

HAUSMANNIA DICHOTOMA DUNKER AND PTEROPHYLLUM PRINCEPS OLDHAM & MORRIS FROM THAN, SAURASHTRA*

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ABSTRACT

A fairly well-preserved specimen of *Hausmannia dichotoma* Dunker and a few fragmentary specimens of *Pterophyllum princeps* Oldham & Morris collected from Than form the subject matter of this paper. The specimen of *H. dichotoma* resembles the specimens earlier described from India and Europe. The segments of *P. princeps* are like the segments of *P. princeps* Oldham & Morris described from the Rajmahal Hills. Their venation pattern also matches with each other.

INTRODUCTION

Fossil plant remains of early Cretaceous age have been described from Saurashtra by FEISTMANTEL (1880), RAO AND VIMAL (1950), ROY (1966, 1968), KASAT (1970), BORKAR AND CHIPLONKAR (1973) and BOSE AND JANA (1979). Recently, a fresh collection from Than has been made. The collection includes a specimen of *Hausmannia dichotoma* and a few specimens of *Pterophyllum princeps* which are described below. *H. dichotoma* is more common in the Lower Cretaceous though they are known from the Jurassic as well. *P. princeps* has, so far, been known only from the Rajmahal Hills.

DESCRIPTION

Hausmannia dichotoma Dunker

Pl. 1, Figs. 1-3 ; Text-fig. 1A

Description—Portion of a sterile frond, measuring 8 cm in length and 2 cm in breadth. Petiole absent. Lamina deeply dissected into two strap-shaped segments, towards apex each segment further forking 2-3 times ; just below the point of bifurcation segments slightly broader (about 0.7—0.9 cm). Margin of segments entire, thickened with marginal veins. Principal vein in each segment prominent, after traversing a distance of a little over 1 cm bifurcating into two branches, further up each arm forking once or twice ; lateral veins arising at an angle of about 70°-90°, on further division and union with each other forming square to polygonal meshes and joining marginal veins. Meshes subdivided by finer veins into ultimate meshes with blind endings.

