

UNIVERSITY OF CALCUTTA

B.Sc

BOTANY (HONOURS)

FIELD NOTE BOOK

Registration No. : 044-1211-0272-18

Roll No. : 183044 -11-0006

Subject : CC4 - ARCHEGONIATE



Ph. Office : 2464-1312
Principal : 2464-4371

Muralidhar Girls' College

P-411/14, GARIAHAT ROAD, BALLYGUNGE, KOLKATA - 700 029
(NAAC ACCREDITED - B+ +)

Ref. No.....

Date.....

TO WHOM IT MAY CONCERN

This is to certify that Ms. Ridika Dey bearing Roll no. 183044-11-0006, Registration number 044-1211-0272-18 an examinee of B. Sc. Botany (Honours) Semester II (CBCS) examination, 2019 of University of Calcutta has successfully completed an excursion in Pelling (eastern Himalayas) during February 2019 under my supervision. This is part of their syllabus (Semester II Honours) on study of Archaeogniate.

The examinee submitted a field report on natural habitats of Bryophytes, Pteridophytes and Gymnosperms of Eastern Himalayas which partially completes the Practical part of paper CC-4 of Botany Honours course.

Sangita Daschowdhury
Dr. Sangita Daschowdhury 25.2.19.

State Aided College Teacher
Department of Botany

Kinjalkini Biswas
Dr. Kinjalkini Biswas 25.2.19

Principal
Muralidhar Girls' College

Principal
Muralidhar Girls' College,

WEST SIKKIM EXCURSION

Date: 15-02-2019 -- 21-02-2019

ACCOMPANYING TEACHERS

Dr. Shampriya Chowdhury

Dr. Sangita Das Chowdhury

Team - " 1st Semester and 2nd Year of Botany Honours

Muralidhar Girls' College.



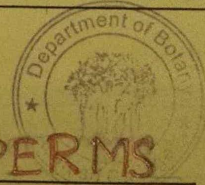
FIELD TRIP TO PELLING, RAVANGLA

AND TEMI TEA GARDEN TO STUDY

DIFFERENT TYPES OF BRYOPHYTES,

PTERIDOPHYTES AND GYMNOSPERMS

GROWING NATURALLY IN THE REGION

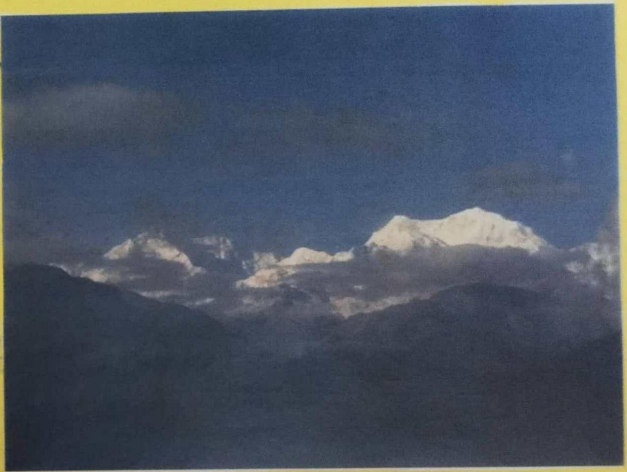
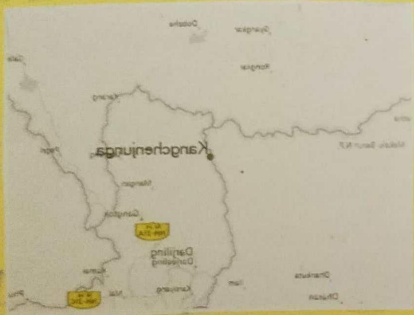


Our team comprising of the students of B.Sc Honours Semester -II, accompanied by the teachers Sangita Das, Sampriya Chowdhury and Lab attendant Mr. Swapan Panda.

Started of our journey on 15th February we boarded the Sealdah Mail at 10:05 PM and reached NJP station the next morning at 8:00 AM. After breakfast we left for Pelling by bus through Senoke road. We stopped at a place near Hotel (Hotel Puiganka) near Teesta bazaar for lunch. After which we continued our journey with the nighty Teesta river accompanying us most of the way. On the way we saw several ferns like Polypodium sp., Nephrolepis sp., Dryopteris sp. etc. growing on the hillside along the road.

Since the roads were very bad in stretches it was evening by the time we reached Pelling. We took the road from Melly bazaar, crossing the important West Sikkim towns of Geyzing and Legship.

FIELD TRIP TO PELL



Location of Kanchenjunga

EXTENSIVE PHOTOS AND SKETCHES OF Kanchenjunga Hills

GROWING NATURALLY IN THE REGION

Here we came across the liverwort Marchantia sp. growing profusely along the moist hillsides. Their thalloid body was full of gemma cups and some archegonia also.

We also came across the pteridophytes Selaginella kraussiana, Adiantum cunninghamii and Athyrium filix-femina growing in profusion. There were also several uncommon angiospermic wild plants growing along the hillsides. We next went to the Khecheopalui Lake.

