

22d.—*Tussilago alba* in flower; also *Primula verna*.

27th.—The Snowdrop (*Galanthus nivalis*) in flower. The *Hyacinthus orientalis* now flowers in the house.

February 1st.—Fair weather, producing a forwardness of the vegetable kingdom. The Snowdrops are now abundantly in flower in the gardens; but their stalks have not attained any height yet, the white flowers just emerging from the ground.

2d.—A double pink variety of the Primrose (*Primula verna*) in blow in the garden.

5th.—The Honeysuckle in leaf.

6th.—*Crocus vernus*, the Spring Crocus, in blow in the garden. The Rooks and Daws seem very numerous, and frequent the fields in immense flocks.

8th.—I noticed to-day two specimens of the Dandelion (*L. Taraxacum*) in flower; one in the marlepit field; the other in a lane on a north bank: as neither were in warm situations, I consider their flowering as instances of a very early spring.

9th.—*Bellis perennis*, the Daisy, in flower to-day.

11th.—Primroses and Polyanthes in blow. This evening (after several days of fair clear weather) there is a strong white frost on the ground, so as to appear almost like snow, and the sky has clouded over; circumstances which indicate a change of weather.

16th.—The Periwinkle in flower at Withyham.

23d.—I saw a solitary instance of the Pilewort (*Ficaria verna*) in flower, near the Parsonage, on a warm bank.

[This Journal is to be continued in the neighbourhood of  
Tunbridge Wells.]

### On the Natural Arrangement of Vertebrate Animals.

By J. E. GRAY.

A SKETCH is now given of the arrangement of the first section of those animals which are provided with a vertebral column, inclosing the spinal marrow. This arrangement being that first sketched by Aristotle, in his History of Animals; then enlarged by Ray; and now followed by Cuvier, and the principal naturalists both of this and foreign countries.

ANIMALIA. Natural organized bodies, increasing by intussusception of juices, furnished from a central stomach, endowed with voluntary motion, and generally with locomotion, are divisible into five sub-kingdoms.

#### Sub-kingdom 1. Vertebrata.

Brain and principal trunks of the nervous system, inclosed in a bony case, composed of skull and vertebra: members fixed on the sides of a bony internal skeleton: organs similar on each side, blood red: heart one, muscular: distinct organs for vision, hearing, taste, and odour, placed in the head: sexes separate; sensible, acquiring ideas, and more or less intelligent.—This is divided into five sections.

Sect. 1. Uterus and mammæ distinct: breathing by lungs only: heart, two ventricled; viviparous.

#### Class I. BIMANES.

Body perpendicular: thumbs separate on the upper extremities only: fingers free, five clawed: mammæ two: pectoral naked: face bald: chin prominent: lips covering the teeth: teeth, three sorts, cutting, canine, and grinders: cutting teeth perpendicular: penis free.

#### Ord. 1. PRIMATES.

Gen. 1. Man, Homo, only one species: Homo sapiens.

#### Class II. QUADRUMANES.

Body horizontal, hairy: thumbs separate on the fore and hind extremities: fingers free, clawed: mammæ two, pectoral naked: chin not prominent: lips small: teeth three sorts, cutting, canine, and grinders: cutting teeth projecting: penis free.

#### Ord. 1. PLATYONYCHE.

Claws on all the fingers and thumbs, flat, depressed: cutting teeth, four in each jaw.

Fam. 1. PITHECIDÆ.—Teeth, four cutting, two canine, and ten grinders in each jaw: tail none: cheek pouches none: os hyoides, liver, and cæcum, like those of man. Inhabiting the old continent. This family contains the following genera; and the species given will serve for their type.

Chimpansee, Mimeoles Leach. *Simia troglodytes*. Linn.

Orang-otang. Pithecus. Cuvier. *Simia Satyrus*. Linn., Gibbon, Laratus, Gray. *Simia Lar*. Linn.

Fam. 2. CERGOPITHECIDÆ.—Teeth, four cutting, two canine, and ten grinders in each jaw; tail and cheek pouches distinct: buttocks callous: os hyoides buckler-shaped: liver many lobed: cæcum large, short, vermiform appendage none. Old continent.

Race 1. Last lower grinder with four tubercles.

Monkey, Cercopithecus. Cuv. *Simia rubra*. Gmel.

Nasique, Hanno. Gray. *Simia nasica*. Scltr.

3. Duke. Daunus. Gray. *Simia nemæus*. Lin.

4. — Colobolus. Illiger. *Simia polycomos*. Pennant.

Race 2. Last lower grinder with an odd tubercle.

