
SCIENCE NEWS

VISTAS IN INDIAN PALAEOBOTANY—A REPORT

A Symposium on "Vistas in Indian Palaeobotany" was jointly organised by the Birbal Sahni Institute of Palaeobotany, the Palaeobotanical Society and the Indian Association of Palynostratigraphers, at the Birbal Sahni Institute of Palaeobotany, Lucknow from November 14–16, 1988.

Research papers were contributed on the focal theme notably on the problems of origin and antiquity of life, fossil fuels, source rock palynology, morphology, taxonomy, evolutionary trends, reconstruction of past vegetations, palaeoenvironments, chemistry of fossil woods, plant remains from pre- and proto-historic times and data retrieval and system analyses.

Microfossils comparable to Upper Proterozoic records are reported from Nainital Synform, Kumaon Himalaya. Microbiota of Suket Shales (Vindhyan Supergroup) suggest an age that is younger than available K-Ar dates ($1400 \pm \text{Ma}$). Evidence of metaphyte/metazoans indicates shelf-like marine setting during Vindhyan sedimentation.

Study of Permian floras of India has brought to light new types of seed and pollen-sac bearing, branched organs associated with ginkgoalean leaves. Dominance of *Glossopteris* and other associated taxa is reported from Barakar Formation of Talcher Coalfield, where the *Gangamopteris*—*Noeggerathripsis* complex is absent, unlike typical Barakar megafloreal assemblage known so far.

The age of fossiliferous bed exposed on the left bank of Gopad river near Nidhpur village, Sidhi district, M.P., has been a matter of controversy. Predominance of glossopterid leaves and lack of indubitable *Dicroidium* leaves have been taken to suggest a latest Permian age; *per contra* Triassic affinity is put forth on several other evidences, such as palynofloral pattern and geological setting of the area.

The quick and sharp change-over from striate disaccate to taeniate phase in the upper part of Middle Member of Kamthi Formation in Godavari Basin indicates a palynological break. Interestingly this Permian-Triassic transition shows closer affinity with that of Salt Range and Madagascar rather than Damodar Valley.

The Gondwanic palynofloral reflection in Tethys Himalaya and southern China is suggested. The increasing palynological homogeneity during post-Permian times as evidenced by global incidence of striate-taeniate and nonstriate-bisaccate pollen is considered to be indicative of warming climatic trends.

The palynological evidences gathered from the eastern side of Brahmani river section of the hitherto considered Talchir Formation in the Talcher Coalfield of Orissa suggests the presence of Jurassic/Lower Cretaceous sediments in the graben.

New plant megafossil evidence from Dubrajpur Formation exposed at Khatangi Hills, Rajmahal Basin; Gollapalli beds, A.P. and Athgarh Formation, Mahanadi Basin suggests Lower Cretaceous age assignment. Comparative morphologies of Bennettitalean fructifications and *Cordaianthus* prove closer affinities.

Tracing the evolution of angiospermid pollen characters, it is interpreted that infratectal interstitium (TEM) in certain gymnosperms is columellate, manifesting grades of complexity. It is suggested that angiospermid pollen characters exemplified during Triassic were lost (due to extinction?) and reappeared in the Lower Cretaceous. Data to bridge this gap are wanting.

Reconstruction of idealized vegetational scenarios around Nagpur, Chhindwara and Sahapur on the basis of available information on Deccan Intertrappean flora depicts a tropical, evergreen to semi-evergreen forest similar to the present-day forests of Western Ghats. Additions to the Deccan Intertrappean flora have been made through documentation of podocarpaceous ovules, pseudostem and arecoid palm fruit from Mohgaonkalan.

Studies of Neogene palynofloras and fossil woods from Quilon and Ratnagiri areas suggest prevalence of somewhat equable tropical humid climate with heavy rainfall all along the Kerala Coast during Neogene times. The record of Palaeocene-Eocene palynological succession in subsurface of Neyveli and Kerala Coast is a significant finding adding new knowledge to the stratigraphy of the east and west coast of India.

Attempts have been made to summarize available palaeobotanical and palynological data from Tertiary sequences of Himalayan region. The data have been utilized to reconstruct vegetational pattern of the terrain during Palaeogene-Neogene times.

Tertiary sequences of Assam, Meghalaya, Nagaland and other areas in NE India have continued to attract attention of palaeobotanists and palynologists for the past few decades. Studies of Neogene fossil woods from Assam and Nagaland suggest a close phytogeographical link during that period between the Indian subcontinent and South-East Asia. Palynological investigations of surface and subsurface Palaeogene-Neogene sequences of Assam are utilized for building up a broad biostratigraphic framework.

