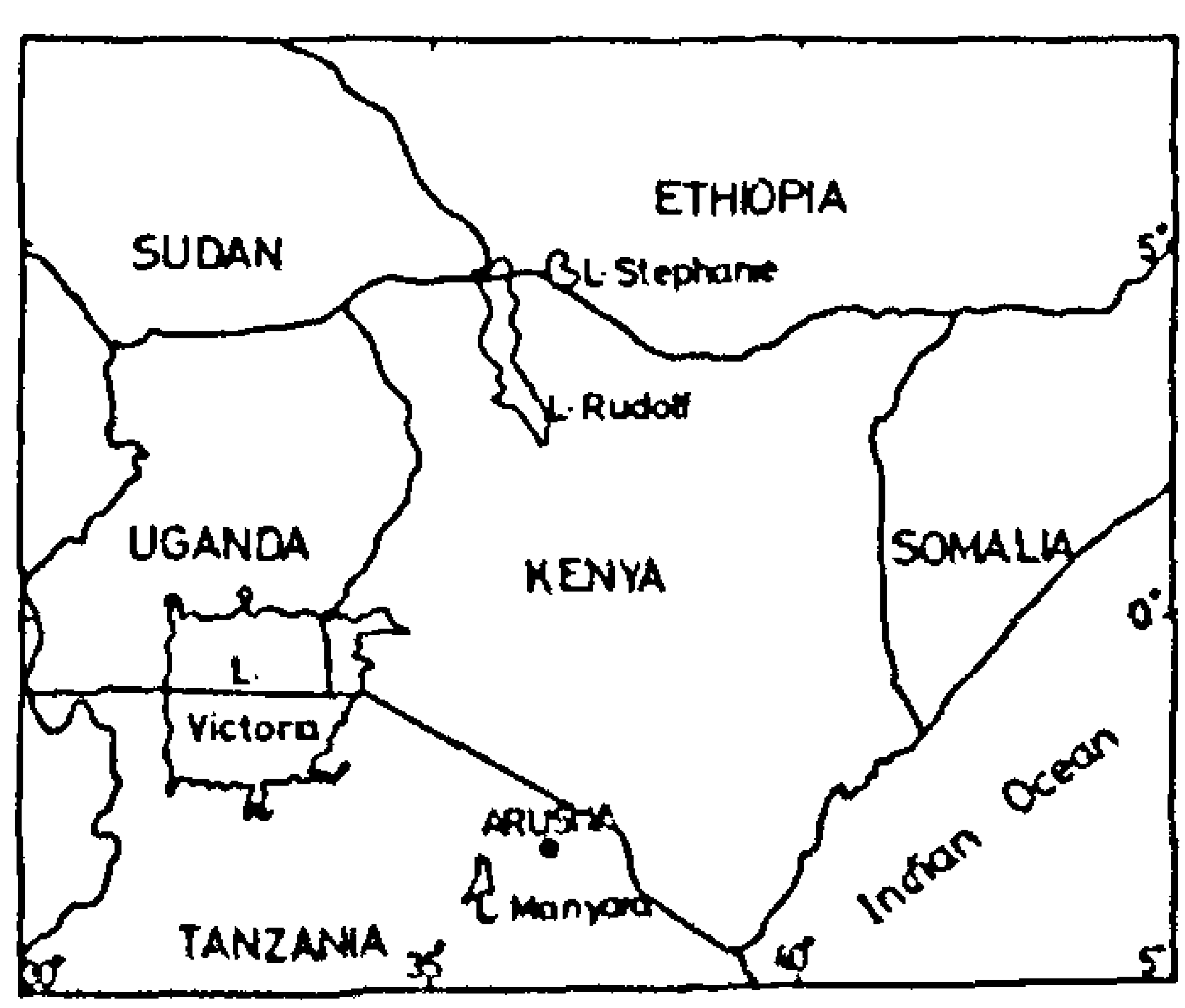

Figure 1. Location map of Lake Manyara in East Africa.

soda, calcareous mud and marl deposits, Pleistocene lake sediments with predominance of stromatolitic limestones, Neogene volcanics, and Precambrian gneisses. The area is covered under Geological Map Quarter Degree Sheet 53 (Ngorongoro)[2] on a scale of 1:125,000.

A mention was made about "algal limestone" in the Lake Stephanie area in the East African Rift Valley in Ethiopia[3]. Johnson[4] briefly described some stromatolite forms from the rocks east of Lake Rudolfh in Kenya. Orridge[5] made only a reference to "algal limestones" located on the southern and eastern shores of Lake Manyara in the text accompanying his geological map. Nothing is known about the lacustrine stromatolites from Tanzania. This note, thus, adds to the existing information available on stromatolites in the lake sediments of the East African Rift Valley.