5. Magot, Cynocephalus. Desv. *Simia inuus*. Lin.

6. Macaco, Macaca. Cuv. *Simia cygnomolgus*. Lin.

7. Baboon, Paphio. Cuv. *Simia sphynx*. Lin.

8. Ape, Simia. Lin. *Simia mormon*. Lin.

9. Pongo. Lacep. *Pongo borneo*. Audel, t. 11. f. 5.

Fam. 3. CALLITRICIDÆ. — Teeth, four cutting, two canine, twelve grinders, in each jaw: tail long: cheek pouches none: buttocks hairy, not callous: nose pierced on the side: cæcum long.

Race 1. Tail not prehensile.

1. Ovarine, Mycetes. Illig. *Simia Beelzebub*. Lin.

2. Coaita, Ateles. Geoff. *Simia paniscus*. Lin.

3. Sagire, Cebus. Geoff. *Simia asella*. Lin.

4. Saimiri, Callitrix. Geoff. *Simia sciurea*. Lin.

Race 2. Tail not prehensile.

5. Saki, Pithecia. Der. *Simia pithecia*. Lin.

#### Ord. 2. GAMPSTONYCHÆ.

Claws of all the fingers compressed, arched; of the thumb, depressed.

Fam. 1. HARPALADÆ. — Teeth, four cutting, two canine, ten grinders, in each jaw: tail long, not prehensile, bushy: buttocks hairy, not callous: head round: face flat: nose opening on the side: cheek pouches none.

Jacco, Harpale. Illig. *Lemur jaccus*. Lin.

#### Ord. 3. HETERONYCHÆ.

Claws of the first or first and second finger of the hinder extremity hooked, compressed; of all the rest, depressed.

Fam. 1. LEMURIDÆ. — Nose very long: cutting teeth four above, four or six below, canine long: grinders obtusely tubercular: ears short, hid in the fur: index finger of the hinder extremity extremely long: tail mostly long. Eating fruit.

Maki, Lemur. Lin. *Lemur catta*. Lin.

Indri, Indri. Geoff. *Lemur indri*. Lin.

Fam. 2. LORIDÆ. — Head roundish: nose rather short: teeth two or four cutting above, four or six below: canine long: grinders acutely tubercular: ears visible: tail none or long. Eating insects. — Nocturnal.

Race 1. Tail none.

Loris, Loris. Geoff. *Lemur tardigradus*. Lin.

Race 2. Tail long.

Galago, Galago. Geoff. *Lemur potta*. Gmel.  
Tarsier, Tarsius. Geoff. *Lemur tarsium* Pallas.  
Rabiennus. Gray. *Lemur spectrum* Pallas.

#### Class III. CHEIROPTERA.

Body horizontal, hairy: thumb separate on the upper extremities only, clawed: fingers very long, interstices filled up with a double nearly naked membrane, adhering to the body and lower extremities, forming true wings: breast bone, keeled: mammae two, pectoral, naked: teeth, three sorts, cutting, canine, and grinders: penis free: cæcum none.

#### Ord. 1. FRUCTIVORÆ.

Teeth, grinders, with two longitudinal parallel ridges separated by a furrow: index finger short, of three phalanges: eyes large: ears small: legs not united together.

Fam. 1. PTEROPIDÆ. — Membrane of the wings extended from the sides of the body and legs: index finger with a small claw: nose simple: tongue hairy: teeth, four cutting in each jaw.

Pterope, Pteropus. Geoff. *P. edulis*. Geoff.

Roussette, Rousettus. Gray. *P. Ægyptiacus*. Geoff.

Fam. 2. CEPHALOTIDÆ. — Membrane of the wings attached longitudinally to the middle of the back of the body, and legs: index finger clawless: teeth, two cutting in each jaw.

Cephalote, Cephalotes. Geoff. *C. Peronii*. Geoff.

#### Ord. 2. INSECTIVORÆ.

Teeth, grinders, all acutely tubercular: index finger not clawed: eyes small: ears large: legs united by a membrane.

Fam. 1. NOCTILIONIDÆ. — Middle finger with two bony phalanges: the index and other fingers with only two bony phalanges.

Race 1. Nose simple: tail none, or adherent to the inter-femoral membrane.

Mollosses. Geoff. *Vespertilio mollossus*. Gmel.

Nyctimones. Geoff. *Vesp. acetabulosus*. Herm.

Stenodermes. Geoff.

Race 2. Nose warty: tail short, free.

Noctilio. Lin. *Vespertilio leporinus*. Gmel.

Race 3. Nose appendaged.

Vampyre, Phyllostoma, *vespertilio spectrum*. Lin.

Fam. 2. VESPERTILIONIDÆ. — Index finger with only one bony phalange; the middle and other fingers, with two each.

Race 1. Nose appendiced.

Megadermes. Geoff. *Vestertilio spasma*. Lin.

