



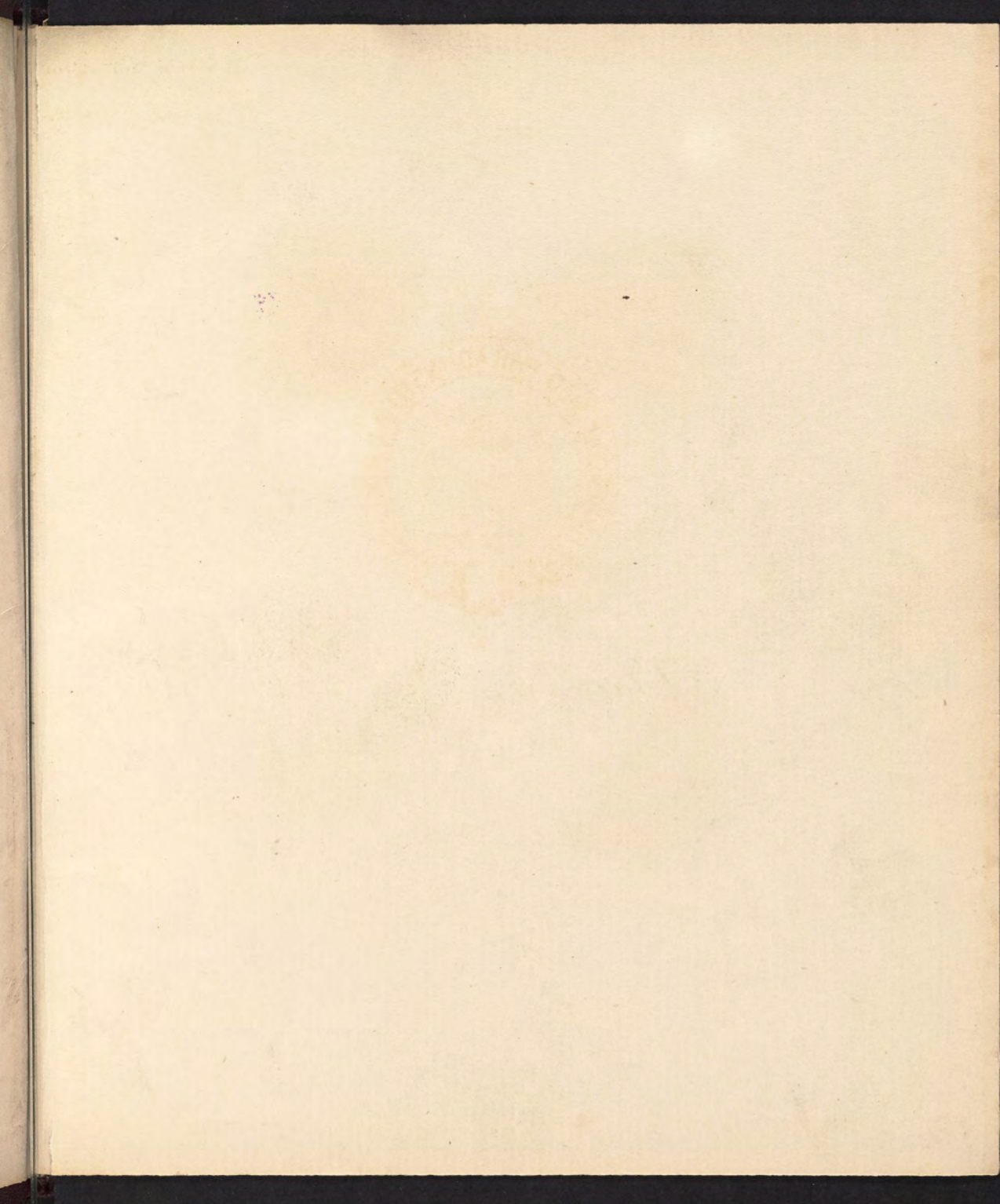
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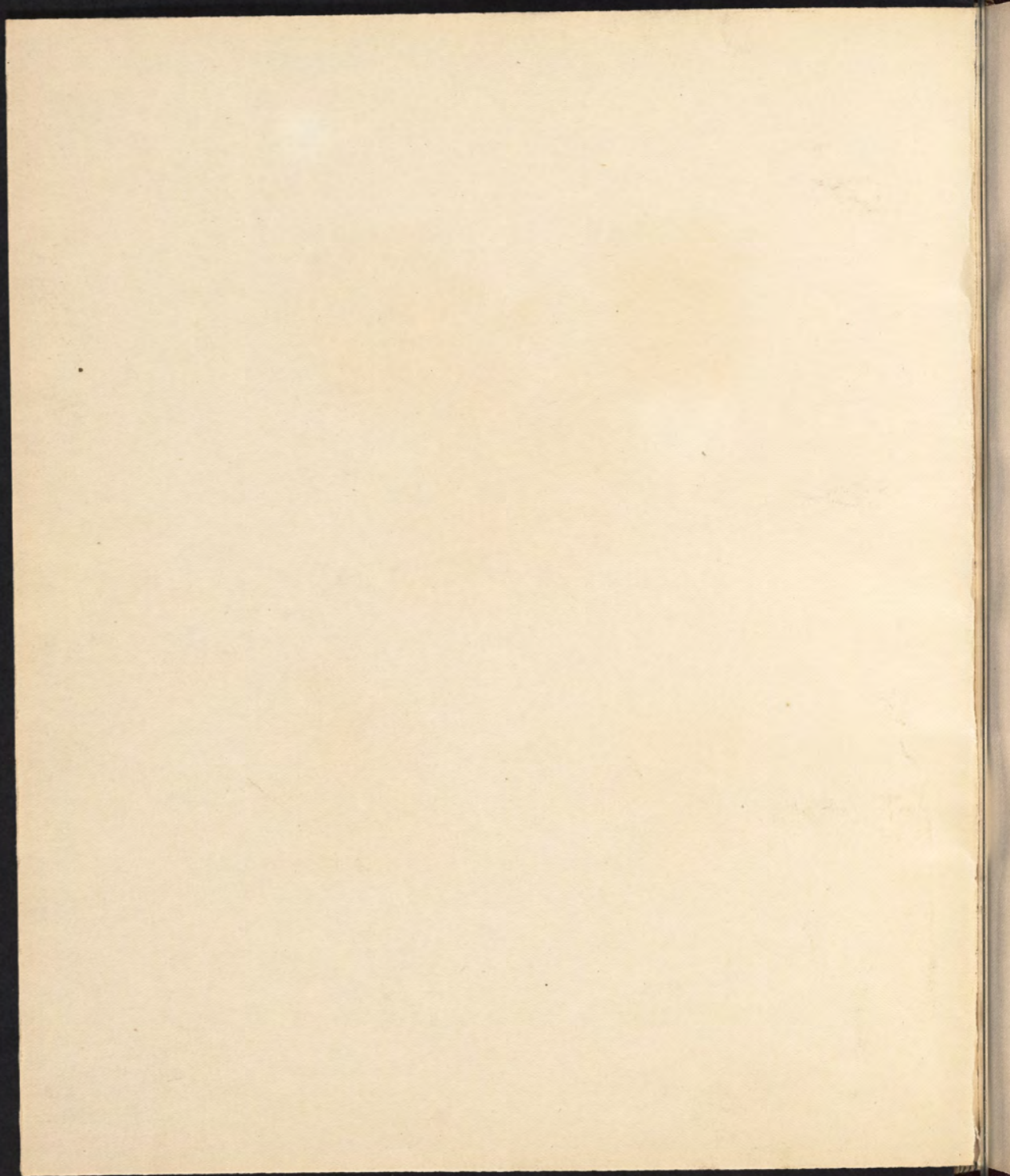
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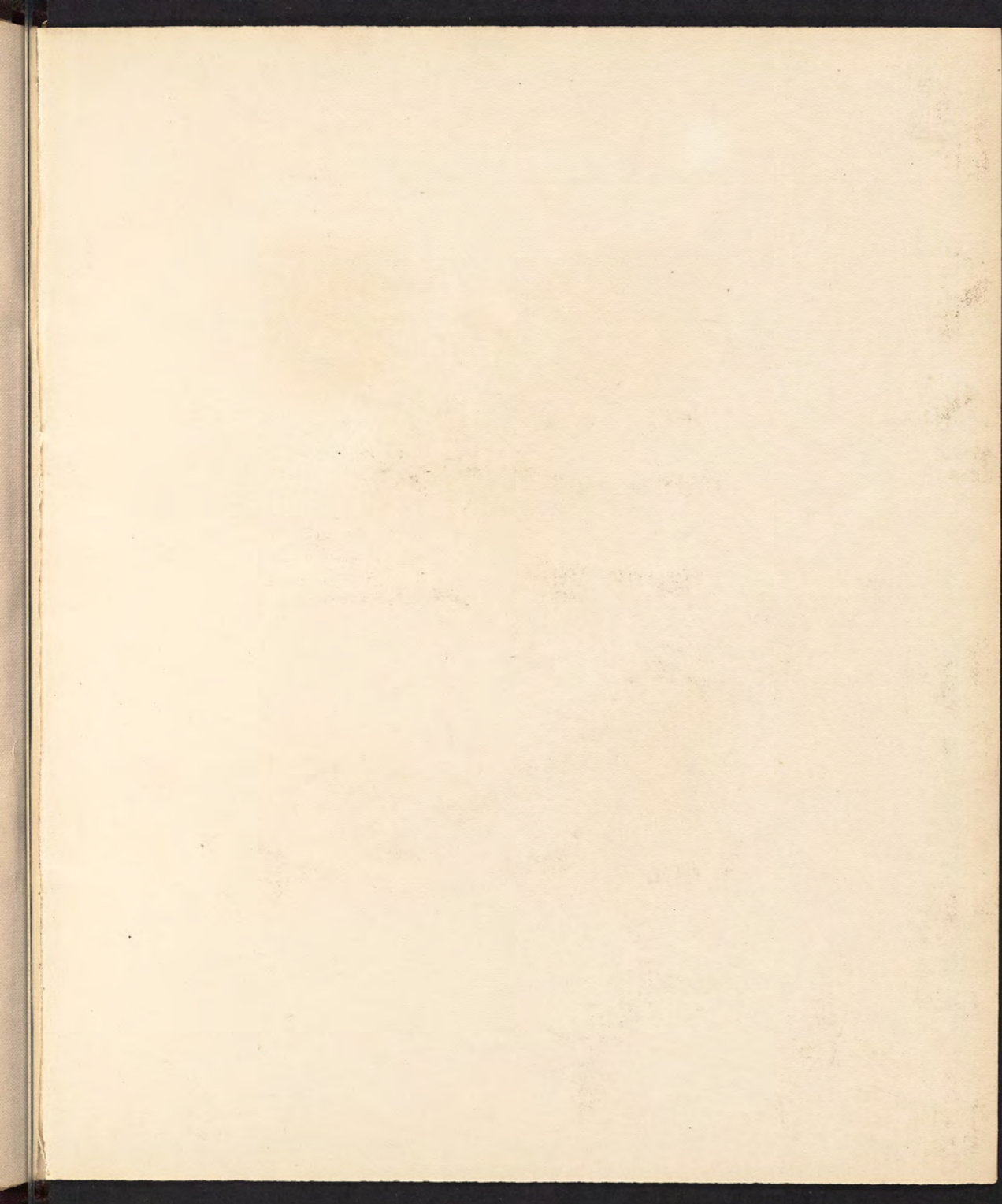


