FURTHER OBSERVATIONS ON *ONTHEODENDRON FLORINI* SAHNI & RAO

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ABSTRACT

Ontheodendron florini is here interpreted as a cycadophyte stem impression and designated *Cycadophytites florini* gen et sp. nov.

INTRODUCTION

THE generic name *Ontheodendron* was proposed by Sahni & Rao (1933) for some badly preserved plant impressions from Onthea, Rajmahal Hills, Bihar. They regarded it as a lax cylindrical cone bearing single-seeded ligulate scales placed parallel to the axis. The ovule was detachable from the scale and was probably placed in an adaxial pit near the base. A few such detached scales were also found associated with the strobilus-like structure. Ganju (1946) also figured a similar detached scale. So far the only one species known from the Rajmahals is *O. florini* Sahni & Rao. In 1935 Harris described another species, *O. sternbergi* (NILSSON) Harris from Scoresby Sound, East Greenland. In this connection Nathorst's (1886) specimen of *Palissya sternbergi* (NILSSON) Nathorst from Bjuv, Sweden, was also referred to *Ontheodendron sternbergi* by Harris. These are the only two species of *Ontheodendron* known so far.

Recently, while examining a varied and indifferently preserved collection of Cycadophyte impressions from the Rajmahal Hills, Bihar, we discovered that the apical regions of some of these stem specimens showed a striking resemblance to *O. florini* Sahni & Rao. We, therefore, re-examined the figured specimens of *O. florini* and in the light of our recent experience found that *O. florini* can also be interpreted as a partially decorticated cycadophytic stem. We are, therefore, here figuring and interpreting the old specimen accordingly.

DESCRIPTION

Pl. 1, Figs. 1-6; Text-figs 1A-C

Stem — Plate 1, Fig. 1 and Text-fig. 1B show the impression of a decorticated stem as viewed from inside. The slightly elevated and vertically elliptic area originally interpreted as a seed is the basal rhomboidal end of the petiole or the leaf-scar. This becomes clear when Figs. 2, 5 and 6 are closely examined. All these show impressions of the petiole in its longitudinal aspect, the petiole being prolonged to various extents beyond the basal part. Figs. 3 and 4, on the other hand, are fragmentary and show only the impressions of the basal part with their surface features. It might be pointed out that in none of the leaf-scars, marks of the vascular bundle are visible. The median groove seen in Figs. 2, 5 and 6 is not a ligular pit as originally supposed but is perhaps the groove seen so commonly in the woody petiolar bases of ferns and cycads.

The leaf-bases of the specimen described above look very much like some of the cycadean stems figured by Oldham & Morris (1863) in Pl. XXXIV, Figs. 1 and 2. They may also be compared with the leaf-bases of a cycadean stem (specimen No. 4) described by Bose (1953). It is difficult to say whether this impression with its revised interpretation belongs to Cycadales or Bennettitales. Both kinds of fronds occur in Onthea and all over the Rajmahals, and the detached leaf-bases shown in Pl. 1, Fig. 5, occur very commonly in the Rajmahal Hills. One such type has already been figured by Bose (1953a).

In view of the above facts we reinterpret *Ontheodendron florini* as a Cycadophyte stem impression or a mould to be more exact. But its affinities with the Cycadales or Bennettitales is not clear.

DISCUSSION

The original specimens of *Ontheodendron florini* are imperfectly and incompletely preserved, and that to a certain extent was perhaps responsible for its interpretation as a cone impression. A point of some significance, however, is that the axis of the cone is not clear, nor have such similar cone impressions or detached seeds been found. The attachment of the scales too is not very

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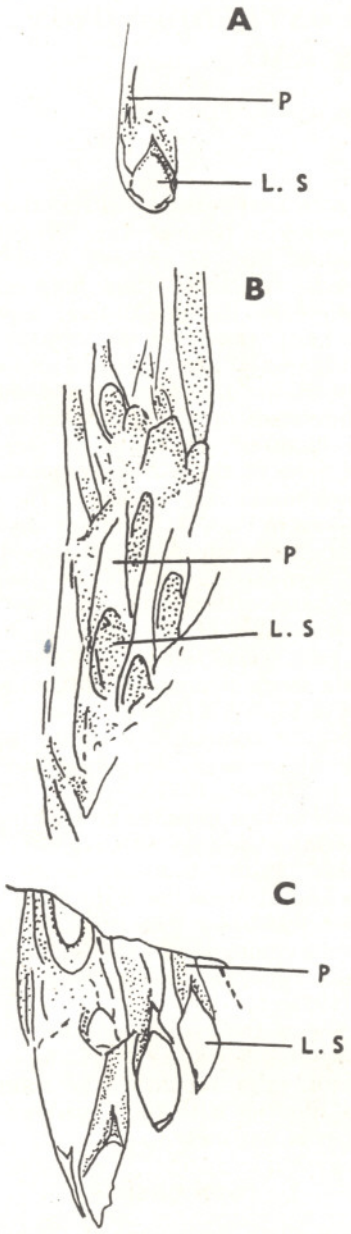