Leafnose, Rhynolophus. Geoff. Vespertilio ferrum equinum. Lin.

Nyctere, Nycterus. Geoff. Vespertilio hispidus. Lin.

Rhynopoma. Geoff. R. microphylla. Geoff.

Thuphosores. Geoff.

Race 2. Nose simple.

Bat, Vespertilio. Lin. Vespertilio murinus. Lin.

Pecotus. Geoff. Vesp. auritus. Lin.

Barbastella. Gray. Vespertilio barbastellus. Gmel.

#### Class IV. QUADRIPEDES.

Body horizontal, hairy; thumbs not separate on the hind or fore-legs: toes clawed or hoofed: mammæ rarely pectoral, naked: penis in a groove: teeth, none, or one, two, or three sorts: pelvis perfect.

Sub-class 1. UNGUICULATA.—Toes three, to five, clawed.

#### Ord. 1. PTEROPHORÆ.

Teeth, cutting, canine, and grinders: mammæ pectoral: skin of the body extended, uniting the legs and tail, so as to form a parachute: toes, five, clawed: claws curved, acute: cœcum very large.

Fam. 1. GALEOPITHECIDÆ.—Teeth, two cutting above, toothed; six below, four middle ones cut, pectinated: canine obtusely tubercular, short, like the grinders.

Galeopithecus. Geoff. Lemur volans. Lin.

#### Ord. 2. PLANTIGRADÆ.

Teeth, cutting, canine, and grinders: mammæ four to twelve, ventral: skin not extended: toes five, clawed: soles of the feet applied to the ground: cœcum none.

Fam. 1. ERINACIDÆ.—Teeth, grinders acutely tubercular, cutting six in each jaw, two middle ones largest; canine very short: body spiny, forming a ball: tail very short: ears external.

1. Hedgehog, Erinaceus. Lin. E. europeus. Lin.

Fam. 2. SORICIDÆ.—Teeth, grinders acutely tubercular, cutting, acute, six or eight in each jaw, two middle very long; canine very short: body hairy: ears external: clavicles perfect.

Shrew, Sorex. Lin. S. araneus. Lin.

Fam. 3. MYALADÆ.—Teeth, grinders, with acute tubercles, cutting six or eight in each jaw, two middle very small, next long, canine very short: body hairy: tail none, or compressed, scaly: ears none, external: eyes small.

1. Desman, Myale. Cuv. Sorex muschatus. Lin.

2. Scallops. Cuv. Sorex aquaticus. Lin.

3. Condylura. Illig. Talpa cristata. Lin.

4. Chrysochlore, Chrysochloris. Cuv. Sorex auratus. Lin.

Fam. 4. TENECIDÆ.—Teeth, grinders, acutely tubercular; cutting, small, equal, six above, four below; canine long: body spinous: tail none.

Tenec. Cuv. Erinaceus caudatus. Lin.

Eteocles. Gray. Erinaceus subspinous. Cuv.

Fam. 5. URSINIDÆ.—Teeth, grinders, crown flattish, last obtusely tubercular; cutting six in each jaw; canine strong: body hairy, thick, strong: legs short: clavicles rarely perfect.

Bear, Ursus. Lin. Ursus arctos. Lin.

Raton, Procyon. Stor. Ursus sotor. Lin.

Badger, Meles. Stor. Ursus meles. Lin.

Glutton, Gulo. Stor. Ursus gulo. Lin.

Prochylus. Illiger. Bradypus ursinus. Shaw.

#### Ord. 3. DIGITIGRADÆ.

Teeth, cutting, canine, and grinders: mammæ four to twelve, ventral: skin not extended: toes four or five, clawed: toes only, and not the soles of the feet applied to the ground: claws hooked: clavicles rarely perfect: grinders of three sorts, tubercular, true, and false.

Fam. 1. MUSTELLADÆ.—Teeth, upper true, grinders, with one tubercular, grinders behind; cutting six in each jaw, second of each side of the lower jaw going into the mouth: body long, slender: feet short: claws half retractile: iris of the eye contracting circularly: ears short.

Polecat, Putorius. Cuv. Mustella putorius. Lin.

Martin, Mustella. Lin. Mustella martes. Lin.

Mouffette, Mephritis. Cuv. Viverra mephritis. Lin.

Otter, Lutra. Stor. Mustella lutra. Lin.

Fam. 2. CANIDÆ.—Teeth upper and lower, last true grinder, with two tubercular, grinders behind; cutting four or six in each jaw, placed in the same line: tongue soft: feet, five toes before, four behind: claws not retractile: no pouch under the anus: cœcum minute.