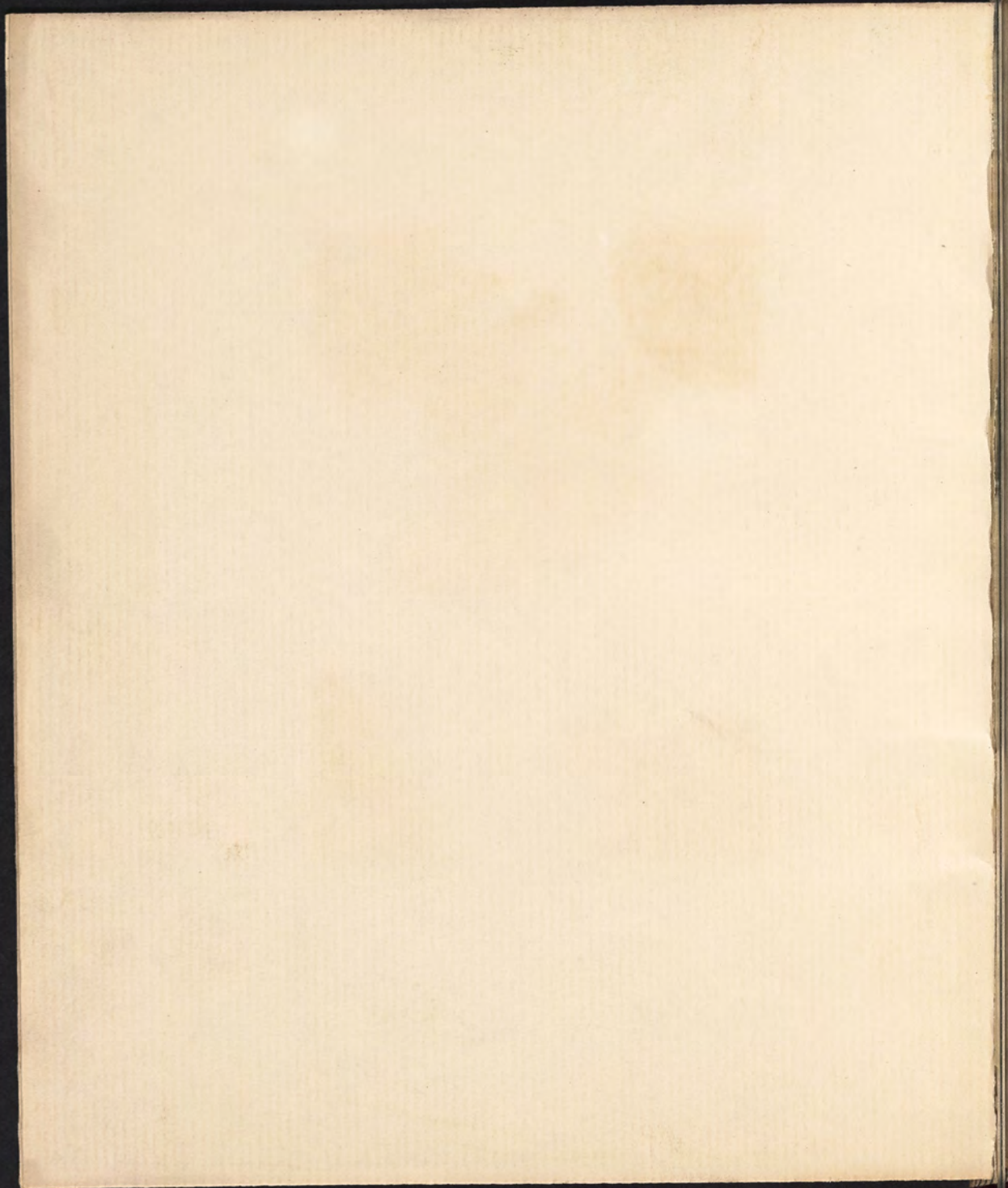
Class 10a No 8

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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, ^{Geology} 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

