FOSSIL WOODS OF GUTTIFERAE (*KAYEA*) AND LAURACEAE FROM THE TERTIARY OF WEST BENGAL

Fossil woods are of common occurrence in various Neogene exposures of peninsular part of West Bengal. Nearly 23 genera belonging to seven families of Dicotyledons and also a palm and an araucarian wood have so for been described (Srivastava & Prakash, 1984) from the fossiliferous localities of Gangabandh Village (Bankura District), Bolpur, Labpur (Birbhum District) and Garhbeta (Medinipur District). The present communication briefly describes two more fossil woods collected from another fossiliferous exposure near Muhammad Bazar, also in Birbhum District. One of them has been identified as belonging to the genus *Kayea* (Guttiferae) and the other to the family Lauraceae. This constitutes the first record of these taxa from the state of West Bengal.

Kayea assamica

Wood diffuse-porous. *Growth rings* indistinct. *Vessels* small to medium, mostly solitary, rarely in pairs, round to oval in shape, evenly distributed, 16-29 per sq mm, some vessels embedded in fibres while others in parenchyma bands; t. d. 40-120 μm, r.d. 80-150 μm; intervessel pit-pairs alternate, bordered with linear-lenticular apertures; tyloses seen at places; vessel-fibre and vessel parenchyma pits could not be seen; vasicentric tracheids scanty, seen at places only; vessel members with oblique ends, 250-550 μm long. *Parenchyma* mostly in thick apotracheal bands, comprising of 3-7 cells in width, bands occur at regular intervals. *Xylem rays* fine, 1-3 (mostly 1-2) seriate, closely spaced, 2-16 per mm, 10-40 cells or 150-900 μm high, heterogeneous; uniseriate rays made up of upright cells only, multiseriate rays made up of procumbent cells in the central part and 1-2 upright cells at one or both the ends. *Fibres* mostly in thick bands, alternating with parenchyma bands, semilibriform to libriform, round to angular in cross section with fairly thick walls, non-septate; interfibre pits could not be seen.

The anatomical details clearly indicate the affinity of this fossil with the modern woods of *Kayea assamica* King & Prain (Pearson & Brown, 1932; Metcalfe & Chalk, 1950; Ramesh Rao & Purkayastha, 1958). Hence, it is being described as *Kayea assamica*.

Fossil woods comparable to *Kayea assamica* have also been described earlier under the name *Kayeoxyeon assamicum* from the Tipam sandstones of Assam (Chowdhury & Tandon, 1949; Prakash & Tripathi, 1975).

Specimen—Museum specimen no. B. S. I. P. 36242.

Laurinoxylon sp. cf. *namsangensis*

Wood diffuse-porous. *Growth rings* absent. *Vessels* small to large, mostly medium sized, t.d. 60-176 μm, r. d. 75-270 μm, solitary and in radial multiples of 2-5 or in small clusters, round to oval in cross section when solitary, with flat to wavy contact walls when in groups, 8-16 per sq mm; tyloses present; vessel members 250-500 μm in length with oblique ends; perforations simple; intervessel pit pairs bordered, alternate with linear-lenticular apertures, 6-8 μm in diameter. *Parenchyma* scanty paratracheal to vasicentric, forming 1-2 seriate continuous or broken sheath around the vessels or vessel groups at some places; cells thin-walled. *Xylem rays* medium to fine, 1-3 seriate, 5-30 cells or 150-600 μm in height, 6-8 per mm; ray tissue heterogeneous, uniseriate rays made up of up-

right cells only, multiseriate rays with procumbent cells in the middle and with extension of 1-3 upright cells at one or both ends; sometimes sheath cells also present. *Fibres* aligned in radial rows between the rays, semilibriform with big lumen, ovate to polygonal in shape, 10-20 μm in diameter, septate. Oil cells present as stray cells distributed in fibrous tissue as well as in the form of enlarged cells at the end of some of the rays.

The present fossil shows close affinity with the woods of Lauraceae. Anatomically the woods of different genera of family Lauraceae are not easily distinguishable (Stern, 1954; Desch, 1957) and therefore they have been described under the generic name *Laurinoxylon* Felix.

From India, four species of *Laurinoxylon* are known from Tipam sandstones, Dupitilla Series and Varkala beds. The fossil is similar to all the species in major anatomical features but is nearest to *L. namsangensis* Lakhanpal *et al.*, 1981. Hence, it has been described as *Laurinoxylon* sp. cf. *namsangensis*.

Specimen—Museum specimen no. BSIP 36243.

References

Chowdhury, K. A. & Tandon, K. N. (1949). *Kayeoxylon assamicum* gen. et. sp. nov., a fossil dicotyledonous wood from Assam. *Proc. natn. Inst. Sci. India*, **15** (2) : 59-65.

Desch H. E. (1957). Mannual of Malayan Timbers-I. *Malay Forest Rec.*, **15** : 1-328.

Lakhanpal, R. N., Prakash, U. & Awasthi, N. (1981). Some more fossil dicotyledonous woods from the Tertiary of Deomali, Arunachal Pradesh, India. *Palaeobotanist*, **27** (3) : 232-252.

Metcalfe, C. R. & Chalk, L. (1950). *Anatomy of dicotyledons*. **1** & **2.** : Oxford.

Pearson, R. S. & Brown, H. P. (1932). *Commercial timbers of India*. **1** & **2.** Govt. of India Publ, *Calcutta*.

Prakash, U. & Tripathi, P. P. (1975). Fossil dicotyledonous woods from the Tertiary of eastern India. *Palaeobotanist*, **22** (1) : 51-62.

