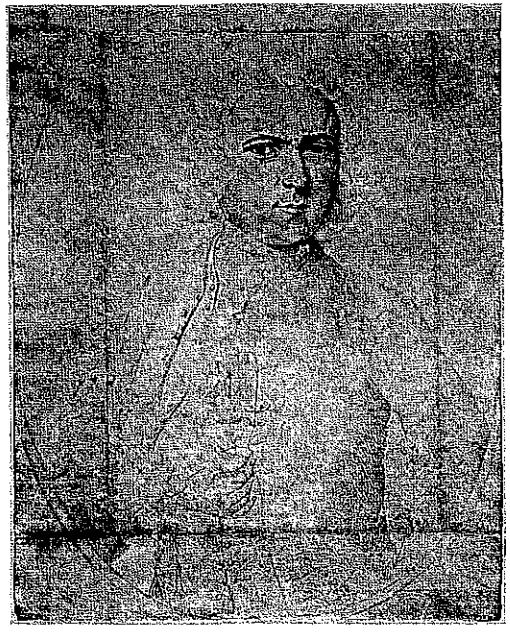

LINNAEUS

PENCILDRAWING BY AN UNKNOWN MASTER

(from T. Tullberg, Linnéporträtt. Stockholm, 1907. Plate III)

CAROLUS LINNAEUS

SYSTEMA NATURAE

1735

FACSIMILE

OF THE FIRST EDITION

With an introduction and a
first English translation of the "Observationes"

BY

DR M. S. J. ENGEL-LEDEBOER

AND

DR H. ENGEL

Professor of Zoology at the University of Amsterdam

NIEUWKOOP ◦ B. DE GRAAF

MCMLXIV

Introduction

CAROLUS LINNAEUS AND THE SYSTEMA NATURAE

WHEN LINNAEUS arrived in Holland in 1735 the Systema Naturae, as here again we present it to the public, was among the many unpublished manuscripts he had taken with him in his luggage.

His life has been told over and over again, by himself and by others[1]). From his biographies we learn how Linnaeus became interested in the secrets of nature, how he had a feeling that God Himself led him during his life, permitted him to have a look into His secret council chamber[2]). He considered the discovery of the procreation in plants his most important contribution to botany, as it revealed „the very footprints of the Creator"[3]). The system of nature was to him the workingplan underlying Creation. That is why he tried to trace a „Systema Naturae", in botany first, then also in zoology and in mineralogy. It was first announced by him in Hamburgische Berichte von neuen gelehrten Sachen auf das Jahr 1735, nr. 46, 10 Juni, p. 386[4]). It was the first MS to be printed (after the Doctor's Thesis) in Holland. Two friends in Leyde, Dr. J. F. Gronovius, the botanist, and „the learned Scotchman" Isaac Lawson, urged him to publish the MS for the profit of the learned world[5]). According to his Almanac for 1735[6]) the printing started on June 30. The MS was finished July 15 and the printing was ready December 13[7]). This long delay points to the difficulties in preparing the large and complicated tables[8]). This first folio edition of the Systema Naturae was sold at 2½ guilders by the bookseller Haak in Leyde, but[9]) Gronovius also received a stock and helped in selling the book.

It is this first edition of the „Systema Naturae" which we publish here, as it has been republished several times[10]).

We had the present facsimile printed after the first edition in the possession of the Amsterdam Zoological Library, known as the „Artis-Bibliotheek", formerly in the possession of the Amsterdam Zoological Gardens „Natura Artis Magistra", now belonging to the University of Amsterdam.

Two leaflets are often bound with this first edition. The specimen of the Amster-

dam Zoological Library lacks the first, the „Methodus juxta quam . . .", but it does contain the second edition of the second leaflet „Classes s. Literae".

The first leaflet: „Caroli Linnaei, Sueci, Methodus juxta quam Physiologus accurate et feliciter concinnare potest Historiam cujuscunque Naturalis Subjecti, sequentibus hisce Paragraphis comprehensa", Lugduni Batavorum, apud Angelum Sylvium, 1736[11]), was mentioned by Linnaeus in his „Libellus amicorum"[12]). It contains the complete method proposed by Linnaeus for describing natural objects[13]).

The second leaflet „Caroli Linnaei Classes s. Literae" contains illustrations of his botanical „sexual" system[14]). There are two editions. It was drawn and first edited in Leyden, 1736, by G. D. Ehret[15]), the painter who also made most of the drawings for Linnaeus' Hortus Cliffortianus[16]). The original drawing is preserved in the British Museum (Nat. History) London[17]). Of the first printed edition by Ehret, 1736, of this drawing, the unique specimen is in the Carolina rediviva at Uppsala[18]).

The second edition of this leaflet is undated and it only contains the figures 1–24 and the words „Caroli Linnaei Classes s. Literae". As Linnaeus, in the „Libellus amicorum", refers the leaflet to Gronovius, it must be supposed that Gronovius as editor of the Systema Naturae considered the drawing of Ehret as belonging to it. The authorship was Linnaeus' and not Ehret's. That is probably why Gronovius had this *second* edition printed and put it into the specimens of the first edition of the Systema Naturae which he presented or sold after 1737[19]).

A MS „Nuptiae plantarum, in quibus systema vegetabilium universale a staminibus et pistillis sive sexu, desumtum, secundum Classes, Sectiones et nomina generica brevissime proponitur", Stockholmiae, 1733, 8°, one sheet, is mentioned by D. H. Stöver, 1792, Leben des Ritters Carl von Linné, II, p. 318. This may be a precursor of the „Methodus" leaflet. Stöver received it from his teacher Professor J. J. Lange in Halle, who had been a correspondent of Linnaeus[20]).

What is the scientific value of the three tables as we have them here? The systems then in use lacked the consistency and practical applicability which characterize these tables. Linnaeus himself, as usual, has given the most concise answer to this question in Hamburgische Berichte, 1735, nr. 75, 20 Sept., p. 618–619. He announces:

> The system of the mineral kingdom rests on „principia docimastica", „genera concretorum" and „petrificatorum", „the origin of the minerals is principally treated from one earth", the „terrae" are either „primordiales" (like „glarea" and „argilla") or „in tempore productae" (like „humus", „ochra" and „arena" i.e. sand), Linnaeus has added the generic characters to each, as it has never yet been done in the mineral kingdom, so that it is, therewith, easy to learn mineralogy in a few hours.
>
> The vegetable kingdom is classified according to a new method taken from the sex of plants, differing from the generally accepted system of Caesalpinus; he has abolished a lot of false genera, put many plants in their true genus and replaced inapt names by new ones. The virtues of plants[21]) can be investigated „from a double theory". He describes many new genera from the East and West Indies.
>
> The animal kingdom Linnaeus divides into six classes, to each he adds their generic and specific characters; before him nobody had clearly distinguished the Vermes from the Insects. The generation of worms in the intestine of men is not to be assigned to the „ovis insectorum".

In the Vita III[22]) Linnaeus says:

> „Systema Naturae was the first work given in print by Linnaeus, in which he tried to represent most works of the Creator in the regular sequence („chain"), built on so many observations as there were objects. One may describe some remarkable observations only, but if one observation fails the chain is incoherent".
>
> „In the Regnum Lapideum nobody before Linnaeus had constituted a regular method, nor distinguished genera from species, nor given the characters of genera, nobody had known that all rocks were varieties, but they were considered distinct species. Linnaeus has made up his system according to the art of assaying and the observations of the mining-engineers in the mines. For . . . rocks either melt in fire, or calcify, or are fire-proof (which Linnaeus first called Apyri). What more is to be found in minerals than salt, sulphur or metal?".
>
> Linnaeus opposes this alchemic principle to the division in metals and half metals.
>
> „The concreta and petrefacta have been drafted by Linnaeus in such a way, that not a single genus - not even hypothetically - could be added"
>
> „If we consider the Regnum vegetabile we find . . . a wholly new classification after stamens and pistils, the smallest parts in the flowers, which the botanists before him did not vouchsafe a look . . ., taken from his own observations, after he became convinced that these constituted the sex of plants and were the most essential parts . . .".
>
> „As to the Regnum animale, . . . Linnaeus was the first who took the characters for the Quadrupeds from the teeth . . . and those of the birds from their bills, both being essential parts for these animals. Nobody before Linnaeus had made distinct genera in Insects and nearly none in the other classes of animals, except Artedi for the Fishes".

In *Mineralogy*, according to Gistel, Car. Linn., 1873, p. 220 seq., Linnaeus made use of the work of J. J. Scheuchzer, Meteorologia et Oryctographia helvetica . . ., Zürich, 1718. Scheuchzer (p. 98) refers for his system to J. Woodward, Essay towards

a natural history of the earth and terrestrial bodies. London, 1695 (Latin by Scheuchzer, Specimen geographiae . . . Tiguri, 1704). The system of Linnaeus, however, differs fundamentally from that of Scheuchzer. Linnaeus tried to find a more logical system for the minerals too.

The *botanical system* then generally in use was that of J. P. Tournefort, as published in his beautifully illustrated and comprehensive „Institutiones rei herbariae", Paris, 1700 (3d edition, 1719). Tournefort used the flowers and fruits for his system, but also maintained the old divison into herbs, shrubs and trees. In his „Catalogus plantarum rariorum scaniae" of 1728[23]) Linnaeus follows this system of Tournefort, but in the second part of his MS, the „Catalogus plantarum rariorum smolandiae"[24]) he uses the system of Rivinus. In the „Spolia botanica sive plantae rariores per Smolandiam, Scaniam et Roslagiam observatae et enumeratae" of 1729, the three best known botanical authors of the time are followed, viz. Tournefort, Rivinus and Ray[25]). In his first „Hortus Uplandicus"[26]), undated, probably early summer 1730, Linnaeus again took the system of Tournefort. The second MS, however, of the „Hortus Uplandicus", dedicated to Rudbeck, Upsaliae, 1730[27]) is stated to be „secundum methodum Tournefortianum", but „cum rarioribus nonnullis observationibus intersparsis, nec non divisione Umbellatarum"[28]). In the same year a copy (with a dedication to Rudbeck of 29th July 1730)[29]) was sent to Professor J. J. Lange in Halle[20]). The text is not the same as that of the preceding, the title is shorter and „methodo propria in classis distributa" is added. Here we have the first MS with Linnaeus' own system. All these MSS were obviously used by him when demonstrating the plants in the Upsala Botanical Garden to his students[30]). This system is the same in the following two copies of the Hortus uplandicus of 1731[31]). Both show the addition to the title „secundum methodum propriam et novam a sexu desumtam facta, quae plantae in certas classes et sectiones distributae, nominibus specificis novis et realibus insigniuntur"[32]). When announcing them in the Hamburgische Berichte[33]) Linnaeus says „Secutus sum methodum propriam et artificialem, a staminibus et pistillis, quod sexum vocant desumtum". The MS sheet „Nuptiae plantarum" of 1733[34]) mentioned above, probably was a summary of the new system. Fries mentions how the members of the Academy reacted when Professor Rudbeck presented the „Adonis uplandicus" to them[35]).

We know[36]) how the interest of Linnaeus in the sexual or nuptial system came about. An extract and discussion[37]) of a „Discours sur la structure des fleurs, leurs différences et l'usage de leurs parties" or „Sermo de structura et differentia florum usuque partium eos constituentium" (Leide, 1718) given by Sebastien Vaillant, demonstrator in the Jardin Royal at Paris, when opening his course of lessons on 10th June 1717, had been read and studied by Linnaeus.

Vaillant criticized Tournefort and pointed to the essential importance of the

flowers as sexual organs for the taxonomy of plants. The petals and calyx are less important as they only serve as a cover and protection to the sexual organs, the male stamens and the female pistils (or tubae, as he prefers to call them). A volatile spirit from the pollen grains penetrates through the „tubae" and reaches the „eggs" in the „ovary". Double flowers show a proliferation of the petals, to the detriment of the sexual organs, a typical degeneration[38]).

Linnaeus wrote down his own views on the sex of plants in „Praeludia sponsaliorum plantarum", which he dedicated to Olav Celsius. Linnaeus quotes it also as „Exercitatio de sexu et nuptiis plantarum"[39]). In his lively style Linnaeus poetically describes the celebration of love and nuptials in plants, in the bridal bed provided by the petals. „Flos est plantarum gaudium". There is a wide variety in the sexual behaviour of plants. The nuptials are „publicae seu conscie" (stamens and pistils nude and visible) or „privatae seu absconditae" (covered and hidden in a membrane). The latter are „Cryptogamia", the former either „Monoclinia" (hermaphrodites, with stamens and pistils in one flower) or „Diclinia" (with stamens and pistils in separate flowers). In „cognate" Monoclinia the stamens are coherent and coalesce, either in one body, „Monodelphia", or in two, „Didelphia"; the anthers cohere in the „Syngenesia", the stamens and anthers join and are mixed with the pistils in the „Gynandria". In the „non-cognati" the stamens may be equal (indifferent) or unequal (subordinate). In the former Linnaeus distinguishes, according to the number of stamens: Monandria, Diandria, etc.; among the latter, the „Didynamia" have two longer stamens, the „Tetradynamia" four and the „Polydynamia" more. In the Diclinia there may be a „pure marriage" with separate flowers for stamens and pistils (either on the same plant „Monoecia" or on separate plants „Dioecia") or there may be „adultery", i.e. some flowers have stamens only, others pistils, some have both. These adulterers he calls „Mechea" or „Moechea" or „Polygamia". The system, as it is reproduced here, shows how these 24 classes may be subdivided.

It is clear, that thus for Linnaeus reproduction contained the „secret working-plan of the Creator". His system is an expression of the „nuptial" relations in the living plants, not of their structure only. From 1729 to 1735, however, the system becomes more morphological. Such terms as „conjugium purum" or „impurum seu illicitum", „adulterium", „scorta" are no longer used, „Moechea" are called „Polygamia".