1. Dog, Canis. Lin. Canis familiaris. Lin.

2. Fox, Vulpis. Canis vulpis. Lin.

3. Fenec, Fennecus. Desv. Canis cerdo. Lin.

Fam. 3. VIVERIDÆ.—Teeth, upper true grinders, with two tubercular grinders behind—the lower with one, cutting six in each jaw: tongue rough, with sharp prickles: toes, four or five to each foot: claws half retractile: anus, with a pouch or gland beneath: cœcum none.

Civet, Viverra. Cuv. Viverra civetta. Lin.

Genet, Genetta. Cuv. Viverra genetta. Lin.  
Mangoust, Herpestes. Illig. Viverra ichneumon. Lin.  
Surricata, Ryzæna. Illig. Viverra tetradactylus. Lin.

*Fam. 6. HYENÆDÆ.*—Teeth, lower, true grinders, with no tubercular grinders behind; upper, with one inside, in front; false grinders, three above, four below, conical, obtuse: tongue rough: toes four on each foot: claws not retractile: anus with a glandular pouch beneath.

Hyena. Stor, Canis hyena. Lin.

*Fam. 6. FELIDÆ.*—Teeth, upper true grinder, with one small tubercular grinder behind: lower with none: true grinder, upper three lobed, lower two lobed: false grinders, two in each jaw: tongue rough: toes, five before, four behind: claws entirely retractile: head short, round.

Cat, Felis. T. catus. Lin.

Lynx, Lynceus. Felis. Lynx. Lin.

#### Ord. 4. AMPHIBIÆ.

Teeth, cutting, canine, and grinders: mammæ, four to twelve ventral: feet very short, finlike, enveloped in the skin, scarcely serving to walk, clawed: body behind acute long: spine very moveable: cœcum small: penis with a bone. Living in the sea, or on land.

*Fam. 1. PROCADÆ.*—Teeth, cutting, six above, four below, equal, canine pointed, strong; grinders, twenty, twenty-two, or twenty-four, all cut or conical: toes, five to all the feet.

Seal, Phoca. Lin. P. Vitulina. Lin.

Sea lion, Otcarus. Peron. Phoca jubata. Gmel.

*Fam. 2. TRICHECIDÆ.*—Teeth, cutting, two small above, none below; canine, two very long, recurved above, none below: grinders, cylindrical, short, obliquely terminated: grinders eight or ten above, eight below.

Sea cow, mourse, Trichecus. Lin. T. rosmarus. Lin.

#### Ord. 5. ROSORÆ.

Teeth, no canine, cutting, two large in each jaw, separated from the grinders by a wide space: grinders mostly tubercular: mammæ ventral: feet, four or five toed: toes clawed: claws not retractile: brain smooth, without circumvolutions: intestines long: cœcum large.

*Fam. 1. CASTORIDÆ.*—Clavicles perfect: tail flat, horizontal, oval, scaly: toes, five to each foot: ears short: eyes large; teeth, cutting, truncated: grinders, eight above and below, flat, transversely grooved: anus, with two glands beneath.

Beaver, Castor. Lin. C. Fiber. Lin.

*Fam. 2. ARVICOLIDÆ.*—Clavicles perfect: teeth, cutting, upper truncated, lower pointed conical; grinders prismatic, with a flat top, entirely composed of vertical lamina, soldered by a vertical substance.

Ondatra, Fiber. Cuv. Castor zibethicus. Lin.

Campagnols, Arvicola. Lacep. Mus amphibius. Lin.

Lemmings, Georyclus. Illig. Mus lemmus. Lin.

*Fam. 2. MYOSINÆ.*—Clavicles perfect: teeth, cutting, upper truncated, lower pointed conical: grinders, base divided into roots: crown flat, with transverse grooves and ridges, brittle.

Spiny rat, Echimys. Geoff. Histrix chrysuroides. Schreb.

Dormouse, Myoxus. Gmel. Mus glis. Lin. Cœcum, none.

*Fam. 4. DIPSIDÆ.*—Clavicles perfect: teeth, cutting, upper truncated, lower pointed conical: grinders tubercular: body long and slender: hind legs much larger than the fore: tail long and hairy: eyes large.

Gerboa, Dipus. Gmel. Mus sagittata. Lin.

Gerbelle, Gerbellus. Desus. Mus longipes. Lin.

*Fam. 5. MURIDÆ.*—Clavicles perfect: teeth, cutting, upper truncated, lower pointed conical: grinders tubercular: body short: limbs nearly equal: tail scaly, or hairy: eyes mostly small.

Race 1. Cheek pouches, none.

Hydromys. Geoff. H. Leucogaster. Geoff.

Rat, Rattus. Mus rattus. Lin.

Mouse, Mus. Cuv. Mus musculus. Lin.

Race 2. Cheek pouches distinct.

Hamster, Cricetus. Cuv. Mus cricetus. Lin.

