



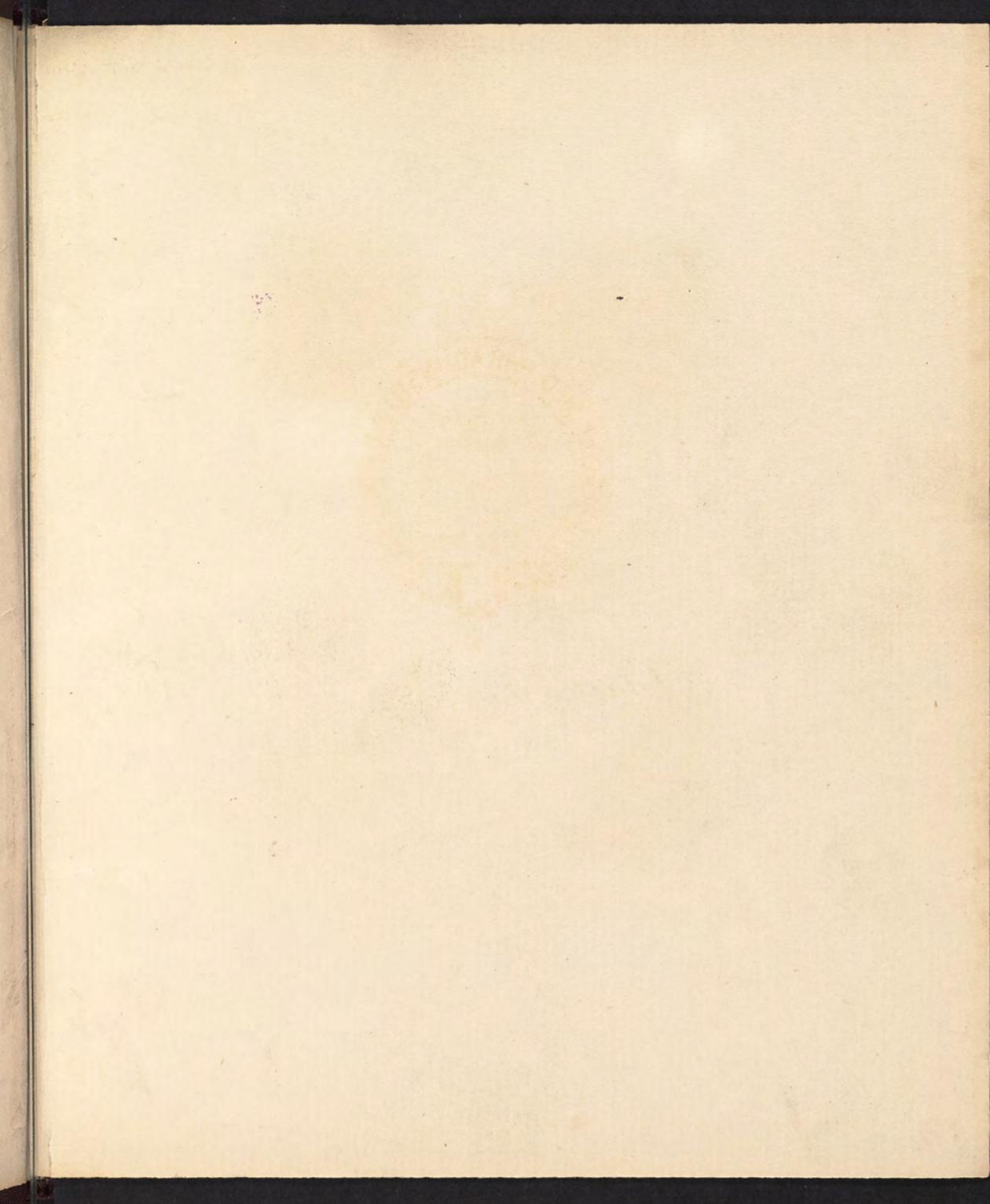
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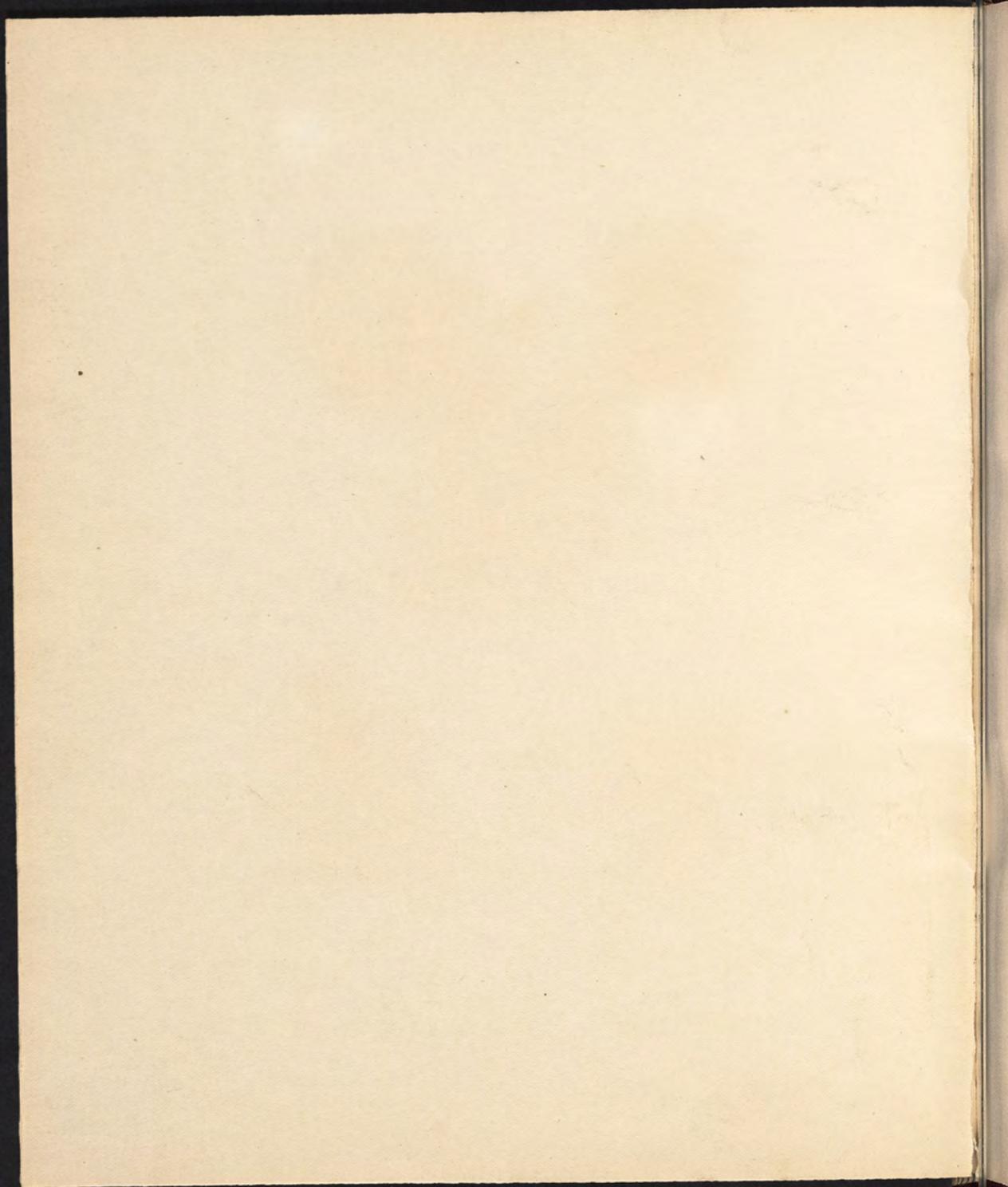
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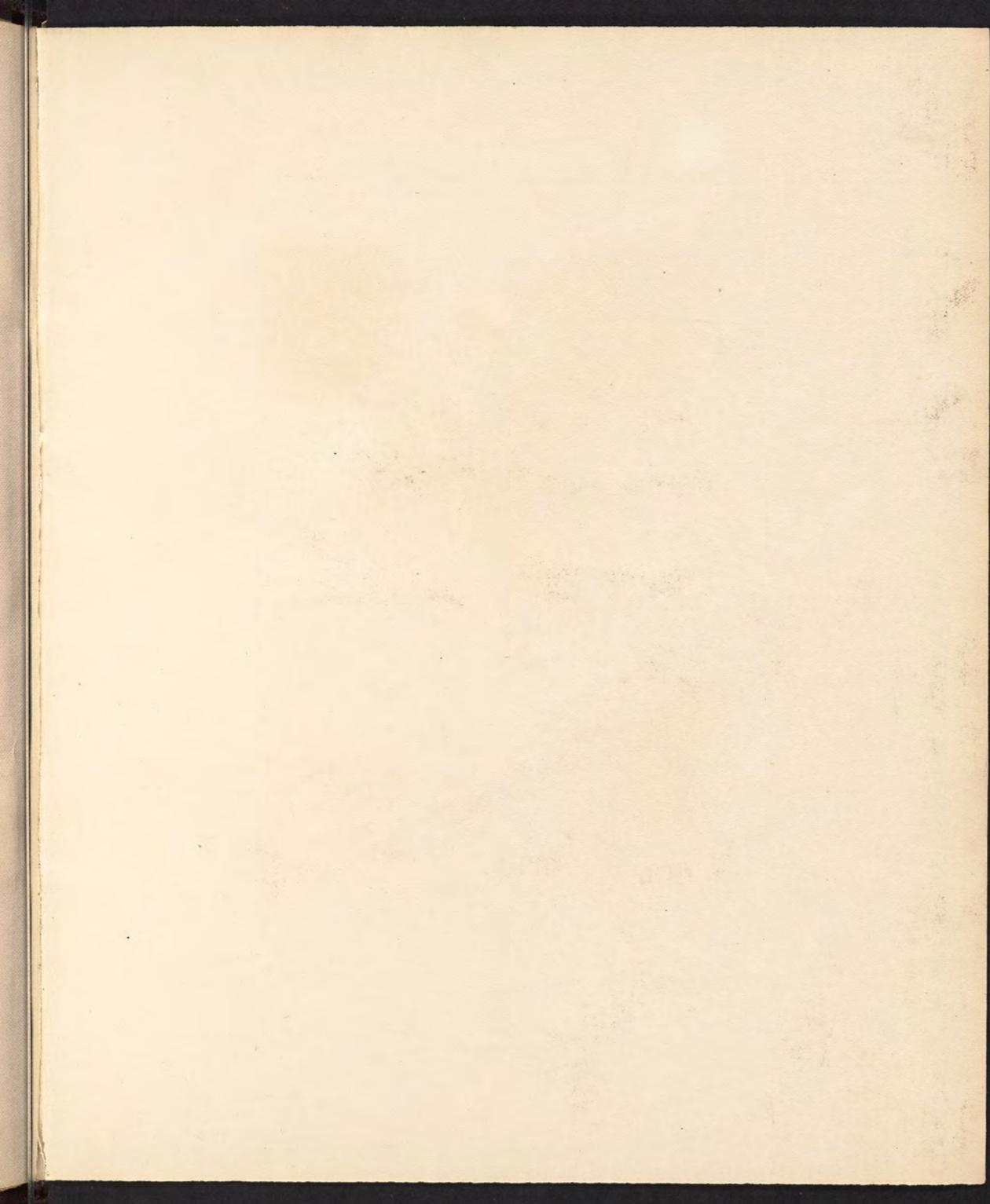


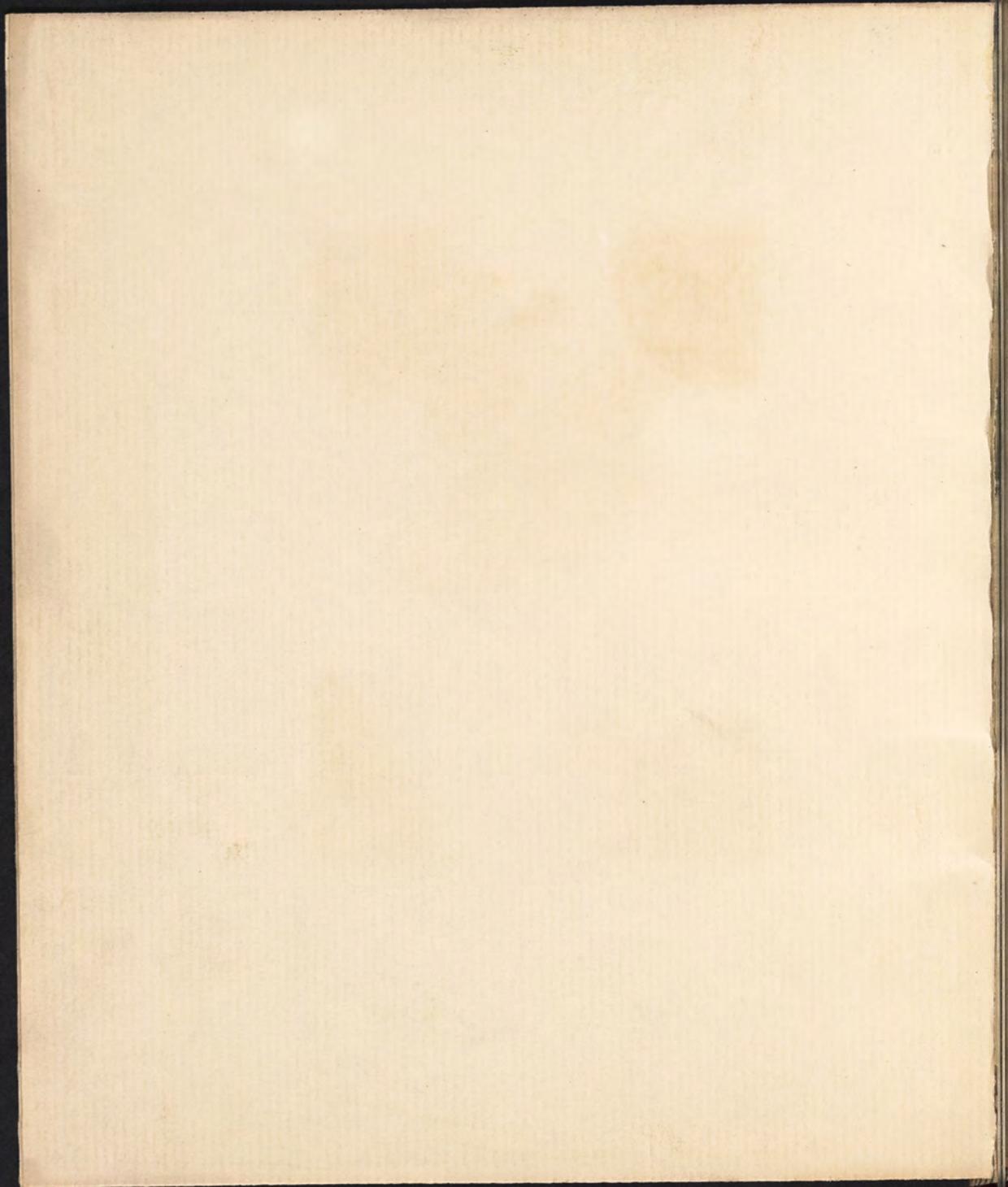
*Class 10a No 8*

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10a

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251

Notes from Dr Bartons  
Lectures on Natural  
History, or Zoology.

