CYCADITES RAJMAHALENSIS OLDHAM FROM THE RAJMAHAL HILLS, BIHAR

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ABSTARACT

The present paper gives a new diagnosis of *Cycadites rajmahalensis* Oldham from Bindaban, Rajmahal hills, Bihar.

INTRODUCTION

THREE species of *Cycadites* Brongniart were described by Oldham and Morris (1863) from Bindaban, Rajmahal hills. They are, *C. conferta* Morris, *C. rajmahalensis* Oldham and *C. blanfordianus* Oldham. These three species were again reported by Feistmantel (1877) from the same locality. Seward (1917) figured one of the specimen of *C. rajmahalensis* described by Oldham and Morris (*l.c.*, PL. 8, FIG. 1) as *Nilssonia rajmahalensis* (=*Cycadites rajmahalensis*). He, however, did not give any description or reason for transferring it under *Nilssonia*. In 1920, Seward and Sahni placed under *N. rajmahalensis* Morris all the previously described species of *Cycadites* from Bindaban.

Recently, I have collected a few more specimens belonging to this species from the type locality of Bindaban. I have also examined some of the figured specimens of Oldham and Morris (*l.c.*) and Feistmantel (*l.c.*). Pinnae of quite a good many of these leaves show clearly a median groove or a ridge. Also in all the specimens pinnae attachment is lateral. So according to the latest diagnosis of *Nilssonia* by Harris (1964, p. 32), the Rajmahal leaves, now under consideration, do not belong to the genus *Nilssonia*.

These fronds resemble more in external characters some of the species of *Cycadites* Brongniart, *Pseudocycas* Nathorst and *Paracycas* Harris. In the absence of cuticle it is very difficult to determine whether they belong to *Pseudocycas* or *Paracycas*. Therefore, for these specimens I have used the generic name *Cycadites* as was suggested by Holden (1914). Also in the absence of cuticle the affinities of the Rajmahal specimens, belonging to *Cycadites*, will have to remain open till better specimens are found.

DESCRIPTION

Cycadites rajmahalensis Oldham

(Pl. 1, Figs 1-2)

1863 *Cycadites conferta* Morris: Oldham & Morris, p. 15, pl. 7, fig. 4, pl. 8, fig. 2.
Cycadites rajmahalensis Oldham: Oldham & Morris, p. 15, pl. 7, figs. 1, 2, pl. 8, fig. 1.
Cycadites blanfordianus Oldham: Oldham & Morris, p. 16, pl. 9, fig. 2.

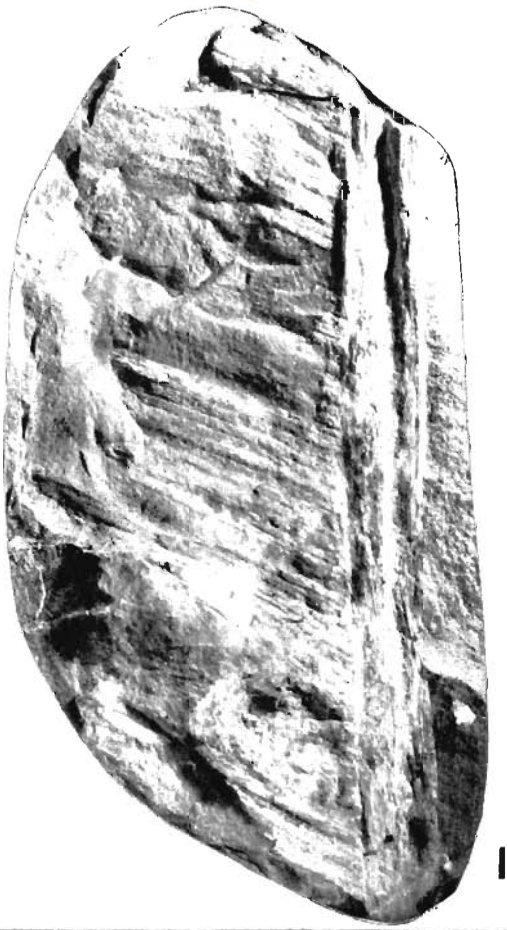
1877 *Cycadites confertus* Morris: Feistmanetl, p. 72, pl. 48, fig. 1.
Cycadites blanfordianus Oldham: Feistmantel, p. 72.
Cycadites blanfordianus Oldham: Feistmantel, p. 72.

1917 *Nilssonia rajmahalensis* (=*Cycadites rajmahalensis*), Seward, p. 571, fig. 621.