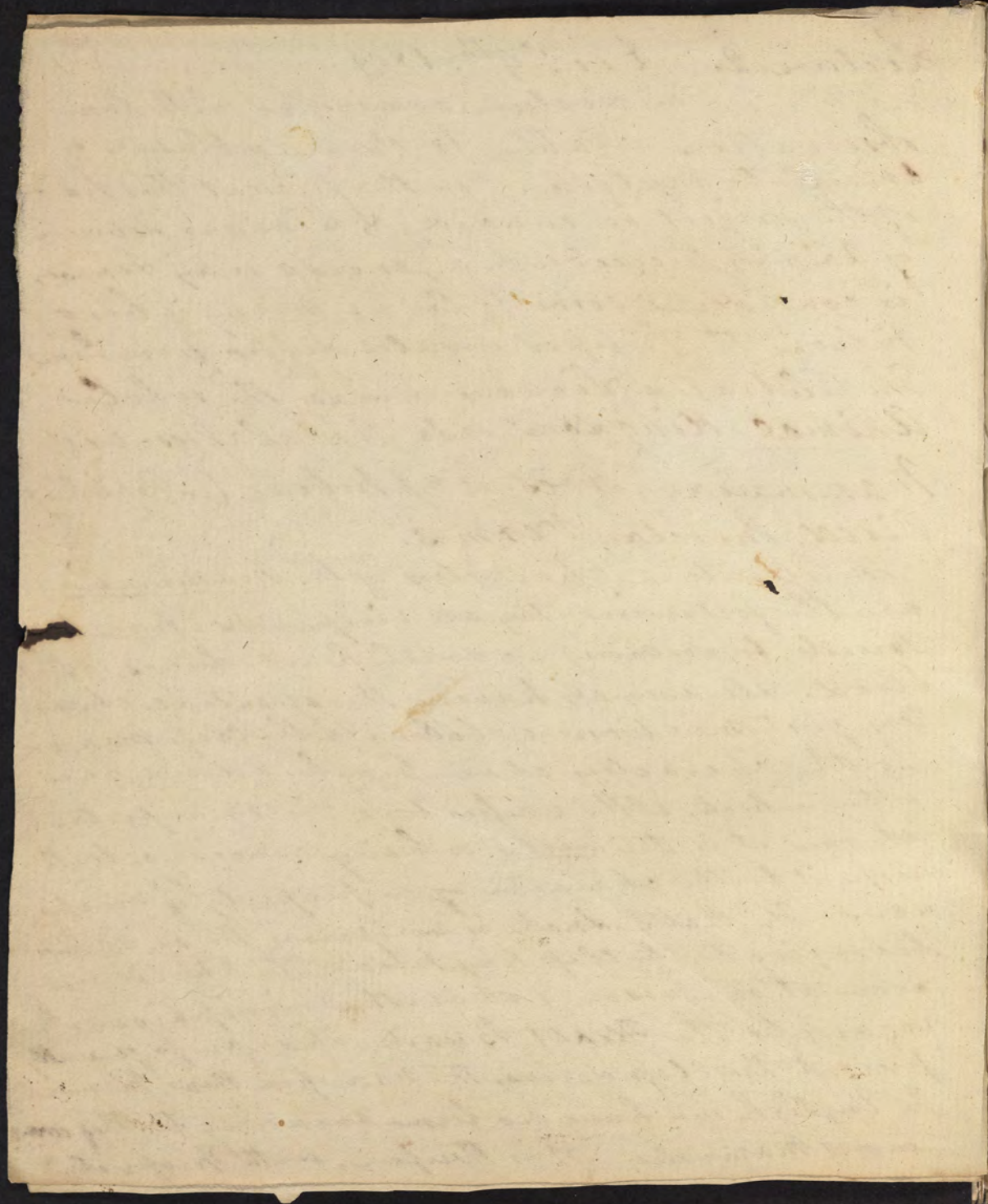
* ingrafted on the English Language.

Lecture 2. Dec. 9th. 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's 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 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 Mammalia. 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 Mam. 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^e - 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, 1st 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-

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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, ^{Dr Bartow has counted} 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 ^{by men}. 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 13th

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^{pearance} & perfection of their results, are
not surpassed ^{by} 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 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

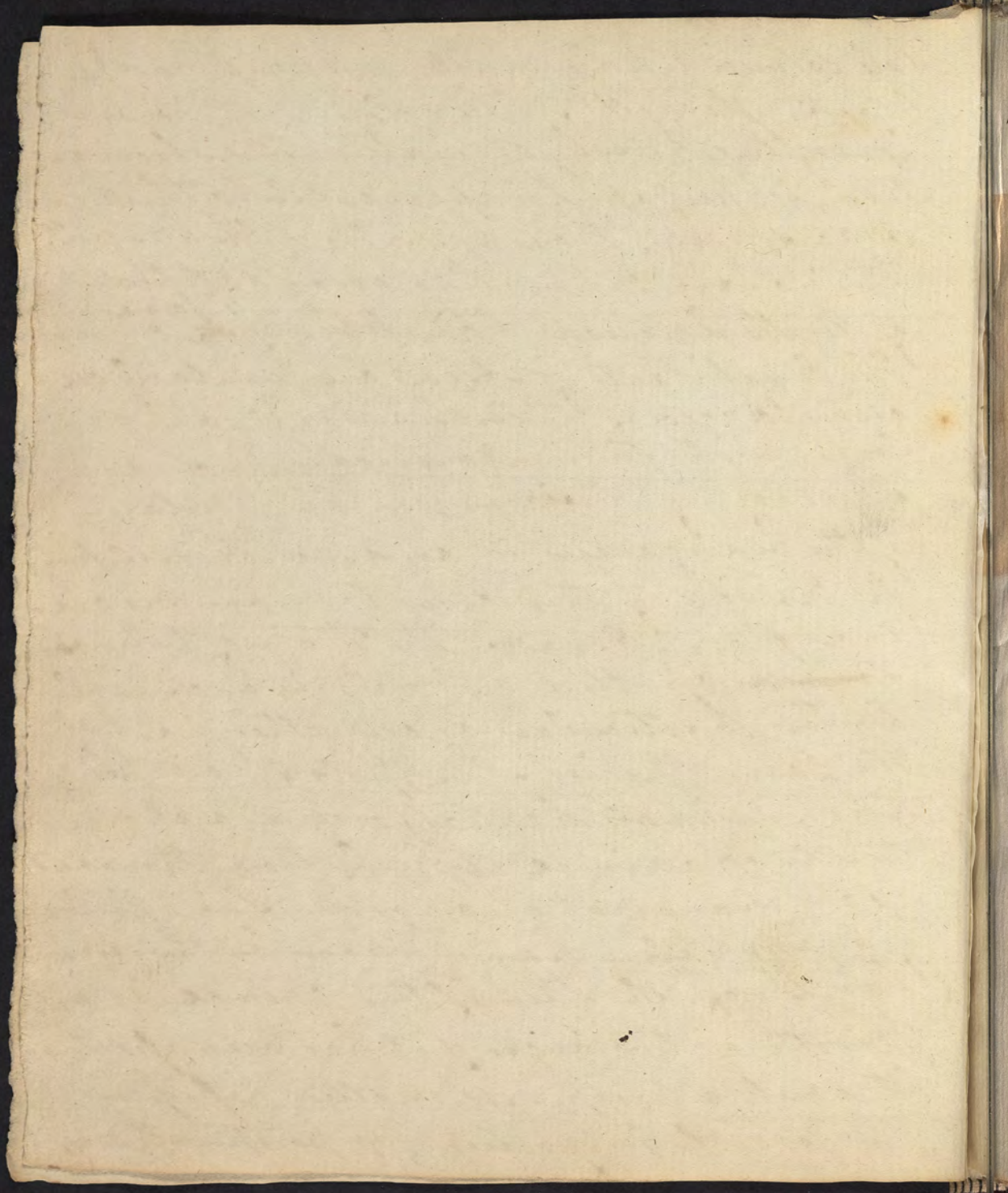
16

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, or 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 liveli-
er 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.