1809-1810

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*Class 10a. No. 8*

11

1. Introductory Lecture to Natural History

The Ancient definition of Nat. ~~History~~ History was denominated the Physical Science of the globe. In succeeding ages this definition was considered too general, as embracing a knowledge of more sciences than one man could teach, & was applied only to one part of the objects of the globe. They are the following, & the science of them, is called Natural History: viz. Zoology, Botany, Mineralogy, Geology, <sup>Geology</sup> Meteorology, & Hydrology, or Hydrography.

Pliny & Aristotle among the An-  
cient, & Linnaeus among the Modern,  
were famous for their Knowledge of  
animals. Rome was more famous  
for the study of Zoology than Lon-  
don has ever been. The streets of Rome  
have been filled with animals, scarcely  
known in London. There have been in  
Rome, at one time, 100 Elephants. In  
the Circus of Rome have been exhibited  
one hundred & fifty Lions, at one time

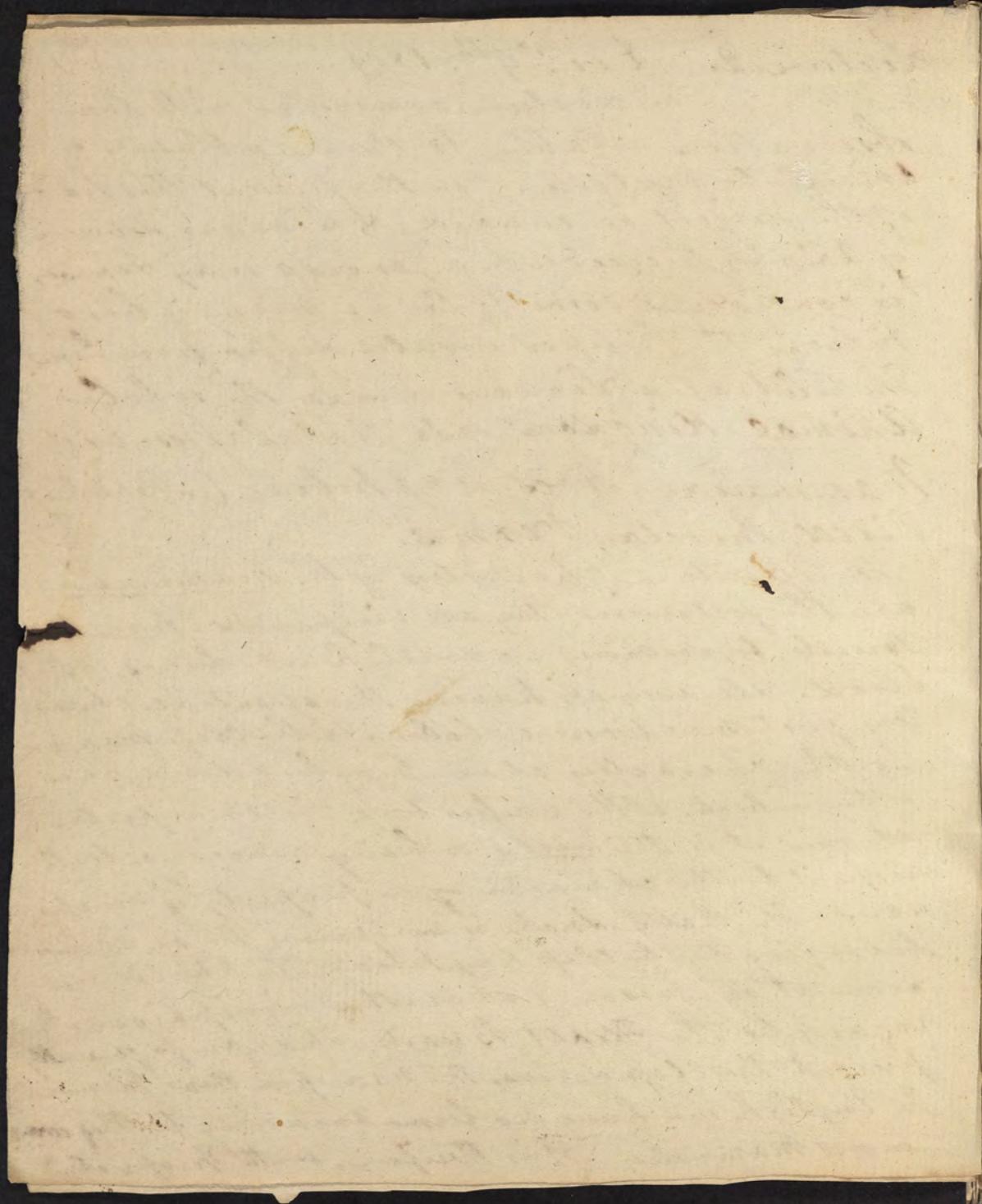
\* ingrafted on the English language.

Lecture 2. Dec. 9<sup>th</sup>. 1809

(21)

This Lecture commences with some observations relative to the resemblance of animals to vegetables. For the present this part of the subject is evaded, & Linnaeus division of animals succeeds. In a general way Linnaeus is considered correct; tho' in many of his opinions, the Professor would differ from him. The celebrated Linnaeus divides the whole Animal Kingdom into six classes, viz. Mammalia. Aves. Amphibia, (or Reptilia) Pisces. Insecta. Vermes.

The Essential characters of the Mammalia are the following - they are viviparous - have ~~two~~ breasts (two or more) - a double heart - lungs & hot blood. All animals having the essential characters just mentioned belong to the class Mammalia. To the characters above may be added one other, which, altho' unessential, is an important one - it is the vestis or hairy covering, with respect to the character of or property of viviparous - The Rattle Snake is viviparous, tho' an animal belonging to the class Amphibia. The Apis is viviparous at one season, & at another viviparous. In regard to the ~~Sex~~ Breasts. These are so generally present the class derives the name from them, Mammalia. In English we have no term answering to the word Mammalia - It is therefore with propriety\*



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The term Mammalia is not sanctioned by 13  
any old classic authority. In regard to the Heart  
it is not so characteristic of the class under con-  
sideration. The Birds, & fishes have a double Heart  
Galen's description of the heart was made from  
the Ape - In regard to red & hot blood. Many  
animals, other than the man. have red & hot blood  
as Birds, & Amphibia. Red blood is found in  
some species of every class of animals. All Birds  
have hot blood. The Reptilia have cold blood  
Heat of Birds higher than that of man or any  
of the Mam<sup>e</sup> - Man is the only two han-  
ded animal - The Ape has four hands.

Some remarks are made in generation with  
a view of clearing up & illustrating Physiolo-  
gical points. & They are chiefly that, 1<sup>st</sup> All  
Animals are bisexual & 2. All the Mammalia  
are furnished with a Penis, & trans of impreg-  
nation takes place within the body. The  
case is different with many of the Fishes.  
The Mammas are glandular organs or breasts  
for the secretion of Milk. They are situated  
on different parts of the body & derive their  
specific name from their locality; For  
the breast, or abdomen or between the Inguinae  
they draw their name accordingly. The breasts  
are ~~to~~ furnished with nipples for the pur-  
pose of giving suck to young. All young in-

11

Lecture 11. This Lecture is not delivered  
in regular succession - It should, in  
course, have preceded the conside-  
ration of the ~~Raccoon~~, first Genus of the  
first Order of Mammalia. Conveni-  
ence has thrown it farther a head, but  
to give a regular succession in the chain  
of the Pecora, I have placed before p. 4.

In the course of this Lecture Dr.  
Barton observed, he had not fully  
made up his opinion on the subject of  
the variety of or specific differences of  
the human species or Mankind.

Whether Mankind has been considered  
as varieties of the same species or as sep-  
arated into distinct species, by Natural-  
ists, they all agree in referring him to  
one common stock.

This subject was first proached in  
the year 1684 by a German writer, whose  
name is unknown. This writer divided  
the human kind into four distinct  
species.

Linnaeus divides Man into two  
species *Homo Sapiens* & *Aurary, Cutar*

viparous animals, however, do not suck 4  
We have an exception in the young Porcupine  
The Indians inform us they have a substitute  
for milk in the juice of the black Birch  
to which, for ~~for~~ they have often been seen, car-  
ried by their Dam. The Teats, in some of the  
Possum & others, are surrounded with a hairy  
covering, called Marsupium. Into this  
the premature born young, are deposited.  
I complete their creation in this second kind  
of womb. Dr Bartow says he has seen  
ten of their Embryos, expelled the uterus &  
fall into the Marsupium, which is placed  
to receive them. Three of the ten weighed  
no more than two grains. In some Asi-  
atics are found 2, 4, ~~6~~ 8, 12, & in the  
Aposium, <sup>Dr Bartow has counted</sup> 16 Breasts. Males, also, have  
Breasts, & Laries, (I think it is) says he  
has travelled thro' a Country lying in  
Southern latitudes, where, from the milk  
of their Breasts, Children were frequently  
nourished <sup>by men</sup>. The Horse has Teats on the  
Sheath of his Penis. Mr Lunter has  
been considered the author of this discovery  
but it was known before to Buffon -  
The Blood of Dog, Hogg, Seal, is 103° Fah.  
Mr Buffon says some of the Mammalia have

The first species of this Genus *Sinncus* divides into five varieties

1. *Homo Americanus*. It is difficult to tell why *Sinncus* arranges the American first.
2. *Homo Europeanus*.
3. — *Asiaticus*.
4. — *Africanus*.
5. — *Monstrosus*.

Dr Barton objects to the above arrangement & particularly the last division for Monsters are found in every part of the world.

Count de Buffon has also given an arrangement of the human species into ~~four~~ varieties, viz.

They are founded on their geographical situation, & like all varieties thus founded must be to a considerable degree deceptive.

cold blood. The Ground Slog is this example. 15  
The Heat of cold blooded animals is sup-  
posed to depend on the varying state of the  
atmosphere. Many of the Mammalia hiber-  
nate, or become torpid, an effect depen-  
dent on ~~the~~ the state of the air. Calcula-  
tion to produce it. From this circum-  
stance Mr B. was led into the error of  
supposing some of the Mammalia were  
cold blooded. The Thermometer has  
been ~~inserted~~ introduced into the  
mouth of the Ground Slog, & has risen  
to 100° Fahr.

### Lecture 3. Dec 13<sup>th</sup>

Some animals are oviviviparous  
as the Rattle Snake. In this the ova  
is discharged into the vagina when, in  
its passage, it is hatched.

The forms of this class of animals are nume-  
rous. Some for symmetry of figure, elegance  
of app<sup>earance</sup> & perfection of their results, are  
not surpassed <sup>by</sup> any of the works of cre-  
ation. There are, however, exceptions to  
this account. So much so that some  
Naturalists have called them imper-  
fectly & half formed - a men (map) of mind

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Professor Blumenbach's arrangement is founded on their physical properties, this in some respects exceptionable, is preferable to any other arrangement yet offered. He divides the Human species into five varieties & in this circumstance exists ~~the~~ a principal objection to his system; the number being rather too small for comprising every of the great variety found in the four quarters of the world.

The varieties are the following, viz.