TEXT-FIG. 1 — A, detached leaf-base. × 1. B, C, cycadophytic stem Nos. 1 and 2. × 1. (*p*, petiolar region of the leaf-base, l.s. leaf-scar).

clear in the specimens. All these facts raise doubts that the impressions may not at all be that of a cone although it is easily mistaken for one on account of its mode of preservation. Fortunately the discovery of a large number of cycadophyte stem impressions and moulds in different degrees of decortication has provided a clue to the reinterpretation of this fossil. Indeed, the number of such cycadophyte stems are so many in the Rajmahal collections that it is impossible to assign them with any degree of certainty to the Bennettitales or Cycadales. In view of this difficulty we would like to institute a new form genus *Cycadophytites* for the reception of cycadophyte stems whose affinities with the Bennettitales or Cycadales cannot be determined. We, accordingly, remove *Ontheodendron florini* from the genus *Ontheodendron* and place it under the genus *Cycadophytites* but with the old specific name *florini*.

***Cycadophytites* gen. nov.**

" Impressions, casts and moulds of Cycadophyte stems which cannot be referred to either the Bennettitales or Cycadales."

Type species — *C. florini*.

***Cycadophytites florini* (Sahni & Rao) n. comb.**

Moulds of partially decorticated stem bearing impression of the leaf base and part of the petiole. The leaf-scar varied in form, rhomboidal oval or ovoid, narrowing to a fine short groove at the petiolar end, petiolar lengths and breadth variable, vertical striations on the leaf-scar but no vascular traces visible, distinction between foliage and scale leaves not present.

Locality — Onthea, Rajmahal Hills, Bihar, India.

Age — Jurassic.

Collection—Type specimen No. F10a of the Botany Department, University of Lucknow.

One of us (BOSE) while in Stockholm in 1954 had the good opportunity of examining the type specimens of *Palissya sternbergi* (NILSSON) Nathorst, which was later placed by Harris (1935) under *Ontheodendron sternbergi*. On examination these specimens were found to be quite different from *O. florini* and definitely belong to coniferophyta. It is now desirable that a re-examination of the type specimens of *O. sternbergi* (NILSSON) Harris should be made and perhaps described under a new name.

ACKNOWLEDGEMENT

We are grateful to Prof. O. H. Selling, Director, Riksmuseets, paleobotaniska avdelning, Stockholm 50, for kindly allowing Bose to examine the Bjuv specimens of *O. sternbergi*.

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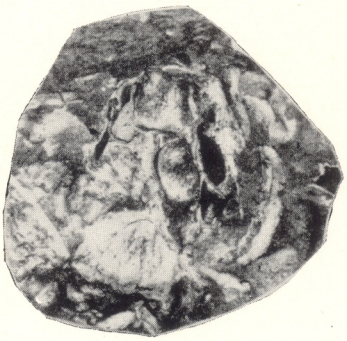

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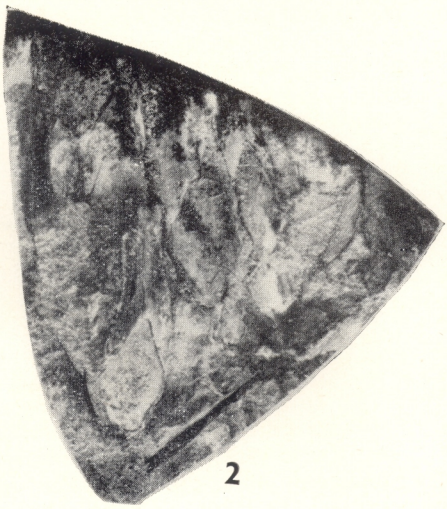

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EXPLANATION OF PLATE 1

Cycadophytites florini (SAHNI & RAO)

1. Impression showing the leaf-base in the longitudinal aspect. Specimen No. 1. F10a. × 1¼.
2. Note the petiole prolonged beyond the leaf-base. Specimen No. 2. F10b. × 1¼.
3. Only the leaf-bases of varied shapes are preserved. Specimen No. 3. F10b. × 1¼.
4. The above magnified. F10b. × 2½.
5. A detached leaf-base. F10b. × 1¼.
6. The above magnified. F10b. × 2½.