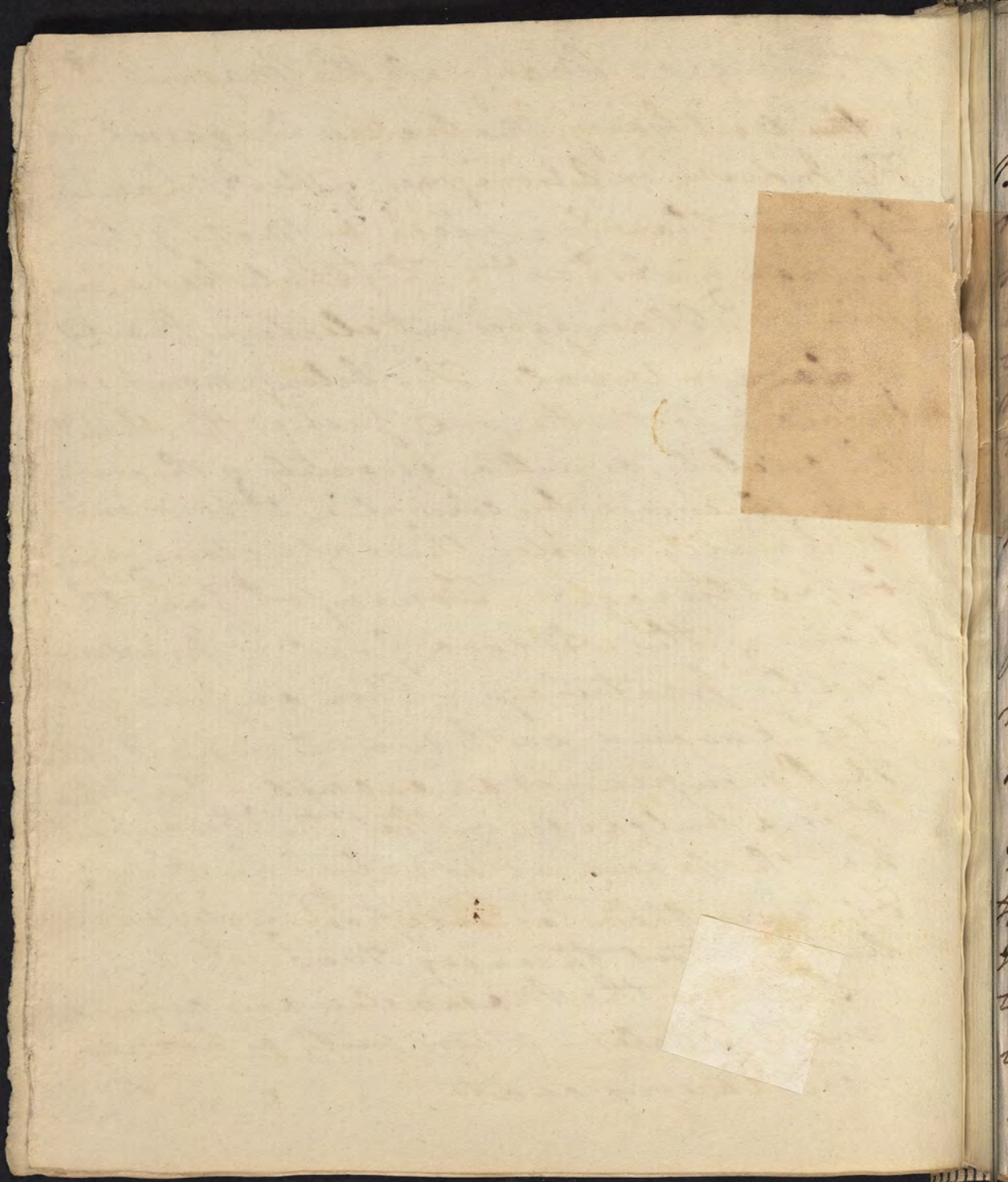
Pale coloured hair denotes feebleness, and 17
black, strength. The colour of the hair
is influenced by climate. This observa-
tion, is, perhaps less applicable to the hu-
man species, than any other of the Mammals.
The Indians, inhabiting every latitude
of North America, have hair of ^{the same} colour.
The Inhabitants of Asia are similarly cir-
cumstanced. Their hair is, of ^{the same} co-
lour with the N. American Indians -
a proof of their ^{common} 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, ^{or Guinea} 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 Mammals. 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 on some of the
elephant 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.

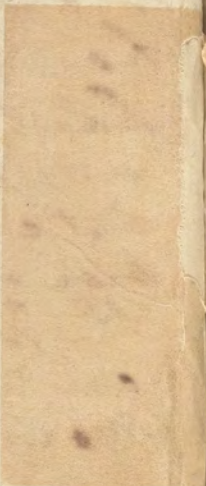
Some of the Mammalia are covered
with Scales - others with a horny
crustaceous coat.



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 ^{or specimen preserved} 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.

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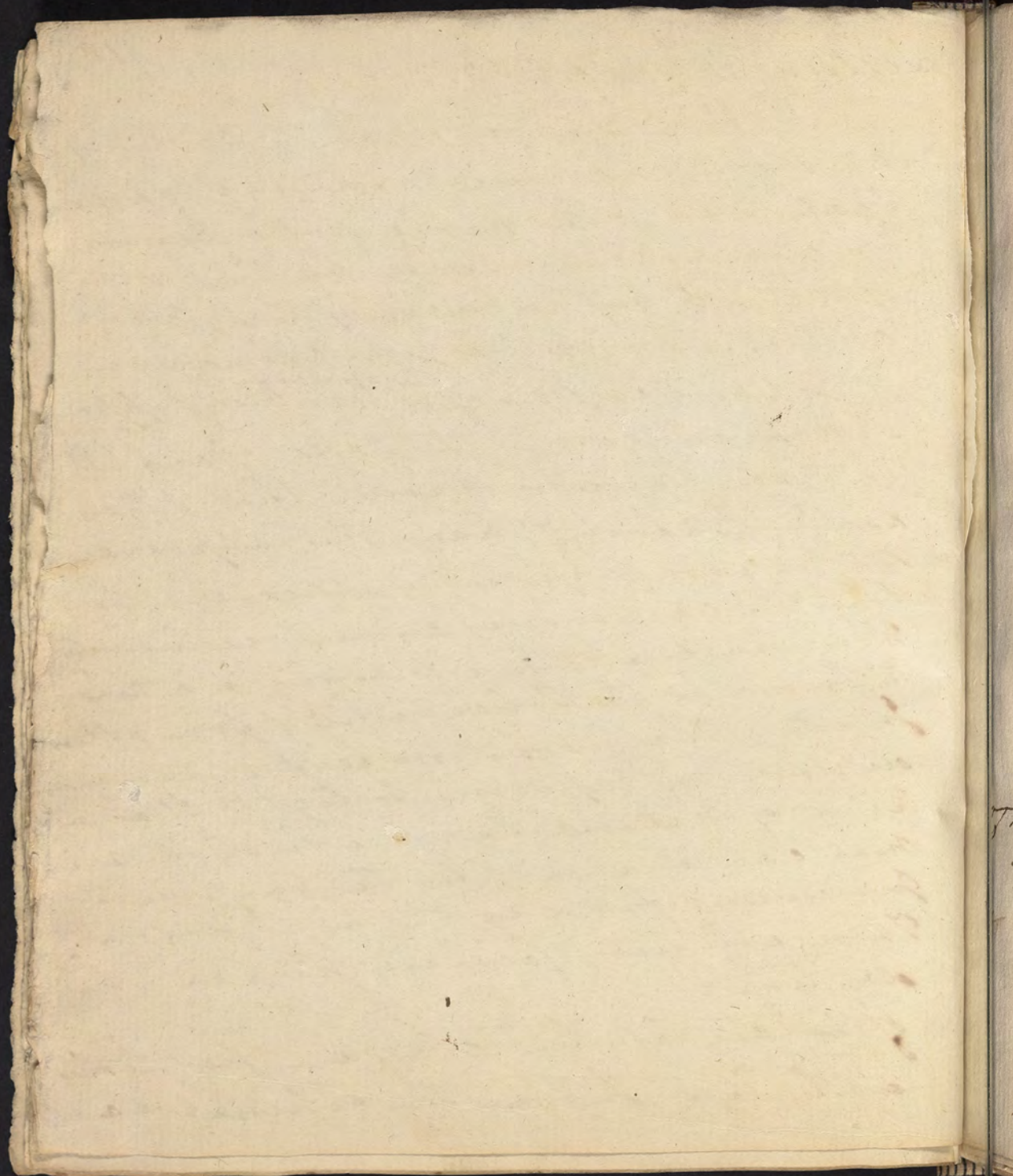
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Lecture 4th - Dec. 16.