Though, as quoted above, Linnaeus is conscious of the fact that his new system is not altogether „natural" but partly „artificial", he is convinced that it is a great improvement upon the old ones.

Fries, 1899, in the Uppsala Univ. Årsskr. Program deals extensively with the many botanical implications of Linnaeus' system[40]).

The first hint of another improvement Linnaeus introduced into botany, binominal nomenclature, appears in the „Fundamenta botanica" published 1736 in Amsterdam[41]).

Tournefort had emphasized the importance of genera, which were united into sections and classes. Linnaeus uses a similar classification. Many of his genera are marked T (i.e. Tournefort). Many other authors are quoted, their names appear in the left hand column of the „Regnum vegetabile". The new names, constituted by Linnaeus himself, he marks with †.

The *Zoological System* of Linnaeus has been praised by Gistel, 1873, l.c., p. 246 seq., who, however, points to the fact (p. 253) that Linnaeus in 1735 was not yet acquainted with the work of Swammerdam, Lyonet, Willis and Leeuwenhoek. Of course it is easy for us now to point out where Linnaeus was wrong or made omissions, but all zoologists agree that his system was an important innovation, comprising the whole animal kingdom.

A very extensive and useful evaluation of the zoological system is given by Nils von Hofsten in Sv. L. S. Å., 18, 1935, p. 1–15, ibidem 42, 1959, p. 9–49.

We know a.o. from the „Fundamenta botanica", MS, 1730 (edited by Ährling, 1888, Ungdomsskr. I, p. 94) that Peter Artedi, Linnaeus' best friend, took for his part the system of the fishes and that of the Umbelliferae (Arctaedianae as Linnaeus says)[28]). In this Fundamenta botanica MS Linnaeus announces his „Nova Methodus Avium", containing some two hundred Swedish birds arranged after their geneta and species, as also a report on all the insects he has found in Sweden. In the Introduction to the „Adonis Uplandicus" of 1731[42]) he again announces the Ornithologiam Suecanam cum nova methodo, the Methodum novam naturalem Quadrupedum[43]) and the Insecta Uplandica methodice digesta[44]). In a letter to Boerhaave, 16th July 1735[45]), Linnaeus praises the Mém. p. servir à l'hist. nat. d. Ins. I, Paris, 1734, of Réaumur, but it seems improbable that he can have made use of it for his MS of the Systema Naturae, which was ready by that time and does not mention Réaumur among the authors.

[1]) *Autobiographies:*

- A. Afzelius, Egenhändiga Anteckningar af Carl Linnaeus om sig sjelf. Upsala-Stockholm, 1823. (German translation by K. Lappe, Berlin, 1826).
- E. Ährling, Vita Caroli Linnaei, in: Carl von Linnés Ungdomsskrifter, I, Stockholm, 1888 (see also II, p. 369 e.a.).
- F. Bryk, Linnaeus im Auslande, Stockholm, 1919.
- O. Zekert, Des Arztes und Naturforschers Carolus Linnaeus eigene Lebensbeschreibung, Heilmittelwerke Wien, 1955.
- E. Malmeström and A. Hj. Uggla, Vita Caroli Linnaei, Uppsala-Stockholm, 1957 (which contains the complete series of autobiographies).

Biographies:

- R. Pulteny, A general View of the Writings of Linnaeus. London, 1781 (2nd edition by W. G. Maton, London, 1805).
- D. H. Stöver, Leben des Ritters Carl von Linné. 2 vols. Hamburg, 1792 (English 1794).
- A. L. A. Fée, Vie de Linné. Paris, 1832.
- J. F. X. Gistel, Carolus Linnaeus, ein Lebensbild. Frankfurt a. Main., 1873.
- Th. M. Fries, Linné, lefnadsteckning. 2 vols. Stockholm, 1903 (this is the most complete biography).

- B. Daydon Jackson, Linnaeus. London, 1923 (the book of Fries „adapted into English", not a complete translation, without the important footnotes and less profusely illustrated; it contains an extensive bibliography).
- The article on „Linné och Linnéanerna" by Arvid Hj. Uggla in Ny Illustrerad Svensk Litteraturhistoria, p. 200–248 is important, as is the Bibliographi, ibidem p. 602–605, as also the biography: „Linnaeus" by Uggla edited in Uppsala, 1957, in different languages and distributed by the Swedish Ambassies at the occasion of the Linné celebrations in different countries.

Letters:

- H. C. van Hall, Epistolae ineditae Caroli Linnaei. Groningen, 1830.
- Bref och Skrifvelser af och till Carl von Linné, edited by the Upsala University and the Svenska Linné-Sällskap (see expecially: Andre Afd., I, 1961, p. 313–315, nr. 204, 205, 206; II, 1943, p. 203 seq, nr. 291 seq.).

Other papers of fundamental value:

Many data are found in the Svenska Linné-Sällskap Årsskrift (quoted here as Sv. L. S. Å.) and in: F. Bryk, Linnaeus im Auslande. Stockholm, 1919.

- A. J. Boerman, Carolus Linnaeus als middelaar tussen Nederland en Zweden (C. L. and the relations between the Netherlands and Sweden, with a summary in English). Thesis, Utrecht, 1953.

It is impossible to give a complete bibliography: the first and a very important one is the: Bibliographia Linnaeana by J. M. Hulth, Upsala, 1907.

[2]) Vita III, in: Malmeström and Uggla, 1957, p. 145–146; Afzelius, 1823, p. 88, 90; 1826, p. 91, 92.

[3]) Ibidem, p. 150, resp. 78 and 82: „Prolepsin plantarum såg han först, det sälsameste decouvert i naturen, som penetrarer sielfura Skaparens fotspor".

[4]) Stöver, 1792, II, p. 254 and Bryk, 1919, p. 102.

[5]) Bryk, 1919, p. 17 seq., Von Hofsten, 1935, Sv. L. S. Å., 18, p. 2; Nordström, 1954–5, ibid. 37–38, p. 7–22; Fries, 1919, ibid. 2, p. 141–155; Bref och Skrifvelser 1ste Afd. V, to Olof Celsius p. 258: „Dr. Gronovius works day and night, year in and year out on the corrections of my work". For the contribution of Gronovius to the Libellus Amicorum of Linnaeus, dated 20 July 1735, see Uggla and Fredbärj in Valda Avh. av C. v. L. nr. 30, 1958, p. 30 and Bryk l.c. p. 288–9.

[6]) Uggla, 1935, Sv. L. S. Å., 18, p. 134–148; Bryk, 1919, p. 217–231.

[7]) In Hamburgische Berichte 1735, nr. 75, 20 Sept., p. 618–619 (see Stöver, l.c., p. 268; Bryk, l.c., p. 114–5) it is said (by Linnaeus himself, as we know) that the printing is half ready.

J. M. Hulth, Bibliographia Linnaeana, Uppsala, 1907 gives, Pl. 2, a facsimile of a letter to Sir Hans Sloane written by Joh. Fred. Gronovius and Isaac Lawson from Leyden, 19 December 1735, announcing the gift of Linnaeus' Systema Naturae. It is interesting to quote it here:

„Sir,

'Some months ago came to this city Dr. Carolus Linnaeus from Sweden, a person very well known by his knowledge in Natural History; for which reason he was sent by the Societas Regia Uppsaliensis to Lapland, where he hath discovered severall things not before known, which possibly ere long will be published. He was so kind to communicate to us his Systema Naturae, which we sent to the press at our own expense with an intention only to have a few copys; but at the request of several friends we were determined to communicate it fully (judging it might be agreable) to the Learned World. Wherefore we take the Liberty to present you a copy, and request you will also make the other acceptable to the Royal Society, of which you are deservedly president. We are

Sir

your most obediant and humble servants

Leyden, 19 December 1735 Joh. Fred. Gronovius
Isaac Lawson

(MS. Sloane 4054 f. 154, in British Museum).

[8]) cf. Sv. L. S. Å. 37–38, 1954–5, p. 15–16 and 176; from the letters of Gronovius it is inferred, that the printing had been finished on Dec. 9th, that Linnaeus arrived in Leyde on the 13th and then got the first specimen of his book.

[9]) Nordström, Sv. L. S. Å., 37–38, p. 15–16.

[10]) cf. Hulth, 1907, Bibl. Linn., p. 3–4.

In the Amsterdam Zoological Library we have a photo-lithographic copy without any indication of date of reproduction. I presume it to be a specimen of the 1872 épreuves of Mandel mentioned by Hulth. It contains the leaflet „Methodus juxta quam . . .", but Ehret's leaflet is not present.

To Hulth's enumeration of reprints and reproductions of the first edition of the Systema Naturae must be added the facsimile in reduced size (4") by Bokgillet, Götgatan 6, Uppsala (Nikétryck A. B., Stockholm, 1960) which contains the „Methodus juxta quam . . ." but lacks the „Classes s. Literae".

[11]) cf. Hulth, 1907, Bibl. Linn., p. 3. We copied it here from the facsimile edited 1907 in Stockholm.

[12]) Bryk, 1919, L. im Auslande, pp. 244, 246, 292 sub 6; Uggla and Fredbärj, 1958, Valda Avh. 30, p. 34 sub 6.

[13]) K. P. Schmidt, 1952, Journ. Soc. Bibl. Nat. Hist. 2, p. 369–374 gives an English translation.

[14]) cf. Libellus amicorum, ed. by Bryk, 1919, L. im Auslande, pp. 244, 245, 247–9, 294 sub 9 and by Uggla and Fredbärj, 1958, Valda Avh. 30, p. 34 sub 9.

[15]) cf. Uggla, in Sv. L. S. Å. 22, 1939, p. 108–113.

[16]) cf. C. Callmer and O. Gertz, Sv. L. S. Å. 36, 1953, p. 81.

[17]) cf. Hulth, 1907, Bibl. Linn., p. 23; Bryk, 1919, L. im Auslande, p. 248–9.

[18]) A reproduction was given by Bryk, 1954, in Taxon 3, p. 165 seq., fig. 2.

[19]) This second edition of „Classes s. Literae" has been attached to the first edition of the Systema Naturae in the Amsterdam Zoological Library, from which we took this facsimile. It apparently is also present in the specimen of the Swedish R. Acad. of Sc. from which the 1907 facsimile was taken; both, the „Methodus juxta quam . . ." and the „Classes s. Literae" are reproduced there, as well as the letter of Gronovius and Lawson to Hans Sloane. Neither the German translation by Lange (1740) nor the reprint by Fée, 1830, contain the leaflets.

According to Hulth, 1907, Bibl. Linn., p. 23 the leaflet „Classes s. Literae" is usually also found in Linnaeus' „Genera Plantarum" of 1737. We found it inserted in the 1742 edition of that work (Amsterdam Zoological Library).

[20]) Johann Joachim Lange (1698–1756), mineralogist, professor in Halle, 1740 published the first edition of the Systema Naturae with a German translation. D. H. Stöver (Leben d. R. C. v. L., 1792, II, p. 318) obtained two MSS as a bequest from his teacher Lange, which Lange had received from Linnaeus, viz. Hortus Upsalicus, 29th July 1730, and Nuptiae plantarum, 1733.

[21]) cf. Obs. 19 in Systema Nat., Regn. Veget.

[22]) cf. Afzelius, Egenh. Ant., 1823, p. 69, German edition, 1826, p. 72, Malmeström och Uggla, 1957, p. 135. Compare Vita IV, Malmeström och Uggla l.c., p. 166, 170, 172, and Vita V, ibidem p. 188–9, as also Afzelius, 1823, l.c., p. 205–214 and Pulteney, 1805, l.c., p. 555–562.

[23]) cf. Åhrling, 1888, C. v. L.'s Ungdomsskr. I, p. 27.

[24]) Ibidem, p. 41.

[25]) Ibidem, p. 53, 60, 67, 76.

[26]) Ibidem, p. 107. It is nr. 1, in: Th. M. Fries, Uppsala Universitets Årsskrift 1899, Program, p. 4.

[27]) cf. Åhrling, l.c., p. 151, this is nr. 2 in Fries, l.c., p. 4.

[28]) Artedi reserved to himself the study of the Umbellate plants, according to the Diary of Linnaeus (which got into the possession of Archbishop Menander, cf. p. X. seq. of the editor's preface of W. G. Maton to Richard Pulteney's „A general view of the writings of Linnaeus", London, 1805; the diary is translated p. 491 seq., the remark of Artedi's interest in the Umbellifera is found p. 519). Compare Afzelius, 1823, Egenh. Ant., p. IV, as also Vita III, ed. by Malmeström and Uggla, 1957, where, however, the remark on Artedi is missing. See also Fries, 1903, Linné I, p. 47 footnote 3; B. Lönnberg, 1905, Peter Artedi, a bicent. mem. for the Sw. R. Ac. of Sc., p. 11, footnote; Åhrling, 1888, Ungdomsskr. I, p. 94, where Linnaeus is quoted from the MS „Fundamenta Botanica" 1730, saying that he is indebted to Artedi for a division of the „Aretaedinae"; Åhrling rightly suggests that Linnaeus thus names the Umbelliferae in honour of his friend.

[29]) cf. Afzelius, 1823, l.c. p. 138, obviously the date 1731, as given there, is a mistake. Fries, Uppsala Univ. Årsskr. 1899, Program, published it following p. 38; he mentions it p. 3 as MS nr. 4.

[30]) Fries, 1899, l.c., p. 2.

[31]) cf. Åhrling, 1888, I, p. 205 and 271, this last one under the title „Adonis uplandicus"; they are nr. 4 and 5 of Fries, 1899, l.c., p. 5. The preface in both is dated Upsaliae 15th May 1731 g. st. (i.e. old style) but nr. 4 has Stockholmiae on the title page and nr. 5 is dedicated to the Royal Academy, it has an approbation by the Secretary Andreas Celsius of 20th June 1731. See also Bref och Skrifvelser I, 5, p. 314–5.

[32]) In nr. 5: „secundum methodum sexualem in ordinem redactae . . .".