*Fam. 6. SPALACIDÆ.*—Clavicles perfect: teeth cutting: very large, not covered by the lips: lower, truncated, bevelled: toes, five on each foot short; claws five, flat: tail and external ear, very short, or none: eyes very small. Subterraneous.

Mole rat, Zemmi, Spalax. Geoff. Mus typlus. Lin.

Splex, Oryctere. Cuv. Mus maritimus. Lin.

*Fam. 7. HALAMYDÆ.*—Clavicles perfect: teeth, cutting, lower truncated: grinders composed of two vertical lamina, united together: head large: eyes large: tail long: body very large behind, small in front: feet, five toes before, nails very long, pointed; four behind, nails large hoof-like.

Halam, or leaping Hare, Pedestes Illig. M. Cafer. Gmel.

*Fam. 8. ARCTOMYDÆ.*—Clavicles perfect: teeth, cutting pointed; grinders five on each side above, four below, acutely tubercular: legs short: tail short: head large, flat: ears very small: legs nearly equal.

Marmotte, *Arctomys*. Gmel. *Mus alpinus*. Lin.

*Fam. 9. SCIURIDÆ.*—Clavicles perfect: teeth cutting, very much compressed, truncated: grinders tubercular: tail long, hairs two-rowed: toes four before, and five behind: head large: eyes large.

Squirrel, *Sciurus*. Lin. *S. vulgaris*. Lin.

Geulue. Ges. *Sciurus cinereus*. Lin.

Suisse, Tamais. Illig. *Sciurus striatus*. Lin.

Guerlinguet, *Guerlinguetus sciurus guerlinguetus*. Lin.

Palatouche. *Pteromys*. Cuv. *Sciurus volans*. Lin.

*Fam. 10. HISTRICIDÆ.*—Clavicles none: body spinous: teeth, cutting large truncated: grinders four cylindrical, crown flat, four or five dotted: tongue rough, spiny: toes four before, five behind: ears short: cœcum large.

Porcupine, *Histrix*. Lin. *H. crustata*. Tin.

Coendore, *Coendore*. Lacep. *Histrix prehensilis*. Lin.

*Fam. 11. LEPORIDÆ.*—Clavicles none: body hairy: teeth cutting, upper double: grinders ten in each jaw, formed of a two-vertical plate, soldered together, and one simple in the upper jaw: legs, hinder rather longest: claws five before, and four behind: cœcum very large: mouth inside, and bottom of the feet covered with hair.

Hare, *Lepus*. Lin. *L. timidus*. Lin.

Jagomys. Cuv. *Lepus pusillus*. Lin.

*Fam. 12. CAVIADÆ.*—Clavicles none: teeth cutting, large, subcylindrical, truncated, simple: grinders four in each jaw, transversely composed of one or more parallel vertical plates: legs hinder rather longest: toes four before, three behind: claws very large: ears round: tail none.

Cavia, *Hydrochoerus*. Cuv. *Cavia capibara*. Lin.

Guinea pig, *Cavia*. Illig. *Cavia cobarga*. Lin.

*Fam. 13. AGOUTIDÆ.*—Clavicles none: teeth cutting, large, subcylindrical, truncated, simple: grinders four in each jaw: crown flat, irregularly furrowed: legs hinder rather longest: toes four or five before, three or five behind: ears round: tail short.

Agouti, *Agoutis*. Cuv. *Cavia aguti*. Lin.

Paca, *Calogenus*. F. Cuv. *Cavia paca*. Lin.

#### Ord. 6. TARDIGRADÆ.

Teeth canine, and grinders only: cutting none: tail short: mammae two pectoral: toes very longly clawed.

*Fam. 1. BRADYPIDÆ.*—Face short: teeth, grinders cylindrical: canine acute, long: toes united in the skin: claws very long, compressed: body tailless, hairy: stomach four lobed, not leafy: cœcum none: intestines short.

Sloth, *Bradypus*. Lin. *B. tridactylus*. Lin.

Unau, Unans. Gray. *Bradypus didactylus*. Lin.

#### Ord. 7. OLIGODONTÆ.

Teeth, grinders only: no canine nor cutting: mammae ventral: toes clawed: os pubis united.

*Fam. 1. MEGATHERIADÆ.*—Face short: nose with a short trunk: teeth, grinders, cylindrical: claws compressed: body hairy.

Megatherium. Cuv. Oas. fossiles.

*Fam. 2. DASIPIDÆ.*—Face long, conical: teeth, grinders cylindrical, separate from one another, seven or eight in each jaw, inside without enamel: tongue smooth, slightly extensible: body covered with shelly, scaly armour: ear and tail long: cœcum none.

Armadillo, *Dasipus*. D. *tridactylus*. Lin.