The Khecheopalui lake is located 34 kilometres to the northwest of Pelling town, the lake is sacred for both Buddhists and Hindus, and is believed to be a wish fulfilling lake.

The lake is an integral part of the much revered valley of "Demazong" meaning valley of rice. This landscape is also known as a land of hidden treasures blessed by Guru Padmasambhava. Pictures and details given later.



Rhododendron arboreum
Family - Ericaceae



The Pemayangtse Monastery

After lunch we went to visit the Temi Tree Garden. (Tea Garden). There were cherry blossom trees with the bushes and the garden was bordered by rows of Cryptomeria sp.

Apart from this we saw several tree ferns like Cyathea sp. and bryophytes like Funaria hygrometrica. There were also several Magnolia trees growing in Temi Tea garden. We also saw orchids.

The hillsides also has several Angiospermic trees

Next morning we started our journey and boarded to NJP and reached Sealdah the next morning.

From this educational field trip we were able to gain knowledge of several natural habitats of pteridophytes and gymnosperms of West Sikkim which is considered to be an ecological hot spot.

Picture and details given later.

BRYOPHYTES

Marchantia sp.

Systematic Position

Kingdom - Plantae
Phylum - Marchantiophyta
Class - Marchantiopsida
Order - Marchantiales
Family - Marchantiaceae
Genus - Marchantia

Identifying characteristics

- ①. The plant body of Marchantia is thalloid, dorsiventral, prostrate with apical notch.
- ②. Certain cup like structures are present along the midrib known as gemma cup. This contain gemmae (the vegetative reproductive bodies).
- ③. The ventral surface bears scales and rhizoids along the midrib.
- ④. Sex organs are present on the stalked male and female receptacles i.e. archegonia are present in archegoniophore & antheridia in antheridiophore.



Gemma cup of Marchantia sp.
from Kachenjunga falls



Antheridia of Marchantia sp.
from Buddha Park, Ranangla



Archegonia of Marchantia sp.
from Kachenjunga falls,
Pelling

Pogonatum

Systematic Position

Kingdom - Plantae
Phylum - Bryophyta
Class - Polytrichopsida
Order - Polytrichales
Family - Polytrichaceae
Genus - Pogonatum

Identifying Characteristics

- ①. The gametophyte is perennial, differentiated into a rhizomatous basal portion and aerial upright shoots.
- ②. The aerial shoot is composed of a central axis, covered with spirally arranged leaves and root like rhizoids.
- ③. The leaves are very small, scaly and much paler in colour.
- ④. The leaves are provided with a thick midrib and two laterally extended thin and narrow wing-like lamina.



Pogonatum sp. from Buddha Park
Ranangla

PTERIDOPHYTES

Selaginella

Systematic Position

Kingdom - Plantae

Phylum - Lycopodiophyta

Class - Lycopodiopsida

Order - Selaginellales

Family - Selaginellaceae

Genus - Selaginella

Identifying Characteristics

- ①. The sporophyte is herbaceous and the shoot is dorsiventral, radial and creeping or erect.
- ②. The leaves are small and a ligule is present at the base of each leaf and sporophyll.
- ③. Rhizome is present in some species.
- ④. Sporophylls are usually aggregated into strobili at the apices of the branch, heterosporous.



Selaginella sp. from Kachenjunga falls

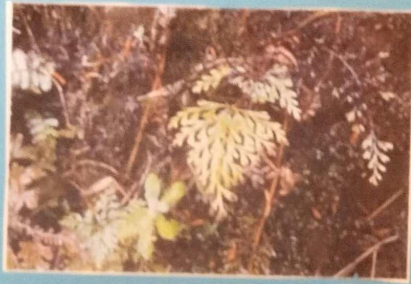
Adiantum microphylla

Systematic Position

Kingdom - Plantae
Class - Polypodiopsida
Order - Polypodiales
Family - Pteridaceae
Genus - Adiantum
Species - microphylla

Identifying Characteristics

- ① It is the small-leaved form of the maiden hair fern.
- ② In this fern the fronds are minutely divided.
- ③ The sori are found under the curled leaf margins.



Adiantum microphylla -
Feni Tea Garden

Lycopodium sp.

Systematic Position

Kingdom - Plantae
Phylum - LycopHYta
Class - LycopSida
Order - Lycopodiales
Family - Lycopodiaceae
Genus - Lycopodium

Identifying Characteristics

- ①. The plant body is creeping with erect branches. Branching is pseudomonopodial and the stem is densely covered with leaves.
- ②. Leaves are simple, microphyllous, sessile, lanceolate with a single unbranched vein.
- ③. Roots arise from the lower side of the prostrate stem which are adventitious in nature.
- ④. Strobili are borne at the tip of special erect shoots and sporophylls are compactly arranged.



Lycopodium sp.

Cyathea sp.