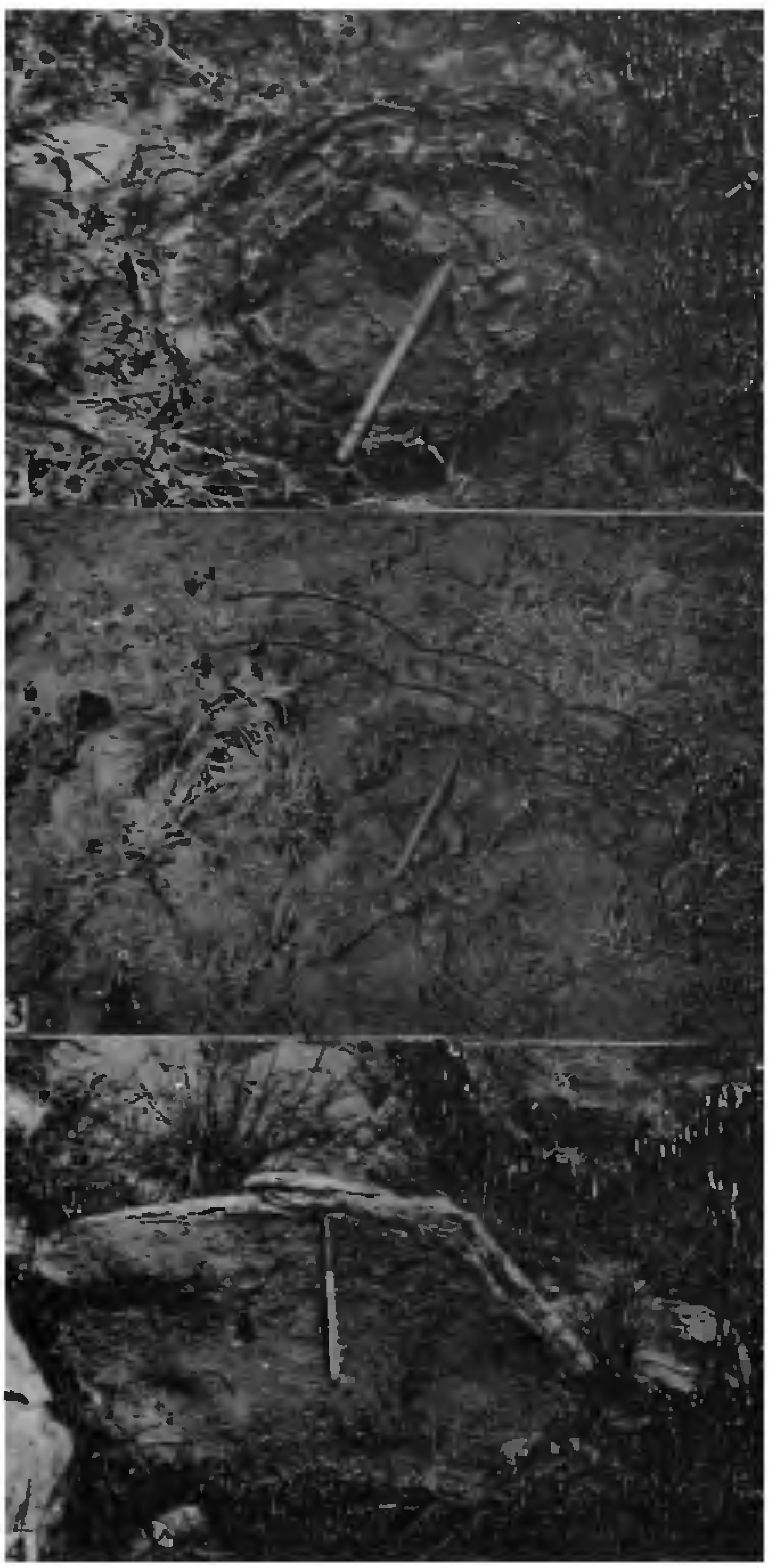

Figure 2-4. 2. Oncolites from lake Manyara area. 3. Close laterally linked hemispheroidal stromatolites. 4. Stromatolite coating on oolitic limestone.

Excellent exposures of stromatolitic rocks extending north-south, in consonance with the present shore line of the lake, are observed 3 km east of the village Mto-wa-Mbu to the south of Arusha-Ngorongoro road, near the eastern shore of the lake. Different forms of stromatolites representing distinct lacustrine facies have been found in this area, a brief description of which follows here.