*Fam. 3. ORYCTEROPIDÆ.*—Face long, conical: teeth, grinder cylindrical, solid, transverse, with a number of small longitudinal canals: tongue slightly extensible: body hairy: claws, fore flat, hinder long.

Ground-hog, *Orycteropus*. Geoff. *Myrmecophaga capensis*. Pall.

#### Ord. 8. EDENTULÆ.

Teeth, neither cutting, canine, nor grinders: face long: mouth small: tongue extensible: claw very strong: os pubis separate.

*Fam. MANIDÆ.*—Mouth very small: tongue very long, fili-form: body hairy or scaly: claw recurved, acute: tail long: ears short: cœcum none: stomach simple.

Tamanoir, *Myrmecophaga*. Lin. *M. jubata*. Lin.

Tamandua. *Myrmecophaga tamandua*. Cuv.

Ant-eater, Cyclopes, G. *Myrmecophaga didactyla*. Lin.

Pargolen, Manis. *Manis pentadactyla*. Lin.

*Subclass 2. UNOVLATA.*—Toes hoofed: clavicles imperfect.

#### Ord. 9. PROBOSCIDIÆ.

Toes five to each foot, inbedded in the skin: hoofs, five adhering to the last phalange: stomach simple: cœcum large: mammae two, pectoral: teeth, no true canines or cutting: but two large cylindrical tusks on the upper jaw: nose prolonged into a flexible trunk, ending in a finger-like process: skin very thick, nearly naked.

*Fam. 1. ELEPHANTIDÆ.*—Teeth, two grinders in each jaw, composed of transverse vertical lamina, enveloped in enamel, and soldered together by a cortical substance.

Elephant, *Elephas*. Lin. *E. Indicus*. Cuv.

*Fam. 2. MASTODONADÆ.*—Teeth, grinders two in each jaw, rough, tubercular: tubercles, conical, acute.

Mammouth, Mastodon. Cuv. *M. giganteum*. Cuv.

*Ord. 10. TESSERACHENÆ.*

Toes four or two to each foot, in pairs: stomach complicate, not ruminating: mammae between the thighs: teeth, cutting, canine, and grinders: skin thick and bristly.

*Fam. 1. HIPPOPOTAMIDÆ.*—Toes four on each foot, nearly equal: hoofs small: head large, roundish: lips very large: teeth canine, two in each jaw, upper straight, lower very large, recurved.

Hippopotamus. Lin. *H. amphibius*. Lin.

*Fam. 2. SUIDÆ.*—Toes four to each foot, two middle large, two outer shorter: hoofs strong: nose conical, moveable, truncated, ending in a bone: canine teeth, two in each jaw.

Pig, hog, *Sus*. Lin. *Sus scrofa*. Lin.

Phacochæres. F. Cuv. *Sus Africanus*. Lin.

Pecary, Dicotyles. Cuv. *D. Sus Tagassus*. Lin.

Babiroussa, Babiroussus. *Sus Babiroussa*. Lin.

*Fam. 3. ANOPLOTHERIADÆ.*—Toes, two long: teeth in each jaw, six cutting, four canine, incurved, and twenty-eight grinders, forming a continued line, without any empty space.

Anoplotherium. Cuv. *Oss. fossiles*.

*Ord. 11. TRICHENÆ.*

Toes, three to the hinder; three, rarely four to the fore feet, not forked: teeth, cutting, and grinders, sometimes canine: stomach simple, or two-lobed.

*Fam. 1. RHYNOCEROTIDÆ.*—Nose short, rounded, bones very thick, bearing a horn formed of agglutinated hair: toes three to each foot: stomach simple; intestines and cæcum large.

Rhinoceros. Lin. *R. unicornis*. Lin.

Diceros. G. *Rhinoceros bicornis*. Lin.

*Fam. 2. HYRACIDÆ.*—Nose and ears short: toes four in front, three behind: hoofs small, round, except the inner-hinder toes, which have an arched claw: teeth cutting, two above, four below: canine, two below, and two above, when young: stomach two-lobed: cæcum large.

Hyrax. Lin. *H. Capersis*. Lin.

*Fam. 3. TAPERIDÆ.*—Nose ending in a short trunk: toes three behind, three or four in front: teeth canine two, and cutting six in each jaw.

Palæotherium. Cuv. *Oss. fossiles*.

Tapir. *Tapirus*. Cuv. *T. Americanus*. Cuv.

Hydrochærus. H. *Sumatrensis*.

*Ord. 12. MONOCHENÆ.*

Toes, one to each foot, large, with a small short spur on each side: mammae two, inguinal.

*Fam. 1. EQUIDÆ.*—Teeth six, cutting, and six grinders in each jaw.