1. Caucasian. This comprehends the Europeans & many others.
2. Mongolian. It comprehends Chinese Esquimaux & others as Laplanders & Tartars. This variety is remarkable for having a large clabellum (the space between the eyebrows just at the commencement of the nose)
3. Aethiopia. Comprehends the Inhabitants

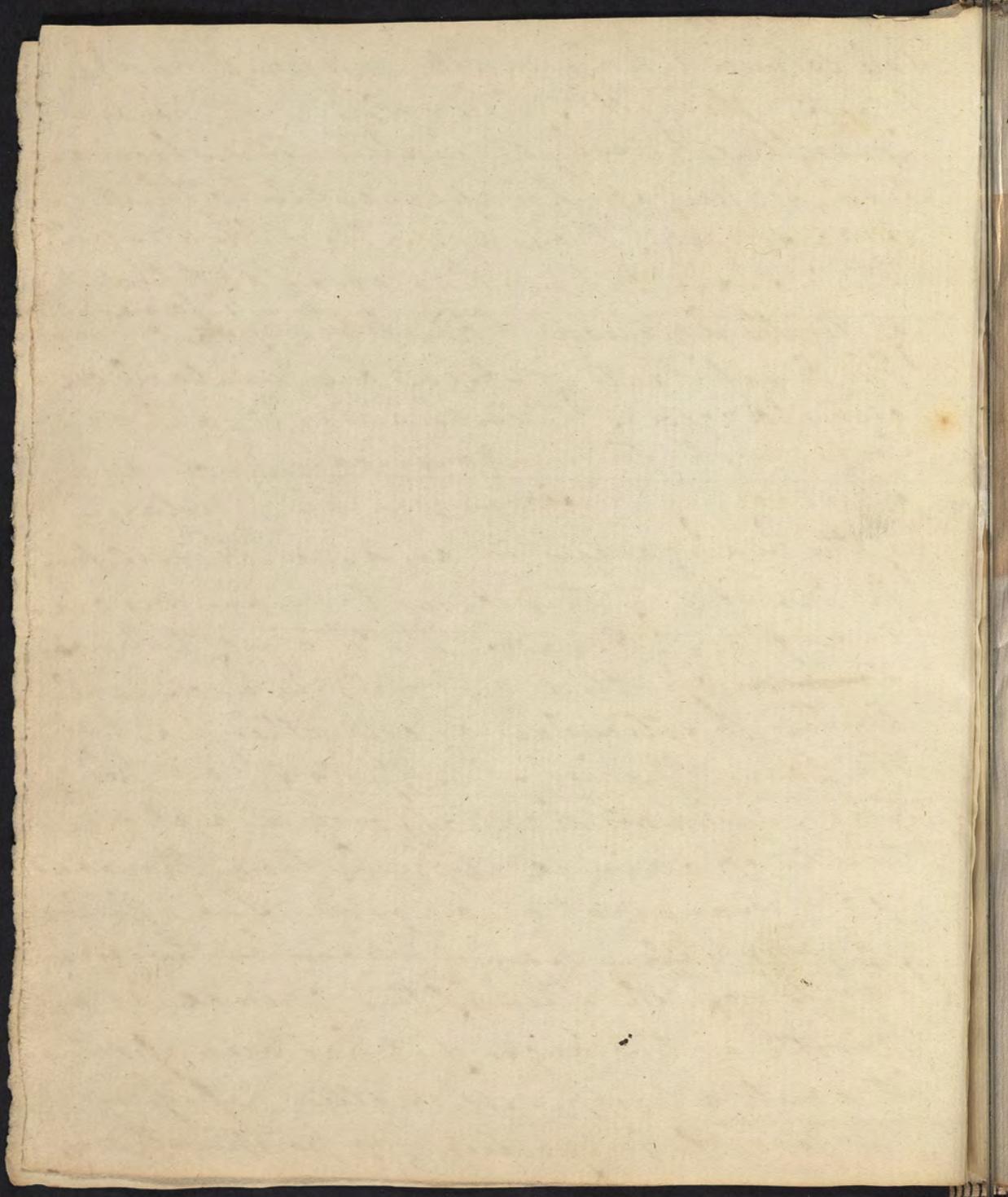
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a language inadmissible & abominable  
The Sloth has had this opprobrious epithet  
applied to it, & altho' not hands on, it  
is perfect in all the functions necessary  
for its purposes. Most of the class mam-  
malia are furnished with a hairy cover-  
ing, on Pilus. During the life, the hair  
is always growing. It is situated in  
a bulb ~~of the~~ in the skin from which  
it draws its nourishment. It prosifies  
an independent life ~~that is~~, after death  
it grows. Haller denied this; but now  
it is pretty correctly ascertained to be  
a fact. Hair has a variety of colours.  
The most uncommon is blue. The Jomani-  
mals, as a species of Fox & Mouse, of China,  
have it. Hair of wild animals is longer  
than those domesticated. Minks  
of Lake Erie are found Squirrels, black, ~~white~~  
on the S of the same species South of the lake,  
are grey. The colour of the hair denotes  
the degree of strength & sometimes the  
nature of the secretions of the animal.

of the Middle & Southern parts of Africa

4. Americana - This variety comprehends all the Natives of America the Esquimaux excepted. This variety appears exceptionable as comprehending varieties of opposite characters.
5. Malacca - or those inhabiting the Islands of the South seas.

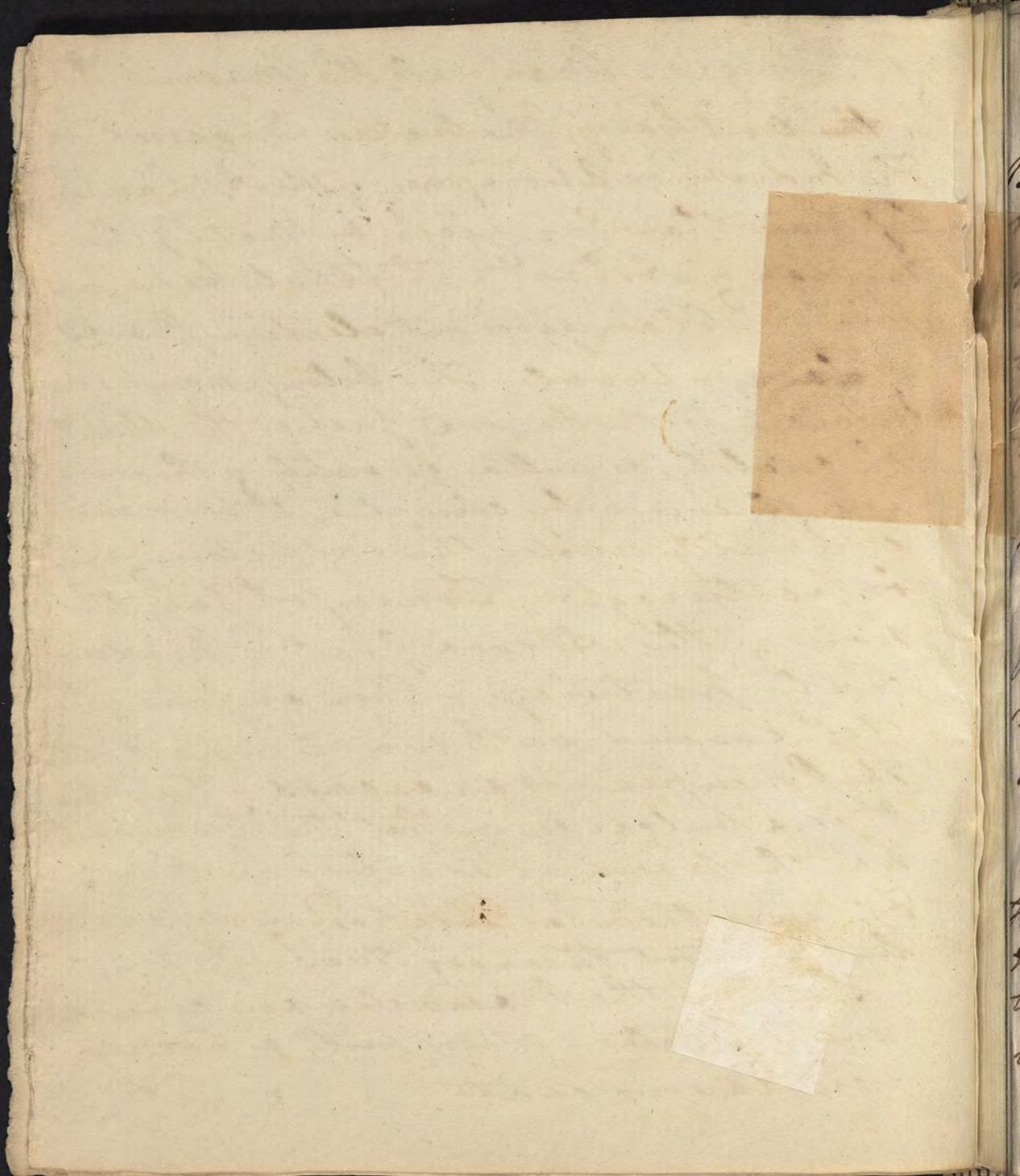
Pale coloured hair denotes feebleness, and 17  
black, strength. The colour of the hair  
is influenced by climate. This observa-  
tion, is, perhaps less applicable to the hu-  
man species, than any other of the Mammals.  
The Indians, inhabiting every latitude  
of North America, have hair of <sup>the same</sup> colour.  
The Inhabitants of Asia are similarly cir-  
cumstanced. Their hair is, of <sup>the same</sup> co-  
lour with the N. American Indians -  
a proof of their <sup>common</sup> origin. The similarity  
of the languages is an additional proof  
the Indians of this country have migra-  
ted from Asia. The hair of some  
~~covered~~ spotted animals is as durable  
in this particular, as any other part of  
the same species. The spots & patches of  
such animals, have afforded a charac-  
ter to an animal, which, two thousand  
years have not changed. Some species  
of Mammalia have no hair, as the Afri-  
can, <sup>or Guinea</sup> Dog, <sup>called the</sup> <sup>or</sup> <sup>the</sup> <sup>Spotted</sup> Dog. The skin of this animal is as  
smooth as the Negro, & it has been asserted  
it emits a perspirable matter possessing  
the sensible properties of perspiration.



of the Negro. Man, of all the Mamm. 18  
is ~~the~~ least hairy, the Naked Ape excepted.  
The Indians, or Aborigines of N. A. have  
less hair than Europeans; but not less than  
the Man of Asia &c. The Whale has a smooth  
skin - Hair gives out electric Sparks.

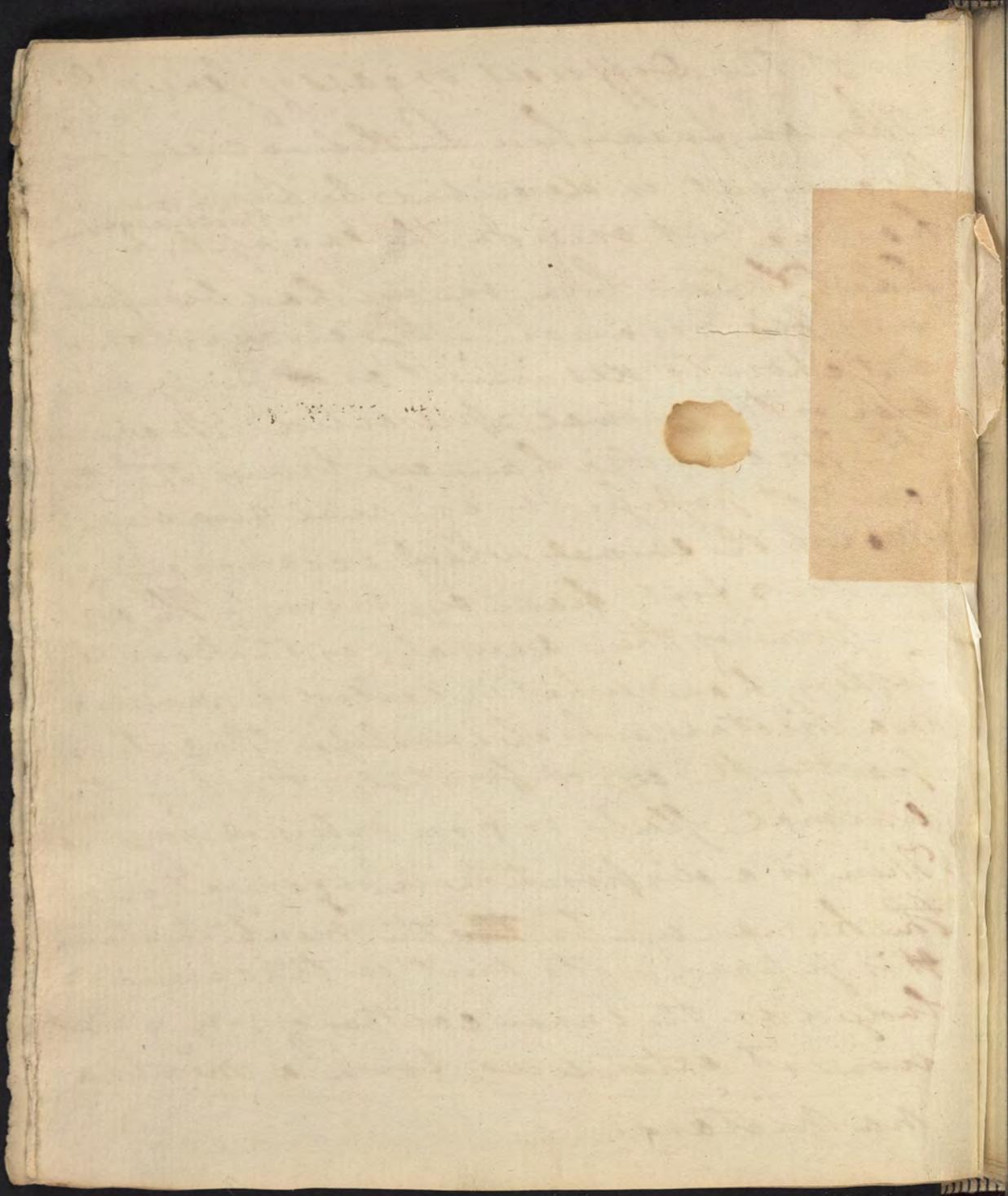
of Lana or Wool. This belongs more par-  
ticularly to the Pecora, such as the Sheep &c.  
The quality, as well as quantity of the wool  
is influenced by climate. It is more  
especially under the influence of food  
or pasturage. Tournefort says, the  
hair of the Angora Goat is produ-  
ced by pasturage. Then as some of the  
elef covered with wool in part only  
The Porcupine is an example of this kind.  
It is a vulgar error that the Porcupine  
has the power of ejecting his quills.  
He uses them as weapons of defence  
but without throwing them.