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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~~ ^{this appearance} 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



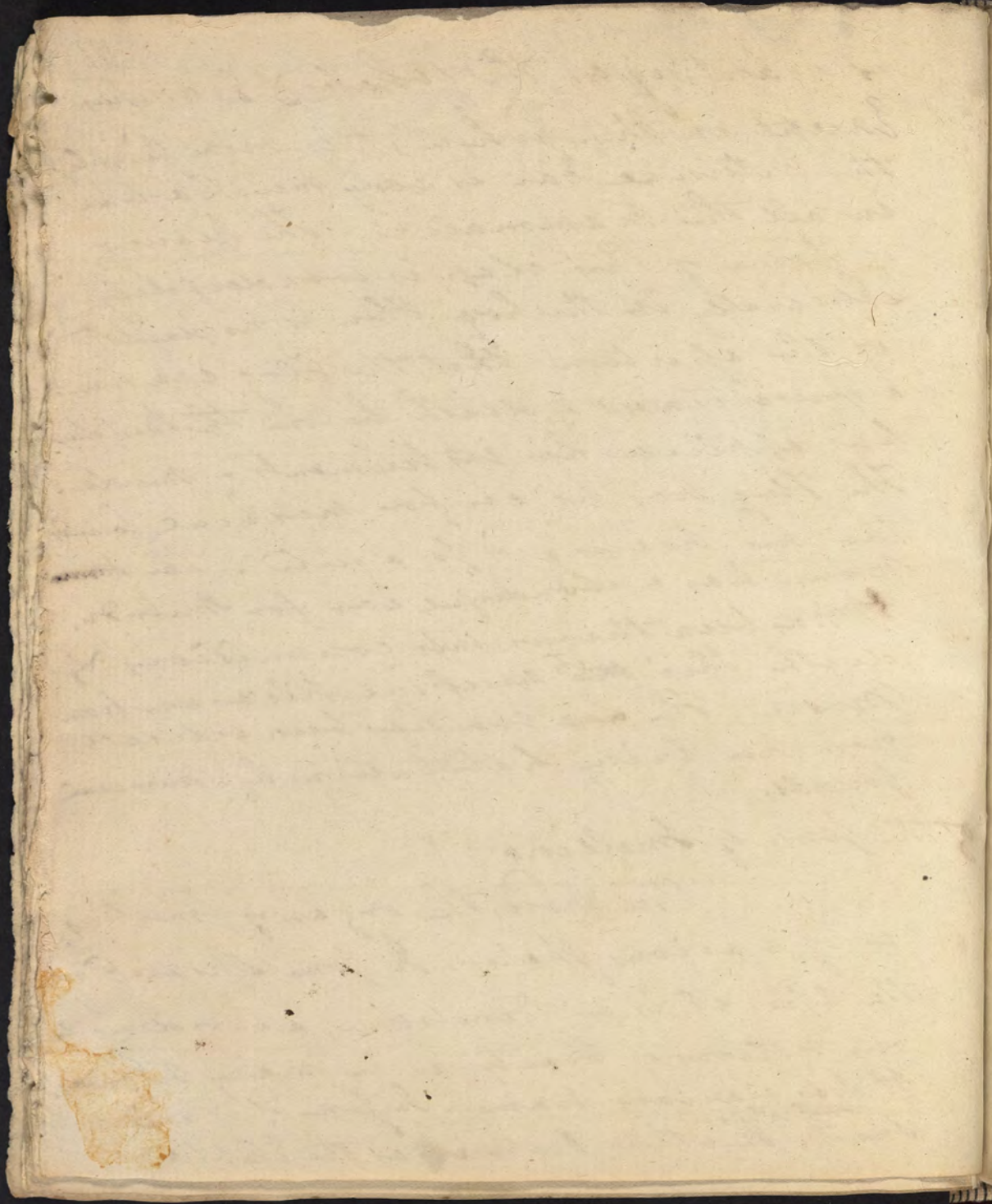
111

is wanting as the Whales & Grampus
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 assertion 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~~
mouse has a wonderful ear for melody.

It has been thrown into convulsions of
death, thro' ~~the~~ excessive 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 - ^{in Prologus} 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 - as to be thrown into convulsions by the sense of Taste - This is remarkably acute in some ^{men} & 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 powdered with fine loaf sugar or broken into pieces by a knife or any other instrument out of iron.

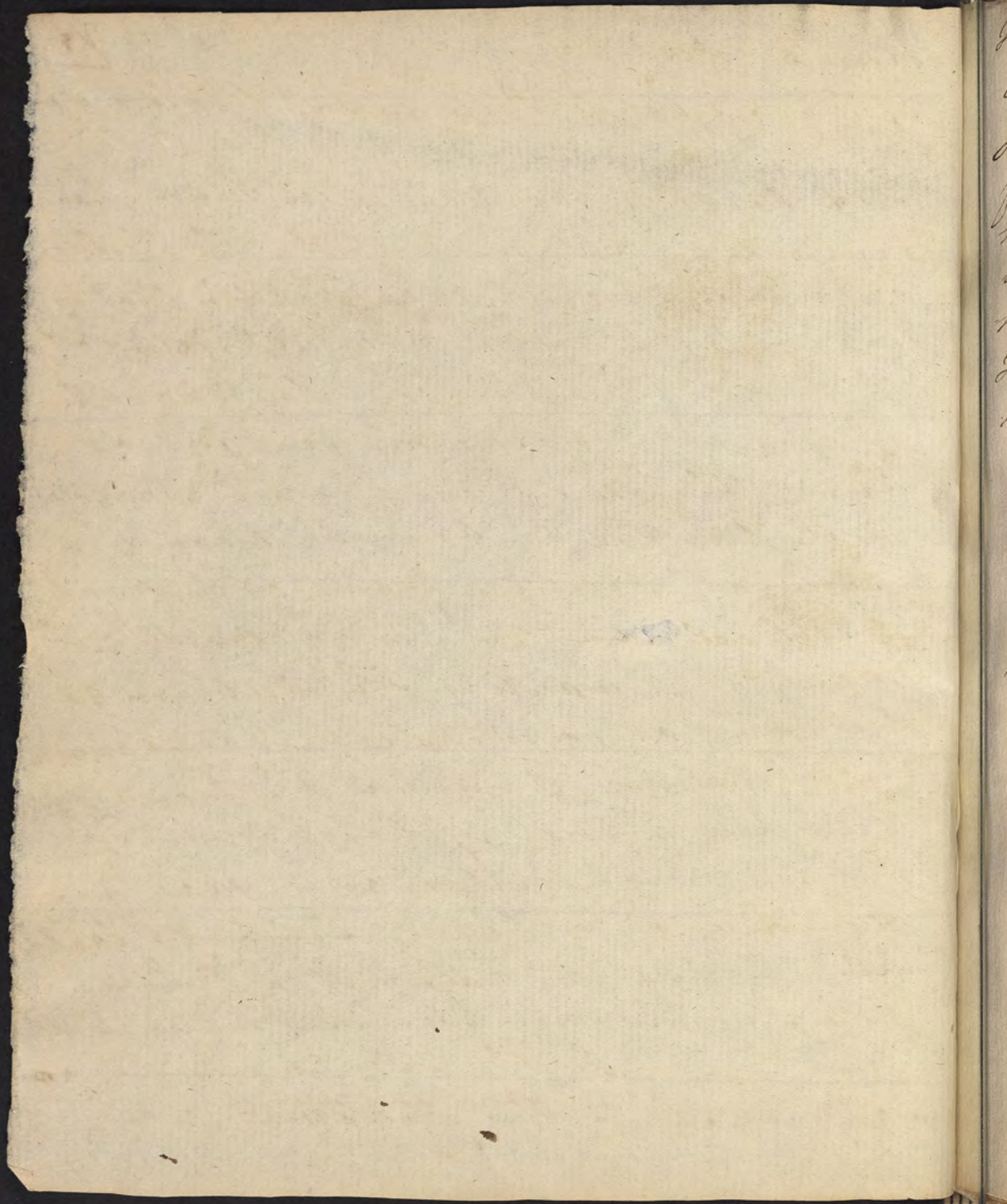
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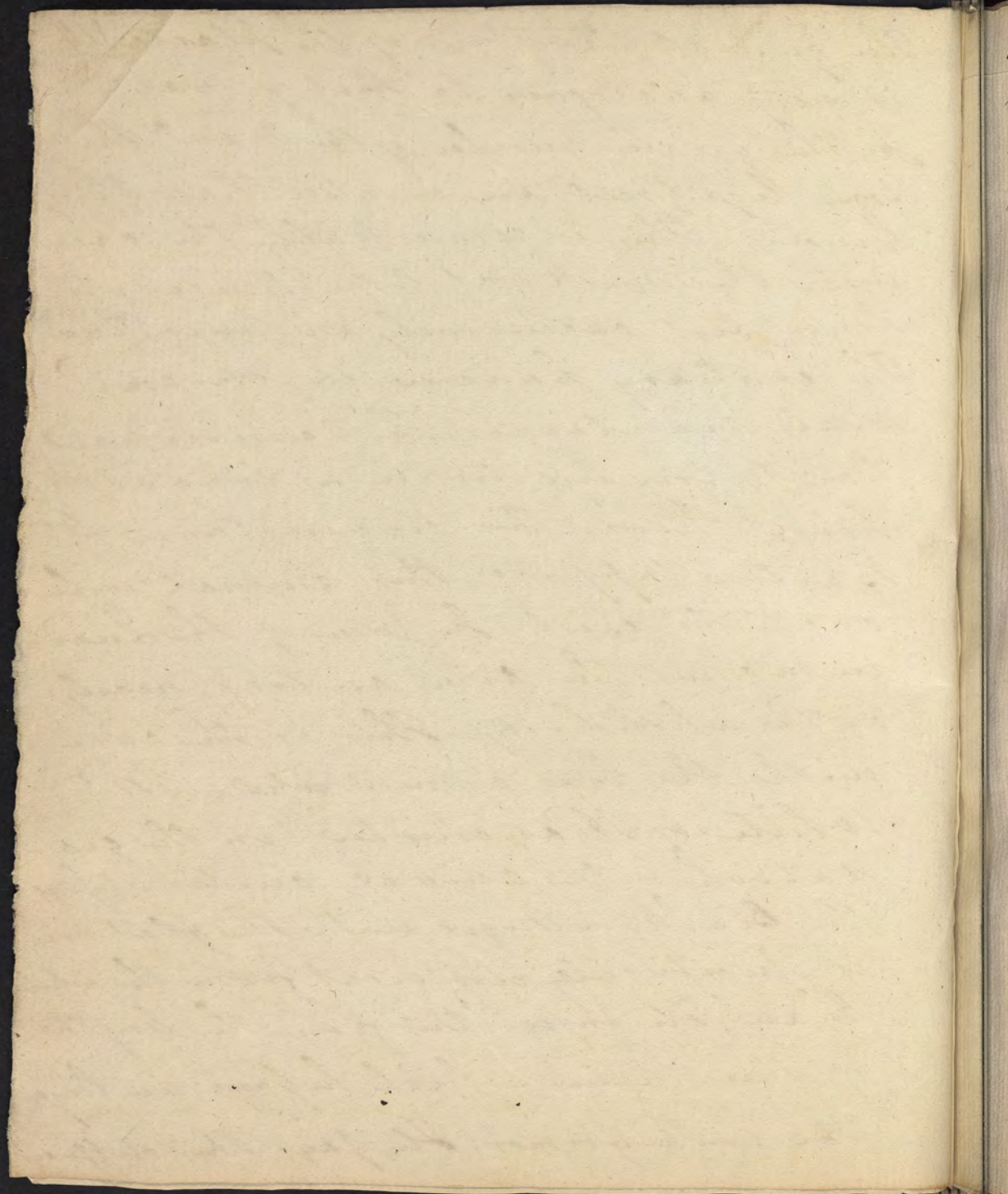
Mem