[33]) Hamburgische Berichte 1732 nr. VI, p. 45 (cf. Stöver, 1792, l.c., II, p. 243–4 and Bryk, 1929, l.c., p. 83–4). Linnaeus announces them to appear in December 1731 in 10 sheets in 8°, this was wishful thinking.

[34]) Which Stöver got from Professor Lange of Halle cf. Stöver, 1792, l.c., II, p. 318.

[35]) Fries, Linné, 1903, I, p. 68 (Engl. ed. by Daydon Jackson, p. 52–53).

[36]) Fries, Linné, 1903, I, p. 59–62 (Engl. ed. of Daydon Jackson, p. 45–48).

[37]) In Acta Eruditorum (Lipsiae) 1719, p. 130.

[38]) Vaillant criticized Tournefort again in „Remarques sur la Méthode de M. Tournefort", in: Mém. de l'Acad. (Paris), 1722, p. 172–215. This paper was not known to Linnaeus. Vaillant points out the inconsistency of Tournefort's system as it forced him sometimes to put together into closely related species monopetalous and polypetalous flowers.

The sex in plants had been treated fundamentally as early as 1694 by R. J. Camerarius in his „Epistola de sexu plantarum" (reprint: Ostwald's Klassiker nr. 105). Linnaeus quotes him here R.veg. 8. It is in the „Sponsalia plantarum" written about 1744 or 1745 (cf. Fries, 1908, Skrifter af C. v. L. utg. K. Sv. Vet. Ak. p. 39) that he again mentions Camerarius' Epistola (shortly before the Disputation in Uppsala of J. G. Wahlbom on this subject, 11th June 1746, see Amoen. Acad. I, p. 61–109 and Fries, 1908, l.c., p. 49–107). See also Fries, l.c., p. 1–26.

[39]) Malmeström and Uggla, 1957, Vita, Pl. 4, p. 54 (under 1 Jan.), 98, 201 (sub 54), 233 (sub 4). See also Bref och Skrifv. I, 5, p. 248.

[40]) See also Gistel, 1873, p. 226, and many others.

[41]) cf. N. von Hofsten, 1959, Sv. L. S. Å. 42, p. 11–12). In the MS nr. 4 of Fries (Stockholm 1731) he already mentions this publication, which probably then was partly finished in MS.

[42]) cf. Åhrling, 1888, Ungdomsskr. I, p. 274.

[43]) Artedi also made a system of the Quadrupeds or a Trichozoologia (cf. O. Nybelin, in Sv. L. S. Å. 17, 1934, p. 35–90, the system is given p. 58–77). The MS certainly came into the possession of Linnaeus after the death of Artedi (Engel, Sv. L. S. Å. 23–24, 1950–[2]51, p. 58).

[44]) These works are also mentioned by Linnaeus in an undated letter to G. Cronhjelm, chancelor of the University of Lund (Bref och skrifv. I, 5, p. 315, 316) and in a letter of 1st October 1733 to Baron Gyllengrip (Afzelius, 1823, Egenh. Ant., p. 169–172), as also in Hamburgische Ber. 1732, nr. 22, p. 177 (Stöver, 1792, Leben d. Ritters C. v. L. II, p. 248 and Bryk, 1919, L. im Auslande, p. 89–90).

[45]) cf. Bref och Skrifv. II, 1, 1916, p. 313–4.

TRANSLATION OF THE TITLE PAGE AND THE „OBSERVATIONES" TO THE TABLES IN THE „SYSTEMA NATURAE"

I

Title page

CAROLUS LINNAEUS

Swede, Doctor of Medicine

The System of Nature, or the three Kingdoms of Nature, systematically proposed in classes, orders, genera and species

O Lord, how manifold are thy works! in wisdom hast thou made them all: the earth is full of thy riches.

Psalm 104 : 24

LEYDEN, AT THEODORUS HAAK'S, 1735

From the Printing office of Johan Willem Groot

II

OBSERVATIONS ON THE THREE KINGDOMS OF NATURE

1. If we observe Gods works, it becomes more than sufficiently evident to everybody, that each living being is propagated from an egg and that every egg produces an offspring closely resembling the parent. Hence no new species are produced nowadays.[1])

2. Individuals multiply by generation. Hence at present the number of individuals in each species is greater than it was at first.

3. If we count backwards this multiplication of individuals in each species, in the same way as we have multiplied forward (2), the series ends up in one single *parent*, whether that parent consists of *one single* hermaphrodite (as commonly in plants) or of a double, viz. a male and a female, (as in most animals).

4. As there are no new species (1); as like always gives birth to like (2); as one in each species was at the beginning of the progeny (3), it is necessary to attribute this progenitorial unity to some Omnipotent and Omniscient Being, namely *God*, whose work is called *Creation*. This is confirmed by the mechanism, the laws, principles, constitutions and sensations in every living individual.

5. Individuals thus procreated, lack in their prime and tender age absolutely all knowledge, and are forced to learn everything by means of their external senses. By *touch* they first of all learn the consistency of objects; by *taste* the fluid particles; by *smell* the volatile ones; by *hearing* the vibration of remote bodies; and finally by *sight* the shape of visible bodies, which last sense, more than any of the others, gives the animals greatest delight.

6. If we observe the universe, three objects are conspicuous: viz. α. the very remote *coelestial* bodies; β. the *elements* to be met anywhere; γ. the solid *natural bodies*.

7. On our earth, only two of the three mentioned above (6) are obvious; i.e. the *elements* constituting it; and the *natural* bodies constructed out of the elements, though in a way inexplicable except by creation and by the laws of procreation.

8. Natural objects (7) belong more to the field of the senses (5) than all the others (6) and are obvious to our senses anywhere. Thus I wonder why the Creator put man, who is thus provided with senses (5) and intellect, on the earth globe, where nothing met his senses but natural objects, constructed by means of such an admirable and amazing mechanism.
   Surely for no other reason than that the observer of the wonderful work might admire and praise its Maker.

[1]) See, however, H. Engel, The species concept of Linnaeus. Arch. int. d'hist. d. sc. 23–24, 1953, p. 249–259.

9. All that is useful to man originates from these natural objects; hence the industry of mining or metallurgy; plant-industry or agriculture and horticulture; animal husbandry, hunting and fishing.
   In one word, it is the foundation of every industry of building, commerce, food supply, medicine etc. By them people are kept in a healthy state, protected against illness and recover from disease, so that their selection is highly necessary. Hence (8, 9) the necessity of natural science is self-evident.

10. The first step in wisdom is to know the things themselves; this notion consists in having a true idea of the objects; objects are distinguished and known by classifying them methodically and giving them appropriate names. Therefore, classification and name-giving will be the foundation of our science.

11. Those of our scientists, who cannot class the variations in the right species, the species in the natural genera, the genera in families, and yet constitute themselves doctors of this science, deceive others and themselves. For all those who really laid the foundation to natural science, have had to keep this in mind.

12. He may call himself a naturalist (a natural historian), who well distinguishes the parts of natural bodies by sight (5) and describes and names all these rightly in agreement with the threefold division. Such a man is a lithologist, a phytologist or a zoologist.

13. Natural science is that classification and that name-giving (10) of the natural bodies judiciously instituted by such a naturalist (12).

14. Natural bodies are divided into *three kingdoms of nature*: viz. the mineral, vegetable and animal kingdoms.

15. *Minerals* grow; *Plants* grow and live; *Animals* grow, live and have feeling. Thus the limits between these kingdoms are constituted.

16. In this science of describing and picturing many have laboured for a whole life-time; how much, however, has already been observed and how much there remains to be done, the curious on-looker will easily find out for himself.

17. I have shown here a general survey of the system of natural bodies so that the curious reader with the help of this as it were geographical table knows where to direct his journey in these vast kingdoms, for to add more descriptions, space, time and opportunity lacked.

18. A new method mainly based on my own authentic observations has been used in every single part, for I have well learnt that very few people are lightly to be trusted, as far as observations go.

19. If the Interested Reader should draw any profit from this, he should acknowledge that very famous Dutch Botanist Doctor *Joh. Fred. Gronovius*, as well as Mr. *Isaac Lawson*, the very learned Scotchman; as they were the ones who caused me to communicate these very brief tables and observations to the learned world.

20. If I find that this proves to be welcome to the illustrious and interested Reader, he may expect more, more special and more detailed (publications) from me soon, above all in botany.

CAROLUS LINNAEUS
Doctor of Medicine

Given at Leyden, July 23, 1735.

III

OBSERVATIONS ON THE STONE (MINERAL) KINGDOM

1. As *primary* soils we only mention sand and clay, from which by the working of the Elements, we assume the whole Kingdom of minerals to have been produced. From them the remaining Stones originated in the time since Creation.

2. The origin of the *Simple* and *Aggregate* rocks takes place by external apposition of particles; and if these are impregnated with some mineral principle, maybe saline, solved in some fluid, they are called *Composite*. Hence there is no generation from an egg in the Mineral Kingdom. Hence no vascular circulation of the humours as in the remaining Natural Kingdoms.

3. It is beyond controversy that all *rocks*, with hardly any exception, derive from soils, e.g. *schists* from vegetable boggy soil, *whetstone* from sand, *marble* from clay.

4. Rock impregnated with some substance foreign to its simple components is called *mineral*. Rock or mineral, if pulverized, is called *soil*, but not vice versa. Mixed soil, if concreting is called *concretion*. *Petrefactions* often originate from clay converted into lime, with, however, a few exceptions.

5. *Rocks*, the very ordinary stones, the basic material of most rocks and mountains, have not been created in the beginning, as their constituent parts teach us, nor have they originated in the Deluge, as we see from those rockstones that are formed daily. For if their constitutive particles are well examined, they clearly show the properties of the sand one meets in adjacent or underlying places.

6. The origin of „*Quartzum*" has been the subject of most doubt among mineralogists. It is therefore that the prominent mineralogist, the most excellent HENCKEL asked: „*O, Silex! Silex! who has made thee?*". Examination tells us, that every Quartzum is a parasitic stone; as it is produced in cavities of other stones and grows out from there. From water retained in fissures of rocks, impregnated with exhalations from the rocks, perhaps sometimes aided by air also, it starts to grow out of the surface of the rock and keeps on increasing. Thus we think it originates. As we often observe vegetable inclusions, the first origin must have been in fluid water.

7. Our „*Nitrum Quartzi*" or crystal by all its properties tells us to be quartzum except for its hardness and shape; it obtains a typical *shape*, characteristically that of nitre. It should therefore without any doubt be ascribed to a mixture of nitre and the primordial water of the rock; it also probably seems to have obtained its *hardness* from that salt.

8. And so *gems*, precious and transparent, differ from „Nitrum Quartzi" not as true species but as varieties, as they differ distinctly by the colour only.
Hence he may be called vain who values them too much and he stupid who administers them in medicine.

9. All *humus* originates from broken down vegetable or animal matter. Hence it increases daily, but in the long run it also changes into a kind of sand.

10. As we find only two natural „*vitriols*" we consider only two kinds of pyrites and as many ochres, which originate from vitriol; though the latter in the opposite way.

11. *Petrifactions*, the delight and temptation of several modern authors, had been referred to as many genera as there were species, in exactly the same way in which the plants are arranged by horticulturists, who form as many species of tulips, hyacinths, anemones etc., as there are varieties. However, all fossils can be reduced to seven genera and no more are possible; and so the limits of such a less fertile study should rather be narrowed than amplified.

12. *Lithophyta* belong to the vegetable, not, however, to the mineral kingdom, as their shape, structure, origin and analogy teach us.

13. We deservedly exclude all *artifical stones*, such as *fulgurites*, *borax*, *sal-ammoniac*, artificial vitriol, etc., e.g. *lead vitriol*, or sugar of Saturn[1]), and consequently *lead ochre*, or white-lead, etc.

[1]) Sugar of lead, plumbic acetate; Lead is indicated by Saturn by the alchemists. E.g. cf. L. Thorndike, A History of Magic and Experimental Science, VII, 1958, p. 641: „production of lead by the influence of Saturn".

14. I have called those stones „*Apyri*" (fireproof), which longest resist fire and which are most suitable to be used for making chemical instruments. Nothing, however, in nature, not even silver and gold, can resist the force of the hottest fire, such as produced by a burning-mirror.

IV

OBSERVATIONS ON THE VEGETABLE KINGDOM

1. That each plant enjoys fructification is taught in the larger ones by the naked eye; in the smaller ones, e.g. ferns, mosses, algae and fungi by the armed eye, as is witnessed by the observations of the most famous Micheli and others; and it is clear that no plant species ever can do without a fructification, if one considers their analogy, use, aim, structure and creation! The other parts of plants lack in many of them, such as the root, stem, leaves, appendages[1]) and yet they are plants, such as Viscus, Lemna, Cuscuta, Tulipa.

2. The foundation of botany consists of the division of plants and systematic name-giving, generic and specific.

3. The lustre and achievement of the science is due to a very few botanists and among those especially to authors of systematics, whose example we should follow by continuing, improving and perfecting the systematic division of plants.

4. Systematic division of plants (3) should take as its base their principal part, i.e. their fructification (1), which nature confirms to be the only systematic foundation of botany and so it can be demonstrated to be absolute foundation. Hence it has been accepted by the very best systematists, pillars and founders of botany *Caesalpinus, Morison, Hermann, Boerhaave, Ray, Sloane, Rivinus, Knaut* (father and son), *Rupp, Tournefort, Plumier, Feville, Dillenius, Buxbaum, Micheli, Magnol, Vaillant, Scheuchzer:* and this can hardly be denied by anybody methodical especially in our time, unless perhaps only by *Heister.*

5. There are two general parts of the FRUCTIFICATION, viz. *flower* and *fruit:*
Of particular parts there are actually seven with their species:

I. FLOWER 1. *Calyx*, 6 species, *perianth, involucrum, catkin, spathe, glume, calyptra.*

[1]) See Carolus Linnaeus, Fundamenta Botanica, 1736, p. 9, nr. 84.