Horse, *Equus*. Lin. *E. Caballus*. Lin.

*Ord. 12. HYDROPHORÆ.*

Toes, two to each foot: stomach four-lobed, ruminating: paunch carries water in its cells: teeth, cutting, canine, and grinders in each jaw: horns none: mammae inguinal.

*Fam. CAMELIDÆ.*

Camel, *Camelus*. Lin. *Camelus Bactrianus*. Lin.

Lama. Cuv. *Camelus Lama*. Lin.

*Ord. 13. RUMINANTES.*

Toes, two to each foot: stomach four-lobed ruminating: paunch not carrying water: teeth cutting, none in upper jaw: horns mostly in the males: mammae inguinal.

*Fam. 1. MOSCHIDÆ.* Frontal bones not produced: canine teeth, two long in the upper jaw.

Musk deer, *Moschus*. Lin. *Moschus moschiferus*. Lin.

Guinea deer, *Memina*. G. *Moschus pygmeus*.

*Fam. 2. CERVIDÆ.*—Frontal bones in the males lengthened into two solid deciduous processes, covered with a deciduous skin: canine teeth none.

Elk, Alces. *Cervus Alces*. Lin.

Deer, *Cervus Elephas*. Lin.

Roe-buck, *Capreolus*. *Cervus Capreolus*. Lin.

*Fam. 4. GIRAFFIDÆ.*—Frontal bone in both sexes lengthened into two solid, conical, permanent processes, covered with a permanent, hairy skin.

Girafe, *Camelopardalis*. Lin. *C. giraffa*. Lin.

*Fam. 4. ANTILOPIDÆ.*—Frontal bones in both sexes lengthened into two solid, bony processes, without pores, or sinuses, covered with a horny substance, formed of agglutinated hairs.

Gazelle, Dorcas. *Antilope Dorcas*. Lin.

Cuama, Cuama. *Antilope Cuama*. Cuv.

Onyx, Onyx. *Antilope Onyx*. Lin.

Tseiran. *Antilope leucophæa*. Gmel.

Canna, *Antilope orcas*. Pallas.

Nylgau, *Antilope picta*.

Gnou, *Catablepas*. Pliny. *Antilope gnu*. Gmel.

*Fam. 5. CAPRIDÆ.*—Frontal bones in both sexes lengthened into two simple, cellular, bony processes, covered with a horny substance, formed of agglutinated hairs: cells communicating with the frontal sinuses, processes, compressed ringed, near together at the base.

Goat, Capra. Capra Ægagrus. Lin.

Sheep, Ovis. Ovis Ammon. Lin.

Fam. 6. BOVIDÆ.—Frontal bones in both sexes lengthened into two simple, cellular, bony processes, covered with a horny substance, formed of agglutinated hairs: cells communicating with the frontal sinuses, processes round, on the side.

Ox, Bos. Bos Taurus. Lin.

#### Class 5. PEDIMANES.

Thumbs separate on the hinder extremities, and not on the front: mamma inguinal, covered with a pouch or fold of the skin, supported by two bones attached to the pubis: foetus without members when first produced: scrotum of the male before the penis.

##### Ord. 1. PERÆ.

Teeth, cutting many, canine two in each jaw: penis of the male, and clitoris and vagina of the females two-forked: clavicles perfect.

Fam. 1. DIDELPHIDÆ.—Teeth, cutting eight or ten above, eight or six below small; canine two in each jaw; grinders rough, acutely tubercular: thumbs clawless.

Race 1. Tail prehensile: fingers distinct.

Opossum, Didelphis. Lin. D. marsupialis. Lin.

Marmose, Marmosa. Didelphis marina. Lin.

Cheironectes. Illig. Didelphis palmata. Gmel.

Race 2. Tail hairy, not prehensile: fingers distinct.

Dasyure, Dasyurus. Geoff. Didelphis viverina. Shaw.

Race 3. Tail hairy, not prehensile: fingers united.

Peramele, Perameles. Geoff. P. nasatus. Geoff.

Fam. 2. PHALANGISTADÆ.—Teeth, cutting six above, two long below; canine upper long, lower small: thumbs nailless: index and middle finger united.

—Balantia. Illig. Didelphis vulpina. Shaw.

—Petaurus. Illig. Didelphis pygmaea. Shaw.

—Phalanger, Phalangista. Illig. Didelphis Petaurus. Shaw.

—Cassiodor. Lacep. Didelphis orientalis. Lin.

##### Ord. 2. BRUTÆ.

Teeth cutting, six above, two below; canine none, or only in one jaw; grinders transversely furrowed: penis, vagina, and clitoris simple: clavicles short.

Fam. 1. POTORIDÆ.—Teeth upper cutting, two middle longest; canine upper long, lower none: thumbs tubercular: index and middle finger united: tail thick.