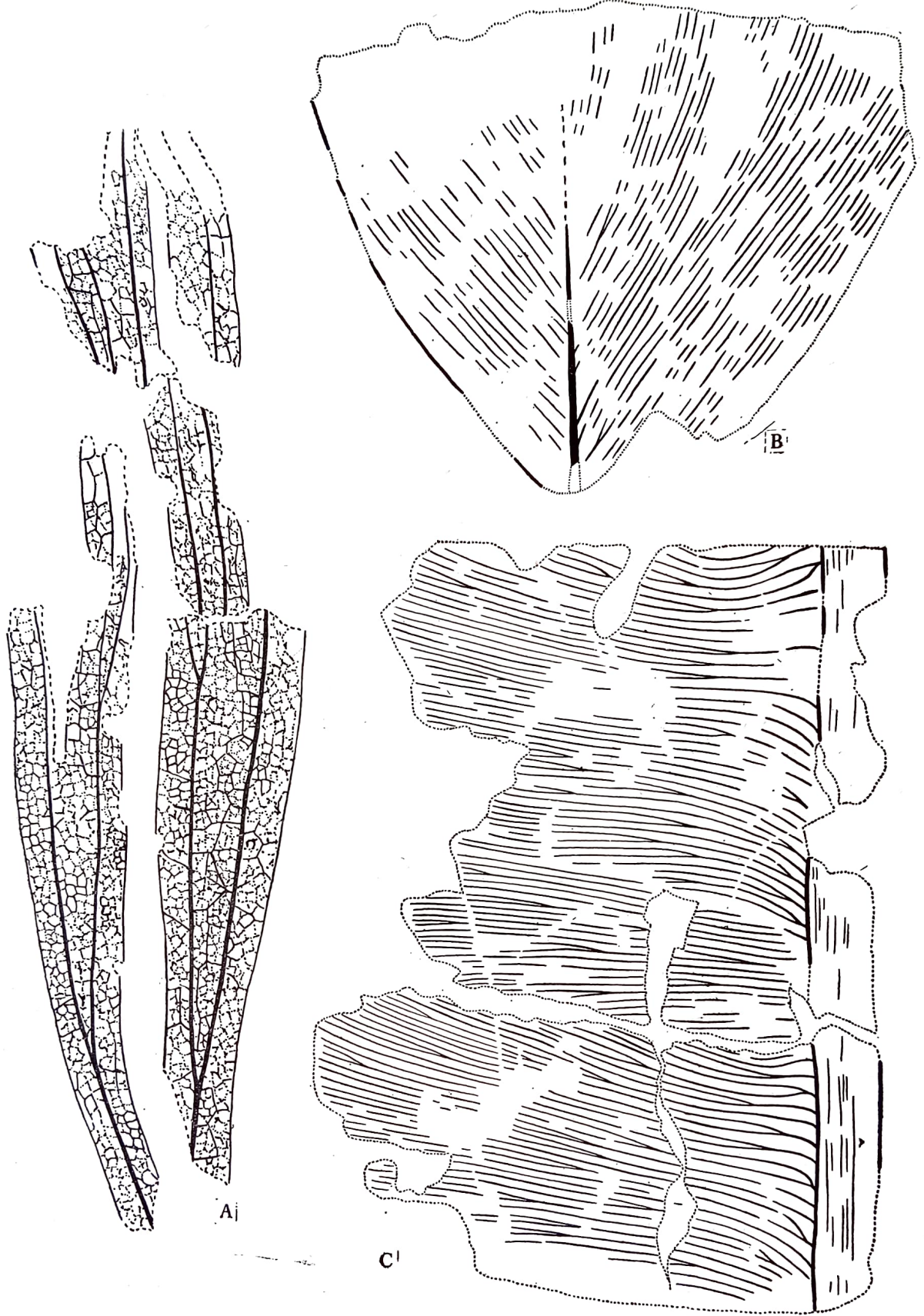
Collection—Nos. 12A/1998 and 12B/1998 of the Birbal Sahni Institute of Palaeobotany, Lucknow.

Locality—About 1.5 km north of Than Railway Station, Saurashtra.

Age—Lower Cretaceous.

Comparison—In India, besides Than, *Hausmannia dichotoma* is known from Jatamao, Satpura Basin (see CROOKSHANK, 1935). The specimens from Jatamao have similar type of venation but they are too fragmentary to be compared in detail with the present specimen. In gross feature and venation pattern the specimen from Than resembles some of the speci-

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Text-fig. 1-A, *Hausmannia dichotoma* Dunker, B.S.I.P. no. 12B/1998; $\times 2$. B—C, *Pterophyllum princeps* Oldham & Morris, B.S.I.P. nos. 13/1729 and 21/1998. $\times 1$.

mens of *H. dichotoma* described by RICHTER (1906), SEWARD (1911), DABER (1960) and HARRIS (1961).

Pterophyllum princeps Oldham & Morris

Pl. 1, Figs. 4, 5 ; Text-figs. 1B, C

Description—Fronds fragmentary, the largest specimen measuring 10.5 cm in length and 7.5 cm in breadth. Rachis stout, up to 1 cm wide, gradually narrowing towards apex, marked with longitudinal striations. Segments more than 10.5 cm long and 6.8 cm broad, lateral margins straight, parallel, distal margin where preserved entire. Secondary veins distinct, arising at an angle of 70°-90°, nearer apex at 40°-45°, parallel, simple or forked, mostly forking once, very rarely twice, forking at all levels, about 5-7 veins per cm near rachis and 9-10 per cm near middle region of lamina.

Collection—Specimen nos. 20A/1998, 21/1998 and 13/1729 of the Birbal Sahni Institute of Palaeobotany, Lucknow.

Locality—About 1.5 km north of Than Railway Station, Saurashtra.

Age—Lower Cretaceous.