Some of the Mammalia are covered  
with Scales - others with a horny  
crustaceous coat.



of the Different organs of sense 19

They are furnished with two eyes. The  
Beaver is described by Linnæus as  
having but one. In the <sup>or specimen preserved</sup> example he  
had before him, one eye had been put  
out. He was aware of the circumstance  
but chose to describe it as ~~the~~ his speci-  
men of the animal presented. Many of  
the Mammalia have eye brows that they  
are not possessed by any real quadruped.  
Many of the animals, which occasionally go  
on two feet, have eye brows - The eyes  
of some of these animals, as the Bear &  
others, have what is called a membra-  
na nictans, which envelops the anterior  
part of the eye & protects it while the  
animal sleeps, or from external injuries.  
There is a disposition in organization of  
the human eye to ~~the~~ the memb. nictans.  
It is supposed to exist in the lamella  
lodged in the inner canthus of eye, & would  
were it extended, form a membra-  
na nictans.

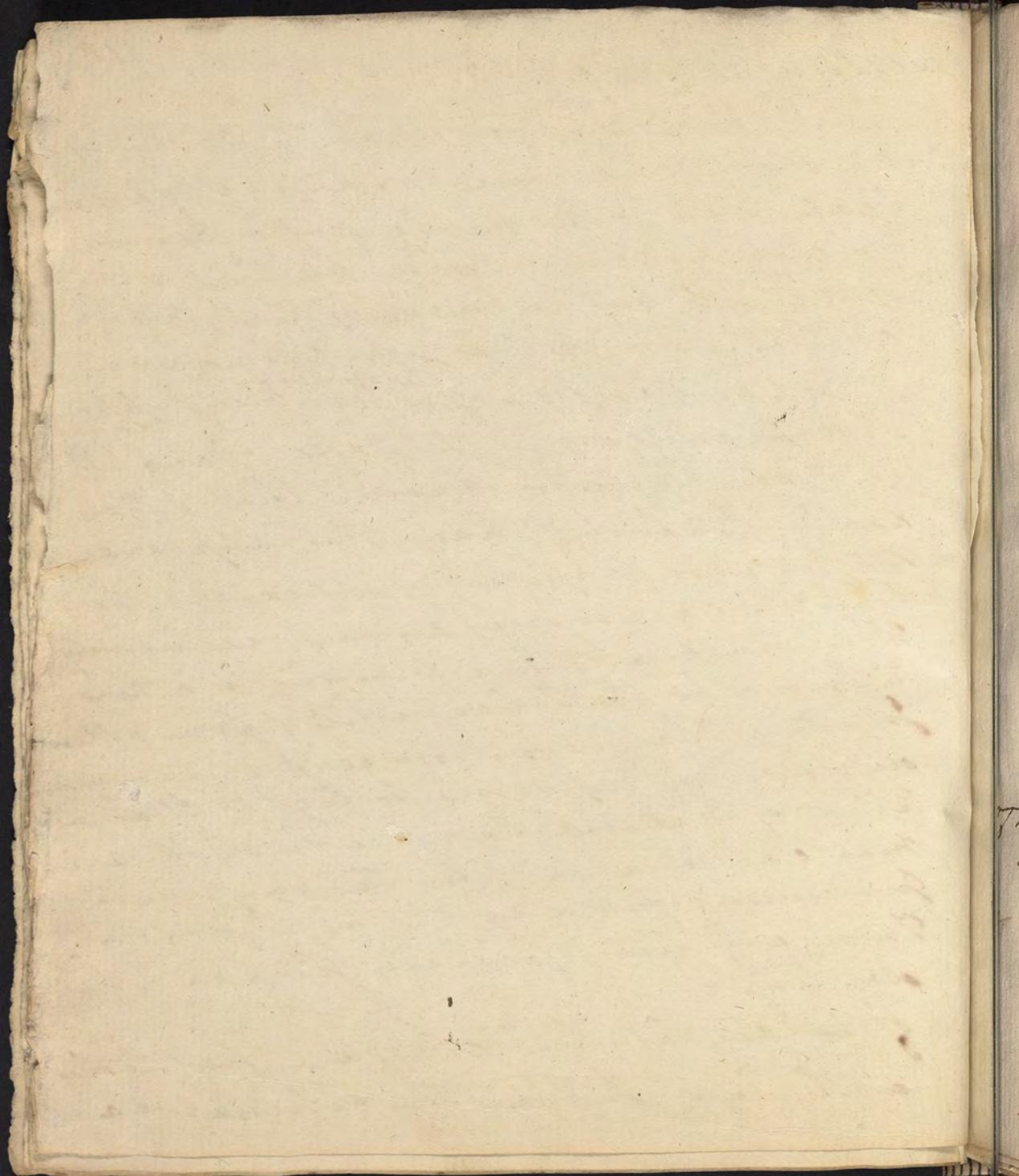


Lecture 4<sup>th</sup> - Dec<sup>r</sup> 16.

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It is a vulgar error the Mole has no eyes. This animal has eyes of a delicate kind. The pupil not only varies in appearance in man, by the force of passion, but in many of the inferior animals. The eyes of some animals are phosphorescent and ~~it~~ <sup>this appearance</sup> has been supposed peculiar to the order Fera. It is now, however, known that others as the Raccoon &c, have this appearance. Mr Jefferson supposes this appearance belongs to carnivorous animals exclusively. It is now ascertained to belong to others. It belongs to the Tobacco fly & some other insects - This phosphorescent appearance depends on exposure to light. It is a kind of natural lamp which the animal carries about, for the purpose of procuring food in the night season. Those animals, generally sleep in the day time.

of the Ear. All this class are furnished with ears. In some the external ear



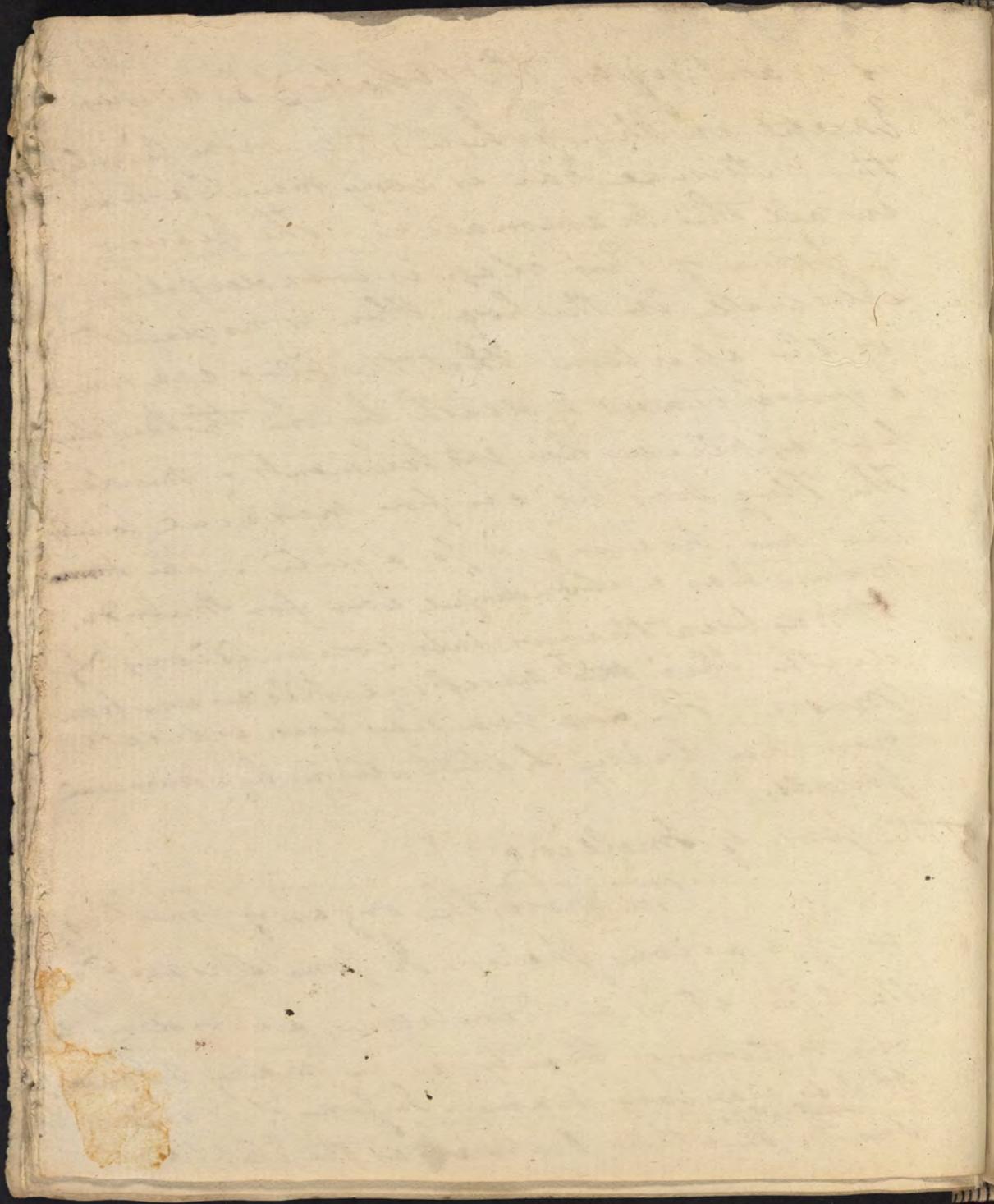
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is wanting as the Whales & Spermus  
Except in this when it is more simply  
the internal ear is very much alike  
in all the Mammalia. The hearing  
of some of this class is wonderfully  
especially in the hog. There is no doubt  
of the opinion that the Hog can hear  
a presentment of death before the Butcher  
has applied his instruments of murder.  
The Hog has no ear for musical sounds  
tho' his hearing is so acute. The  
mouse has a wonderful ear for melody.

It has been thrown into convulsions of  
death, tho' ~~the~~ <sup>its</sup> exquisite pleasure from  
music. The sea cow has been enticed  
from her being habitation by musical  
sounds.

of the sense of smelling.

The nose, the organ of smelling,  
is of various shapes - In some species  
the lip, it is as handsome, according to  
our notions of beauty, as in many negroes.  
It has various names. In some it is called  
snout - <sup>or proboscis</sup> In others, Proboscis as the Elephant



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The Proboscis of the Elephant is nothing more than ~~the~~ snout, as in the Hog, elongated. The Mammoth had a Proboscis, it is now satisfactorily ascertained, & is unquestionably, a species of Elephant. Mr Cuvier depicted three thousand pair, I repeat it three thousand pair of muscles in the Proboscis of an Elephant. Many of them are delighted with the odour of certain vegetables - The cat is particularly fond of the odour of the valerian. This animal has been known to lie on a bed of valerian & has been frequently delighted with its odour - but to be thrown into convulsions by the sense of Taste - This is remarkably acute in some <sup>men</sup> & many animals. There is a Mr of Penna. whose taste was so acute that he could tell by the taste of tea whether it had been fermented with fine loaf sugar or broken into pieces by a knife or any other instrument out of iron.