Ramesh Rao & Purkayastha, S. K. (1958). *Indian woods*. **3.** Dehradun.

Srivastava, G. P. & Prakash, U. (1984). Occurrence of araucarian wood from the Neogene of West Bengal, India. *Palaeobotanist*, **32** (3) : 236-242.

Stern, W. L. (1954). Comparative anatomy of xylem and phylogeny of Lauraceae. *Trop. Woods*, **100** : 1-72.

Explanation of Plate

Plate 1

Kayea assamica King et Prain

1. Cross section showing the distribution of vessels, parenchyma and xylem rays. ×30. Slide no. (BSIP 36242-I).
2. Tangential longitudinal section showing the distribution of xylem rays. ×30 Slide no. (BSIP 36242.-II). *Laurinoxylon* sp. cf. *L. namsangensis* Lakhanpal *et al.*, 1981.
3. Cross section showing distribution of vessels. ×30 Slide no. (BSIP 36243-I).
4. Tangential longitudinal section showing distribution of xylen rays ×30. Slide no. (BSIP 36243-II).

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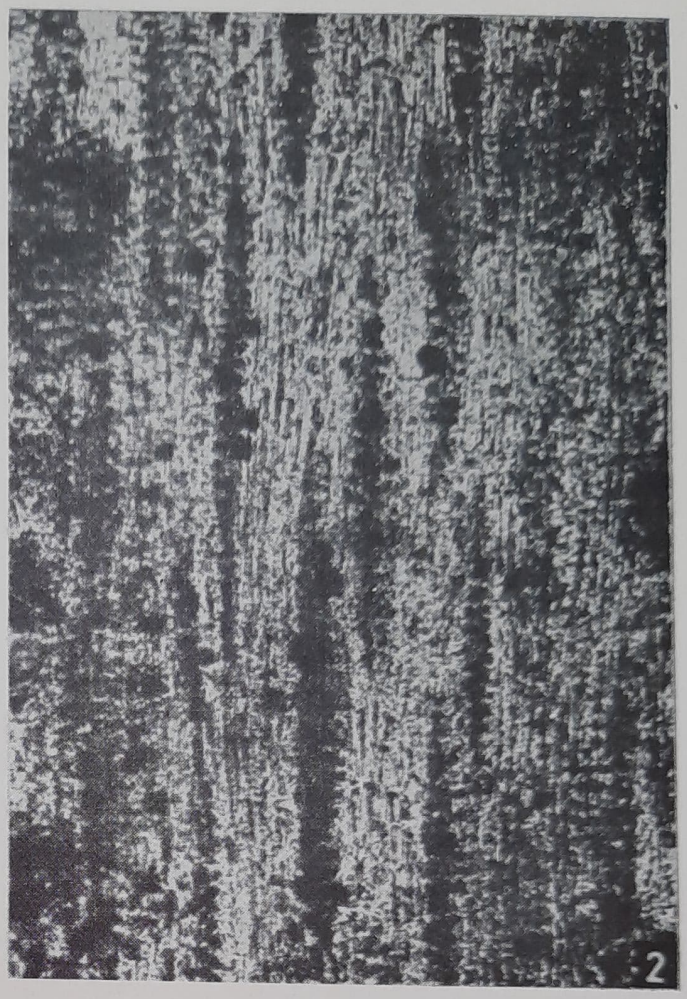
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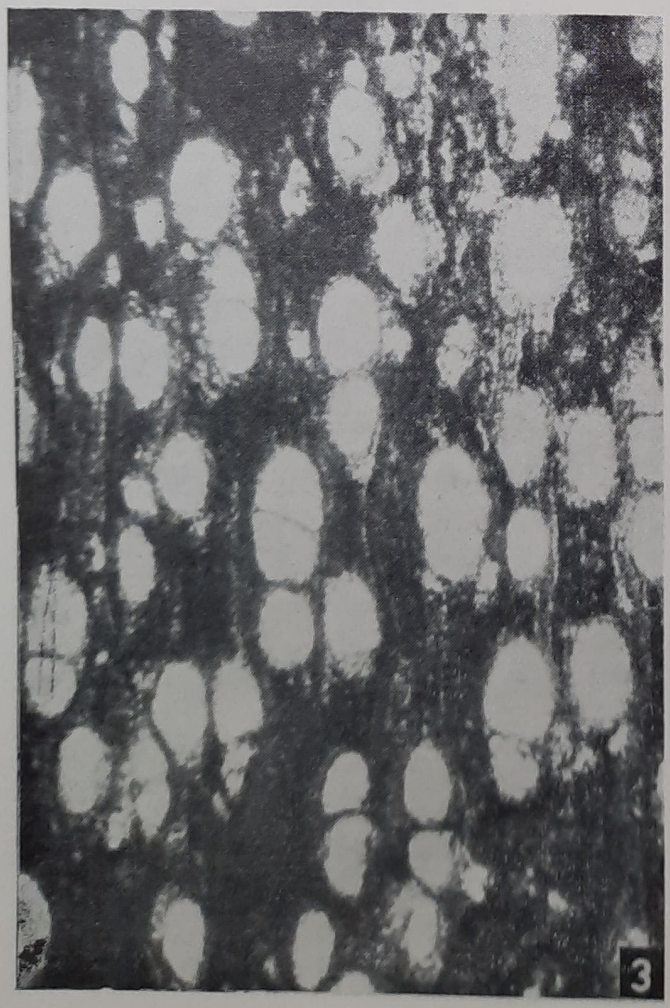
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