2. *Corolla*, 2 species: *petal, nectary.*
3. *Stamens*, 2 parts: *filament, anther* (common designation: „Apex")
4. *Pistil*, 2 parts: *style, stigma* (top).

II. FRUIT: 5. *Pericarp*, 9 species, *capsule, „Conceptacle", pod, legume, nut, drupe, apple, berry, strobile* (cone).
6. *Seeds*, 3 parts: *the small seed, its corona* and *floccus.*
7. *Receptacle*, 3 kinds: *of the flower, of the fruit, of the fructification.*

6. The essence of plants consists in the fructification (1); of the *fructification* in the flower and the fruit (5 : I, II); of the *fruit* in the seed (5 : 6); of the *flower* in the stamen (5 : 3) and the pistil (5 : 4); of the *stamen* in the anthers; of the *pistil* in the stigma.

7. Each fruit is preceded by a flower; the essence of the *flower* consists in anthers and stigma (6), from which I took my method; and so its strength a priori appears from what has been said already.

8. That anthers and stigmas constitute the sex in plants, has been discovered, described and assumed as infallible by *Grew, Ray, Camerarius, Morland, Vaillant, Blair, de Jussieu, Bradley, van Royen* etc.; nor can anybody who examines the flowers of whichever plant with open eyes fail to see it; although it can not be explained here owing to lack of space. Nowadays it is denied by practically nobody, unless perhaps only by *Pontedera.*

9. *Anthers* are the MALE genital organs; when they strew their genital flour (pollen) on the *stigma*, the FEMALE genital organ, *fertilization* takes place; this has been proved by observations, experiments, analogy, anatomy, antecedents, consequences, and its use.

10. So (9) flowers that possess anthers are called *male*, those with stigmas *female*, and those which have both at a time *hermaphrodites.*

11. A plant with male flowers is called *male*, one with female flowers *female*; with both *androgynous*; with hermaphrodite flowers *hermaphrodite*; and those which have hermaphrodite and at the same time male or female flowers, are called *hybrids* (mixed).

12. No natural system of plants, though one or the other approaches it quite closely, has so far been constructed; nor do I contend that this system is really natural (perhaps some other time I may issue fragments of one); nor can it become a natural system before all details in connection with our system will be known. In the meantime, however, as long as a natural system is lacking, artificial systems will definitely be needed.

13. No botanical method derived from the fructification as a systematic character has so far been constructed which has not proved to be very useful; and it has never done any harm as long as it does not rend asunder the natural genera in a way contrary to nature only on account of the principles assumed, which we have never done deliberately.

14. Every genus is natural, thus created in the very beginning: hence one should not arbitrarily and on account of some theory or other rudely split it or join it to another one.

15. Generic names that had been badly constructed and give rise to confusion, have been marked with better synonyms of the older authors (and with a few new ones I made up). However, there remain yet many that are not quite fitting.

16. It is a settled question for men with a long experience in the art, that the greatest difficulty lies in the changing of generally accepted names, hence they should not be changed even if the number of those who err would seem to favour the error. And I cannot help if, according to my mind, older botanists interchanged names. May in the far future in the successive order of generations new and more accurate people arise, which I guarantee, considering my theory, will delete names, that often are absurd, especially the specific names, of which I have said more in my *Fundamenta botanica*, recently published in Amsterdam.

17. I predict, that botanists surely will say, that my method presents too great a difficulty notably for examining the very small parts of a flower, which one can hardly see with the naked eye. *I reply:* If everybody interested would have a „microscopium" (magnifying glass!), a most necessary intrument, at hand, what work would there be left? I myself, however, have examined all these plants with the naked eye, and without any use of a „microscopium". However, the last class seems as it were to have been excluded by the Creator from the theory of stamens, and so I have not described them according to their number. For nature does not allow to join them together on account of their stamens. See the works of the Illustrious *Micheli*.

18. In order not to let the orders appear too long and therefore too difficult, I have distinguished them, according to their fructification, into auxiliary subdivisions. Among them the group of *Pentandria monogynia* are most noteworthy, where the *Umbellatae* are dealt with, which I have arranged according to the method thought out by the illustrious *Artedi* for the Umbelliferae. He takes his basis for distinguishing them from the involucre or calyx of the umbels; and he distinguishes all umbels into three orders: the 1st contains the umbelliferous plants that have no involucre at all; the 2nd those that possess an involucre for each

umbel only; the 3d those that are provided with an involucre for the universal umbels and for the individual ones. This method bears the palm among all others in this family.

19. The *virtues of plants* are judged by the botanist as such according to the scientific tradition or by his own senses; hence he who understands the signs of both, really has a knowledge of the virtues of plants. Those plants that belong to the same natural class, even more so if they belong to the same order, but most if to the same genus, also have a closer affinity in virtues, e.g.
TRIANDRIA, *Digynia*. α. β. Leaves form lush pastures for cattle and horses; small seeds are edible for birds, larger ones are a very common food for man.
TETRANDRIA, *Monogynia*. β. (Stellatae according to Ray) are astringents and commonly called diuretics.
PENTANDRIA, *Monogynia*. β. (Asperifoliae according to Ray) are astringents, glutinous and vulnerary.——————κ. *Monopetalae Bacciferae* are mostly poisonous.
. . . . . ., *Digynia* γ. δ. ε. ζ. (Umbellatae according to Tournefort) in dry places aromatic, calefacient, resolvent and carminative, in humid places they are, however, poisonous; the virtue is in the roots and seeds.
ICOSANDRIA, *Baccifera*, *Drupifera* or *Pomifera*, all those fruits may be eaten with pleasure. POLYANDRIA, however, should altogether be well distinguished, as they are often poisonous.
DIDYNAMIA, *Gymnospermia*, odorous, heady and resolvent: the virtue is in the leaves. TETRADYNAMIA are altogether antiscorbutic and diuretic: by desiccation they lose their virtues.
DIADELPHIA leaves for Ruminants; seeds edible and flatulent for Quadrupeds (non-predators). MONADELPHIA are mucilaginous and emollient.
SYNGENESIA contain bitter substances and stomachics. GYNANDRIA again contain aphrodisiacs. CRYPTOGAMIA includes (sic) plants that are often suspicious.
The external senses are the examiners of all the food we want to eat; by them the good is distinguished from the bad; and all animals have been given diverse senses by the Creator, according to their diversity of nature.
SAPID PLANTS: the *sweet* ones are nutritive; the *fat* ones emollient; the *salty* ones stimulate; the *sour* ones refrigerate; the *acrid* ones astringe; the *bitter* ones are alkaline; the sharp ones corrosive; the *nauseating* ones poisonous.
ODOROUS PLANTS: the *sweet* ones are wholesome; the *very sweet* ones cordials; *aromatic* resolvent; *hircine* (goat-like stinking) ones are aphrodisiacs; the *unsavoury* ones are suspicious; the *nauseating* ones poisonous.
COLOUR (of plants): *Red* always indicates acid, a *palish yellow* and *sad* look of the whole plant renders plants suspect.

20. The essential character of *Ranunculi* consists in that the bases of the petals are on the inside hollowed for honey. All the other parts of the fructification vary a great deal, which is evident to the student.

V

OBSERVATIONS ON THE ANIMAL KINGDOM

1. Zoology, that noblest part of Natural History, is much less worked up than the other two parts. If, however, we take into account either the movement, or the mechanism, or the external and internal senses, or lastly the shape of the animals, which surpasses all the others, it will be clear as the sun to everyone, that the animals are the highest and most perfect works of the Creator.

2. If we reexamine the zoologies of the Authors we shall find for the greater part nothing but fabulous stories, a vague way of writing, pictures by the copper engravers and descriptions which are imperfect and often too extensive. There are very few indeed, who have tried to reduce zoology to genera and species according to the rules of systematics, the most noble *Willughby* and the very famous *Ray* excepted.

3. Hence I have begun to compose a kind of system of zoology by the aid of any observations I have ever been able to obtain with my own eyes; this I here present to you now, Illustrious Reader. First I distinguished in *Tetrapodologia* (Quadrupeds) the Orders of animals according to their teeth, in *Ornithologia* according to their bill, in *Entomologia* by their antennae, their wings, etc.

4. In *Ichthyologia* I have not made a method myself, as the greatest Ichthyologist of our time, the Very Illustrious Dr. *Petrus Artedi*, a *Swede*, has communicated his method to us, who hardly can be equalled by anyone in distinguishing the natural genera of the fishes, and the differences between the species. This I present now already to the Curious Reader in order to give him an idea of the whole work. The Illustrious Reader may soon look forward to more by the same (author), viz. *Institutiones totius Ichthyologiae.*

5. There are people who think, that *Zoology* is of less *use* than the other parts of Natural History, mainly with regard to the very small animals; but, if we consider only the noxiousness, the use and the properties of the insects, which are best known so far, it easily appears of how much use and, moreover, of how great a future importance might be the *characteristics* of those which are not yet well-known to us.

6. From the following the *noxious properties* (5) of insects are more than evident: e.g. *Blatta* (cockroach) in Finland and Russia, consumes bread as well as all kinds of clothes, in such a way that the inhabitants have been forced to leave their homes for some time in midwinter until it would perish from the cold. *Oestrum Lapponicum* (a gad-fly) destroys about one third of the Reindeer, the cattle of the Laps, as long as there are still young ones. Of *Teredo navium* (ship-worm) it is generally known how much damage it has done to ships and (jetty-) poles. How much trouble *Culices* (mosquitoes) bring to man and cattle in the provinces bordering on Lapland I need hardly tell. What a troublesome strident noise *Gryllus domesticus* (cricket), which very familiar animals live in walls, make and how many sleepless nights they cause to those who want to sleep, is a very well-known fact. That specimens of *Muscus domesticus* (house-fly) in Norvegian Finmark, filled entire houses and left nothing intact, I have seen myself on my journey through Lapland. Everyone knows how much work and trouble *Pulex* (flea) causes to women, and *Pediculus* (louse) to sailors and soldiers everywhere. Indeed, also quadrupeds, birds etc. are troubled by their own lice. *Acari* (mites), the smallest animals of the insects, very often even cause a rash of the human skin. It is very well known with what enormous army *Locusta africana* devastated the plants in certain areas of Europe a few years ago and in what devastating way *Eruca papilionum* (the caterpillars of the butterflies) each year eat the leaves of trees. The best gardeners know how in early spring *Gyrinus terrestris* (flee-beetle) destroys our tiny plant germs. *Dermestes* (beetle) lacerates very precious furs and skins of quadrupeds and birds in an extraordinary way. *Oestrum bovinum* (gad-fly) greatly troubles cattle tired by the summer weather. How many people have been killed by *spiders* and *scorpions* or became insane from *tarantulas* is testified by the observations of medical people, apart from innumerable other such cases.

7. Most *useful* (5) insect products for the dyeing industry are supplied by *Cochineal*, *Kermes* and by *Galls* produced by gall-insects (ichneumons). The use of *Cantharides* (Spanish fly) in surgery, of *Meloë* (blister beetle) in medicine and *Bombyx* (silk-worm) in the art of weaving, of *bee*-honey in foodindustry, is well-known.

8. The curious investigator, who wants to examine the *properties* (5) of insects, can hardly have a greater pleasure anywhere. Just examine: the rostrum of *Curculio* (snout-beetle), the horns of *Lucanus* (stag-beetle), the antenne of *Tragocerus*, the joints of *Meloë* (blister-beetle), the wings of an *earwig*, the plumes of a *butterfly*, the eyes of a *Tabanus* (horse-fly), the abdomen of *Ricinus* (a tick), the sting of a *digger-wasp*, the colour of a *Spanish fly*, the elasticity of a *click-beetle*, the stridor of a *cricket*, the smell of a *bug*, the smallness of a *mite*, the copulation of the

dragonflies, the nest of an *ichneumon-fly*, the comb of the *honey-bees*, the hibernation of a *gad-fly*, the building of a *wasps*-nest, the shell of a *hermit crab*, the life of an *ephemeron*, an *ant*hill, the trap-fall of an *ant-lion*, a *spider*'s web, the way of swimming of *Cyclops*, the locomotion of a *whirligig*, the phosphorescence of *Lampyris* (fire-fly), the luminescence of *Scolopendria marina* (a Nereide), the sloughing of a *crab*, the spiral motion of the *caterpillar coming from a blue-bottle fly*, the well-nigh indestructable life of the *aquatic maggot* of *the horse-fly* and the so-called metamorphoses of nearly all *Insects*.

9. The eggs of most insects are covered by a triple integument. If the first skin comes off, it (the animal) is called *eruca* (maggot or caterpillar), if the second comes off, a *propolis* (chrysalis or pupa), and lastly after losing the third one a perfect *insect*. Hence the triple hatching of the young from such eggs.

10. In the human intestine three species of animals occur, viz. Lumbrici, Ascarides (round worms) and Taeniae (tape-worms). That the *Lumbricus* of the intestine is one and the same species as the ordinary earthworm, is shown by the appearance of all its parts.
That the *Ascaris* species are identical with those very small worms (Lumbricus) one finds anywhere on marshy spots, becomes very clear by close inspection. *Taenia* so far has been considered a parasitic species, as it has been recovered, mostly one at a time, from man, dogs, fishes, etc. and they gave a great deal of trouble to those who diligently carried out the work of investigating the generation of the animals. However, in 1734, I found it on the Reuterholm trip to Dalekarlia in the presence of seven companions of mine in sour iron ochre, about which I was highly surprised, for most people try to get rid of Taenia by means of that kind of acid water. Hence it follows that worms do not take their origin from insects' eggs, flies and the like (for if that happened, they could never multiply inside the intestinal tract, and would perish during the stages of metamorphosis); but from the eggs of the worms above-mentioned, taken in with the water by drinking; from this it is evident that medicaments detrimental to insects need not necessarily kill the worms.

VI

Ad III AMPHIBIA

The Creator in his benignity has not wanted to continue any further the Class of *Amphibians*; for, if it should enjoy itself in as many Genera as the other Classes of

Animals, or if those things were true that *the Tetralogists* have fabricated about Dragons, Basilisks, and such monsters, the human genus would hardly be able to inhabit the earth.

