

To  
The principal  
A.K.P.C Mahavidyalaya  
Subhasnagar, Bengai, Hooghly

Sub : Requesting to giving permission  
of Excursion.

Respected Sir,

We are the student of zoology  
(sem-1) of A.K.P.C Mahavidyalaya, wish to  
go an educational tour for completing our  
practical curriculam. If you given the  
permission to conducting the tour as early  
as possible, we will be grateful to you.

Date - 20.1.18

yours obediently,

1st sem students  
of Zoology.

1. Anupam Nandi

2. Riju Maji

3. Mousam Roy

4. Prathama Bhosmick

5. Sk. Amirul Islam

Forwarded by HOD  
A. Jalamani 20.1.18

Teacher:

1. Manas Kundu

2. Soumyadeep  
Bhunia

6. Kakali Ghosh

7. Shripa Kaiti

8. Tanusri Mondal

9. Sudipta Bhowmik

10. Pratiyama Ghosh

11. Tulika Laha

P.T.O.

Allowed

to  
20/1/18

12. Moumita Roy.
13. Diya Parvin.
14. Moudusi Pathak
15. Seikh Swaj Ali.
16. Rej Kumar Biswas
17. Puja Dalal
18. Dipika Roy
19. Manisha Ghosh
20. Anuska Mukherjee
21. Anshita Ghosh.
22. Sourav Koner
- 23.

# AGHOREKAMINI PRAKASHCHANDRA MAHAVIDYALAYA



(ESTD.-1959)  
Accredited by NAAC at 'B' level  
AFFILIATED TO THE UNIVERSITY OF BURDWAN & RECOGNIZED BY U.G.C.  
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Date: 24-01-2018

Ref. No. ....

## To Whom It May Concern

This letter is to inform that the students (Sem-I) of Department of Zoology along with their teachers of Aghore Kamini Prakash Chandra Mahavidyalaya, Subhasnagar, Bengai, Hooghly, West Bengal is going to visit Indian Museum, Kolkata for the Educational Tour according their B.Sc. (C.B.C.S.) Syllabus.

If you kindly help them as required, I shall be highly obliged.

Thanking You  
Sincerely,

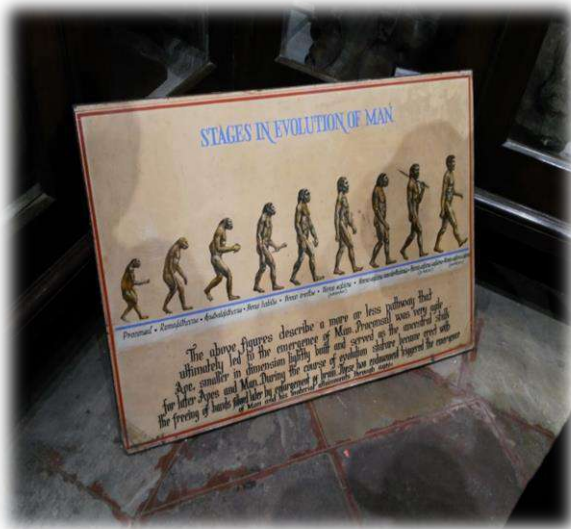
S. Panja  
24.01.2018

for (Principal)

### NAME OF STUDENTS AND TEACHERS

SL NO	NAME
1.	Anupam Nandi
2.	Apurba Mukherjee
3.	Amrita Ghosh
4.	Dipika Roy
5.	Kakali Ghosh
6.	Moumita Roy
7.	Amirul Islam
8.	Sekh Suraj Ali
9.	Manisha Ghosh
10.	Rajkumar Biswas
11.	Moutusi Pathak
12.	Sudipta Dolui
13.	Tulika Laha
14.	Sourav Koner
15.	Nitimala Ghosh
16.	Riju Majhi
17.	Mousam Roy
18.	Prathama Bhowmick
19.	Diya Parvin
20.	Shilpa Kaity
21.	Tanushri Mandal
22.	Prof. Manas Kundu
23.	Prof. Soumyadip Bhui

# A FIELD REPORT ON A VISIT TO INDIAN MUSEUM



**Roll No. : 170340100004**

**Registration No.: 201701038729 of 2017-18**

## **ACKNOWLEDGEMENT:**

We are the students of B.Sc Hons (1<sup>st</sup> Semester), Department of Zoology, A.K.P.C. Mahavidyalaya, Bengai, Hooghly, express our deep sense of gratitude to our respected teacher Prof. Azizur Rahaman (H.O.D.), Prof. Soumyadip Bhui, Prof. Manas Kundu and prof.Swikriti Paul for their valuable guidance during this field work and necessary suggestion and advices in the preparation of the field note book.

