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Short Communication

A petrified palm wood from the Deccan Intertrappean beds of Malchalma, Medak District, Andhra Pradesh, India

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During a search for the chertified flora in the vast stretches of Deccan Intertrappean rocks of Andhra Pradesh, three large pieces of well preserved petrified wood were collected from a stream section on the eastern slope of an hillock, near Malchalma (17°35'10N: 77°36'00E), a village 12 km south of Zaheerabad on the Zaheerabad-Chincholi Road. Zaheerabad is about 120 km away from Hyderabad on the National Highway No. 9 and forms a part of the Toposheet No. 56G/10 (Fig. 1). The area is occupied by the rocks of the Deccan trap sedimentary sequence overlying the Granitic gneisses. The Deccan trap sequence in the area is comprised of four lava flows alongwith infra and intertrappean rocks (Dutt, 1975) and the fossil material was collected from the intertrappean rocks of the third flow (Fig. 1). The three large pieces of fossil wood include a stump (basal portion of a tree trunk) and two pieces comprising clusters of roots. The present paper reports the anatomical structure of only the silicified stem portion (stump) collected for the first time from the intertrappean beds of Medak District, Andhra Pradesh.

DESCRIPTION

External Morphology

The specimen is a large piece of highly silicified stem. The shape and the morphological features suggest it to be a stump (basal portion of a stem). It measures about 28.5 cm in length about 26 cm in diameter at its broader basal end and gradually tapers upward measuring about 20 cm in diameter at the apical end.

The specimen represents only the central zone with a peripheral rim of partially preserved sub-dermal layer and does not show any root structure attached to it nor the epidermal portion (Pl. 1.1).

Internal Morphology

***Central zone*—**The central zone can be distinctly separated into a partially preserved peripheral sub-dermal layer which forms a sort of girdle of 0.87 to 1.37 mm width with densely packed fibrovascular bundles with an average frequency of 110-118 bundles/cm^2. The frequency gradually decreases towards the centre with an average frequency of 60-80 bundles/cm^2. The fibrovascular bundles are scattered, more or less uniform in size and shape and show normal

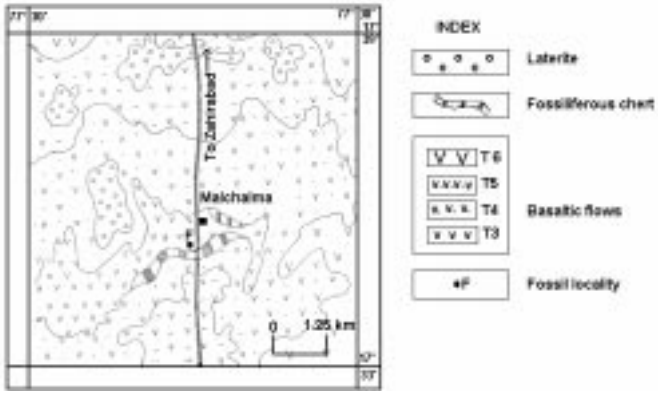

Fig. 1—Geological map showing fossil locality.