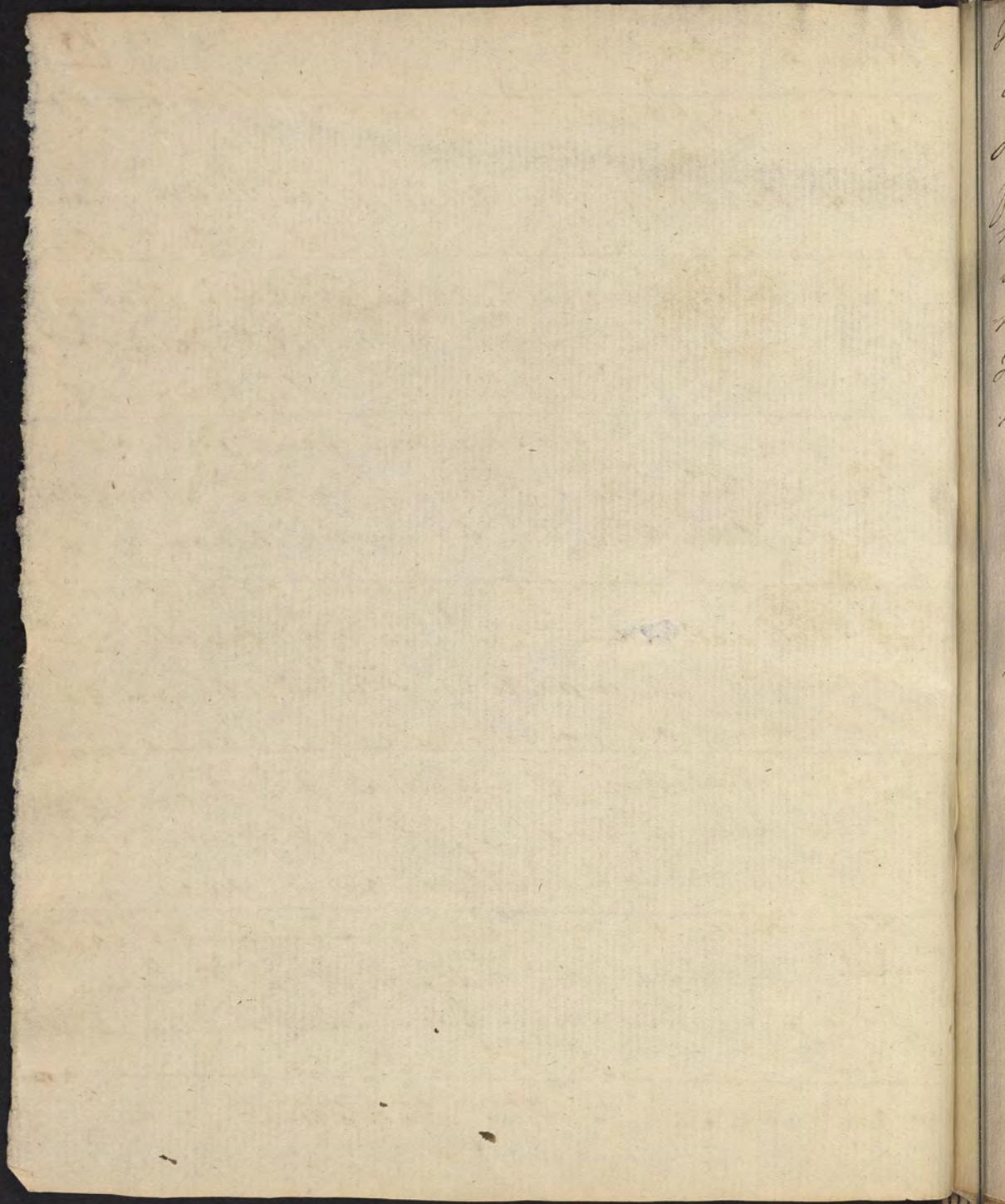
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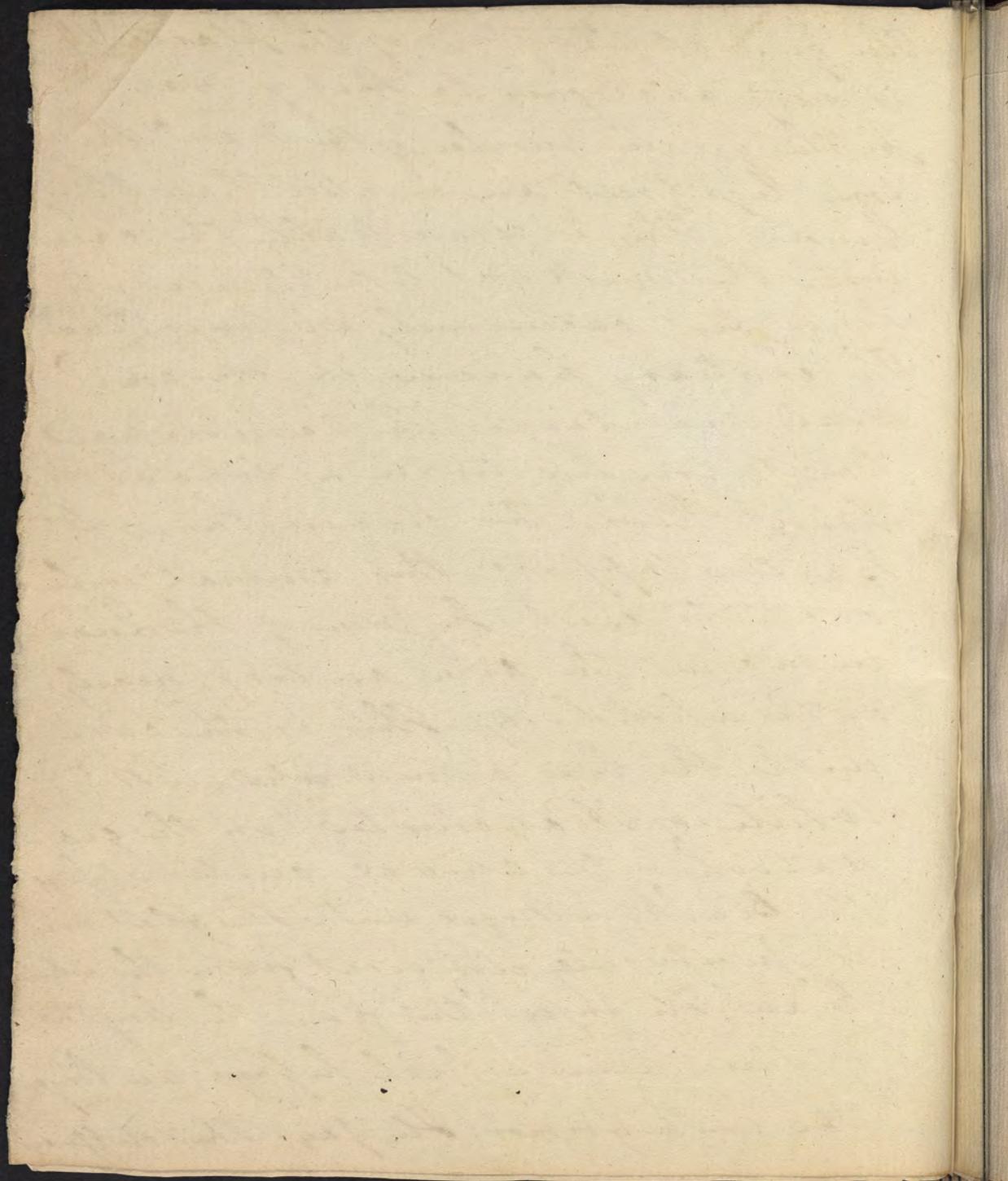
*Mem*

of the Fulcra, Props, or Supporters of  
the Mammalia

A large proportion of the Mam.<sup>a</sup> have  
four legs, or are Quadrupeds. The Skeleton  
of the Bear remarkably resembles that of  
Man. We need not be surprised at  
this when we recollect the Bear often  
walks erect using his fore feet as  
arms. The fore legs are generally connected  
to the trunk of the body by means of a  
Scapula - Some few of this class have  
a clavicle but in the majority of  
Mam.<sup>a</sup> it is wanting. The anterior ex-  
tremities are divided into Humerus,  
antibrachium & Palma. The fore arm  
generally consists of two bones. The  
Posterior extremities, as in Man, are  
divided into Femur, Tibia, & Planta.  
All the Mam.<sup>a</sup> have not a Pelvis.  
Man is the only animal having a  
true Pelvis. In the Monkey there is an  
near approach to this structure.



The general structure of the *Planta* [14  
is very analogous to that of man.  
In the greater number of the man<sup>a</sup> the  
fore legs & feet are weaker than the  
hind. This is remarkably the case  
with the muskrat which uses its  
hind feet exclusively in swim<sup>ing</sup>.  
The contrary however, in some ani-  
mals maintains - The camelopard  
has its fore legs twice as long as its  
hind. From this circumstance Dr  
Baartow supposes this animal will  
cease to exist. In some of the Quad-  
rumanous the arms are long, nearly  
as the whole body. This is the case  
with the long armed Ape. Mr  
White of Manchester, (on the gra-  
dation of the animal creation) says  
the Black, or Negro with the flat nose,  
is specifically different from the white  
man. He infers this from the length  
of their arms which, he says, are longer  
than in the former. He says this differen-



arises entirely from the greater 115  
length of the fore arm which in the  
black is  $\frac{1}{3}$  longer than the white  
man. The number of toes are  
uniformly the same in the same spe-  
cies. In some families the toes are six  
which is perpetuated to several  
generations. Mr Blumenbach is  
of opinion that mutilations are per-  
petuated. This opinion should  
be subjected to with great limi-  
tation. The number of toes is  
usually five - Some animals, as the  
Bradypus, have only three or others  
two. The nails are of various  
sizes & shapes. In some, as the Cat  
Rind they are concealed in a sheath  
from which, at pleasure the animal  
can protrude them with considerable  
advantage, as weeping. In some  
the toes are connected by a mem-  
brane. The flying Squirrel is

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properly called flying as it does <sup>110</sup>  
decidedly fly in jumping from tree to tree  
When the thumb is directed from  
the palma, it is called a hand  
The Opossum has a thumb on its hind  
foot - The use of it is unknown  
Man is the only true handed ani-  
mal

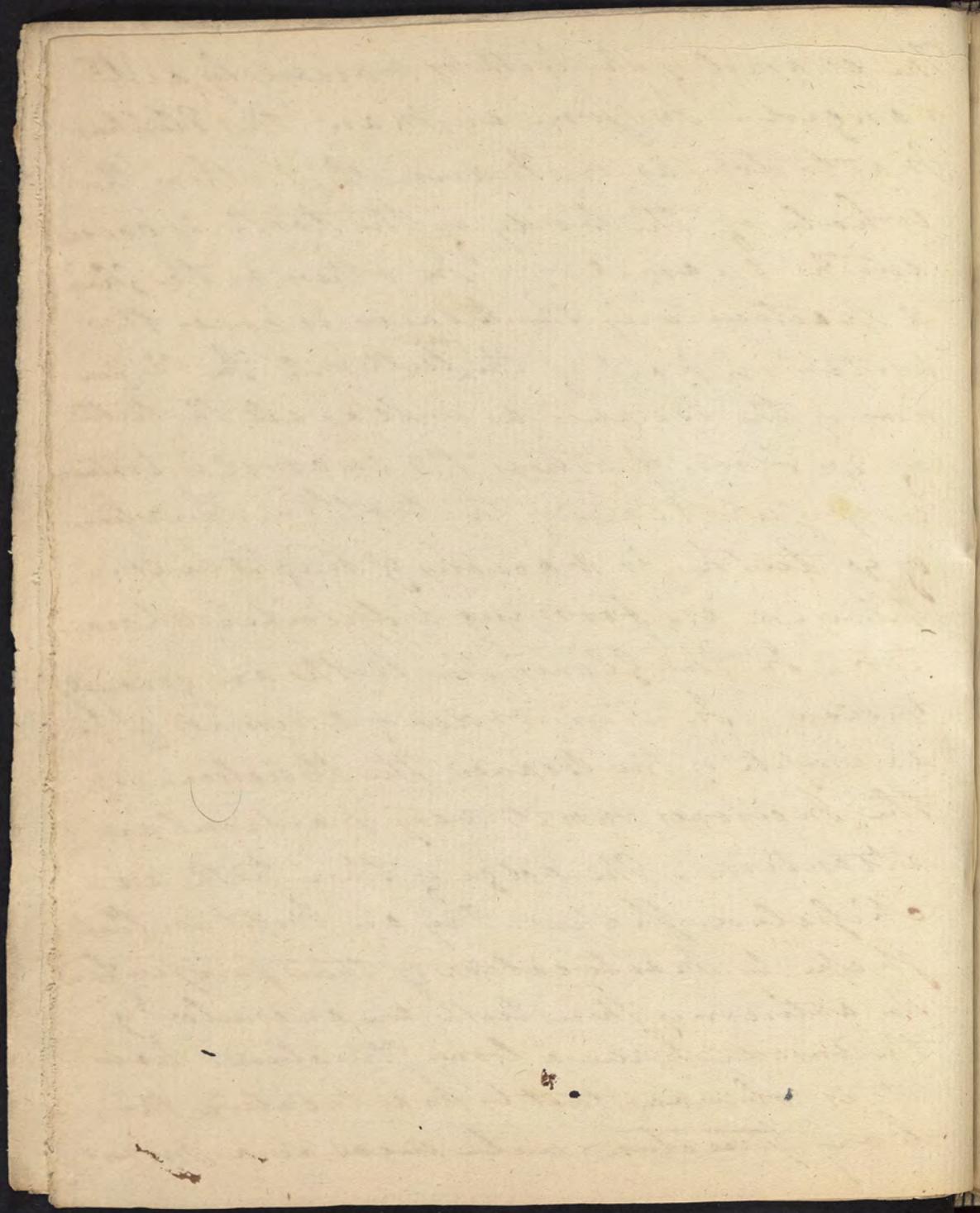
Lecture 6. Dec. 28<sup>th</sup>. Before considering  
the teeth the lips & cheeks claim some at-  
tention. The lip is variously shaped in  
different animals - in some it is pendu-  
lous - in others split & so on. The cheeks  
in some animals have attached to them  
a hollow pouch on each side for convey-  
ing food to their habitations - In some  
as the Lusa (called in Georgia Salicma-  
da) they have no connexion with the  
mouth; but are placed exteriorly  
at some distance from it - & is obviously  
for the purpose of carrying food & some-  
times dirt, when the animal is dig-  
ging.

*[Faint, illegible handwriting on aged paper]*

of the lower Maxillary bone - In the 117  
Beaver this bone is easily separated  
having, in some degree, a moveable con-  
nexion. This is pretty much the case  
with the muskrat. There is a species  
of animal belonging to the same order,  
Gives, with the beaver, that has a power  
of separating the two bones with its  
tongue. The upper Maxillary bone  
is separated by a suture of <sup>some</sup> ~~some~~ <sup>kind</sup> ~~kind~~  
a double bone, called the intermaxillary  
bone. This bone does not belong to  
the human, & of course, as Galen men-  
tions it in his description of the human  
body, the description was not made  
from the human skeleton. The four  
teeth or Incisors, of such animals as  
have them, are inserted in this bone.  
The intermaxillary bone varies in its  
size in proportion to the size of teeth  
it receives. Some animals have no teeth  
as the Seal whales & others - The Platypus  
two teeth on its tongue.