Systematic Position

Kingdom - Plantae

Class - Polypodiopsida

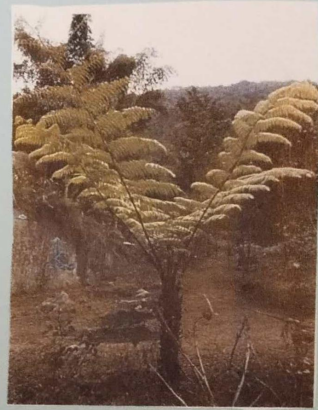
Order - Cyathales

Family - Cyatheaceae

Genus - Cyathea

Identifying Characteristics

- ①. The species of Cyathea are mostly terrestrial ferns, usually with a single tall stem.
- ②. Cup-shaped sori are present on the underside of the fronds.
- ③. The apex of the trunk are covered with conspicuous long, silky, straw colored scales.



Cyathea sp. from Orange garden, Pelling and Teri Tea Garden

GYMNOSPERMS

CONIFERS

Cryptomeria japonica

Systematic Position

Kingdom - Plantae

Division - Pinophyta

Class - Pinopsida

Order - Pinales

Family - Cupressaceae

Genus - Cryptomeria

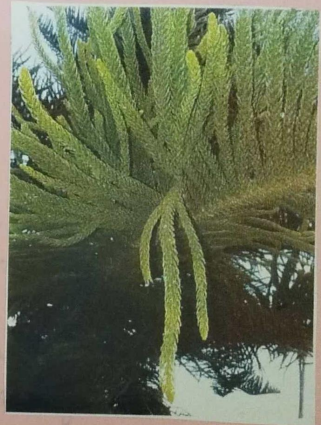
Species - Japonica

Identifying Characteristics

- ①. It is commonly known as Japanese cedar is a tall, cone shaped evergreen tree.
- ②. The foliage are bluish green in colour.
- ③. The trunk is massive and the bark is thick, reddish brown in colour.



Cryptomeria japonica
(Dhupi) sky walk, Pelling



Cryptomeria japonica
branches

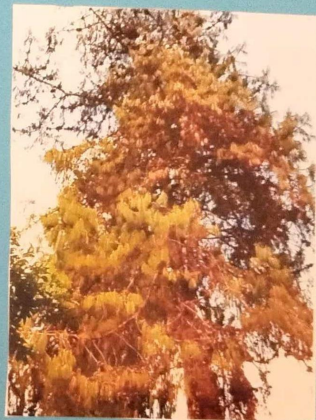
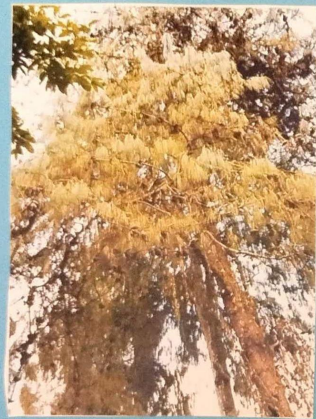
Pinus wallichiana

Systematic Position

Kingdom-	Plantae
Phylum-	Pinophyta
Class-	Pinopsida
Order-	Pinales
Family-	Pinaceae
Genus-	<u>Pinus</u>
Species-	<u>wallichiana</u>

Identifying Characteristics

- ①. The plant body is a tall evergreen tree giving rise to a series of horizontal branches commonly known as Himalayan Pine.
- ②. It exhibits two types of leaves, the scale leaves and the green acicular foliage leaves called needles.
- ③. The plant bears cones which are long and slender and yellowish in colour.
- ④. The branches develop spirally on the upper part of the stem giving the tree a pyramid-like appearance.



Pinus coallichiana (Himalayan Pine)
Khecheopalov Lake

Pinus coallichiana

TEMI TEA

(8)

It is the only tea garden in Sikkim and considered one of the best in India and in the world. Top quality tea is produced which is in high demand in the International market. The garden is laid out over a gradually sloping hill. The tea produced in this garden is also partly marketed under the trade name 'Temi Tea'.

There were several cherry blossom trees (Pearus serrulata) trees growing amidst tea bushes. The garden was bordered with rows of Cryptomeria sp. trees. Beautiful white Magnolia trees were also growing all around. We came across several unique angiospermic weeds also.

Name of the plants seen

<u>Name</u>	<u>Family</u>
<u>Pearus serrulata</u>	Rosaceae
<u>Camellia sinensis</u>	Theaceae
<u>Magnolia cambelli</u>	Magnoliaceae
<u>Gnaphalium luteo-album</u>	Asteraceae

RAVANGLA

Magnolia Cambelli
Family - Magnoliaceae



Ceylon pines sp

Gnaphalium luteo-album
Family - Asteraceae



→ Our group photo in Temi Tea

CONCLUSION

From this educational field trip we were able to gain first hand knowledge of the natural habitats of several bryophytes, pteridophytes and gymnosperms of West Sikkim which is considered to be an ecological hot spot.

✓
Subin
13/5/19