We will grateful to Mr. Mrityunjoy Mapui for his endless help throughout our study period.

We are showing the heartiest gratitude to our friends and family members for mental, financial and other supports from all corners and encouragement.

Last but not the least we must have to mention the overall supports in all respect given by Dr. Paramartha Ghosh, Principal of our college, his total encouragement throughout the course in worth mentioning.

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# OUR TEAM

## Name of Teachers :

Prof. Manas Kundu

Prof. Soumyadip Bhuiin

## Name of the student :

Apurba Mukherjee	Riju Majhi
Anupam Nandi	Nitimala Ghosh
Amrita Ghosh	Subhabrata Dalal
Dipika Roy	Sudipta Dolui
Kakali Ghosh	Sourav Koner
Moumita Roy	Rajkumar Biswas
Manisha Ghosh	Tulika Laha
Mousam Roy	Moutusi Pathak
Tanushri Dolui	Amirul Islam
Prathoma Bhowmick	Seikh Suraj Ali
Diya Parvin	Shilpa Kaity
Puja Dalal	





## Tour Programme

- Departure from Arambagh to Park street by bus on 21<sup>st</sup> February, 2018
- Start our journey by reserve bus at 8.00 a.m. from Arambagh bus stand
- Arrival at park street at 10.45 a.m.
- Arrived at Indian Museum at 10.50 a.m.
- Visit at Indian museum
- Completed lunch at 2.30 p.m.
- Return Arambagh by bus at 5.30 p.m.



## PREAMBLE:

Ecology deals with organisms and their environment and it is important that we understand the relationship between them. Probably the most important statement that we can make about this relationship is that different kinds of organisms are not distributed at random amongst different kind of environment. There is a correspondence is between the two. The correspondence is part of our sense of the order of the things. But, what exactly is the nature of the match between organism and their environment. It is quite impossible to think of an organism without an environment, but easily possible to think of environments without organisms. It is convenient therefore to consider first the variation that exists in environment. Even a sand grain on the surface of the moon has an environment. The climate is one component of this environment and is determined by the radiation, which drives the radiation in its temperature and moves it in atmosphere. The earth is exposed to solar radiation that varies across its surface, depending on its distance from movement around and changing inclination to the sun. Extinction has always been a fact of life, but the arrival of human has injected some novelty into the list of its causes. Over exploitation by hunting was probably the first of this, but more recently a large array of over impact have been brought to bear including habitat destruction, introduction of exotic pest and pollution. Not surprisingly conservation of world-remaining species has come to assume great importance.



## Importance of Field Excursion:

Field excursions are very much essential unlike theoretical studies and monotony associated with it, an excursion may help the mind of students to assimilate much information regarding biological diversity and interaction of animals with the environment right from the school of nature, along with lots of a bonus. Study of species population in the natural habitat is the spirit of zoological excursions.



## LOCATION:

It was founded by Asiatic society of Bengal in Kolkata (Calcutta), India, in 1814.

## Founder-

Curator was Dr. Nathaniel Wallich, a Danish Botanist.

It has six sections comprising thirty five galleries of cultural and Artifacts namely Art, Archaeology, Anthropology, Geology, Zoology and Economic Botany Many rare and unique specimens, both Indian and Iranian relating to humanities and natural sciences, are Preserved and displayed in the galleries of these sections the administrative control of the cultural sections.

The museum Directorate has eight co-ordinating service units : Education , Preservation, Publication, Presentation, Photography , Medical and Modeling and Library. It is one of the oldest museums in the world.

The great museum is relentlessly exploring the sea of knowledge, a new configuration of the vast meeting ground of the People coming from various cultural and Social backgrounds .



## HISTORY

The Indian Museum originated from the Asiatic Society of Bengal which was created by Sir William Jones in 1784. The concept of having a museum arose in 1796 from members of the Asiatic Society as a place where man-made and natural objects could be collected, cared for, and displayed. The project began to look achievable in 1808 when the society was offered suitable accommodation by the Govt. of India in the Chowringhee - Park Street area.

In February 2, 1814, Dr. Nathaniel Wallich, Danish Botanist who had been captured in the siege of Serampore but released, wrote a letter supporting the formation of a museum in Kolkata (Calcutta) which he should have to sections an archeological, ethnological and technical section and a geological and Zoological one. The museum was created with Wallich named the Honorary curator and the superintendent of the oriental museum of Asiatic Society.