The enamel of the teeth is variously ar<sup>118</sup>  
ranged - In some as Man, the Elephas  
Mastodontas or Mammoth, & others the  
whole of the body of the tooth is covered  
with enamel - In others as the Glis  
& particularly the Beaver is covered the  
anterior part of the <sup>four</sup> teeth only. In the Inci-  
sors of the Beaver as well as all the teeth  
of the Glis & others the enamel is tortuous  
in substance of the tooth - The colour  
of the teeth is various & might be em-  
ployed in forming a specific charac-  
ter. In the Glis the teeth are generally  
yellow. In this order of animals I give  
an example of the Beaver the structure of  
the Incisors merits very particular  
attention. The edge of these teeth are  
chisel shaped. They are kept in this  
shape by mastication of their proper food  
The anterior of these teeth are enamel &  
the inside has a long structure. Now  
it is obvious, that by mastication the  
long structure will wear away more



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than of anterior of enamel a surface [19]  
Hence the teeth must present a chisel  
like appearance - The Incisors project  
from the jaw not more than, perhaps  
 $\frac{1}{4}$  or  $\frac{1}{5}$  of their length; so that the crown  
end of the tooth extends within the  
jaw box nearly to its angle - This ar-  
rangement answers this very good pur-  
pose of supplying, by a power which  
the animal has of protruding the tooth,  
any deficiency produced by masticating  
his or in other way, using his teeth. Their  
Teeth sometimes project so far within  
the jaw as to make nearly  $\frac{3}{4}$  of a circle  
In some morbid cases, the circle has  
become complete, when, from the impossi-  
bility of masticating his food, the ani-  
mal must die. This is produced by  
starving the animal on soft food  
when the teeth cannot be worn away.  
The teeth of man are more perpendic-  
ular than in any other animal - In pro-

*[Faint, illegible handwriting in cursive script, likely bleed-through from the reverse side of the page.]*

position to their obliquity of <sup>20</sup> ~~the~~  
claw the animal recede from the human  
species. In some the canine teeth as  
the Waageata Baboon, are very large  
The formation of the teeth is not a cor-  
rect rule from which to determine to  
the character of the animal as herbivorous  
or carnivorous. In the Pecora there  
are no four teeth - Some animals have  
no teeth. From the structure & posi-  
tion of the teeth have the species of  
animals been determined with more  
certainty, than from any other of their  
structures. Pursuant to this opinion  
have some supposed there have been, if there  
are not now, different species of Man-kind.  
There are three kinds of Egyptian Mummies,  
which have been brought from the Egypt, of  
an of three different ages. The first of  
latest have been brought in Coffins made  
with Iron nails, The second, in coffins  
made of wooden pegs, of more ancient date  
than the former of which they have been  
brought in boxes or Coffins glued together. In

*[Faint, illegible handwriting on aged paper]*

These the Mummies were <sup>at</sup> the [29]  
most ancient date in the highest state  
of preservation. In all the Mummies  
of the last description there was not  
a Mummy having the canine teeth  
altho' the set of teeth appeared en-  
tirely perfect. Upon this fact, it is  
confidently believed by some Natura-  
lists that ancient Egyptians were an  
entirely different species of man.

Lecture 7. Demonstrative. Before com-  
mencing the study of the first order of  
the genera contained in it, it will be  
well to recollect the whole class of  
Mammalia is divided into seven orders  
according to the system of Linnæus  
They are the following, viz. Primates,  
Bruta, Fera, Glives, Pecora, Bellua, & Ictia.  
The character of these seven orders are  
established upon the structure, number &  
of the teeth. The character of the first  
order Primates, is to have four incisor teeth  
in the upper jaw as in Man - and two canines  
The first genus of this order is Homo or

*[Faint, illegible handwriting on aged paper]*

*[Faint handwriting on the right edge of the page]*

Man. There are several varieties of 30  
this genus, but no distinct species as <sup>you</sup> have supposed. The consideration particularly, of this genus is referred to a subsequent period.

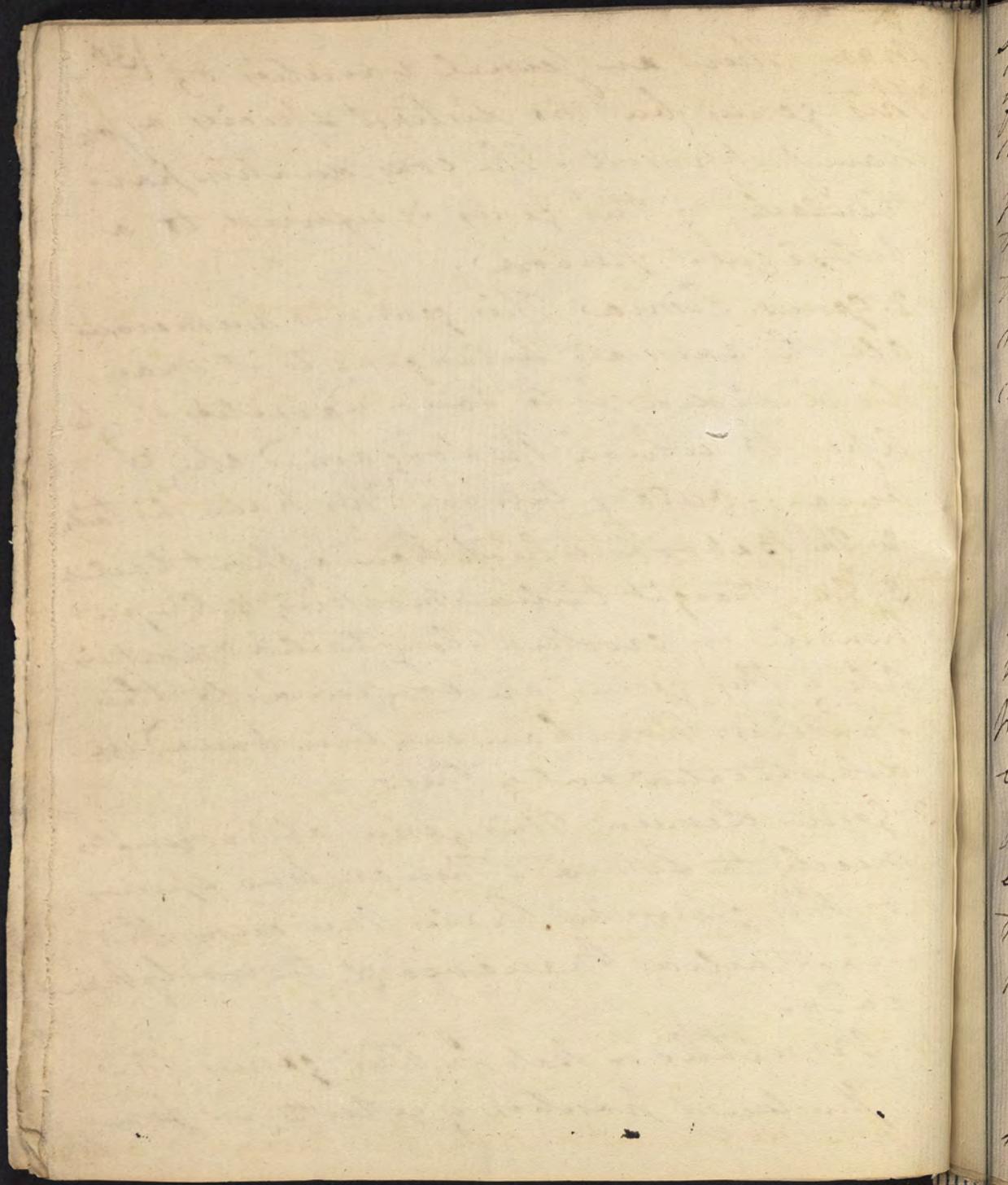
2. Genus. *Simia*. This genus is numerous all the animals belonging to it may be divided into four varieties 1. The Apes, to which the long armed ape of Surang - Outang belong - They have no tails.

2. The Baboons which have a short tail.

3. The straight tailed monkeys. 4. The prehensile or crooked - long tailed monkeys. All of this genus are confined to the Tropics. None have ever been found undomesticated out of them.

3. Genus. *Lemur*. This genus approximately nearly the *Simia* - There are two species of this genus in Oakes Museum the Ring-tailed Lemur & the woolly Lemur.

4. *Vespertilio* or Bat. In this genus the structure & position of the teeth, in some



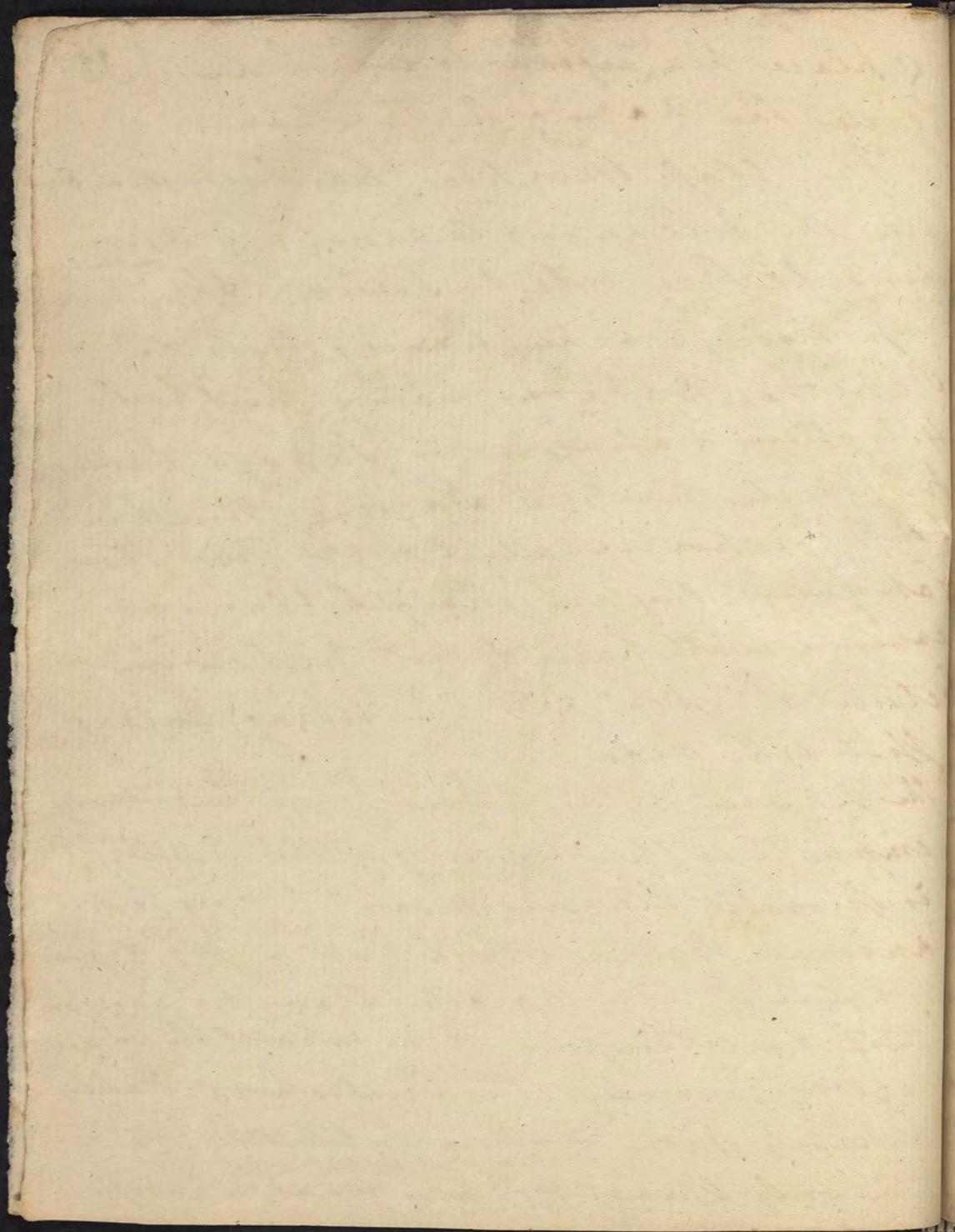
species, warrants the arrangement <sup>31</sup>  
of this genus. There is however much  
variation, the incisives of the upper  
jaw being sometimes wanting, in this  
they are sometimes present & absent in  
the lower jaw - In this ~~present~~ arrange-  
ment of the bats, as well as, the ani-  
mals generally of the order Primates  
Linnaeus has been censured. To asso-  
ciate the bats with man is certainly  
a monstrous arrangement. In the  
earlier editions of his works, Linnaeus  
arranged the genus *Vespertilio* under  
the order *Herpetalia* where they were more  
properly placed. Subsequent Natura-  
lists have expunged the genus entirely  
from the order Primates - They have  
erected it into a new order which  
they have called *Cheiroptera*. Dr  
Barton is of opinion there are no physi-  
cal circumstances in man to be depended  
on for forming his character - It would  
have determined from his moral character

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g places him <sup>in order</sup> ~~angustus~~ to which he } 32  
gives the name of Anthropoi.

The class Monkeys has been divided  
after the following manner viz. accor-  
ding to Ray into 1. Simia - <sup>without tail</sup> 2. Ca-  
capithecii, Monkeys having tails of 3.  
Papiones, Baboons having short tails  
4. by others, Sapajous or Papaji having  
prehensile tails. 5. Sagorini - These have  
tails proportionally longer than the  
Sapajous, - they are straight, flattened,  
covered with hair, & not prehensile -  
lecture 8<sup>th</sup>. Dec<sup>r</sup>. 30<sup>th</sup>. The Orang-Outang  
is like man.

of the Bruta. There is no English word  
importing the meaning of this term. It  
is probable Linnaeus meant to call those  
animals Bruta which had a low degree  
of intellect. The character I learn no incisor  
teeth in either jaw - They inhabit the warm  
regions generally. The Trichurus or Walrus  
inhabits more northern latitudes. This is  
the only species of Bruta found in Europe.



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This order contains the following genera. viz. *Bradypus* or Sloth. *Myrmecophya* or Ant-Eater. *Manis*. *Rhinoceros*, *Elephas*, *Walrus*.  
 Blumenbach throws into an order called *Bradypoda* - Mr Cuvier divides the Sloths into *Tardigrada* & *Edentata* - The genus of *Bradypus* is divided into several species - The variety animals belonging to this order is described particularly in *Linnaeus's* system. The *Elephant* belongs to this order & is divided into several species, <sup>some</sup> which are extinct. The species now living are the *African* & *Asiatic*.  
 The *Elephas primigenius*, *Mastodontes* or *Mammoth*, of a species found in Peru are extinct. The *African* & *Asiatic* have this remarkable difference - In the former the enamel of the teeth is so arranged as to form a *rhomboid* appearance, in the latter it is arranged in parallel lines - *Polybius* mentions another remarkable difference between these two species in point of courage in battle - The *Asiatic* being more powerful.  
 The genus *Manis* of *Linnaeus* should be called *Myrmecophaga*.

