GOUR MAHAVIDYALAYA

REACCREDITEDBYNAAC(2nd Cycle)B+

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DEPARTMENT OF BOTANY

Teachers use ICT enabled tools for effective teaching-learning process

Session 2023- 2024

Name of Teacher	Name of the Module	Platform	Other
DOYEL ROY, Assistant Professor	Google Meet, What's app: Online Study materials	Smart Phone, Laptop	Projector, Screen, You Tube
DIPJYOTI SINGHA, State Aided College Teacher	Google Meet, What's app: Online Study materials	Smart Phone, Laptop	Projector, Screen, You Tube
SANGITA SINGHA, State Aided College Teacher	Google Meet, What's App: Online Study materials	Smart Phone ,Laptop	Projector, Screen, You Tube
PRAJESH DUTTA, State Aided College Teacher	Google Meet, What's App: Online Study materials	Smart Phone Laptop	Projector, Screen, You Tube

Power point presentation in classes

Lecture delivered through PPT

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Learning resources Given to the students through online mode

Palaeobotany: Basic Concepts Palaeobotany (from the Greek words Palæo = old and botany = study of plants), is the branch of paleontology or paleobiology dealing with the recovery and identification of plant remains from geological contexts, and their use for the biological reconstruction of past environments (paleoecography), and both the evolutionary history of plants, with a bearing upon the evolution of life in general.

Palaeobotany is important in the reconstruction of ancient ecological systems and climate, known as paleoecology and paleoclimatology respectively, and is fundamental to the study of green plant development and evolution. Palaeobotany has also become important to the field of archaeology, primarily for the use of phytoliths in relative dating and in paleoethnobotany.

Kaspar Maria von Sternberg, the "Father of Palaeobotany," (1761–1838), was a Bohemian (from the historical region in central Europe, now part of the Czech Republic), theologian, mineralogist, and botanist. He established **the Bohemian National Museum in Prague** and is deemed to be the founder of modern Palaeobotany. Adolphe Théodore Brongniart (1801–1876) was a French botanist whose classification of fossil plants drew surprisingly accurate relations between extinct and existing forms prior to Charles Darwin's principles of organic evolution. His work earned him the distinction as the founder of modern classification in paleobotany.

Prof Birbal Sahni (1891-1949) is known as the **Father of Indian Palaeobotany**. He established the school of Palaeobotany in the Department of Botany at University of Lucknow which later on becomes the Birbal Sahni Institute of Palaeobotany (BSIP) and has now been renamed as Birbal Sahni Institute of Palaeosciences.

Plant fossils A plant fossil is any preserved part of a plant that has died long ago. Such fossils may be prehistoric impressions that are many millions of years old, or bits of charcoal that are only a few hundred years old. Prehistoric plants are various groups of plants that lived before recorded history (before about 3500 BC).

Types of fossils / Modes of Preservation Six broad categories of plant fossils are commonly recognized. Although these categories seem well defined, a given fossil may fall into several categories or may elude them all. Consequently, these categories should be thought of as broad modes of preservation. When thinking about types of fossils and modes of preservation, it is more important to consider what types of biologically interesting information is or is not present than to fret over strict classifications.

The basic types of plant fossils include:

1. Compressions – 2-dimensional, with organic material
2. Impressions – imprints, 2-dimensional, devoid of organic matter
3. Casts and Moulds – 3-dimensional, may have a surface layer of organic material
4. Permineralization – 3-dimensional, tissue infiltrated by minerals allowing internal preservation

Calamites is a genus of extinct arborescent (tree like) horsetails to which the modern horsetails (genus *Equisetum*) are closely related. Unlike their herbaceous modern cousins, these plants were medium sized trees, growing to heights of 10–16 meters (100–160 feet). They were components of the understories of coal swamps of the Carboniferous Period (around 360 to 300 million years ago).

Taxonomy

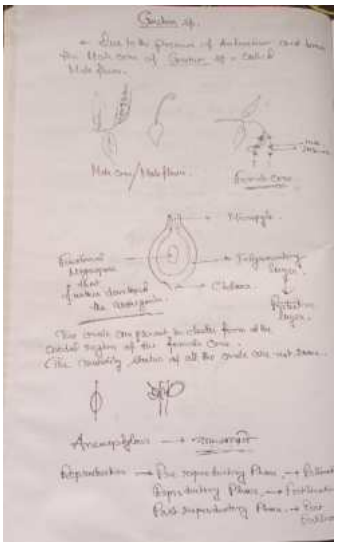
A number of organ taxa have been identified as part of a united organism, which has inherited the name *Calamites* in popular culture. *Calamites* narrowly refers only to casts of the stem of Carboniferous/Permian sphenophytes, and as such is a form genus of little taxonomic value. There are two forms of casts, which can give mistaken impressions of the organisms. The most common is an internal cast of the hollow (or pith filled) void in the centre of the trunk. This cast causes some confusion: firstly, it must be remembered that a fossil was probably surrounded with 4-5 times its width in (unpreserved) vascular tissue, so the organisms were much wider than the internal casts preserved. Further, the fossil gets narrower as it attaches to a rhizoid, a place where one would expect them to be the highest concentration of vascular tissue (as this is where the peak transport occurs). However, because the fossil is a cast, the narrowing in fact represents a constriction of the cavity, into which vascular tubes encroach as they widen.

Further organ genera belonging to sphenophytes include:

- *Arthrophyta* (stems which are preserved in a mineralised form)
- *Asterophyllites* (permineralised rhizomes, distinguished from *Arthrophyta* by the absence of a vertical canal)
- *Annularia* and *Asterophyllites* (form genera of leaf whorls which are paraphyletic).

Anatomy

The foliage (frondaria) of *Calamites*



Online Assignment Given Through Google Class Room

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