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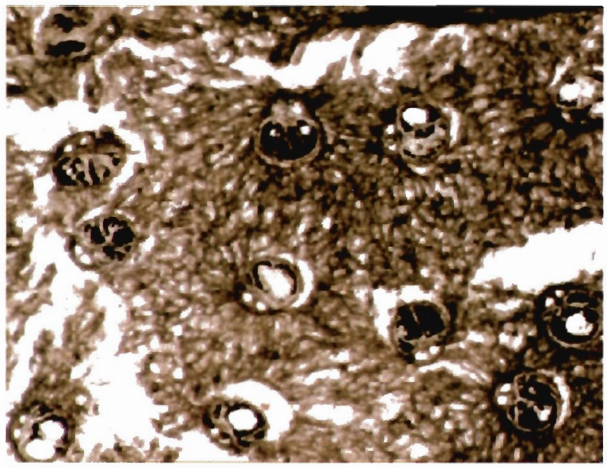
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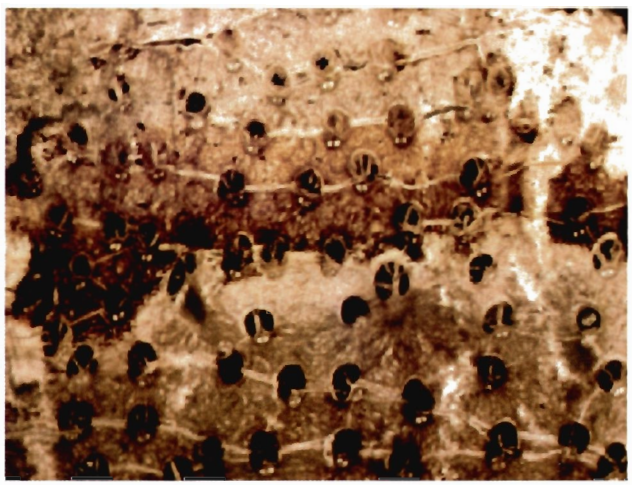
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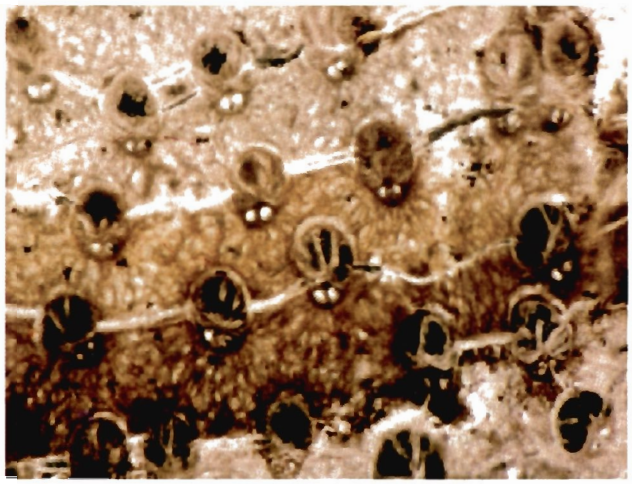
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PLATE 1

1. Photograph showing silicified wood (stump). x natural size.
2. Transverse Section of wood from central region showing irregularly oriented and widely scattered vascular bundle with *reniform* dorsal sclerenchyma cap. x 160.
3. Transverse Section of wood from peripheral region showing scattered vascular bundles with normal orientation. x 160.
4. Magnified view of the peripheral region showing oval vascular bundles with mainly *reniform* dorsal sclerenchyma cap and radiating ground parenchyma. x

orientation with its vascular portion pointing towards the centre (Pl. 1.3). The fibrovascular bundles are large, oval in shape, dorsal sclerenchyma cap reniform. The average length is 750 μm and width is 510 μm. The xylem is well developed, usually show 2-3 larger vessels, excluded in nature and measures about 125 μm in diameter. Some of the bundles show the presence of smaller vessels also. Phloem is not well developed or rather it is disorganised and appears like a pit. The ground tissue is parenchymatous, cells are elongated and tends to align radially especially around the vascular part of the bundle. On the dorsal side of the bundle the cells are of varied shapes and irregularly oriented (Pl. 1.4). The tabular cells are absent. The pure fibre bundles and the leaf trace bundles could not be observed in the thin sections.

The fibrovascular bundles in the centre are widely scattered with an average frequency of 55-60 bundles/cm^2. The bundles are more or less uniform in size, broadly oval in shape with mainly reniform dorsal sclerenchyma cap, sometime tending to be cordate. The vascular bundles show irregular orientation. (Pl. 1.2) The ground parenchymatous cells are smaller in size and slightly elongated in nature, and show radial arrangement on the ventral side around the vascular part of

the bundle. Xylem consists of 2-3 larger vessels, some of the bundles show a cluster of smaller vessels below the larger vessels. They are excluded in nature.

Specimen no.— INT / ZA /29

Repository—Palaeontology Division, GSI, Hyderabad.

Locality—Malchalma, Medak District, Andhra Predesh.

Horizon—Deccan Intertrappean beds.

Age—Upper Cretaceous to Palaeogene.

DISCUSSION

The present specimen from Malchalma Village of Andhra Pradesh shows all the characters of a palm wood hence it is assigned to the genus *Palmoxylon* Schenk, which represents the fossil woods of palms. Based on Sahni's scheme of classification (1943) the specimen under consideration falls under the sub-group *Reniformia* of the *Palmoxylon.* The flora of the Deccan Intertrappean beds of India is suggestive of terrestrial and fresh water environment with marshy habitat. Palms normally abounds in a coastal to near coastal tropical areas of the world so the occurrence of *Palmoxylon* suggests the existence of similar environmental conditions during the existence of the palm in the Medak District, Andhra Pradesh. The presence of air chambers as observed in the thin section of the roots (under study) further supports the marshy habitat at the time of deposition of the fossil.

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