Fera. Genus Didelphis comprehending the opossums, has been divided into a great variety of species - There is however, much confusion among Naturalists, in referring the different species of this genus under their proper heads. The Didelphis Marsupialis of the old world,

not considered an opossum by some Felis. This genus comprehends the Lion, Tiger, Panther, Leopard, Ounce (or Jaguar), Cheetah or Felis Pardalis, Puma (or American Panther or Tiger) It is called Felis Concolor Linn. f. n. Gmel. p. 79.) Catulus or Domestic Cat. Several. This is a native of India & Tibet. There is a variety, called American Serval or Mountain Lynx. Caracal or Persian Lynx. This is a native of Asia & Africa.

There appears to be a kind of gradation in the species of this genus, in the successions above mentioned. The Lion is first. The Panther has a Man - the female Lion. It inhabits Africa. The Tiger is called by Linnaeus, Panthera pardalis. It is a native of Asia. The Leopard is called by Linnaeus, Panthera pardalis. It is a native of Asia. The Ounce is called by Linnaeus, Panthera onca. It is a native of Asia. The Jaguar is called by Linnaeus, Panthera tigris. It is a native of America. The Cheetah is called by Linnaeus, Felis chetiv. It is a native of Africa. The Puma is called by Linnaeus, Felis concolor. It is a native of America. The American Serval is called by Linnaeus, Felis serval. It is a native of Africa. The Mountain Lynx is called by Linnaeus, Felis lynx. It is a native of America. The Caracal is called by Linnaeus, Felis caracal. It is a native of Africa. The Persian Lynx is called by Linnaeus, Felis lynx. It is a native of Asia.

Ornithorincus or Duck billed } 34  
Platyphus. In this the Bile of an animal  
resembles that of a duck. It has no teeth  
except two pointed on the tongue near its  
root. It is brought from Botany Bay. These  
monstrous animals which have been found  
in great abundance in this Bay, has puzzled  
Philosophers in explaining its cause.

Mr Hunter & for some time Dr Barton  
supposed it the effect of copulation of  
different species of animals. This Mr D<sup>r</sup> B  
now rejects as impossible as contrary to  
the powers of Hybrids, & supposes it a-  
rises from those animals never having been  
exposed to the ravages of civilized man.  
New Zealand was never known to either  
Greeks or Romans.

Lecture 9. ~~Jan~~ Jan. 3. 1810. The next Or-  
der in progression, of the Class Mamma-  
lia, is FERA. This order is more natural  
by far, than either of the preceding Orders.  
It contains the greater part of the real  
carnivorous animals, especially those called  
Predators. They have 6 incisor teeth  
in the upper jaw. It is worthy re-  
mark, the animal having this structure

Tiger is native of the warmer parts of Asia & is particularly found in India.

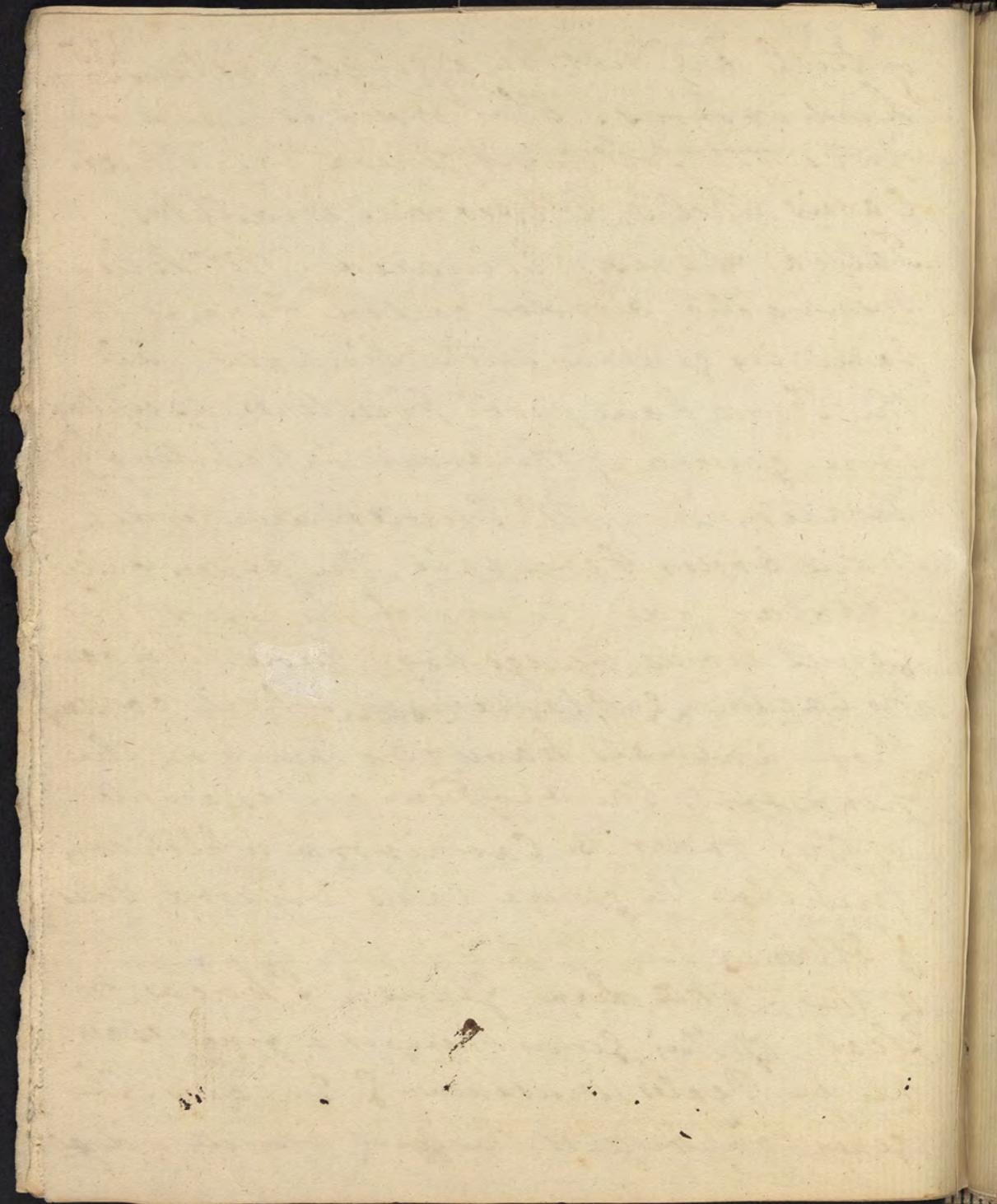
Panther comes next to it of Tiger in conspicuousness. It is corpore maculis superioribus orbiculatis, inferioribus virgatis.

Leopard is distinguished from the Panther by its pale yellow colour. The Leopard is much smaller. It is a native of Senegal & Guinea.

of the Ferce it may be observed their Intestines are generally very short, with the exception of the seals of some other Marine animals. whereas in the Pecora, <sup>they</sup> are generally very ~~short~~ <sup>long</sup>. ~~the fact has~~ <sup>the fact has</sup> been accounted for in a variety of ways. I suppose animal food is more apt to undergo unpleasant changes in the course of a long tract of intestines, of hence the Ferce are furnished with intestines obviating such an effect - vegetable matter on the other hand is less apt to undergo those changes, or less nutritious of therefore requires a prolixity to the action of the stomachs, & hence a longer time, & hence the Pecora have a long Intestine never found in the Ferce.

of teeth are not in a single instance 135  
herbivorous. This order is divided  
into the following genera, viz. Phoca.  
Canis. Felis. Viverra. Didelphis.  
Talpa. Sorex. Erinacea. Mr Blum-  
menbach's 6<sup>th</sup> order called Fera is the  
same in genera with Linnæus. All  
the Fera have short Intestines, excepting  
those genera of the Order inhabiting  
water. - Mr Cuvier divides Lin-  
næus Order Fera into three Orders called  
1. Plantigrades - to which he refers the  
genus Ursus, Sledge-hog & Mole. They have  
no cæcum. 2. Plantassians, which contains  
those animals having no thumb on the  
hind foot. The Apodums are examples  
of this order. 3. Carnivora which com-  
prehends the genera, Canis, Viverra, Felis  
& Otter.

of the Fera, Linn. Genus 1. Phoca or  
Seal. of this Genus there is a fine exam-  
ple in Peales Museum. 2. Canis - This  
genus comprehends the great variety of dogs



Howards & I., the wolf differs from the 30  
Dog in some particulars; but in gestation  
which is 63 days, they are exactly alike.  
Genus Felis. This comprehends the cat kind  
as the Domestic cat, the Lion, The Puma  
called American Tyger or Panther. The  
Genus Viverra or Mustela which are  
united in the Viverra. The Pole-cat, called  
Mustela Putoria, cannot diffuse its odour  
without the aid of its tail.

It is remarkable of the Mole it has,  
one species at least, a penis full half  
the length of its body, & Testicles larger  
than its Kidneys. It enjoys its Mate  
with a degree of felicity unknown to  
any other animal - Thus has Nature  
bountifully, supplied the deficiency of  
its eyes by giving it an increase of sen-  
sation, in coitus, & a length of duration  
in that operation, unequalled.

Of the Order Glires. They have two  
Incisor teeth above & below. In the

Tanis or Dog.

The intelligence of this Dog  
<sup>among Whites</sup>  
almost unparalleled. He is said to  
have excelled in the dance, feigned  
illness, & even pronounced words.  
The French Academicians make men-  
tion of a Dog born in the District of  
in Saxony, who could call in an in-  
telligent manner, for tea, Coffee, & Ca-  
colate. The account of this extraordi-  
nary dog was communicated to the  
Academy by no less person than the  
celebrated Leibnitz. The above fact  
is mentioned in page 289. Shaws Tools  
printed in London 1800.

to this state in proportion to the defi-  
ciency of their intellect.

Tusa, Salamander of Georgia, there 37  
are twenty molar teeth in both jaws.

It has Pouches, opening externally, attached to its Buccae. Its tail is four square.

It is a new genus of the Order Glires & is called by Barton Tusa.

Lecture 10. Jan'y. 6. 1810.

of the Order GLIRES. Mr Cuvier has given this Order the name of Rodentia or gnawing animals - The Order is characterized by two Incisor teeth in each jaw - They have no canine teeth - In general their skin is beautiful - In every instance they have feet they often sit on their hind feet using their fore as hands. Their upper lip is often cleft - They run & leap easily. The Beaver, which belongs to this Order often uses his fore feet like hands. He is found in the portions of the earth. The Rat is not a native of this country. This Order mostly live on the ground. - Some of the Glires ruminate. The Castor of the Shops is obtained from the Beaver. Many of the Glires hibernates or pass into the torpid state. The Champster passes into this state in winter - The animals of this Order pass

38) - The Order Glyres contains the following  
genera, viz. Glystrix. Cavia. Castor. Mus.  
Arctomys. Ciurus. Myopsis. Bypus. Lepus  
~~Mexicanus~~. All the genera of this order have  
not the exact character of the Glyres.

This Order makes a strong approach  
to the Pecora, the preceding order in  
Linnaeus arrangement. Some of the Glyres  
have horns, & some, have a kind of semi-  
nating property in which respects they  
very much resemble the Pecora.

Of the particular genera of the Order  
Glyres I first of the Glystrix, or Porcu-  
pine. It has two teeth in the upper &  
lower jaw of thirty two grinders. There  
are two species in Pealer Museum the  
crystata & dorsata or northern Porcupine  
Castor fiber. or Beaver. It is capable of the  
erect posture. There is but one species.  
lives, or works in societies. Their great  
sagacity & forethought appear to be the re-  
sult of living in Societies. In the indi-  
vidual states they have no uncommon de-  
gree of intelligence. The Beaver is purely  
herbivorous. Hence the representation of the

39  
Beaver with a fish in his mouth, is highly  
ludicrous.

*Castor Americana*. This animal is peculiar to  
America - when it is vulgarly called Musk  
Rat. At one time Linnæus made it a spe-  
cies of *Mus*, of another, *Castor*. It is now  
considered as new genus, as above - Linnæus  
specific name was *Mus Lethæicus*.

*Mus*. This genus comprehends a great variety of  
species, as the *fybraticus*, which is brought  
from New-Jersey & is in O's Museum. & others  
This species is wonderful for gnawing.

*Actomys* - This comprehends the Ground-Hog - the  
*Marmota* which has the whole of its teeth  
covered with enamel altho' entirely herbivorous.  
Mouset or Woodchuck or Ground Hog is most  
powerful in its cutting teeth. It becomes tor-  
pid, like the Flampster.

*Sciurus* - Squirrels - Most of the squirrels of Europe  
have their ears tufted, at their tips, with hairs.  
This ~~the~~ circumstance strikingly marks the dif-  
ference between them of American Squirrels.

*Myopsis* or *Dormouse* - A species of  
 genus is not in the Museum. It is  
 said to have been found in Georgia.  
 This was the animal on which Mr  
 Fluntz experimented.

*Drypus Americanus*. This animal is in  
 Peales Museum. It passes a great  
 part of the cold weather in a torpid  
 state. In this state, contracted of course  
 into a small compass, it passes its time  
 about the root of the Ghor-radish. It  
 has been considered the great cause of tor-  
 pidity in animals. It is known however  
 such animals as become torpid, will pass  
 to that state independent of cold weather.