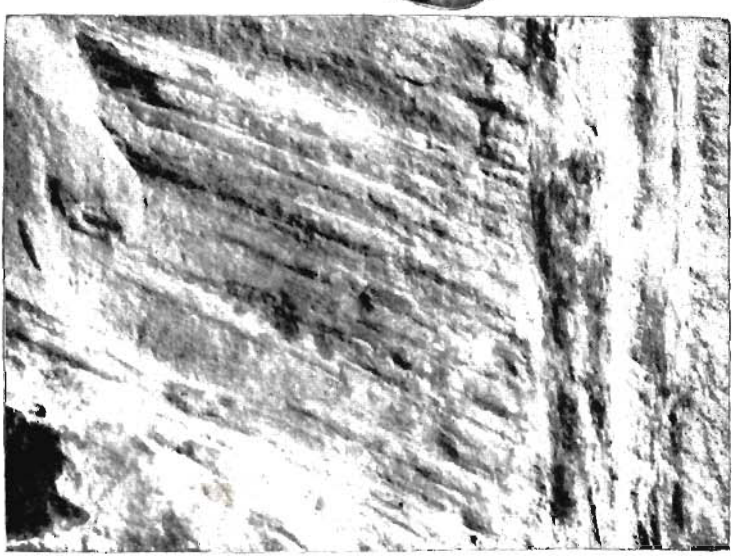
1920 *Nilssonia rajmahalensis* Morris: Seward & Sahni, p. 32, pl. 3, fig. 34, pl. 5, fig. 42.

Diagnosis — Leaf large, simply pinnate, shape as a whole not known, lamina tapering very gradually below, width 7-16 cm. Rachis rather thick below, about 1-1·5 cm. in width, towards apex about 0·5 cm. wide. Major part of rachis smooth, towards base some with a prominent groove. Pinnae laterally attached, crowded, margin touching each other but not overlapping, arising at an angle of 65°-80° (less near apex). Substance of pinnae thick, linear, 2·5-6·5 cm. long (typically 4-6 cm.) and 2·5-3 mm. broad, breadth more or less nearly uniform, base very slightly expanded, apex acuminate. Margin entire, slightly thickened. Midrib prominent, represented by a median groove or a ridge.

Lectotype — No. 4378 (G. 283), Geological Survey of India, Calcutta.



1



2

Occurrence — Bindaban and Onthea, Rajmahal hills, Bihar.

Age and Horizon — Upper Jurassic; Rajmahal Stage, Rajmahal Series.

Discussion and Comparison — From the breadth of the rachis near the base and apex and somewhat uniform length of the pinnae over the major portion of the leaves, it is inferred that the leaves of *Cycadites rajmahalensis* were fairly large perhaps exceeding 50 cm. in length. It seems the specimen figured by Feistmantel (*l.c.*, PL. 48, FIG. 1) and the specimen figured here (PL. 1, FIG. 1) belonged to the basal region and the majority of the specimens figured by Oldham and Morris (*l.c.*, PL. 7, FIGS. 1, 2 & 4 and PL. 8, FIGS. 1 & 2) were from the middle region. Only one specimen of Oldham and Morris (PL. 9, FIG. 2) seems to be nearer apex. In some of the specimens margins look slightly thickened but whether they were recurved or not is difficult to make out. Wherever the preservation is good the pinnae clearly show a midrib. Like some of the other species of *Cycadites* none of the specimen of *C. rajmahalensis* show two veins.

C. raimahalensis resembles most *C. blomqvisti* Antevs (1909) from the Lower Liassic of Sweden and *C. rectangularis* Braun described by Seward (1904) from the Lower Liassic of England. Unfortunately, *C. blomqvisti* is rather fragmentary so detailed comparison is not possible. *C. rectangularis* is smaller than *C. rajmahalensis* and also in the former the pinnae bases of one is joined to that of the next along the rachis. In external characters *C. rajmahalensis* is also comparable to *Pseudocycas dunkeriana* (Goepp.) Florin (1933) described from Sweden. But in *P. dunkeriana* pinnae attachment is quite distinct from *C. rajmahalensis*. In the larger size of the leaves *C. rajmahalensis* may be compared with *P. insignis* Nathorst (1907). But the latter species is more broad and also the pinnae are not so crowded as the former species. From *Paracycas cteis* (Harris) Harris (1964) from the Jurassic of Yorkshire, *C. rajmahalensis* differs in being larger in size and the pinnae are attached at an angle of about 65°-80°. In *P. cteis* pinnae mostly arising at right angles to the rachis.

ACKNOWLEDGEMENT

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EXPLANATION OF PLATE

PLATE 1

1. *Cycadites rajmahalensis* Oldham. No. 25638. × 1. 2. A portion of the above magnified. × 2.