The Zoological and Anthropological sections of the museum gave rise to the Zoological survey of India in 1916 which in turn gave rise to the Anthropological survey of India in 1945.



# TRENDS OF ELEPHANTINE EVOLUTION

- i. Gradual increase in size .
- ii. Lengthening of limb bones and development of short broad feet.
- iii. Growth of extra ordinary large skull and consequent growth.
- iv. Shortening of neck
- v. Elongation of lower jaw as and early primarily trend although there is a secondary shortening in many Proboscideans
- vi. Growth of trunk and proboscis bifusion and Celongation of upper tip and nose
- vii. Hypertrophy of 2nd incisors to form paired tusks (used in defense and fighting)
- viii. Limitation of specialisation of cheek teeth in various ways (As adaptation cheuring and grinding plant food)



## CHRONOLOGICAL STAGES OF ELEPHANTINE EVOLUTION

In spite of completeness of fossil records, Palaeontologists differ in respect to the starting point of proboscideans evolution. However the view of Russell (1976), Colbert (1969) and Moody (1962) has been followed here.

### Moeritherium-

- **Time of Origin:** Late Eocene and lower Oligocene.
- **Place:** Near Moeris (an ancient lake) in Fayum district of Libyan desert, ~ 60 miles south west of Cairo, Egypt.
- **Characters:**
  - i. Modern Tapir like 3 inch in height
  - ii. Tapir like short Proboscis.
  - iii. Skull fairly long, with air cells began to form back area Short tusks on the lower jaw also noted
  - iv. Teeth - Reduced in number.  
Dental formula -
  - v. Second upper incisor began to form tusks
  - vi. Molar low crowned, each with two transverse crests.

### Palaeomastodon-

- **Time and Place :** Upper Eocene of North America & Lower Oligocene of Egypt.
- **Characters:**
  - i. Size relatively larger than Moeritherium.
  - ii. Tusks : - Relatively well developed upper one and lower one reduced
  - iii. Skull :- with dipole
  - iv. Proboscis:- better developed, with reduced nasal opening.
  - v. Reduction in number of teeth
  - vi. Dental formula

## Paleoloxodon-

- **Time and Place of Origin:** lower Oligocene & Neai lake Moeris in the Egyptian and Gaj horizon of Northern Indian in the Siwalik hills
- **Characters:**
  - i. Size :- Much larger 7' high in shoulder
  - ii. Limb :- Exhibit Modern form
  - iii. Skill :- Increased materially in height with considerable development of dipole
  - iv. Proboscis :- Short extensive and with small nasal whose opening receded in front of the orbit
  - v. Tusks :- upper pair large , curved down wards with band of enamel on their outer face.
  - vi. Lower pair point directly forward.
  - vii. Lower jaw :- Considerably forward elongated
  - viii. Molars :- Lopho bimodont type.
  - ix. Dental formula :

## Dienotherium:

- **Time and Place :-** Miocene and Pliocene deposit of Europa and India.
- **Characters :**
  - i. Skeleton :- Typically Proboscidean.
  - ii. Skull :- Sharply slants forward at the occipital and with no dipole
  - iii. Limbs :- Large
  - iv. Proboscis :- Well developed
  - v. Tusks :- Upper ones absent, Pairs lower ones bent abruptly downward.
  - vi. Molars: low crowned with two transverse crests and a smaller hinder lobe Number more numerous than in Proboscidiens in general
  - vii. Semi aquatic or swamp dwelling

## Trilophon or Gampotherium

- **Time:** Miocene and upper Oligocene.
- **Place:** Europe (France) , Asian , Africa and N America.
- **Characters :**
  - i. Size : As large as Asian Elephant



- ii. Jaw : Lower jaw enormously long with lower tusks
- iii. Skull : With increased dipole
- iv. Molars : low crowned with 3 cross crests , 2 at a time in the jaw of adult

## Tetralophodon:

- **Time:** Miocene and abundant in pleiocene.
- **Place:** Italy and then India, N America and finally South America Mastodon - Dibelodon.
- **Characters:**
  - i. Jaw :- Not so elongated
  - ii. Tusks :- Upper pair long and straight, lower pair very small
  - iii. Molars :- High crowned with 4 cusps/ crests  
(Exhibiting a greater complexity)

## Dibelodon (South America Mastodon):

- **Time and Place:-** Pleiocene in North America & Pleistocene in South America
- **Character:-**
  - i. Loss of lower tusks
  - ii. Lower jaw greatly reduced
  - iii. Enamel band of upper jaw trend to disappear