VII

PARADOXA (MONSTERS)

The HYDRA, with eel-like body, two feet, seven necks and as many heads, without wings, is preserved in Hamburg, bearing similitude to Sr. JOHN's Apocalyptic Hydra described in CHAPTERS XII and XIII. By most people it is considered quasi a real animal species but wrongly so. Nature, always remaining true itself, has never in a natural way produced several heads on one body. As we ourselves have seen, the teeth of the *carnivorous* weasel which differ from the teeth of Amphibians, have easily revealed the fraud and artifice[1]).

The FROG-FISH, or *the metamorphosis of Rana into a Fish*[2]) is very paradoxical, as Nature would not admit the change of one Genus into another one of a different Class. Rana, as all amphibians, possesses lungs and spiny bones. Spiny fishes are provided with gills instead of lungs. Therefore this change would be contrary to nature's law. For if this fish is provided with gills, it will be different from Rana and the amphibians; if with lungs, it will be a Lizard, for there is all the world of difference between them and Chondropterygii and Plagiuri.

The MONOCEROS of the *Ancients* with the body of a horse and the feet of a beast of prey with a straight long and spirally wound horn, is a painters' invention. *Artedi*'s MONODON possesses such a horn, but differs greatly in its other parts.

The PELICAN who with its beak wounds its thigh in order to quench the thirst of its young with the blood flowing out, has been fabulously handed down by the same people. The origin of the tale is in the sac hanging from its gullet.

The tailed SATYR, hairy, bearded, with a manlike body, gesticulating much, very fallacious, is a species of monkey, if ever one has been seen. The *tailed men*, of whom more recent travellers tell much, are of the same genus.

BOROMETZ OR SCYTHIAN LAMB is considered a plant and resembles a lamb. Its stem transfixes the „umbilicus" of another plant as it breaks forth from the soil. It is also

[1]) In Hamburgische Berichte 1735, nr. 75, 20 Sept., p. 619 (see Stöver, l.c., II, p. 270; Bryk, l.c., p. 115) it is said (by Linnaeus himself): „The Hygram (sic) which the Ancients described, but the existence of which some new authors denied has been described because it has newly been found and is kept alive in England" (this most probably refers to the Hydra). Linnaeus has changed his mind: Hydra appears among the Paradoxa in the printed Systema Naturae; the discovery that the seven-headed Hydra of burgomaster Anderson of Hamburg was a fake must have occurred after the announcement was written for the Hamburgische Berichte.

[2]) G. A. Seba, Thesaurus I, 1734, p. 125–126, Pl. 78, Fig. 13–22 and M. S. Merian, Surinaemse Insecten, 1719, p. 71, Pl. 71, A.

said without any foundation to be devoured by animals of prey as it contains blood. It is, however, artificially composed of roots of American ferns. Natural, however, is the *embryo of the sheep*, which has been described allegorically, but possesses all the characters attributed to it.

PHOENIX, a bird species, of which one single individual exists in the world, and about which the fable is told that after having been burned to death on the funeral pile, which it had itself constructed out of aromatics, it revived in order to live the happy period of youth. It is however *Palma Dactylifera* (the date-palm) (see KAEMPF).

BERNICLA (brent or barnacle goose) or SCOTTISH GOOSE and the BARNACLE (duck barnacle) is believed by the Ancients to be born from decaying wood thrown in the sea. But it is *Lepas* which has deposited its penniform entrails on Fucus (seaweed) and because of its way of adhering it really is as if the *barnacle goose* originates from it.

DRACO (Dragon) with an eel-like body, two feet and two wings like a bat is *Lacerta alata* or a *Ray* artificially shaped and dried as a monster.

The DEATH-WATCH producing the sound of a tiny clock in walls, is called *Pediculus pulsatorius*, which burrows in wood and lives in it.

SYSTEMA NATURAE

1735

FACSIMILE

CAROLI LINNÆI, *SVECI*,

DOCTORIS MEDICINÆ,

SYSTEMA NATURÆ,

SIVE

REGNA TRIA NATURÆ

SYSTEMATICE PROPOSITA

PER

CLASSES, ORDINES, GENERA, & SPECIES.

O JEHOVA! Quam ampla ſunt opera Tua!
Quam ea omnia ſapienter feciſti!
Quam plena eſt terra poſſeſſione tua!

Pſalm. CIV. 24.

LUGDUNI BATAVORUM,

Apud THEODORUM HAAK, MDCCXXXV.

EX TYPOGRAPHIA

JOANNIS WILHELMI DE GROOT.

OBSERVATIONES
IN
REGNA III. NATURÆ.

1. Si opera Dei intueamur, omnibus ſatis ſuperque patet, viventia ſingula ex ovo propagari, omneque ovum producere ſobolem parenti ſimillimam. Hinc nullæ ſpecies novæ hodienum producuntur.
2. Ex generatione multiplicantur individua. Hinc major hocce tempore numerus individuorum in unaquaque ſpecie, quam erat primitus.
3. Si hanc individuorum multiplicationem in unaquaque ſpecie retrograde numeremus, modo quo multiplicavimus (2) prorſus ſimili, ſeries tandem in *unico parente* deſinet, ſeu parens illo ex unico Hermaphrodito (uti communiter in Plantis) ſeu e duplici, Mare ſcilicet & Femina (ut in Animalibus pleriſque) conſtet.
4. Quum nullæ dantur novæ ſpecies (1); cum ſimile ſemper parit ſui ſimile (2); cum unitas in omni ſpecie ordinem ducit (3), neceſſe eſt, ut unitatem illam progeneratricem, Enti cuidam Omnipotenti & Omniſcio attribuamus, *Deo* nempe, cujus opus *Creatio* audit. Confirmant hæc mechaniſmus, leges, principia, conſtitutiones & ſenſationes in omni individuo vivente.
5. Individua ſic progenita, in prima & tenerrima ætate, omni prorſus notitia carent, ac omnia ſenſuum externorum ope ediſcere coguntur. Ex *Tactu* conſiſtentiam objectorum primario ediſcunt; *Guſtu* particulas fluidas; *Odoratu* volatiles; *Auditu* corporum remotorum tremorem; & demum *Viſu* corporum lucidorum figuram; qui ultimus ſenſus, præ ceteris, maxima voluptate animalia afficit.
6. Si univerſa intueamur, Tria objecta in conſpectum veniunt, uti α) remotiſſima illa corpora *Cæleſtia*; β) *Elementa* ubique obvolitantia; γ) fixa illa corpora *Naturalia*.
7. In Tellure noſtra, ex tribus prædictis (6), duo tantum obvia ſunt; *Elementa* nempe, quæ conſtituunt; & *Naturalia* illa ex elementis conſtructa, licet modo, præter creationem & leges generationis, inexplicabili.
8. Naturalia (7) magis ſub ſenſus (5) cadunt quam reliqua omnia (6), ſenſibuſque noſtris ubivis obvia ſunt. Quæro itaque quamobrem Creator hominem, ejuſmodi ſenſibus (5) & intellectu præditum, in globum terraqueum locaverit, ubi nihil in ſenſus incurrebat præter Naturalia, tam admirando & ſtupendo mechaniſmo conſtructa? anne ob aliam cauſam, quam ut Obſervator Artificem ex opere pulcherrimo admiraretur & collaudaret?
9. Omnia, quæ in uſus hominum cedunt, ex Naturalibus hiſce cuncta deſumuntur; hinc œconomia mineralis ſeu Metallurgia; vegetabilis ſeu Agricultura & Horticultura; Animalis ſeu Res pecuaria, Venatus, Piſcatura. Verbo; fundamentum eſt omnis Oeconomiæ, Opificiorum, Commerciorum, Diætæ, Medicinæ &c. Ex iis homines in ſtatu ſano conſervantur, a morboſo præſervantur, & ab ægroto reſtituuntur, ita ut delectus horum ſumme neceſſarius ſit. Hinc (8. 9.) neceſſitas Scientiæ naturalis per ſe patet.
10. Primus eſt gradus ſapientiæ res ipſas noſſe; quæ notitia conſiſtit in vera idæa objectorum; objecta diſtinguuntur & noſcuntur ex methodica illorum diviſione & convenienti denominatione; adeoque Diviſio & Denominatio fundamentum noſtræ Scientiæ erit.
11. Qui in Scientia noſtra Variationes ad Species proprias, Species ad Genera naturalia, Genera ad familias referre neſciunt, & tamen Scientiæ hujus Doctores ſeſe jactitant, fallunt & falluntur. Omnes enim, qui naturalem vere condiderunt Scientiam, hæc tenere debuerunt.
12. Naturaliſta (Hiſtoricus Naturalis) audit, qui partes Corporum Naturalium viſu (5) bene diſtinguit, & omnes has, ſecundum trinam differentiam, recte deſcribit nominatque. Eſtque talis Lithologus, Phytologus vel Zoologus.
13. Scientia Naturalis eſt diviſio ac denominatio illa (10) corporum Naturalium, ab ejuſmodi Naturaliſta (12) judicio inſtituta.
14. Corpora Naturalia in *Tria Naturæ Regna* dividuntur: Lapideum nempe, Vegetabile & Animale.
15. *Lapides* creſcunt. *Vegetabilia* creſcunt & vivunt. *Animalia* creſcunt, vivunt & ſentiunt. Hinc limites inter hæcce Regna conſtituta ſunt.
16. In hac Scientia deſcribenda & illuſtranda plurimi omni ſua ætate laborarunt; quantum vero jamjam obſervatum & quantum adhuc reſtat, curioſus Luſtrator facile ipſe inveniat.
17. Exhibui heic Conſpectum generale Syſtematis corporum Naturalium, ut Curioſus Lector ope Tabulæ hujus Geographicæ quaſi, ſciat, quo iter ſuum in ampliſſimis his Regnis dirigat, plures namque Deſcriptiones addere ſpatium, tempus, & occaſio retardarunt.
18. Methodo nova, maximam partem propriis autopticis obſervationibus fundata, in ſingulis partibus uſus ſui, probe enim didici pauciſſimis, obſervationes quod attinet, facile credendum eſſe.
19. Si Curioſus Lector fructum aliquem hinc percipiat, illum Celebratiſſimo in Belgio Botanico D. D. Joh. Fred. Gronovio, nec non Dno. Isac. Lawson, Doctiſſimo Scoto, tribuat; Illi enim Auctores mihi fuerunt ut breviſſimas haſce tabulas & obſervationes cum Erudito Orbe communicarem.
20. Si comperiar hæcce Illuſtri & Curioſo Lectori grata fore, propediem plura, ſpecialiora & magis limata, Botanica imprimis, a me expectabit.

Dabam Lugduni Batavorum
1735. Julii 23.

CAROLUS LINNÆUS.
M. D.

CAROLI LINNÆI

I. PETRÆ sunt Lapides SIMPLICES, qui Metallurgis dicuntur *Bergarter.* constant particulis tantummodo similaribus.

1. APYRI in igne decimastico vix destructibiles.

Asbestus.	Constat *Fibr. papposis intertextis.*	A asbestus natans, solido-flexilis.	*Suber montanum.*	Bergkort.
		A natans fibroso-coriaceus.	*Aluta montana.*	Bergläder.
		A ponderosus fissilis.	*Caro fossilis.*	Bergkiöt.
Amiantus.	*Fibris parallelis.*	A fibris capillaceis flexilibus tenacibus.	*Linum incombustibile.*	Berglin.
		A fibris capillaceis flexilibus fragilibus.	*Alumen plumos. offic.*	Bergsiun.
		A fibris setosis rigidis.	*Amiantus immaturus.*	Gallstnas.
		A fibris angulosis rigidis.	*Pseudo-amiantus.*	Omogen Amiant.
Ollaris.	*Fibris sparsis.*	O fibris acerosis friabilibus.	*Lebetum Lapis.*	Tälgsten.
		O fibris acerosis rigidis.	*Acerosus Lapis.*	Sädslag.
		O fibris e centro radiatis.	*Radians Lapis.*	Stiernslag.
		O fibris fasciculatim inflexis.	*Torosus Lapis.*	Fels.
Talcum.	*Membranis carnosis, inæqualis superficiei.*	T durum crassum, cortice nitido.	*Corneus Lapis.*	Hornsten.
		T durum coriaceum.	*Tunicatus Lapis.*	Skinslag.
		T friabile molliusculum.	*Talcum offic.*	Hwit Talk.
		T friabile fragile membranaceum.	*Talcum aureum.*	Guld-talk.
Mica.	*Membranis squamosis, æqualis superficiei.*	M particulis impalpabilibus.	*Sterile nigrum.*	
		M particulis sqvamosis.	*Mica vulgaris.*	Skimmer.
		M particulis membranaceis fissilibus.	*Vitrum Moscoviticum.*	Kattguld.
		M particulis sqvamosis & membr. mixtis.		Bunda.
		M particulis prismaticis immixtis.		