of the Fulcra, Props, or Supporters of
the Mammalia

A large proportion of the Mam.^a 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.^a it is wanting. The anterior ex-
tremities are divided into Brachium,
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.^a 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^a 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^{ing}.
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 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

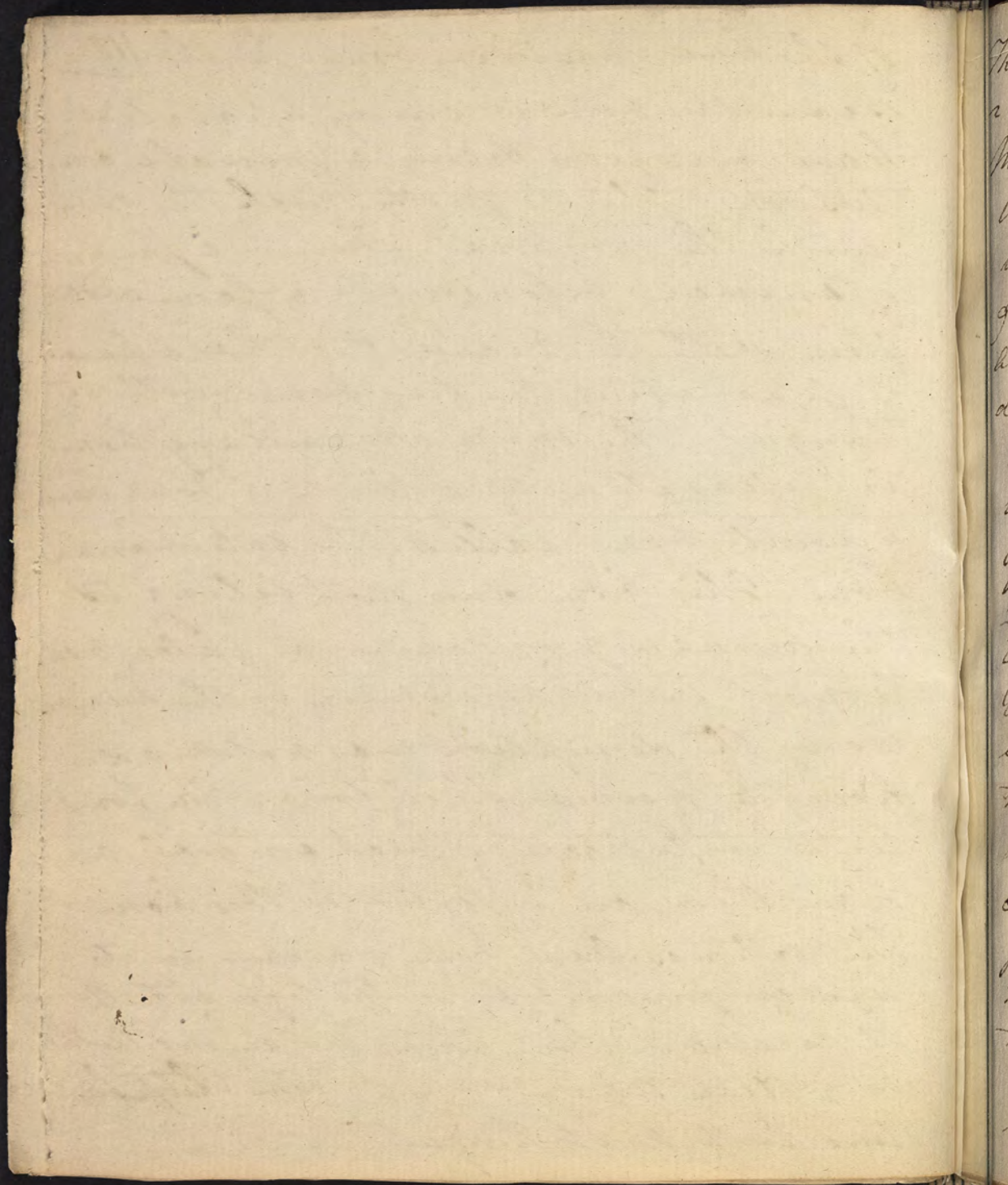
BRITISH MUSEUM
LONDON

properly called flying as it does ¹¹⁰
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