## True Mastodon :

- **Time and Place:-** Pleiocene and Pleistocene & Ranging from European across Asiato Alaska
- **Characters:**
  - i. Size :- 7-9' height
  - ii. Limbs :- massive pelvis broad
  - iii. Lower jaw :- Shortened with vestigial tusks
  - iv. Upper tusks :- huge (~9' in length) curved upward and devoid of enamel
  - v. Cranium :- Relatively large
  - vi. Dipole :- Largely developed in cranial wall.
  - vii. Molars :- Without intervening cusps. 2 fully formed at anylone time in jaw.

## True Elephant (Loxodonta , Elephas , and extinct Mammoth)

True Elephant arose from *stegodon* , which sum to be transitional elephants for sharing features of elephant and Mastodon.

### Stegodon:

- **Time and origin:** Upper Miocene and dominant in pleioscene.
- **Place of Origin:** Southern India, Southern and South eastern Asia.
- **Character:**
  - i. Molar with more numerous (12-13) transverse crests than in Mastodon.
  - ii. Cement between crests --> not as great as it was elephant teeth
  - iii. Molar massive in size and replaced by longitudinal methods
  - iv. Skull : Short but high
  - v. Lower jaw : Short and tusk less
  - vi. Upper tusks very long and curved

### Mammoth and Elephas:

The step from *stegodon* to Mammoth and modern elephants included a remarkable growth in the height of cheek- teeth crown with parallelly running rather V shaped ridges . The pleioscene or the great ice age was age of mammoths all the continents except South America.

Remains of many species (e.g - woolly Mammoth *Mammonteus primigenus* ) in Pleistocene of Europe, Asia and North America through Bering strait (existed as a land mark at that time ) while Tomer Opined *Loxodonta* originated through group of Mammoths. Lull considered *Loxodonta* and *Elephas* arose directly but separately from *stegodon*.



## TRENDS OF EVOLUTION IN MAN:

- **Time of Evolution:**

- Available fossil records indicate man originated in between oligocene and recent period.
- Based on potassium - Argon Method Leaky (1961) pointed out that human Evolution started ~ 1 b million years ago (MA) and man appeared only 3 MA

- **Place of Evolution:** Somewhere in Africa and Asia as, oldest fossil recorded form this continents.

## Evolution trends in Man:

Characteristic features in Modern Man that exhibit directional progressive character change to evolve man from ape like ancestors are listed as follow

- Increased Cranial capacity
- Upright posture with bipedalism
- High fore head without projecting eye brow ridge
- Dental arch- a smoothy rounded parabola
- Vertebral column with lumber curve
- No simian gap
- Post lower pre molar not sectorial
- Loss of opposability of great toe in hind limb
- Development and increase in intelligence

## Australopithecus(Southern Ape):

This was fossil of Ape man discovered in 1921 from the earth of Pleistocene bed in North Africa. They lived 2-5 MA. They are considered the connecting link between ape and man because they possess a combination of characters of both ape and follows.

### Human character of Australopithecus-

- Vertebral column with distal lumber curve.
- Broadly expanded Ilium.
- Dental arch shortly rounded parabola
- First lower premolar non sectional

- v. Canine non projecting beyond the level of other teeth.
- vi. Palate reduced
- vii. Occipital condyle anterior
- viii. No simian gap
- ix. Basin like pelvic girdle
- x. Erect posture with 4' height
- xi. Bipedal locomotion, no involving fore limb.

### **Ape character of Australopithecus:**

- i. Small cranial case
- ii. Brain capacity 600-1000 cc
- iii. Lack of chin
- iv. Presence of supra or vital fossa
- v. Face with large jaw hence prognathus.
- vi. Eye brow ridge heavy and projected over eye,

### ***Homo erectus:***

Dubois collected fossil fragment of Ape man in central Java and named it Pithecanthropus erectus. Chang (1960) collected more than 40 fossils in cave near Peking in China and named it Sinanthropus pekinensis and later P. Pekinensis. The Java man and Peking man were so similar that Mayr grouped them together as Homo erectus. They lived about 500,000 years ago. They had following features-

- i. Upright Bipedal locomotion
- ii. About 5' height (i.e. Slightly taller than Australopithecus)
- iii. Cranial capacity about 1300 cc intermediate between Australopithecus and modern man
- iv. Skull flattened
- v. No forehead
- vi. Eye brow ridges project forward
- vii. Face chinless and prognathus (Snout Protruding forward)
- viii. They inhabited caves
- ix. Used fire and variety of tools.