Oncolites or concentrically stacked spheroids[6] are the most distinct and obvious forms (figure 2) which are abundantly found in this area. A distinction, however, should be made between SS-C forms of Logan *et al.*[6] and those found in this area, which do not necessarily represent a real spheroidal shape but are rather flattened more on the base than on the top and show concentric, eccentric or even irregular growth of stromatolitic laminae. The core around which the laminae grow could be only a small fraction of an oncolite or could form a major part, allowing only a thin coating by laminae. The core is made up of allochems like ooids, pisoliths, shell debris, pellets (faecal?) and intraclasts which sometimes show bioturbate or birds's eye structures. There are examples where a cluster of small oncolites form a core for larger oncolites. Laminae are mostly composed of calcite but marly, clayey and ferrugenous laminations have also been noted. In some of the oncolites, the laminae may be gently arched in one section but the same show crenate or angulate forms in the sections perpendicular to the former. In such cases, a freshly broken surface along a layer shows parallel or subparallel elongated ridges. In some other cases, the oncolites, on erosion, show structures that look like stacks of thin tablets which follow roughly a domal outline. Such peculiar structures have never been associated with oncolites. The individual oncolites range in size from a few centimetres to as much as a metre, the general size being around 25 cm.

For the growth of oncolites, their continuous movement is necessary in order to effect coating of algal layers and for binding the sediment particles around the core. In marine environment, this is possible in the lower parts of intertidal zone or subtidal zone where waves and currents impart movement[6]. In the present case this should have been made possible by wind generated waves in the deeper parts of littoral or sublittoral zones. That the winds generated the agitation in this case is clearly indicated by the abundance of ooids and pisoliths in the rocks. Evidently, some of these waves would have to be very powerful in order to move even boulder size blocks indicating high winds or storms. However, the majority of oncolites indicate moderate agitation causing their displacement rather than their overturning. This was why the oncolites had a rather flat base and almost domal of acutely arched top with stacking of numerous laminae. Interruption in movement must have produced irregular oncolites.

Laterally linked hemispheroidal stromatolites (figure 3) occur in areas away from the lake beyond where oncolites are found. They are generally close-link type[6]. The height of such structures does not in any case exceed half a metre. The diameter of hemispheroidal laminae varies from 10-20 cm.

These stromatolites require a continuity in the algal mat growth and therefore form in the protected locations of the intertidal zone[6]. It has been observed in the Lake Cowan (Western Australia) that LLH-C type stromatolites[6] form at the margins of the lake[7]. The supralittoral zone can not support their growth, for the long periods of dessication would cause the destruction of the mats. Similarly, sublittoral or deeper parts are characterised by the growth of space-linked hemispheroids[7]. Thus, these stromatolites must have formed in the then littoral zone of the Lake Manyara. The availability of sufficient sediment particles was a cause for active binding by algal mats and hence perpetuation of these stromatolites within the littoral zone.

Stromatolite coatings can be identified on numerous cobbles, boulders and other rock surfaces (figure 4). The thickness of such coatings could vary from 3 cm to tens of centimetres. In the formation of these coatings, the algal mats seem to have covered and grown on whatever surfaces were available to them. This kind of coatings must have formed in any environment where growing algae could find a surface and sediments were available for trapping. Perhaps the littoral zone of the lake was a more favourable location where such layers might have developed unhindered. Some other stromatolite forms noted in the area include discrete, vertically stacked hemispheroidal stromatolites with variable basal radii (SH-V stromatolites[6]) and cryptalgalaminates of Aitken[8].

The stromatolite forms and their distribution in the Lake Manyara area appear to be controlled by sediment supply and the capacity of the algal mats to bind them and their interaction with the lacustrine environments. The distribution of different lacustrine stromatolite facies in the area is being worked out and might provide important clues to the subtle variations in the palaeoenvironments. Occurrence of stromatolites, oncolites, pisoliths and ooids, all of lacustrine origin, might not only determine lake level fluctuations but also the overall relationship between the sedimentation and tectonics of the Rift. As it is, the present spread of the lake is but a fraction, in size, of the original one and over the time, its level has fallen by tens of metres.

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THREE NEW SPHAEROPSIDALES FROM INDIA

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SYSTEMATIC survey of diseases in local forest and plantation resulted in the collection of 3 new species of fungi belonging to Sphaeropsidales. The fungi reported in this paper are both new generic and species record on *Pongamia pinnata* and *Eucalyputs* sp. The species of *Dothiorella* and *Cytospora* described in this paper have been compared with the known species (table 1). They considerably differ from the known species.

Dothiorella indica sp. nov.

Fungus induxit in siliquarum facie maculas minutas nigras, coalescentes in areas maiores. Stroma