There is another species of this genus which  
 passes its torpid state in the beehive dur-  
 ing the winter season while there is no  
 danger from the bees if it is paid by  
 it generally makes great destruction of  
 honey. From this circumstance Dr Bar-  
 has called the animal *Drypus Melivorus*.

*Macropus* or *Casjarian*. This animal has been  
 considered a species of *Didelphis* or *Opossum*.

and as such has been labelled in Peales 41  
Museum. This animal has a Marsupium  
as in the *Opossums*; but in its general habits  
& structure of its teeth it is entirely different  
from the genus *Didelphis*

*Lepus*. Hares & Rabbits. This genus is admirably cha-  
racterised by two incisor teeth in the low-  
er jaw. & four in the upper jaw. two  
being larger & placed anterior to the  
smaller. They are fulcated.

*Lepus* is the *Arvaco* or coney of Scriptures

## Order. PECCORA.

This is the most interesting order  
of the Class *Mammalia*, man excepted.  
It is a natural order comprehending the  
sheep, the ox, the camel & the horned cattle  
generally. They have no fangs in the  
upper jaw. In the lower jaw the incisor  
teeth are six or eight in number. They  
are remote from the grinders. They

42.) They generally want the canine teeth; the  
Elk is an exception - Their grinders are  
flat & broad - They run swiftly - Most of  
them have horns - all of them are terrestrial  
Their food is vegetable - Have four sto-  
machs - have long Intestines - They are  
useful to man in the way food & clothing  
as well as the convenience of burden &  
draft - they afford tallow & as Medi-  
cine the castoreum. They are the only  
animal from whom Milk we obtain a  
good cheese - Man could not do without  
them - Being absolutely necessary for  
his happy existence, the Divine Author  
has not permitted any of them to become  
extinct. Were they, by any means, to be-  
come extinct the present civilized state  
of man must be very essentially chan-  
ged, if he did not revert back to the  
Savage state - What would the Gen-  
tlesman do without his Rein-deer, in  
his mountainous excursions, in his cold  
climate - or the Arab, in crossing the  
Sandy deserts of Arabia, without his

camel - what would become of his 43.  
traffic in those torrid, & arid regions,  
without the aid of this animal -

Decora. genera ex. viz. Camelus. Moschus.  
Cervus. Camelopardus. Antelope. Avis  
Bos. Mr. Cuvier calls this order Ru-  
minantia or Ruminating animals - by  
1. by the particular genera & species  
and first of the genus

Camelus.

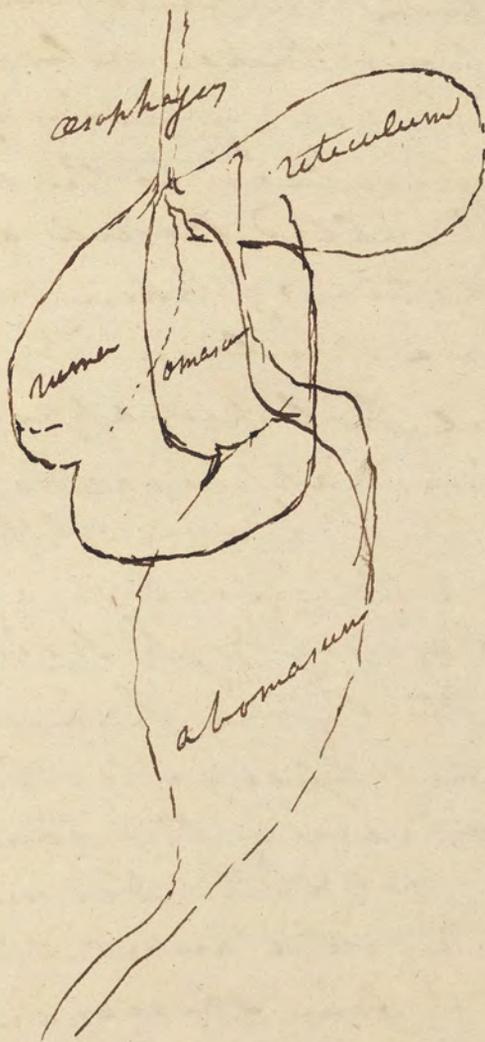
Lecture 12. Before taking up the con-  
sideration of the genera of the order  
Decora, it may be observed of them, they  
all ruminate - This is effected by  
a peculiar structure of their stomach  
found only in the Ruminantia or Decora  
~~It is so~~ This structure is composed  
of four stomachs viz. 1. The Paunch or  
Cumen - This is the largest of the four in  
the full grown animal - The case is re-  
versed in the calf. 2. The next stomach in  
order or second stomach is called *Bovent* &  
sometimes *Kings Flood* in English - The Technical

44/ name is Reticulum. 3 The third stomach  
is small & is called Omasum. 4  
The fourth is the principal digestive or-  
gan, & is named ventriculus, Intestines  
or Abomasum - The progress of the food  
thro' these four stomachs, moves in the  
following order - First the morsel is  
conveyed thro' the Oesophagus into the  
Rumen. from thence into the smaller  
stomach or Reticulum - from thence, by  
a voluntary power of the animal, it  
would seem, is conveyed or regurgitated  
into the mouth where it undergoes a  
second mastication & from thence is  
conveyed thro' the Oesophagus imme-  
diately into the Omasum & from it into  
the Abomasum or true stomach - from  
whence it never returns, but is prepared  
for the intestinal canal where it un-  
dergoes ~~prolonged~~ digestion in order to  
nourish the body of animal.

The final intention of Nature in  
this structure appears not to be

satisfactorily understood.

45



In the stomachs of ruminating animals there is found three kinds of concretions. The first kind is composed of hair taken in by licking its skin, 2<sup>d</sup> composed of fibers of different roots of is peculiar to the old continent & 3<sup>d</sup> called *Pesma* and of an oval structure of hair most generally a stone for a nucleus. They have a beautiful polished appearance. They are diamond appearance & not very common. They have been supposed to possess high medicinal qualities & are bought at a very high price.

*Camelus*. All the *Ovicora* have no teeth in their upper jaw. There are two species of this genus the common camel & the *Dromedary*. The one of the old world - *Linnaeus* supposes five species are peculiar to America. Then *Dr. Patton* has rejected from the camel & called them by a new name *Lama*

Moschus 2.g. or Musk Deer. The Mus- [47]

chus Moschiferus produces the valuable article of the shop called Musk.

Cervus. 3. Comprehends the Stags & Deers  
Their horns are solid & when the Deer is young, they as have a velvet like covering. The horns are dropped every year - in Feb. & 4

1. Species of this genus is the Moose Deer of America, & Elk of the old continent - It is named Cervus wapiti a name derived from the Indians  
Common Deer of our Country is called Cervus Virginianus - more properly according to Barton, Americanus.

All the Deer are without a Gallbladder - The <sup>bile</sup> Casseal is conveyed by a duct immediately into the intestinal canal.

Camelopondalis - of this no Specimen in the  
Museum Bealeum -

Antelope - This genus do not shed their horns - They are spiral - They have 8 teeth in the lower jaw & no canines or any teeth - It is an extensive genus - Capt. Lewis found one species in the Western country which was taken for a new animal - It has no specific name - It is in Peales Museum.

Capra. Some of this genus are found in America - This of the preceding genus are remarkably allied on running into the other.

Ovis - This comprehends all the variety of sheep. 1. species called the Capra Armon - This animal was described by Polybius two thousand years ago & is remarkable for a patch on its hind part or tail. It inhabits mountainous situations -

Bos. This comprehends the black cattle such as the cow, oxen, Buffalo &c. 1. sp. *Taurus* comprehend, cow & bull & ox. Linnæus supposed the Buffalo a species of the variety of *Taurus*. It is however, a distinct species - called *Bos Americanus*. *Bos Muschatus* is a species inhabiting the North of America & named from its odor of Musk.

Order called Bellua.

Have four teeth in each jaw obtusely truncated. Feet hoofed Bodies covered with short hair. None of them climb - The Mammas are most generally situated between the hind legs tho' sometimes situated on the abdomen. Their food is chiefly vegetable - They are extremely diffused over the world with few exceptions They are divided into Equus, Hippopotamus, Tapir, & Sus.

498 Equus. There is a species of horse found  
in South America with cloven  
hoof, called caballus. - Tebra is  
peculiar to America

Tapien. --

Sus.

## Aves. Ornithology.

All Birds agree in having two feet, two feet & a Mile of a Horney nature. They are not exclusively covered with feathers; some species of bat being covered with feathers.

There is no reason to suppose any species of Bird has become extinct. The nimbleness of Birds, & agility in flying is facilitated by their feathers - Some Birds molt once & others twice a year. By molting is meant the shedding their feathers.

The wings of Birds are called Remiges & the tail, Rectrices. Some Birds have no wings - They are called aves Apennae.

The feathers of the Carnivorous birds or Accipiter, are finer in females than Males - The reverse takes place in all other Birds.

The air cells of Birds are widely diffused

51) thro' their whole frame - They are found  
in their bones, bills of almost every part  
of them. The fact has been proven by  
a variety of experiments - the most famous  
of which were made by Mr  
Hunter. He introduced a canula  
thro' the os husseni of a domestic cock &  
found the fowl breathed very well.  
The same took place when the canula  
was introduced into the abdomen - The  
animals, tho' they breathed well for some  
times, eventually died.

The use of these receptacles of air is not  
well ascertained. They have been sup-  
posed useful in flying - Many birds, how-  
ever, which do not fly, possess them in  
abundance. Mr Hunter supposed they  
assisted in respiration, as the air bags  
in many amphibious animals. Mr  
Hunter is supposed the discoverer of  
of air cells in considerations, but Camp-  
was the first to notice the fact.

Of all animals, birds possess the  
greatest degree of heat.

The blood of ~~some~~ Birds is used in  
some countries, as a dye.

52  
What animals support the greatest  
degree of heat? Man unquestionably.

The abodes of Birds are various - as the  
Mammalia. Very few of them live under  
ground. Many Birds change their situa-  
tion at certain seasons of the year. Some  
traverse far, others remove an inconsider-  
able distance. Some birds pass into the  
torpid state - In III

In the carnivorous birds, or Accipitres  
the Oesophagus, is immensely large - The  
structure of the stomach is very different  
in different birds.

Birds have no teeth strictly speaking. The  
feed some birds swallow go first to the  
crop & afterward to the strong muscular  
stomach. Many birds swallow stones  
for aiding digestion or rather mastic-  
ation. Domestic fowls swim away  
without pebbles. Turkeys have been  
fattened upon brick bricks, a small  
quantity of corn, & water.

The seventh order of Linnæus's system is called Cete - In common language whales including Grampus &c - They have been called, improperly, Fish. They have all the essential characters of the Mammalia such as two auricles, & two ventricles, hot blood, &c. - bringing forth their young alive & feed them from the Breast.

The first genus of the order is called Monodon from the projecting tooth of the upper jaw - From this circumstance it is called by the Sailors the Unicorn. The common, as well as scientific name however, is improper, the genus having two projecting teeth.

2. Genus. Bellæna, comprehends whales, <sup>the</sup> speaking. The Bellæna Musculus is the species which came up the Delaware a few years ago. In the time of Wm Penn, their presence on the Delaware, <sup>on the coast</sup> was by no means uncommon.

3. G. Phæseter, species Macrocephalus, yields the Amber grease which is the diseased excrement of the bowels of this species.

4. G. Delphinus - comprehends the Dolphins - the Grampus &c. This genus comprehends the largest animals inhabiting the seas. From the Breasts of a species of this genus, strands on the coast of some part of Europe (I think)

a large bucket of cream was obtained. At the same time two young were seen at the breast.

Of the Aves continued.

The procreating Hybrids are much more common among Birds than Mammals. All Birds have two feet. Their Vestibles or covering is universally the same.

Linnaeus has divided the whole class of Birds into six orders viz

1. Accipitres
2. Pica
3. Anseres
4. Gallae or Traders
5. Gallinae - comprehends the Poultry.
6. Passeres

Of the Accipitres - Their skin is tough - and canient or tear the flesh they feed on, and tear living animals. Build their nests high. Lay four Eggs. are Monogamous.

This ~~order~~ <sup>order</sup> comprehends many Genera, as the Vulture, Falco, Lanius or Butcher Bird & others. The Birds of this order vary in size - the largest Birds known belong to this order.

of the Pica - have the bill corner  
 upper mandible truncated - Feet for-  
 med for walking. Body tuffish. Ma-  
 feeds the female during her incubation

Of the Anseres - contains Ducks, Geese,  
 Pelicans. Their Bill smooth and expanded  
 at the end. Feet natatory - legs short, feet  
 in the water.

Of the Gallae or Waders. have their  
 Bill cylindrical in some measure. They  
 stalk - thighs considerably naked above  
 the knee. body compressed on the side - Tail  
 short - flesh good. live in fens, feeding on  
 worms. - have remarkably short intestines

Of the Gallinae, they have their nostrils  
 arched over with a cartilaginous membrane  
 feet formed for running live on the ground  
 where they build their nests - Lay many eggs  
 are polygamous.

Of the Papere. Comprehends the Robbins  
 Swallows &c on - Their feet fitted for  
 perching - Monogamous - singing birds  
This order contains nearly one half of  
all the Birds known

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Of the Particular genera & Species  
of the Order Accipitres

1. genus *Nuttall* - 1 sp. *Gryphus* - It is called *Carion crow* - It is ~~found~~ in habits S. B. It has been known to take <sup>up</sup> Lambs, Calves, & even young children alive - They are filthy. This genus is large.
2. g. *Falco*. or Eagle - Has the Bill hooked Caput pellis. Lingua bifida. This genus comprehends the *Halled Eagle* -