## *Homo sapiens:*

They were descendants of Homo erectus, similar to modern man

## *Homo sapiens neanderthalensis*(Neanderthal man)

Fossil collected from Neanderthal valley of Germany. They arose about 150000 years ago and become extinct about 25000 years ago. They flourished Asia, Europe, Africa and characters by-

- i. Cranial capacity about 1400 cc
- ii. Height Slightly shorter than modern man
- iii. Forehead low and slanting
- iv. No chin
- v. Lacks of heavy high brow ridges
- vi. Prepared their tools much more skillfully
- vii. Burial was with some sort of ceremony
- viii. Bones usually thick(7.2 mm in thickness)

## *Cromagnon man:*

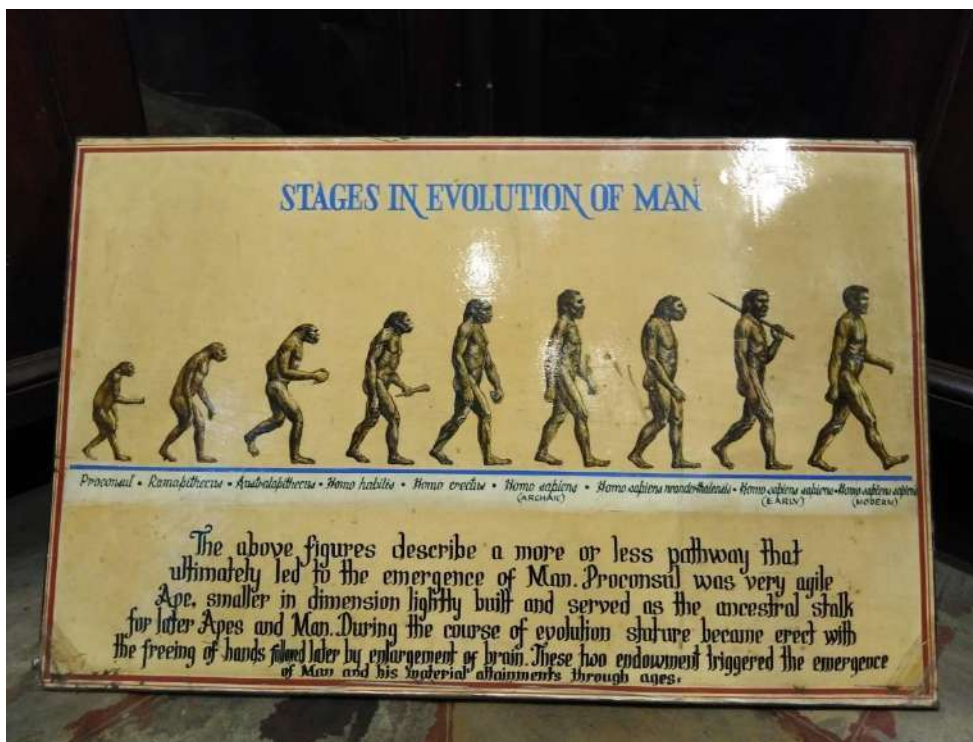
They are Homo Sapiens that succeed the Neanderthal man. They arose 30,000 years ago lived in all over the world, and become extinct about 20,000 years ago. They show characters –

- i. Height about 6`and 5.5'
- ii. Cranial capacity 1660 cc
- iii. Broad face
- iv. Rounded fore head
- v. Narrow nose
- vi. Chin prominent
- vii. Lack of eye brow ridge
- viii. Upright posture with bipedal locomotion
- ix. Lower or skin segment of legs - long

## *Homo Sapiens sapiens:*

Characterised by

- i. Cranial capacity 1350cc
- ii. High fore head
- iii. Lower jaw with chin
- iv. Absence of ridge between supraorbital, sagittal and occipital bone
- v. Dental arch: Smoothly rounded parabola
- vi. Reduced incisor and canine
- vii. First lower premolar non-sectorial
- viii. Upright Posture with bipedal locomotion
- ix. Vertebral column with a lumbar curve
- x. Broadly expanded Ilium
- xi. Pelvis broad basket like
- xii. Face orthognathus
- xiii. Skull balanced at the top of Vertebral column







## CONCLUSION:

Human evolution is thus example of general mode of gradual change or transition in anatomical structures from ape to man in course of time. Cause of change might be competition in food resource and shelters. These led to changes in their habitat and thus in their structures.