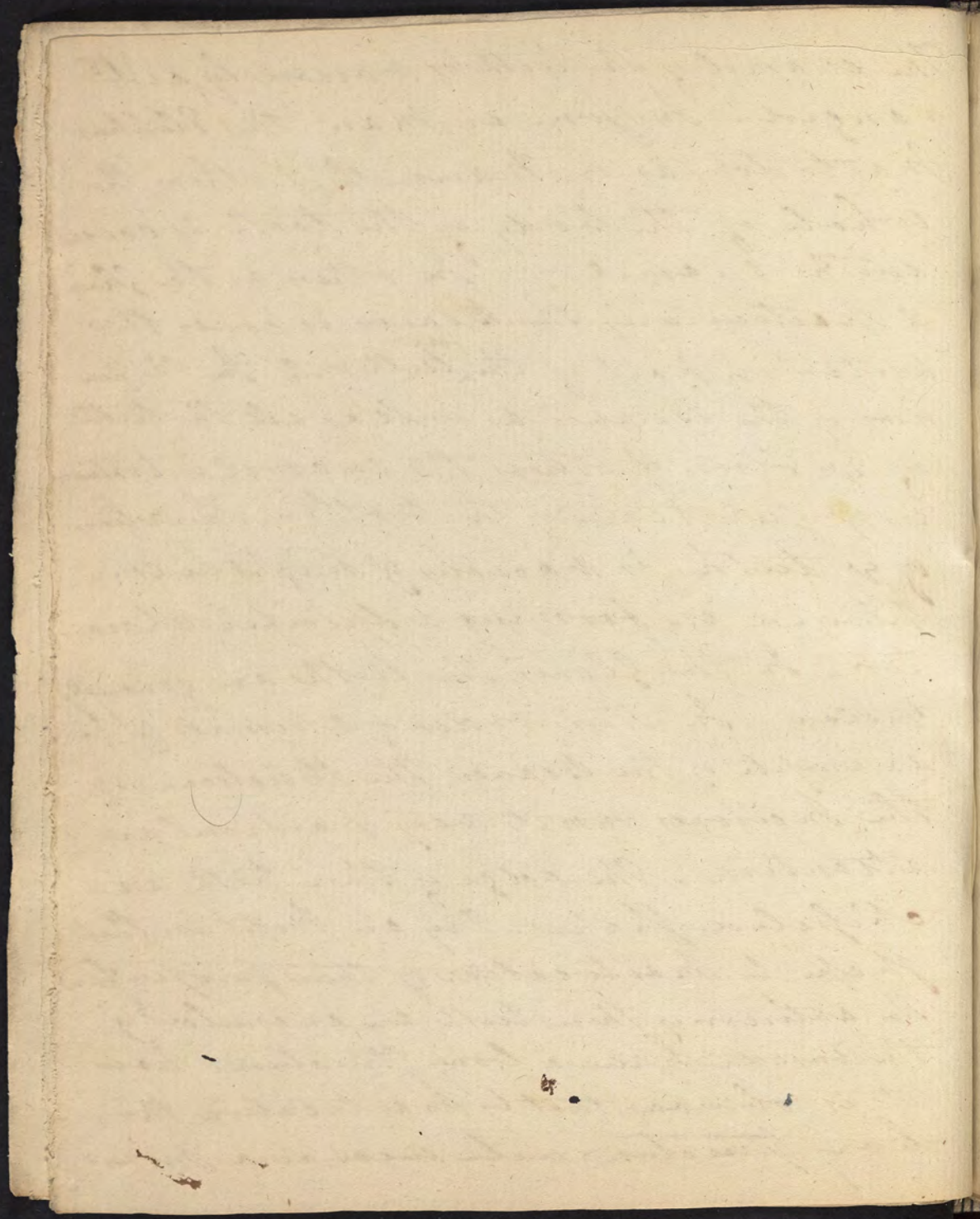
Lecture 6. Dec. 28th. Before considering
the teeth the lips & cheeks claim some at-
tention. The lip is variously shaped in
different animals - in some it is pendu-
lous - in others split & so on. The cheeks
in some animals have attached to them
a hollow pouch on each side for convey-
ing food to their 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.

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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 ^{some} ~~some~~ ^{kind} ~~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 ar¹¹⁸
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 ^{four} 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 ²⁰ teeth
does 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
structure. 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 ^{at} 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, &cetera.
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 covering the entire page]

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Man. There are several varieties of 130
this genus, but no distinct species as ^{you} 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 approximates 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

[Faint, illegible handwriting on aged paper]

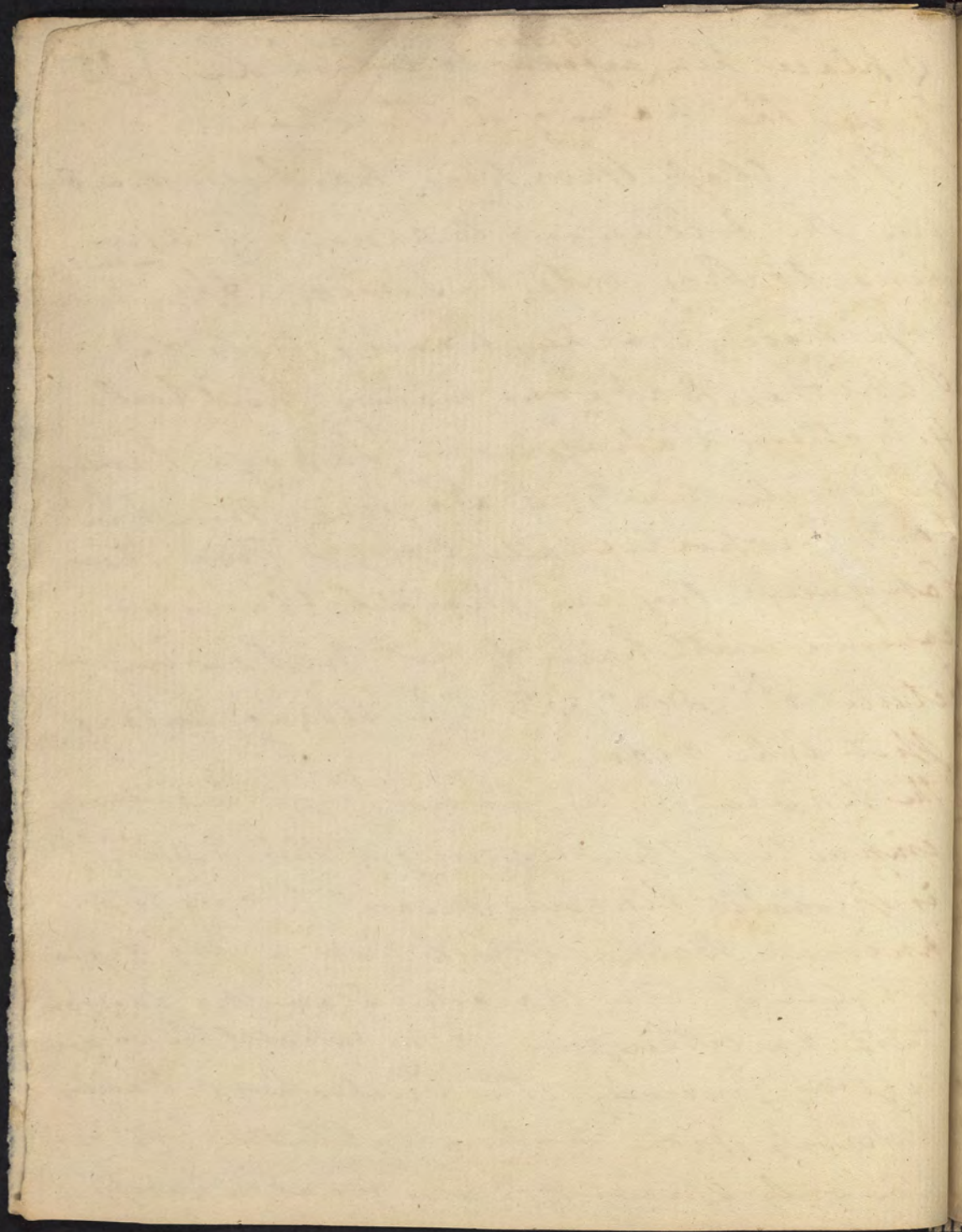
species, warrants the arrangement ³¹
of this genus. There is however much
variation, the incisives of the upper
jaw being sometimes wanting, in this
they are sometimes present & absent in
the lower jaw - In this ~~present~~ arrange-
ment of the bats, as well as, the ani-
mals generally of the order Primates
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 *Herp.* 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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places him ^{in order} ~~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 - ^{without tail} 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 8th. Dec^r. 30th. The Orang-Outang
is like man.

of the Bruta. There is no English word
importing the meaning of this term. It
is probably 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, ^{some} 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. Syst. p. 79.) Cat 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. 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 mane - the female lion. It inhabits Africa. The Tiger is called by Linnaeus, Panthera quadripedum. Corpora maculis omnibus virgo

Ornithorhynchus or Duck billed } 34
Platyphus. In this the Bill 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^r 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.

