

SPOROJUGLANDOIDITES JURASSICUS GEN. ET SP. NOV., A
SPOROMORPH FROM THE JURASSIC OF THE
RAJMAHAL HILLS, BIHAR

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ABSTRACT

Under the name *Sporojuglandoidites jurassicus* a new sporomorph is described from the Jurassic rocks of India. The sporomorph is distinguished by the presence of foraminoid apertures on its body—a character not met with in any plant group except the angiosperms. In general characters it seems to resemble the juglandoid grains.

INTRODUCTION

THE sporomorph described here was discovered in a microscopic section of a piece of chert from Nipania, a village near Dumarchir, District Amrapara, Bihar. The chert deposits of Nipania belong to Rajmahal series of the Upper Gondwanas of India and are regarded as Upper Jurassic in age.

In the presence of several foraminoid apertures on its body, a feature not met with in the spores of either Pteridophyta or Gymnosperms, the sporomorph shows affinities with angiosperms.

The record from the pre-Cretaceous beds of plant fossils, possessing characters which, according to our present knowledge, are found only in angiosperms, is rather meagre. So far the known pre-Cretaceous angiosperm like plant remains are (i) the Rhaetic alate seeds or fruits, *Fraxinopsis major* and *F. minor* (WIELAND, 1929, pp. 447-448); (ii) Rhaetic dicotyledonous type of leaf-impressions, *Furcula granulifer* (HARRIS, 1932); a Jurassic wood, *Suevioxylon zonatum* (KRÄUSEL, 1928, pp. 250, 251); Jurassic pollen grains cf. *Nelumbo* and *Castalia* (SIMPSON, 1937), *Tricolpites* (*Eucommuidites Troedsonii*) (ERDTMAN, 1948) and the Upper Jurassic juglandoid grains (BORGE & ERDTMAN, 1954, p. 113). Besides these some other instances are enumerated by Axelrod (1952, pp. 30, 31). The present find adds another evidence to the occurrence of angiosperm like plant remains prior to the Cretaceous period.

DESCRIPTION

Sporojuglandoidites jurassicus Gen. et sp. nov.

Figs. 1, 2

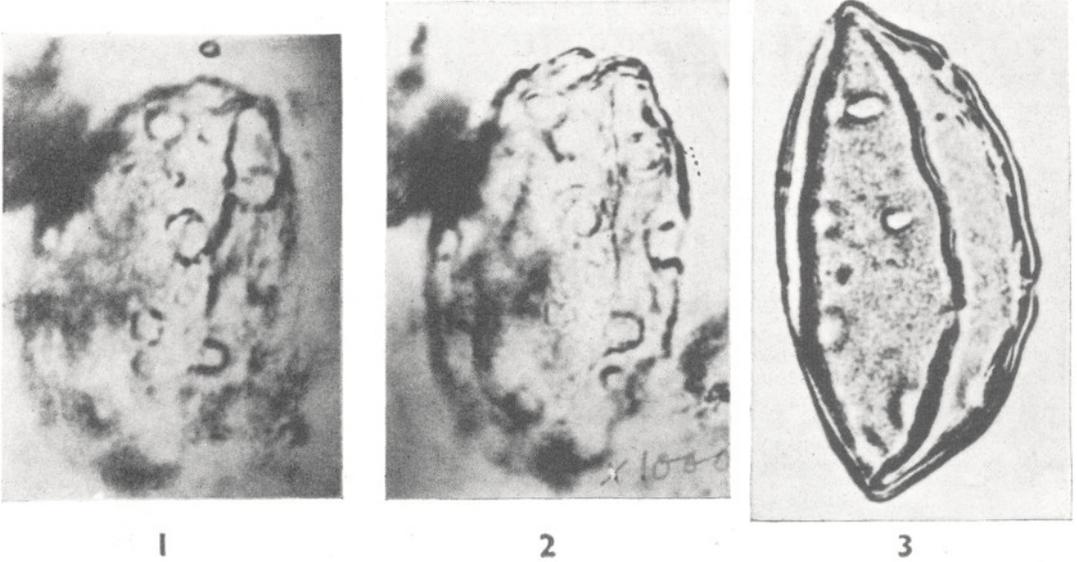
The specimen, 56 μ in the longer diameter, is ellipsoid or oblate spheroidal. In its oblique polar view it seems to have been folded unequally upon itself and in this region it is 34 μ broad. Similar folding has been noticed to be caused by the pressure of the cover glass in the grains of modern *Juglans regia* (FIG. 3).

The pores, 10-12 in number, do not appear to be distributed uniformly on the body of the grain which seems to be heteropolar. The pores appear to be simple. Each pore, 5 \times 7 μ , is either circular or slightly elliptical and is bounded by a peripheral thickened area comparable with the corresponding shield shaped area of the aspidate pores, for instance, on the grains of Juglandaceae. The pouting of the pores is not well marked. There is also no distinct stratification, which may be due to preservation. A faint 'OL' pattern is, however, observed.

DISCUSSION

As already mentioned the most distinctive character of the present sporomorph is the occurrence of several foraminoid apertures on its body. From the current knowledge of the morphology of the living and fossil spores such foraminoid apertures are met with only on the grains of some angiosperms, i.e., Chenopodiaceae, Amaranthaceae, Caryophyllaceae, Juglandaceae and some representatives of Haloragidaceae and Hamamelidaceae (ERDTMAN, 1952).

The sporomorph possesses a large number of the apertures which appear more or less aspidate in nature. In these the specimen shows the juglandoid character. The apertures are, however, simple and not composite (foraminorate) as in modern juglandoid



TEXT-FIGS. 1, 2 — *Sporojuglandoidites jurassicus*. Gen. et sp. nov. The sporomorph at two different foci. The 'OL' pattern is clearly made out when the three apertures at the top region of the sporomorph are compared in each photograph. The dark streak running in the right half of the sporomorph is a fold. $\times 1000$.

TEXT-FIG. 3 — A pollen grain of the modern *Juglans regia* showing folding due to pressure exerted by the cover glass. $\times 1000$.

grains (ERDTMAN, 1952, p. 214). This apparent difference may be due to preservation. In being small in size the specimen differs from the Jurassic juglandoid grains reported by Erdtman (BORGE & ERDTMAN, 1954, p. 113).

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