2. CALCARII igne decimastico usti & Aquâ rigati, in farinam reducuntur.

Schistus.	*Fragmentis fissilibus.*	S cinereus.	*Fissilis inutilis.*	grå stifverten.
		S nigricans friabilis.	*Fissilis vulgaris.*	lös skifver.
		S niger duriusculus.	*Fissilis Lapis.*	Tasse-skifver.
		S niger durus clangosus.	*Ardesia tegularis.*	Tak-skifver.
Spatum.	*Fragm. rhomboidalibus.*	S fissile, lamellis dehiscentibus.	*Spatum lamellatum.*	
		S compactum, opacum nitidum.	*Spatum vulgare.*	Törningsten.
		S compactum pellucidum.	*Crystallus Islandica.*	
Marmor.	*Fragmentis incertis.*	§. Rudia *sunt, quæ polituram vix ullam admittunt.*		
		M rude.	*Calcarius Lapis.*	Kalksten.
				Variat infinite.
		M rude, venis qvartzosis rubris.	*Vena hæmatica.*	
		§. Nitida *sunt marmora, quæ polituram assumunt arte.*		
		M nitidum album.	*Marmor album.*	Hwit marmer.
		M nitidum rubrum.	*Marmor rubrum.*	Röd marmer.
		M nitidum atrum.	*Lydius Lapis.*	Probersten.
		M nitidum, coloribus mixtis.	*Marm. variegatum.*	Spräkletmarmer.
		M nitidum, coloribus alternis.	*Marm. Polyzonias.*	
		M nitidum, coloribus picturam referens.	*Marm. Florentinum.*	Florentinsten.
		M nitidum virescens, maculis nigris	*Serpentinus Lapis.*	Serpentinsten.
		M nitidum cœruleum, maculis albicantibus.	*Lazulus Lapis.*	Lazulsten.
		§. Fugacia *sunt, quæ particulis nitidis interlucentibus gaudent.*		
		M fugax opacum.	*Gypsum.*	Gips.
		M fugax subdiaphanum.	*Alabastrum.*	Alabaster.

3. VITRESCENTES igne decimastico usti in vitrum liquescunt.

Cos.	*Fragmentis granulatis opacis.*	C particulis inæqualibus rigidis.	*Arenarius Lapis.*	Sandsten.
		C particulis æqualibus friabilibus.	*Coticula.*	Slipsten.
		C aquam filtrans.	*Filtrum.*	
Silex.	*Fragmentis convexis & concavis subdiaphanis.**	Generis hujus differentias vel variationes reales, licet è colore desumtas, addat, qui potest; Ego non	*Pyromachus.*	Flinta.
			Calcedonius.	Calcedon.
			Jaspis.	Jasp.
			Carneolus.	Carneol.
			Malachites.	Malachit.
			Turchesia.	Turcos.
			Sardius.	Sard.
			Achates.	Agat.
Qvartzum.	*Fragmentis angulatis acutis pellucidis.*	Q aquoso-album.	*Qvartzum.*	Kisel.
		Q luteum.	*Pseudo-Topazius.*	desse alle Kalkes O-ädyta eller Omogne ädle stenar.
		Q rubrum.	*Pseudo-Rubinus.*	
		Q purpureum.	*Pseudo-Amethistus.*	
		Q cœruleum.	*Pseudo-Saphirus.*	
		Q viride.	*Pseudo-Smaragdus.*	
		Q viridi-cœruleum.	*Pseudo-Beryllus.*	

* *Obs.* Silicis *sub nomine quidam Quartzum, quidam vero Pyromachum, ut veteres intelligunt & nos. A quibusdam ad calcareos, ab aliis autem ad vitrescentes refertur, Nos cum* Bromelio *huc retulimus.*

Ordines	Nom. generic.	Characteres generici.	Differentiæ specificæ Auctoris.	Synonyma.	Nom. Svecica.

II. MINERÆ sunt Lapides COMPOSITI constant Petrâ particulis

1. SALIA in aqua solubilia & sapida sunt. simpliciter composita sæpe occurrunt.

Nitrum.	*in* igne *fremens*, Figura *prismatica hexaëdra*, Acidum *essentiale.*
Muria.	*in* igne *crepitans*, Figura *tessulata hexaëdra*, Alcalino-*acidum.*
Alumen.	*in* igne *spumans, metallo destitutum*, Figura *tessulata octaëdra*, Acidum *purum.*
Vitriolum.	*in* igne *spumans, metallo impregnatum*, Figura *rhomboidea dodecaëdra.* Acidum *purum.*

2. SULPHURA in Igne fumantia & odorata sunt. Decomposita sæpe occurrunt.

Electrum.	*Fumus* odore *suavi*, colore *fusco.*
Bitumen.	*Fumus* odore *tristi*, colore *atro.*
Pyrites.	*Fumus* od. *acutissimo*, col. *luteo*, sapore *salso*, princip. *acido* ♁
Arsenicum.	*Fumus* od. *alliaceo*, col. *albo*, sapore *dulci*, princip. *alcalino.*

3. MERCURIALIA igne fusa, depurata & nitida evadunt. Supradecomposita communiter occurrunt. Igne fusa dicuntur *Metalla.*

Hydrargyrum.	*in* △ᵉ *mox volatile*, metallo *fluido*, ▽Fʜ *à* ♁ᵒ.
Stibium.	*in* △ᵉ *sensim avolans*, metall. *fragili*, vitro *fulvo.*
Zincum.	*in* △ᵉ *flagrans, cineribus albis, flamma viridi.* metall. *molli, tenaci.* ▽Fʜ *calc.* ♋
Visмutum.	*in* △ᵉ *facile liquescens*, metall. *tessulato, fragidiusculo.*
Stannum.	*in* △ᵉ *facile liquescens*, metall. *tenaci.* vitro *albo.*
Plumbum.	*in* △ᵉ *facile liquescens*, metall. *tenaci.* vitro *flavo.*
Ferrum.	*in* △ᵉ *difficillime liquesc.* met. *durissimo*, ▽Fʜ ♂ᵒ. ♀ᵒ. vitro *nigro.*
Cuprum.	*in* △ᵉ *difficulter liquesc.* met. *duro*, ▽Fʜ ♂.
Argentum.	*in* △ᵉ *commode liquesc. indestructibile.* metal. *firmo, tenaci, albo.* ▽Γʜ ☿. ☉.
Aurum.	*in* △ᵉ *commode liquesc. indestructibile, —etiam* ♂ᵒ. metall. *firmo, tenaci, luteo.* ▽Rʜ ☉□+ ♃ᵒ.

REGNUM LAPIDEUM.

I. TERRÆ particulis pulverulentis constant.

	Glarea. *constat*	*Particulis scabris, fragile distinctis.*	
G	tenuissima, flatu aeris volitans.	*Glarea mobilis.*	Qvellen.
G	farinacea apyra.	*Arena sterilis.*	Mo.
G	argillacea apyra mixta.	*Terra adamica.*	
	Argilla.	*Particulis lubricis, tenaciter cohærentibus.*	
A	apyra.	*Argilla gallica.*	Eldfast Lehr.
A	calcarea nivea.	*Argilla nivea.*	Bleke.
A	vitrescens, vitro subdiaphano.	*Porcellana.*	Porsellin-Lehr.
A	vitrescens tessulata.	*Argilla figulina.*	Kruko-Lehr.
A	vitrescens rudis.	*Argilla vulgaris.*	Blå-Lehr.
A	vitrescens impalpabilis.	*Bolus.*	*Terra Sigillata.*
	Humus.	*Vegetabili vel animali destructo.*	
H	animalis, conchæ lævis oblongæ.	*Humus conchacea.*	Helsing-mylla.
H	vegetabilis communis.	*Humus atra.*	Swart-mylla.
H	vegetabilis palustris pura.	*Lutum.*	Dy.
H	vegetabilis paludosa, radicibus mixta.	*Turfa.*	Torf.
	Arena.	*Lapidis cujuscunque pulvere.*	
A	qvartzosa.	*Arena riparia.*	Strandsand.
A	petrosa, vix palpabilis æqvalis.	*Arena boraria.*	Skursand.
A	mixta & inæqvalis.	*Sabulum.*	Grus.
A	micacea squamosa.	*Arena aurea l. argent.*	Glittersand.
A	ferrea atra.	*Ar. atra fluviatilis.*	Jernsand.
A	aurea rubra.	*Ar. aurifera.*	Guldsand.
	Ochra.	*Mercuriali quodam, a vitriolo suo soluto.*	
O	ferri lutea.	*Ochra flava.*	Kiöllerfärg.
O	ferri lutea argentifera.	*Ochra argentea.*	Gilbe.
O	cupri cœrulea.	*Chrysoc. f. cærul. mont.*	Bergblått.
O	cupri viridis.	*Viride montanum.*	Berggrönt.
	Marga.	*Terra aliqva (argillacea sæpius) indurata.*	
M	rubra solidiuscula.	*Rubrica.*	Rödkrita.
M	alba solido-friabilis.	*Creta alba.*	Krita.
M	luteo-alba solido-friabilis.	*Terra tripolitana.*	Trippel.
M	cinerea solida.	*Lithomarga.*	Siöskum.
M	nivea friabilissima.	*Agaricus mineralis.*	*Lac lunæ offic.*

2. CONCRETA particulis terrestribus coalita sunt.

	Pumex. *generatur*	*In elemento Igneo.*	
P	Vegetabilium ater.	*Fuligo.*	Soot.
P	Pyritæ cinereus.	*Pumex.*	Pimpsten.
P	Terræ cinereus.		
P	Cupri ruber.		
P	Argillæ cinereus.		
	Stalactites.	*In elemento Aëreo.*	
S	argillæ calcareæ.	*Incrustatio.*	Droppsten.
S	calcis nitrosæ.	*Nitrum calcareum.*	
S	qvartzi.		
	Tophus.	*In elemento Aqveo.*	
T	glareæ farinaceæ.	*Lusus argillaceus.*	Nåtbröd.
T	arenæ mixtæ, ferro impræguatæ.	*Min. ♂ aren. flava.*	Sandmalm.
T	humi palustris ochracco-ferreæ.	*Min. ♂ paludosa.*	Dykc. Myrmalm.
T	humi lacustris ochracco-ferreæ.	*Min. ♂ lacustris.*	Siömalm.
	Saxum.	*In elemento Terreo.*	
S	micaceum puculatum granulosum.	*Molaris Lapis.*	Murksten.
S	micaceum longitudinaliter fissile.		Ståldsten.
S	qvartzoso-micaceum impalpabile, granis spataceis.	*Porphyrius Dalk.*	Fyrsten.
S	spatosum rubrum.	*Sax. Alandicum.*	Alandsten.
S	qvartzosum album, mica nigra maculatum.	*Sax. Angermannic.*	Angermansten.
S	micacco-corneum, granulis nigris puculatum.	*Sax. alpinc-Lapponic.*	Lapsk Fiellsten.
S	cotaceum compactum albicans.	*Sax. alpinc-Dalekarl.*	Dalsk Fiellsten.
	Ætites.	*Intranaturale Lapidcum*	
Æ	embryone lapilluloso libero.	*Ætites.*	örnsten.
Æ	embryone lapilluloso adnato.	*Pseudo ætites.*	
Æ	embryone terrestri libero.	*Geodes.*	Skallersten.
	Tartarus.	*Intra natur. Vegetabile.*	
T	vini.	*Tartarus.*	Winsten.
T	cerevisiæ.	*Fermentum.*	Gäst.
	Calculus.	*Intra naturale Animale.*	
C	salivæ dentium.	*Tartarus dentium.*	Tandgrus.
C	gastrici animalium pecorum.	*Ægagropila.*	Tyre.
C	Bilis cystidis.	*Calc. felleus.*	Gallsten.
C	urinæ humanæ.	*Calc. nephriticus.*	Mennistkiosten.
C	urinæ Simiarum, Caprorum &c.	*Bezoarticus Lap.*	Bezoar. *off.*
C	insecti Astaci.	*Oculi cancrorum.*	Kräfte-sten.
C	vermis conchæ.	*Margarita.*	Pärla.

3. PETRIFICATA simulacrum Vegetabilis vel Animalis impressum ostendunt.

	Graptolithus.	*Petrificatum picturâ assimilans.*	
G	lineis mappam geographicam referens.	*Lapis geographicus.*	
G	prœlia, urbes, rudera vel similia referens.	*Lapis ruderatus.*	
G	nemora, arbores, plantasve referens.	*Dendrites.*	
G	plantam Fucum referens.	*Phycites.*	
G	stellas & puncta radiata referens.	*Pseudo-astroïtes.*	
G	circulos intra circulos referens.	*Concha anomia.*	
G	puncta informia referens.	*Stigmites.*	*Punctularia.*
	Phytolithus.	*Petrificatum Vegetabilis*	
Ph	ligni.	*Lithoxylon.*	Petrificert träd.
Ph	folii.	*Phytobibl ion.*	
Ph	seminis.	*Pisolithus.*	
Ph	rami.	*Pseudo-corallium.*	
	Helmintholithus	*Petrificatum Vermis.*	
H	Lumbrici.	*Entrochus.*	
H	Medusæ.	*Asteria columnaris.*	
H	Echini.	*Echinites.*	Davids slongsten.
H	Echini spinæ.	*Belemnites.*	*Lap. Lyncis offic.*
H	Echini articuli spiniferi.	*Judaicus Lapis.*	
H	Patellæ?	*Nummus Brattinburgensis Stobæi.*	
H	Patellæ aut conchæ hinc planæ, inde gibbæ.	*Hysterolithus.*	Kärlagtand.
H	Conchæ subrotundæ.	*Conchites.*	
H	Conchæ hinc planæ, inde gibbæ.	*Pectinites.*	
H	Conchæ lamellatæ.	*Ostracites.*	
H	Conchæ oblongæ.	*Musculites.*	
H	Cochleæ spira laterali.	*Cochlites.*	
H	Cochleæ spira centrali.	*Nerites.*	
H	Nautili recti.	*Orthocerotes.*	Gotlandspik.
H	Nautili rotundati.	*Nautilites.*	
H	Nautili compressi.	*Cornu ammonis.*	
	Entomolithus.	*Petrificatum Insecti.*	
E	cancri.	*Astacus petrific.*	
	Ichthyolithus.	*Petrificatum Piscis.*	
I	incertæ vel certæ, totalis vel part. speciei.	*Ichthyolithus.*	
I	dentis carchariæ.	*Glossopetra.*	
I	ovorum.	*Oolithus.*	Romsten.
I	ossis palatini.	*Bufonites.*	
	Amphibiolithus.	*Petrificatum Amphibii.*	
A	Angvis.	*Serpens petrif.*	
A	Lacertæ.		
A	Ranæ.		
A	Testudinis.		
	Ornitholithus.	*Petrificatum Avis.*	
O	totalis, certi vel incerti generis.	*Avis petrifacta.*	
O	partialis.		
	Zoolithus.	*Petrific. Qvadrupedis*	
Z	totalis certi vel incerti animalis.	*Qvadrupes petrif.*	
Z	ossium.	*Ossa fossilia.*	Mammoteveaest.