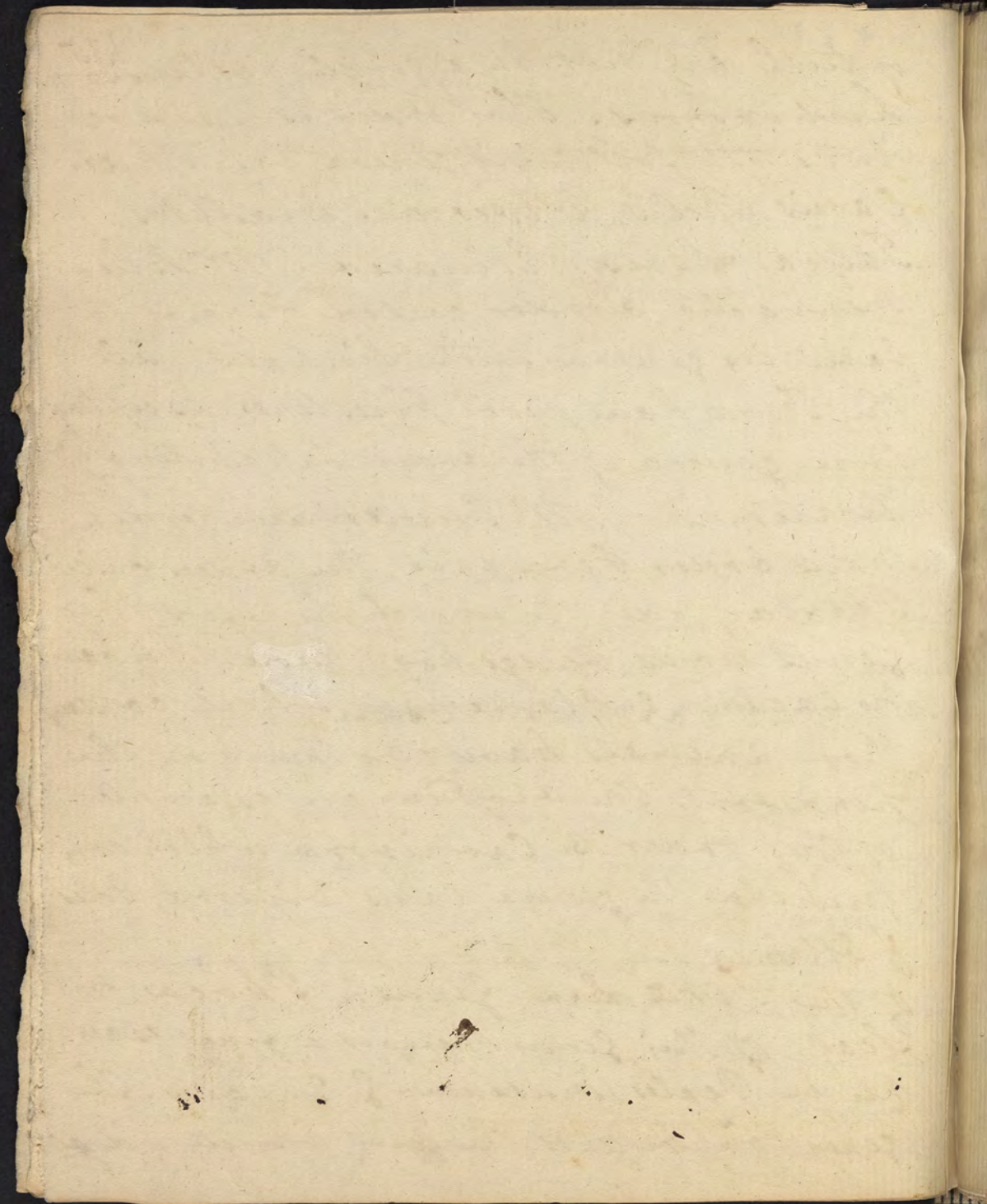
Panther comes next to it of Tiger in conspicuousness. It is corpore maculis superioribus orbiculatis, inferioribus virgatis.

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, ^{they} are generally very ~~short~~ ^{long}. ~~the fact has~~ ^{the fact has} 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 stomach, & hence a longer time of 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 6th order called Fera is the
same in genera with Linnaeus. All
the Fera have short Intestines, excepting
those genera of the Order inhabiting
water. - Mr Cuvier divides Lin-
naeus Order Fera into three Orders called
1. Plantigrades - to which he refers the
genus Ursus, Sledge-hog & Mole. They have
no caecum. 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 & C., 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
^{among whites}
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 northern 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 Letheticus*.

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

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, sandy 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.

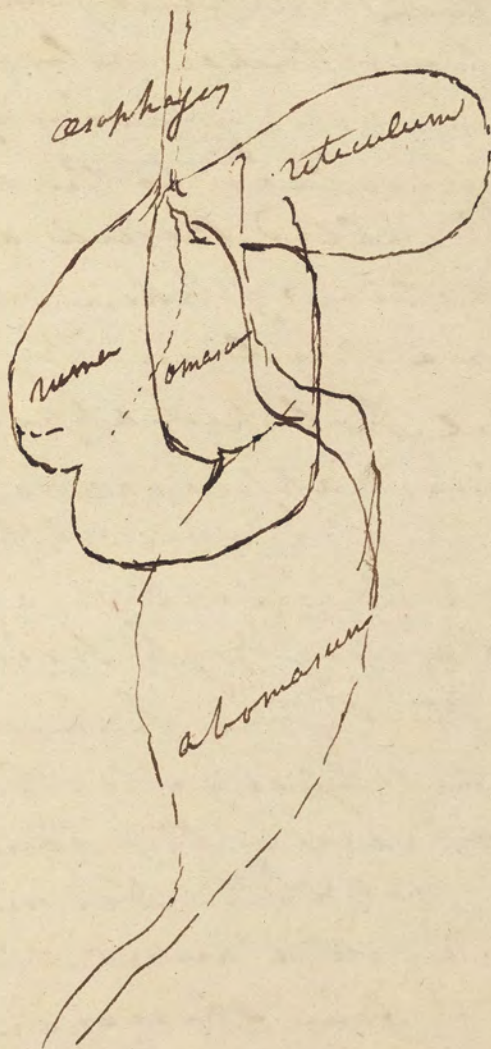
Lecture 12. Before taking up the con-
sideration of the genera of the order
Decora, it may be observed of them, they
all ruminate - This is effected by
a peculiar structure of their stomach
found only in the Ruminantia or Decora
~~it is so~~ This structure is composed
of four stomachs viz. 1. The Paunch or
Cumen - This is by far 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 *Bount* &
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 digestion 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^d composed of fibers of different roots of is peculiar to the old continent & 3^d called *Pesera* and of an oval structure of hair most generally a stone for a nucleus. They have a beautiful polished appearance. They are diamond appearances & 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. Watson* 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 ^{bile} Casseal is conveyed by a duct immediately into the intestinal canal.

Camelopondalis - of this no Specimen in the
Museum Realium -

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 alid 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. Linnaeus 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 Accipitres, 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-
bell 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, a small
quantity of corn, & water.

The seventh order of Linnæus's system is called Cetæ - In common language whales including Grampus & Orca - They have been called, improperly, Fish. They have all the essential characters of the Mammalia such as two auricles, & two ventricles, hot blood, & bring 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, ^{the} 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, ^{on the coast} 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)

54

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 Vestitures 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 Struthiones
5. Gallinae - comprehends the Poultry.
6. Passeres

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

This ~~order~~ ^{order} 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-
fies as 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 Gallinae 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 Passeres. 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 ^{up} 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* -