Potoroo, Potorus, Desv. Macropus minor. Shaw.

Fam. 2. MACROPIDÆ.—Teeth, upper cutting, equal;

canine none: thumbs tubercular: index and middle finger united: tail thick: hind extremities very long.

Kangaroo, Macropus. Shaw. M. major. Shaw.

Fam. 3. KOLADÆ.—Teeth upper cutting, two middle longest; canine, lower small, upper none: tail none: legs short: toes five, distinct.

Kola. Cuv.

##### Ord. 3. GLIRES.

Teeth cutting, two long in each jaw, round, strong; canine none: ventral fold distinct.

Fam. PHASCOLOMIDÆ.—Teeth cutting, two long in each jaw; no small ones; canine none: tail short: legs short: feet, soles applied to the ground: toes five, distinct: thumbs nailless.

Wombat, Phascalomys. Geoff. Didelphis ursina. Shaw.

##### Ord. 4. ROSORES.

Teeth cutting, two in each jaw, compressed; canine none: mamma two, inguinal, naked: clavicles perfect.

Fam. 1. CHEIROMYDÆ.—Toes, five to each foot: fingers very long, middle longest: thumb nailed, nail flat: ears long, naked: tail very long, tufted.

Aye-Aye, cheiromys. Cuv. C. Madagascariensis. Geoff.

#### Class VI. CETACÆ.

Body horizontal, fish-shaped, bald, behind acute: extremities, fore, fin-shaped, enveloped in a thick skin; hinder united, forming a horizontal fin-like tail: clavicles none: pelvis very indistinct: skin bald, glutinous: mamma two, pectoral, or sub-anal: penis with a bone: ears none external.

##### Ord. 1. HERBIVORÆ.

Teeth, grinders, crown flat, cutting none: mamma two, pectoral: mouth, with whiskers.

Fam. 1. MANATIDÆ.—Teeth, grinders, eighteen in each jaw, transversely furrowed; canine none: stomach many-lobed.

Sea cow, Manatus. Cuv. Trichechus Manatus. Lin.

Fam. 2. DUGONGIDÆ.—Teeth, grinders, eight above, six below, concave; canine two, straight, short, above; none below.

Dugong, Dugongidus. Trichechus Dugong. Lin.

##### Ord. 2. CARNIVORÆ.

Teeth conical or none: mamma two, near the anus: stomach four or five-pouched: skin and lips bald, viscid, glutinous: spiracles on the head.

*Fam. 1. DELPHINIDÆ.*—Head long, proportionate to body: teeth conical in both jaws.

Dolphin, Delphinus. Cuv. Delphinus delphis. Lin.  
 Porpesse, Phocena. Cuv. Delphinus Phocena. Lin.  
 Beluga, Delphinaster. Lacep. Delphinus. Leucast.  
 Hyperdordons. Lacep. Delphinus edentus. S.

*Fam. 2. MONODONTIDÆ.*—Head small, slightly dis-  
 tant from the body: mouth toothless: upper jaw with two  
 projecting defences from the front—one sometimes wanting

Narwal, Monodon. Lin. M. monoceros. Lin.  
 Anarnak, Anarnacus. Monodon spurius. Bou.

*Fam. 3. PHYSETERIDÆ.*—Head very large, thick,  
 canted in front: spiracles one; jaws lower shortest,  
 obtuse conical teeth; upper with holes and small, flat,  
 zontal teeth.

Cachalot, Physeter. Lin. P. macrocephalus. Lin.  
 Catodon. Physeter Catodon. Lin.

*Fam. 4. BALANADÆ.*—Head long, flat on each side:  
 spiracles two: jaws nearly equal in length; lower broadest, to  
 less; upper with horny lamina.

Whale, Balæna. Lin. B. Mysticetus. Lin.  
 Finfish, Physalus. Gesner. Balæna Physalus. Lin.  
 Jupiter-fish, Boops. Balæna Boops. Lin.

---



---

## PART II.

---

### ANALYTICAL REVIEW.

---



---

#### I.

[The review of the College Transactions, intended for this month, was  
 obliged again to postpone.—Ed.]

*Anatomie und Bildungsgeschichte des Gehirns des Fetus  
 Menschen, nebst einer Vergleichenden Darstellung des  
 Baues in den Thieren.* Von FREDERIC TIEDEMANN,  
 (The Anatomy and History of the Formation of the Brain  
 the Human Fetus; with a Comparative Exposition of  
 Structure of this Organ in Animals. By FRED.  
 TIEDEMANN, Professor of Anatomy and Zoology in  
 University of Landshut, &c.) 4to. pp. 172.

No organ of the animal economy has been studied  
 with greater attention and perseverance than the brain. By