qvi Metallurgis Svecis dicuntur peregrinis imprægnatâ. — *Malmarter*

⊕	humosum.	*Terra nitrosa.*	Salpeterjord.
⊕	qvartzosum album.	*Crystallus montana.*	Bömisk sten.
⊕	qvartzosum luteum.	*Topazius.*	Topaz.
⊕	qvartzosum rubrum.	*Rubinus.*	Rubin.
⊕	qvartzosum purpureum.	*Amethistus.*	Ametist.
⊕	qvartzosum cœruleum.	*Sapphirus.*	Saphir.
⊕	qvartzosum viride.	*Smaragdus.*	Smaragd.
⊕	qvartzosum viridi-cœruleum.	*Beryllus.*	Beryll.
⊕	silicum? (vel unde?)	*Adamas.*	Demant.
⊕	spatosum acutum utrinque.	*Spatum crystallinum.*	Spat-chrystall.
⊕	spatosum truncatum utrinque.	*Crystallus plumbifer.*	Bly-chrystall.
⊕	spatosum, fragmentorum angulis oppositis.	*Selenites.*	Spegelsten.
⊕	marmoreum fœtidum.	*Suillus Lapis.*	Orsten.
☵	aqvæ marinæ.	*Sal marinum.*	Spanskt Salt.
☵	aqvæ fontanæ.	*Sal fontanum.*	Lyneburgs Salt.
☵	solidum fossile.	*Sal gemmæ.*	Berg-Salt.
♁	nudum.	*Alumen plumosum.*	Gediget Alun.
♁	schisti.	*Fissilis aluminaris.*	Alun-Skifwer.
♁	ferri viride.	*Vitriolum martis.*	Kopparot.
♁	cupri cœruleum.	*Vitriolum cyprinum.*	Blåsten.
F	solidum.	*Succinum var. col.*	Bernsten.
F	tenax.	*Ambra grisea.*	Amber.
B	fluidum album, ignem attrahens.	*Naphtha.*	Berg-Balsam.
B	liqvidum fuscum nudum.	*Petroleum.*	Berg-olia.
B	liqvido-tenax nudum.	*Maltha.*	Berg-tiära.
B	solido-tenax nudum.	*Asphaltus.*	Berg-bek.
B	solidum nudum.	*Gagas.*	Jord-bek.
B	solidum in schisto.	*Carbo fossilis.*	Sten-kohl.
P	nudus.	*Sulphur nativum.*	Gediget Swafvel.
P	micaceus.	*Auripigmentum.*	Operiment.
P	ferri flavus, figurâ varia.	*Pyrites ♂is var. fig.*	Jernkies.
P	cupri fulvus.	*Pyrites ♀is*	Kopparkies.
P	cupri vitrescens.	*Minera ♀ dura.*	♀ Hårdmalm.
P	cupri qvartzosus.	*Minera ♀ qvartzosa.*	- - Hårdslag.
P	cupri-cotaceus.	*Minera ♀ arenacea.*	- - Sandmalm.
P	cupri saturatissimus, petram tegens.	*Minera ♀ mollis.*	- Blötmalm.
P	cupri particulis impalpabilibus.	*Minera ♀ chalybeata.*	- - Stålslag.
P	cupri fulvo-fuscus.	*Minera ♀ hepatica.*	- - Lefverslag.
P	cupri in apyro.	*Minera ♀ tenax.*	- Segmalm.
P	cupri in ollari aceroso rigido.	*Minera ♀ acerosa.*	- - Sädslag.
A	argentei coloris.	*Pyrites arsenicalis.*	Watukies.
A	vitro rubro.	*Cobaltum.*	Cobolt.
A	vitro cœrulco.	*Saffera.*	Saffic cobolt.
A	ollaris acerosi rigidi.	*Cobaltum rubrum.*	Coboltblomma.
☿	petra varia vestitum.	*Minera mercurii.*	Qvicksilfvermalm.
☿	rubro-tinctorium.	*Cinnabaris nativa.*	Berg-Cinnober.
♃	striato-fibrosum.	*Minera Antimonii.*	Spisglasmalm.
♃	lamellato-squamosum.	*Refusius.*	Klang.
♃	micæ squamosæ & membranaceæ mixtæ.		
♀	fertile petrosum violaceum.	*Minera Zinci.*	Spiautermalm.
♀	fertile petroso-vitriolaceum?	*Lapis atramentarius.*	
♀	sterile terreum.	*Calaminaris.*	Galmeja.
♀	sterile micaceum? an hujus loci?	*Molybdæna.*	Blyerts.
♉	arsenici, colore fugaci.	*Cobaltum Vismuti.*	Wissmutmalm.
♄	petrâ vestitum.	*Minera stanni vulg.*	Svitter.
♄	polyedron irregulare nigrum.	*Min. ♄. polyedra.*	Zingraupen.
♄	polyedron regulare purpurascens.	*Granatus (sæpius).*	Granat.
♄	particulis tessulatis contiguis.	*Galena tessulata.*	Terningmalm.
♄	particulis tessulatis sparsis granulatis.	*Miner. ♄i granulata.*	Grofgrynig m.
♄	particulis pulverulentis sparsis nitidis.	*Miner. ♄. punctata.*	Grangnistrig glans.
♄	particulis pulverulentis sparsis fugacibus.	*Miner. ♄. colore fugaci.*	Skyggmalm.
♄	nitri spatosi utrinq; truncati, viride.	*Miner. ♄. crystallina.*	Bly chrystall.
♂	sulphure non adulteratum.	*Min. martis optima.*	Ren jernmalm.
♂	- arsenico imprægnatum.		Kallbräkt malm.
♂	- pyrite imprægnatum.		Rödbräkt malm.
♂	petræ vitrescentis, pauperrimum.		Torsten.
♂	petræ vitrescentis, dives.		Blandsten.
♂	nudum octaëdron.	*Ferrum purum (verè)*	Gediget jern.
♂	tessulatum, fere nudum.	*Ferrum sub-purum.*	Rent jern.
♂	fracturis nitidum.	*Min. ♂is specularis.*	Spegel malm.
♂	ferrum & mundi polos respiciens.	*Magnes.*	Magnet.
♂	ollaris è centro radiati Zincei, extus puculati.	*Magnesia.*	Brunsten.
♂	amianti anguloso rigidi.	*Hæmatites.*	Blodsten.
♂	amianti rigidi, extus puculati.	*Nucleus hæmatitidis.*	Glaskopf.
♀	nudum tessulatum.	*Cuprum nativum.*	Gediget Kopper.
♀	nudum informe præcipitatum.	*Cuprum præcipitatum.*	Praecipiterad ♀.
♀	cœruleum.	*Cuprum Lazureum.*	Koppar-Lazur.
♀	violaceum.	*Cuprum vitrei coloris.*	Kopper-glas.
☽	nudum. formâ varia.	*Argentum nativum.*	Gediget Silfver.
☽	malleabile incanum.	*Miner. ☽ vitri color.*	Glasmalm.
☽	subdiaphanum rubescens, ad candelam liquesc.	*Miner. ☽ cornu col.*	Hornmalm.
☽	rubescens.	*Miner. ☽ rubra.*	Rödgylden.
☽	fragile albidum.	*Miner. ☽ alba.*	Ljusgylden.
☉	nudum.	*Aurum nativum.*	Gediget Guld.
☉	marmoris nitidi cœrulei, maculis albicantibus.	*Min. ☉ Lazurea.*	Guld Lazur.
☉	in mercuriali alio parasiticum.	*Min. ☉ mixta.*	Guld-malm.

OBSERVATIONES
IN
REGNUM LAPIDEUM.

1. *Primogenitas* Terras tantummodo Glaream & Argillam nominamus, e quibus, Elementorum ope, totum Regnum Lapideum exiſtimamus eſſe productum. Hinc reliqui Lapides temporis, a Creatione præterlapſi, progenies ſunt.
2. Generatio Lapidum *Simplicium* & *Aggregatorum* per appoſitionem particularum externam fit; & ſi hi principio aliquo Minerali, forte ſalino, in humore quodam ſoluto, imprægnantur, *Compoſiti* dicuntur. Hinc generatio in Regno Lapideo nulla ex ovo. Hinc nulla humorum per vaſa circulatio, ut in reliquis Naturæ Regnis.
3. *Petram* omnem, vix ullâ exceptâ, e Terris originem ducere extra controverſiam eſt. e. gr. ex Humo vegetabili paluſtri *Schiſtus*, e Glarea *Cos*, ex Argilla *Marmor*.
4. Petra cum fuerit imprægnata materiâ aliquâ, reſpectu ad Simplices, peregrinâ, *Minera* dicitur. Petra vel Minera comminuta *Terra* nominatur; ſed non vice verſâ. Terra mixta ſi concreſcat *Concretum* dicitur. *Petrificata* ſœpius ex Argilla in Calcem mutata oriuntur, paucis tamen exceptis.
5. *Saxa*, Lapides vulgatiſſimos, rupium & montium plerorumque baſes, in Principio non creata fuiſſe docent partes illorum conſtituentes; nec omnes in Diluvio generatos fuiſſe, confirmat frequens autopſia illorum Saxorum, quæ indies producuntur. Si enim particulæ eorum conſtitutivæ probe examinentur, Arenæ proprietates, in locis adjacentibus vel ſubjectis obviæ, monſtrant.
6. *Qvartzum*, e quo originem duxerit, maxime dubitarunt Mineralogi. Hinc ſummus Mineralogus Excell. HENCKEL: *O Silex! Silex! quis te generavit?* Omne Qvartzum eſſe petram paraſiticam docet autopſia; generatur enim in cavo aliorum lapidum & inde excreſcit. Ex Aqua itaque in fiſſuris lapidum retenta, exhalationibus lapideis imprægnata, forte etiam ab aëre adjuta, in ſuperficie lapidis excreſcere incipit, & continuo augetur. Ita generari putamus. In fluido Aqueo primam peractam fuiſſe generationem docent vegetabilia ſœpius incluſa obſervata.
7. *Nitrum Qvartzi* noſtrum, ſeu Cryſtallum, Qvartzum eſſe docent proprietates omnes, exceptâ duritie & figurâ; *figuram* obtinet ipſiſſimam veriſſimamque Nitri; ſine dubio itaque Nitro aquæ primordiali lapidum admiſto adſcribenda ſit; *duritiem* etiam ſuam a ſale hocce obtinuiſſe veroſimile videtur.
8. *Gemmæ* itaque pretioſæ pellucidæ, a Nitro Qvartzi, non ut veræ ſpecies, ſed ut variationes, colore tantum diſtinctæ differunt. Hinc vanus qui has tanti æſtimat; ſtultus qui in medicina exhibet.
9. *Humus* omnis è vegetabili vel animali deſtructo oritur. Hinc quotidie augetur, ſed longa die etiam in ſpeciem Arenæ tranſit.
10. *Vitriola* cum duo tantum naturalia obſervamus, hinc duplices tantum Pyritas & totidem recenſemus Ochras, quarum generator eſt Vitriolum; verum in his contrario modo.
11. *Petrificata* plurium Auctorum recentiorum deliciæ & Sirenes, ad tot genera quot ſpecies ſunt, redacta fuere, eodem prorſus modo quo Hortulani ſuas plantas diſponunt, qui tot ſpecies Tuliparum, Hyacinthorum, Anemonum &c. quot ſunt horum variationes, fingunt. Ad ſeptem tamen genera reduci poſſunt omnia Petrificata, nec plura poſſibilia ſunt, adeoque ſtudii minus fructuoſi limites potius coarctari, quam ampliari debent.
12. *Lithophyta* ad Regnum Vegetabile, non autem Lapideum, pertinere, docet figura, ſtructura, generatio & analogia.
13. *Artificiales* lapides omnes merito excludimus, ut *Ceramiam*, *Boracem*, *Armoniacum*, Vitriola factitia &c. e. gr. *Vitriolum Plumbi* ſeu Saccharum Saturni, per conſequens *Ochram plumbi* ſeu Ceruſſam, &c.
14. *Apyros* dixi illos lapides, qui diutiſſime vi ignis reſiſtunt & conficiendis inſtrumentis Chemicis maxime idonei ſunt. Nihil tamen in tota rerum natura, ne Argentum quidem & Aurum ignis ſummi, ſpeculo cauſtico producti, vehementiam eludere poteſt.

CLAVIS SYSTEMATIS SEXUALIS.

Flos eſt plantarum gaudium.

--- Sic planta propagat!

NUPTIÆ PLANTARUM
Actus generationis incolarum Regni Vegetabilis.
Floreſcentia.