A concentrated interdisciplinary effort involving palaeobotanists, vertebrate palaeontologists, sedimentologists and specialists in palaeomagnetism is being made to study the Siwalik of Nepal. Palaeobotanical evidences have been brought forward to suggest a humid tropical climate during Lower Middle Siwalik with evergreen to semi-evergreen floral pattern in lower part, changing into a predominantly deciduous forest in younger horizons. Pollen succession of these deposits suggests a palaeoecological set-up with a freshwater swampy environment of lower part, gradually replacing upwards to low-land habitat.

Palynological analysis of an organic clay encountered almost at present-day MSL in a well on South Kanara coastal plain suggests its deposition in a mangrove setting and helps in monitoring Late Pleistocene sea level changes. The ^{14}C dates older than 40,000 yrs. BP given to this level coincide with warm interstade during Wurmian glacial-event which was characterized by lowered sea level.

Palynological analysis of Late Holocene subsurface material from Coondapur area, Karnataka reveals constant presence of well-developed mangrove forest reflecting a lagoonal environment. The cause of absence of mangrove from the site today is land reclamation and indiscriminate felling of wood. The past history of sholas in South Indian montane reveals that the shola forest is almost on the verge of extinction and dire preventive measures are required to save it. Attempts have been made to reconstruct the vegetational history of mangroves in the Chilka Lake.

Organic petrological investigations have suggested that high representation of resinite maceral probably makes Raniganj coals more susceptible to sponta-

neous combustion. Biopetrological study of Tertiary coals from Assam, Nagaland and Meghalaya indicates that these coals are rich in liptinitic contents and, therefore, also form good source for hydrocarbons. High incidence of such material also suggests better suitability for hydrogenation liquifaction.

Effect of acetylbromide on fossil wood from Karewa sediments indicated that the percentage of acetylbromide soluble matter of fossil woods decreases from 100% in modern to 12% in Pliocene woods suggesting increasing humification during the past four million years. Presence of aminoacids, fats, organic acids, phenols and flavonoids is indicated in fossil woods from Palana lignite, on the basis of paper chromatography test.

New reports of plant megafossils from Lower Cretaceous of East Coast of India were made. Morphological and taxonomical aspects of certain fossil leaf genera were discussed.

Dendroclimatological analyses of deodar trees from Joshimath, U.P. indicate close relationship between ring-width chronology and average monthly precipitation and maximum temperature.

Morphological and taxonomic aspects of GV Types dinoflagellate cysts recovered were critically analysed necessitating creation of a new dinocyst taxon from Turonian sediments of Cauvery Basin.

Institute-University Interaction

A dialogue took place between the University teachers and the Sahni Institute scientists participating in the Symposium to formulate a working plan to promote the science of palaeobotany in the country. Dr. B. S. Venkatachala, Director, Birbal Sahni Institute of Palaeobotany presented the framework document for the proposed interaction which stated that palaeobotany has undergone much change in its contents and character and more stress is now laid on analytical interpretative aspects. The existing curriculum should now be reviewed to develop one which takes into consideration the continuous inflow of new data. The current topics, like palaeogeography, palaeoecology, biostratigraphy, evolution, migration of floras, etc., must be introduced in the curriculum.

Presiding over the meeting, Professor H. Y. Mohan Ram, Botany Department, Delhi University suggested that an ideal syllabus must be evolved and advance courses should be provided which can cover most of the elementary courses and special courses

in palaeobotany. It was unanimously agreed upon that the gap between research and teaching should be minimised, and well-documented authentic teaching material should be produced. The aim can be achieved by collective efforts of the Universities and the Sahni Institute. A group was constituted to

undertake preparation of a revised curriculum.

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NEWS

WAY NOW CLEAR FOR WALL PICTURE TV

A television set that can be hung on the wall like a picture is now possible following the development in Britain of a new method of producing flat screens.

The development, which allows the manufacture of liquid crystal display (LCD) screens as thin as a sheet of glass, has wide-ranging implications not only for TVs but also for cockpit and dashboard displays, art reproduction and instant colour photocopiers.

The Rytrak high technology firm from Liverpool in North-West England says the commercial production of a full-size completely flat LCD screen has been made possible by overcoming the problems of combining the driving electronics with the picture elements on the same sheet of glass. This has been achieved by using polysilicon instead of amorphous silicon for the transistors and ultra-low pressure during the processing.

Rytrak has developed a fully automated chemical-vapour-deposition (CVD) machine which can produce flat screens up to 355 mm square on a commercial basis. Existing technology has so far only come up with pocket-sized versions. The £256,000 CVD machine can produce 20 screens an hour.

Dr Derek Palmer, Chairman and Managing Director of Rytrak, commented: "We have overcome what has been called the greatest challenge in technology today, that of thin-film, large area electronics."

Japanese and US electronics companies have already shown interest in the project and the first machine is due to be delivered in March 1989 to a British aircraft manufacturer. (BIS.B/39; issued by British Information Services: British High Commission, Chanakyapuri, New Delhi 110 021).