Comparison—Amongst the known Indian species of *Pterophyllum*, the present specimens resemble most some of the specimens of *P. princeps* Oldham & Morris recently described by BOSE AND BANERJI (1981, Text-fig. 8J) from the Rajmahal Hills, Bihar. In external feature, *P. braunsi* Schenk, described by ANTEVS (1919), resembles *P. princeps*. The former, however, has finer veins and they do not dichotomise as frequently as in the latter species. The segments of *P. hanesianum* (HARRIS, 1932 b) look more like the specimens from Than, but the former has much more veins in each segment than the present species. The segments of *Pseudoctenis spectabilis* (HARRIS, 1932a) are somewhat like the present specimens, but the veins in the former species branch close to the rachis, whereas in the specimens from Than they branch at different levels.

REFERENCES

- ANTEVS, E. (1919). Die liassische Flora des Hörsandteins. *K. svenska vetensk-Akad. Handl.*, **59** (8) : 1-71.
- BORKAR, V. D. & CHIPLONKAR, G. W. (1973). New plant fossils from the Umias of Saurashtra. *Palaeobotanist*, **20** (3) : 269-279.
- BOSE, M. N. & BANERJI, J. (1981). Cycadophytic leaves from Jurassic-Lower Cretaceous rocks of India. *Palaeobotanist*, **28**, 29.
- BOSE, M. N. & JANA, B. N. (1979). *Dictyophyllum* and *Hausmannia* from the Lower Cretaceous of Saurashtra, India. *Palaeobotanist*, **26** (2) : 180-184.
- CROOKSHANK, H. (1935). Note on some Jabalpur plants from Satpura Gondwana Basin. *Rec. geol. Surv. India*, **69** (2) : 168-170.
- DABER, R. (1960). Beitrag zur Wealden-Flora in Nordöstdeutschland. *Geologie*, **9** (6) : 591-637.
- FEISTMANTEL, O. (1880). Notes on fossil plants from Kattyawar Shekh, Budin and Sirjugah. *Rec. geol. Surv. India*, **13** (1) : 62-69.
- HARRIS, T. M. (1932a). The fossil flora of Scoresby Sound, East Greenland-2. *Meddr. Grønland*, **85** (3) : 1-112.
- HARRIS, T. M. (1932b). The fossil flora of Scoresby Sound, East Greenland-3. *Meddr. Grønland*, **85** (5) : 1-133.
- HARRIS, T. M. (1961). *The Yorkshire Jurassic Flora-1. Thallophyta-Pteridophyta*. Brit. Mus. nat. Hist., London.
- KASAT, M. L. (1970). Some pteridophytic remains from Mesozoic rocks in India. *Palaeobotanist*, **18** (2) : 212-214.
- RAO, A. R. & VIMAL, K. P. (1950). On a collection of plant fossils from Saurashtra. *Curr. Sci.*, **19** : 175-176.
- RICHTER, P. B. (1906). *Beiträge zur flora der unteren Kreide Quedlinburgs. Teil. I. Die Gattung Hausmannia Dunker und einige seltene pflanzenreste*. Leipzig : I-IV+1-25.

- ROY, S. K. (1966). Fossil flora from Upper Gondwana of Kutch and Kathiawar. *Palaeobotanist*, **14** : 116-117.
ROY, S. K. (1968). Pteridophytic remains from Kutch and Kathiawar, India. *Palaeobotanist*, **16** (2) : 108-114.
SEWARD, A. C. (1911). The Jurassic Flora of Sutherland. *Trans. Roy. Soc. Edin.*, **47** : 643-709.

EXPLANATION OF PLATE 1

- 1-2. *Hausmannia dichotoma* Dunker, Part and counter part—B.S.I.P. nos. 12A/1998 and 12B/1998. $\times 1$.
3. *H. dichotoma*, a portion of the specimen no. 12B/1998 magnified. $\times 4$.
4-5. *Pterophyllum princeps* Oldham & Morris, B.S.I.P. nos. 20A/1998 and 21/1998. $\times 1$.

