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AN HISTORICAL OUTLINE OF INDIAN PALAEOBOTANY

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Early History

The history of Indian Palaeobotany can be traced as far as back as 1828 when Adolphe Brongniart described a few fossil plants from this country in his well known *Prodrome* and the encyclopaedic *Histoire des végétaux fossiles*. The next available record is the figures of some fossils included by J.F.Royle in his *Illustrations of the Botany and Other Branches of Natural History of the Himalaya Mountains*. These fossils were later re-examined by E. A. N. Arber (1901) who also described some Lower Gondwana plants from India in his monograph on the *Glossopteris* flora published in 1905. Numerous references to fossil plants are contained in the earlier volumes of the *Journal of the Asiatic Society of Bengal*, while some also occur in European journals like the *Quarterly Journal of the Geological Society of London* and the *Geological Magazine*. However, most of our knowledge of the earlier history of Indian Palaeobotany is derived from the publications of the Geological Survey of India which was founded in the middle of the nineteenth century.

So much material of the Gondwana Flora had been collected in the early days that by 1886 four volumes of a monumental work entitled the *Fossil flora of the Gondwana System* were published (OLDHAM & MORRIS, 1863; FEISTMANTEL, 1876-86), mainly due to the untiring labours of Ottokar Feistmantel. The collections that formed the basis of this work were made by the Geological Survey in different parts of peninsular India. Subsequently, additions to these collections were made not only from the peninsular but also from the extra-peninsular India. Noetling in 1902 found a Lower Gondwana locality near Srinagar, Kashmir, from where important collections were made by Hayden and Middlemiss. Middlemiss also discovered a number of other localities in Kashmir containing plants of the Palaeozoic age.

With the increase in the knowledge of the fossil plants and the many additions to the Gondwana material after the completion of Feistmantel's work, it was realised that his descriptions and interpretations needed revision. This was done in Europe chiefly by Professor Zeiller at Paris (ZEILLER, 1902) and by Professor Seward at Cambridge, who, in collaboration with Professor Sahni, published a revision of the more important Indian Gondwana plants (SEWARD & SAHNI, 1920).

REVIVAL AND ORGANISATION OF INDIAN PALAEOBOTANY IN THE PRESENT CENTURY

After the retirement of Feistmantel in 1885, palaeobotanical research in India came to an end, and plant fossils collected by the Geological Survey were sent to Europe for investigation. The revival of the science took place on the return of Professor B. Sahni from Cambridge in 1919. Inspired by his teacher, Sir Albert Seward, he took up palaeobotanical research in India with great enthusiasm. In fact, the progress of Palaeobotany in India in the present century is entirely due to him.

The Palaeobotanical Society and the Birbal Sahni Institute of Palaeobotany—As early as 1929 Professor Sahni wanted to place palaeobotanical research in India on an organised basis, and to establish a museum of fossil plants at a suitable centre. He approached the Government of India for financial aid but without success. Ultimately he decided to start this project with his own private resources. On 19th May 1946 with seven other members of the Committee of Indian Palaeobotanist he founded a Palaeobotanical Society. On 3rd June a trust bearing that name was created to which Professor and Mrs Sahni donated their private funds and immovable property, a reference library and fossil collections. The trust was charged with the foundation of a research institute having a broad international outlook for carrying on original research in fossil botany. By a resolution passed on 10th September 1946 the Governing Body of the Society established an Institute of Palaeobotany with Professor Sahni as its Honorary Director.

The Palaeobotanist—One of Professor Sahni's aims in founding the Institute was publication of a journal of palaeobotany. Unfortunately he could not live to see it done. After his death the Institute started publishing a journal called *The Palaeobotanist* of which the first issue appeared in 1952 in the form of Sahni Memorial Volume.

RECENT STUDIES

Morphological Aspects—From the phytomorphological viewpoint, palaeobotanical research in India at present embraces several horizons from the Carboniferous to the Pleistocene. In the Palaeozoic and Mesozoic, the fossils studied are from the Gondwanas. Until recently there was not much information available about the Lower Gondwana *Glossopteris* flora of India. As a result of intensive search numerous impressions and compressions of leaves and fructifications have been collected and are being studied at Birbal Sahni Institute of Palaeobotany. One of the best-known floras of India is the Jurassic of Rajmahal Hills.

Plant Microfossils—In 1937, under Professor Sahni's guidance, Miss C. Virkki (now Mrs K. Jacob) examined the microfossils in some lower Gondwana rocks of India and Australia. This resulted in important observations and may be regarded as the beginning of micropalaeobotanical studies in India.

Palaeobotany of Coal—In 1932, Banerji published the results of a detailed examination of some Gondwana and Tertiary coals from India. Besides examining thin microscopic sections he also macerated the specimens and studied their microfossil contents. The importance of microfossil examination in the correlation of coal seams in India was indicated by Professor Sahni in 1940.

Palynology—In India, palynology is in its nascent stage. Although the importance of this study in India was pointed out by Professor Sahni in 1948, it has been possible to start systematic work on Indian pollen only since June 1953. It is being carried on at the Institute under a scheme financed by the Council of Scientific and Industrial Research.

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