- PUBLICÆ.
  Nuptiæ coram totum mundum viſibilem apertè celebrantur.
  Flores unicuique viſibiles ſunt.
  - MONOCLINIA.
    Mariti & Uxores uno eodemque Thalamo gaudent.
    Flores omnes hermaphroditi ſunt, & ſtamina cum piſtillis in eodem flore.
    - DIFFINITAS.
      Mariti inter ſe non cognati ſunt.
      Stamina nullâ ſuâ parte connata inter ſe ſunt.
      - INDIFFERENTISMUS.
        Mariti nullam ſubordinationem inter ſe invicem obſervant.
        Stamina nullam accuratam proportionem longitudinis inter ſe invicem habent.
        - MONANDRIA. à μόνος unicus, & ἀνὴρ maritus. I.
          Maritus unicus in matrimonio.
          Stamen unicum in flore hermaphrodito.
        - DIANDRIA. II.
          Mariti duo in eodem conjugio.
          Stamina duo in flore hermaphrodito.
        - TRIANDRIA. III.
          Mariti tres in eodem conjugio.
          Stamina tria in flore hermaphrodito.
        - TETRANDRIA. IV.
          Mariti quatuor in eodem conjugio.
          Stamina quatuor in eodem flore cum fructu.
          Obſ. *Si Stamina 2 proxima breviora ſunt, referatur ad Cl.* 14.
        - PENTANDRIA. V.
          Mariti quinque in eodem conjugio.
          Stamina quinque in flore hermaphrodito.
        - HEXANDRIA. VI.
          Mariti ſex in eodem conjugio.
          Stamina ſex in flore hermaphrodito.
          Obſ. *Si ex his Stamina 2 oppoſita breviora, pertinet ad Cl.* 15.
        - HEPTANDRIA. VII.
          Mariti ſeptem in eodem conjugio.
          Stamina ſeptem in flore eodem cum piſtillo.
        - OCTANDRIA. VIII.
          Mariti octo in eodem thalamo cum femina.
          Stamina octo in eodem flore cum piſtillo.
        - ENNEANDRIA. IX.
          Mariti novem in eodem thalamo cum femina.
          Stamina novem in flore hermaphrodito.
        - DECANDRIA. X.
          Mariti decem in eodem conjugio.
          Stamina decem in eodem flore cum piſtillo.
        - DODECANDRIA. XI.
          Mariti duodecim in eodem conjugio.
          Stamina duodecim in flore hermaphrodito.
        - ICOSANDRIA. ab εἴκοσι viginti & ἀνὴρ. XII.
          Mariti viginti communiter, ſæpe plures, raro pauciores.
          Stamina (non receptaculo) *calicis lateri interno adnata.*
        - POLYANDRIA. à πολὺς & ἀνὴρ. XIII.
          Mariti viginti & ultra in eodem cum femina thalamo.
          Stamina à 15 ad 1000 in eodem, cum piſtillo, flore.
      - SUBORDINATIO.
        Mariti certi reliquis præferuntur.
        Stamina duo ſemper reliquis breviora ſunt.
        - DIDYNAMIA. à δὶς, bis, & δύναμις potentia. XIV.
          Mariti quatuor, quorum 2 longiores, & 2 breviores.
          Stamina quatuor, quorum 2 proxima longiora ſunt.
        - TETRADYNAMIA. XV.
          Mariti ſex, quorum 4 longiores in flore hermaphrodito.
          Stamina ſex, quorum 4 longiora, 2 autem oppoſita breviora.
        - MONADELPHIA. à μόνος unicus, & ἀδελφὸς frater. XVI.
          Mariti, ut fratres, ex una baſi proveniunt.
          Stamina filamentis in unum corpus coalita ſunt.
        - DIADELPHIA. XVII.
          Mariti è duplici baſi, tamquam è duplici matre, oriuntur.
          Stamina filamentis in duo corpora connata ſunt.
        - POLYADELPHIA. XVIII.
          Mariti ex pluribus, quam duabus, matribus orti ſunt.
          Stamina filamentis in tria, vel plura, corpora coalita.
        - SYNGENESIA. à σὺν ſimul, & γένησις generatio. XIX.
          Mariti cum genitalibus fœdus conſtituerunt.
          Stamina antheris (raro filamentis) in cylindrum coalita.
        - GYNANDRIA. à γυνὴ femina, & ἀνὴρ maritus. XX.
          Mariti cum feminis monſtroſe connati.
          Stamina piſtillis (non receptaculo) *inſident.*
    - AFFINITAS.
      Mariti propinqui & cognati ſunt.
      Stamina cohærent vel inter ſe invicem aliqua ſua parte, vel cum piſtillo.
      - MONOECIA. à μόνος unicus, & οἰκία domus. XXI.
        Mares habitant cum fem. in eadem domo, ſed diverſo thalamo.
        Flores maſculini & feminini in eadem planta ſunt.
      - DIOECIA. XXII.
        Mares & feminæ habitant in diverſis thalamis & domiciliis.
        Flores maſculini in diverſa planta, à femininis naſcuntur.
      - POLYGAMIA. à πολὺς, & γάμος Nuptiæ. XXIII.
        Mariti cum uxoribus & innuptis cohabitant in diſtinctis thal.
        Flores Hermaphrodit. & maſculini l. femin. in eadem ſpecie.
  - DICLINIA. à δὶς bis & κλίνη Lectus, Thalamus.
    Mariti ſeu feminæ diſtinctis thalamis gaudent.
    Flores maſculini vel feminini in eadem ſpecie.
- CLANDESTINÆ.
  Nuptiæ clam inſtituuntur.
  Flores, oculis noſtris nudis vix conſpiciuntur.
  - CRYPTOGAMIA. à κρυπτὸς occultus, & γάμος Nuptiæ. XXIV.
    Nuptiæ clam celebrantur.
    Florent intra fructum, vel parvitate oculos noſtros ſubterfugiunt.

ORDINES à Feminis ſeu piſtillis, ut claſſes à Maribus ſeu ſtaminibus, deſumuntur; in Claſſi Syngeneſiæ autem à cæteris parum differunt Ordines. e. gr.

MONOGYNIA, Digynia, Trigynia, Tetragynia &c. à γυνὴ femina, præpoſitis numeris græcis μόνος, δὶς, τρεῖς, τέσσαρες. &c.

i. e. *Piſtillum 1. 2. 3. 4. &c. Numerus hic piſtilli deſumitur à Baſi ſtyli; ſi ſtylus autem deficiat, à numero Stigmatum calculus fit.*

MONOGAMIA conſtat multis nuptiis, conjugia pura contrahentibus.

i. e. *multis floſculis ſtaminibus & piſtillis inſtructis. Flores ejuſmodi maximam partem vulgò* Compoſiti *dicuntur.*

POLYGAMIA. ubi thalami vere nuptorum diſcum occupant, & ambitum cingunt thalami meretricum maritis deſtitutarum, ut a maritis uxoratis fecundentur.

i e.; *ubi floſculi Hermaphroditi diſcum occupant, & marginem cingunt floſculi feminini, ſtaminibus deſtituti, idque triplici modo:*

α. SUPERFLUA dicitur, cum feminæ maritatæ fertiles ſunt, ac familiam propagare queunt; adeo ut meretricum auxilium videatur ſuperfluum.

i. e. *cum flores diſci Hermaphroditi ſtigmate inſtruuntur & ſemina proferunt, flores quoque feminini radium conſtituentes ſimiliter ſemina ferunt.*

β. FRUSTRANEA dicitur, cum feminæ maritatæ fertiles ſunt & ſpeciem propagare queunt; Meretrices autem ob defectum vulvæ, veluti caſtratæ, imprægnari nequeunt.

i. e. *cum flores diſci Hermaphroditi ſtigmate inſtruuntur & ſemina proferunt, floſculi verò radium conſtituentes, quum ſtigmate careant, ſemina proferre nequeunt.*

γ. NECESSARIA dicitur, cum feminæ maritatæ, ob genitalium labem & vulvæ defectum ſteriles, familiam propagare nequeunt; meretricibus autem à maritis feminarum fecundatis, uxorum locum ſupplentibus, ſobolemque læte propagantibus.

i. e. *cum flores Hermaphroditi ob defectum ſtigmatis piſtilli, ſemina perficere nequeunt; floribus autem femininis in radio ſemina perfecta proferentibus.*

CAROLI LINNÆI

A. MONANDRIA. *Stamen Unicum.*

MONOGYNIA.

Hippuris. *Limnopence.* V.
Canna. *Cannacorus* T.

DIGYNIA.

Coriſpermum I.
Stellaria D.

AUCTORES Syſtematici allegati.

A. *Acta Pariſienſ.* Tourn.
B. BOERHAAVE.
Bx. Buxbaum.
C. CÆSALPINUS.
D. DILLENIUS.
G. Gronovius, qui multas mecum communicavit plantas peregrinas, e quibus nova genera adpoſui.
H. Heicherus.
Hs. Heiſterus.
I. Juſſieu.
K. Knautius fil.
M. Michelius.
Mg. MAGNOL.
Mr. Martyn.
Pl. Plumier.
Pn. Pontedera.
Rj. RAJUS.
Rp. Ruppius.
Rv. RIVINUS.
S. Scheuchzer.
T. TOURNEFORTIUS.
V. Vaillantius.
VI. 100. Vide Hexandriam Hexagyniam, Ubi VI. 100. *Aliſm: Damaſon.* poſui, id eſt: Damaſonium Tournefortii, eſt ejuſdem generis cum Aliſma in Hexand. Polygynia.

* Indicat plantarum flores, a me hactenus non examinatos, ſed à fida Auctorum deſcriptione vel Figura heic inſertos.

† Nova genera a me conſtituta.

B. DIANDRIA. *Stamina Duo.*

MONOGYNIA.

α. FLOS REGULARIS.
Olea.
Liguſtrum.
Jaſminum.
Syringa. *Lilac* T.
Veronica.
Saliunca. Bx.
Beccabunga. Rv.
Veronicella. Hs.
Veronicaſtrum. Hs.
Circæa.

β. FL. IRR. ANGIOSP.
Utricularia. *Lentibularia* R.
Pinguicula.
Moriſna T. *
Lathræa *. *Clandeſtina* T.
Ecbolium Rv. *Adhatoda* T.
Bignonia T. *Geljemin.* Rv.

γ. FL. IRR. GYMNOSP.
Roſmarinus.
Lycopus. T.
Salvia T.
Horminum T.
Sclarea T.

C. TRIANDRIA. *Stamina Tria.*

MONOGYNIA.

α. CALICE VIX ULLO.
Valeriana T.
Phu Rp.
Valerianella T.
Boerhaavia V.

β. CALICE PERIANTHIO.
Tamarindus *.
Banniſteria *. † *Soneri-ila.*
Cneorum. *Chamælea* T.

γ. CALICE SPATHA.
Crocus.
Gladiolus.
Antholyza †.
Iris T.
Xiphium T.
Siſyrinchium T.
Hermodactylus T.
Rumpfia. †
Commelina Pl.

δ. CALICE GLUMA.
Cyperus.
Scirpus.
Eriophorum. *Linagroſtis* T.

DIGYNIA.

α. GLUMOSI SPICATI.
Hordeum.
Triticum.
Secale.
Phalaris.
Alopecurus.
Phleum †. *Gr. typhoides.*
Lolium †.
Nardus †. *Gr. Sparteum.*

β. GLUMOSI PANICULATI.
Panicum.
Milium.
Briza †.
Agroſtis †.
Bromus †.
Feſtuca †.
Avena.

γ. PERIANTHIO INSTR.
Polyporon †.
Morocarpus Rp.

TRIGYNIA.

Montia M. *Cameraria* D.
Tillæa M. *.

D. TETRANDR. *Stamina Quatuor.*

MONOGYNIA.

α. CALICE COMMUNI.
Protea. *Lepidocarpod.* B.
Conocarpodendron B.
Hypophyllocarpod. B.
Dipſacus.
Scabioſa.
Succiſa Kn.
Knautia. *Lychni-ſcabioſ.* B.
β. STELLATÆ Rj.
Gallium.
Aparine.
Aſperula.
Rubeola.
Houſtonia †. G.
Sherardia D. *Dillenia* Hs.
Spermacoce D. *
Crucianella.
Rubia.
γ. VARII.
Plantago.
Coronopus. T.
Pſyllium T.
Sarcocolla †.
Catisbea † G.
Centunculus D. *.
Lippia *.
Camara Pl. *Morobatind.* V.
Vitex.
Poterium. *Sanguiſorba* Rp.
Epimedium.
Avicennia †. *Oepata* HM.
Tithona †. *Phytolac. ſp.* T.
Cornus.
Meſomora Rudb.
Oſſea Rv. *Virg. ſang.* D.
Evonymus.
Ptelea. *Frut. Virg. trif.* D *
Ixora † *Schesti* HM.
δ INCOMPLETI.
Alchemilla.
Elæagnus.
Mimoſa.
§ VI. 1 *Conv. Unifolium* D.

DIGYNIA.

Hypecoon.
Bocconia Pl. *.
Cuſcuta.
Baſella HM. B.

TRIGYNIA.

Ilex. *Aquifolium* T.
Caſſina †.
Potamogeton.

§. V. 5. *Lin. Radiola* D.

E. PENTANDRIA. *Stamina Quinque.*

MONOGYNIA.

α. FL. IMPERFECTI.
Herniaria.
Paronychia *.
Blitum.
Viris.
Perſicaria VI. 2.
Glaux.
Rhamnus T. *Cervi ſpina* XXII 4.
Frangula T.
Alaternus T.
Paliurus T.

β PETAL. 1. SEMINA 4.
Anchuſa. *Bugloſſum* T.
Cynogloſſum.
Lappula Rp.
Lithoſpermum.
Pſeudo-Anchuſa H.
Myoſotis D. *Scorpiurus* Kn.
Heliotropium.
Pulmonaria.
Symphytum T. *Conſolida* Rv.
Lycopſis. *Echioides* D.
Aſperugo.
Borrago.
Cerinthe.

γ. PETAL. 1. SEMIN. 2.
Phyllis. *Bupleuroides* B.

δ. PETAL. 1. SEMIN. 1.
Mirabilis Rv. *Jalapa* T.
Plumbago T. *Dentillaria* R.

ε. PETAL. 1. CAPS. 1-LOCULAR.
Hydrophyllum.
Swertia †. *Gentianæ ſp.* aliis.
Hottonia B. *Myriophyllum* Rp.
Samolus.
Menyanthes.
Nymphoides T.
Lyſimachia.
Nummularia B.
Anagallis.
Cyclamen.
Soldanella.
Ruellia Pl.
Primula. *Prim. veris* T.
Auricula urſi T.
Androſace.
Armeria. *Lychnidea* D.

ζ. PET. 1. CAPS. 2-LOCUL.
Verbaſcum T.
Blattaria T.
Hyoſcyamus.
Apollinaris. *Priapeja* Kn.
Nicotiana.
Datura. *Stramonium* T.
Myrſine †.

η. PET. 1. CAPS. 3-LOCUL.
Convolvulus.
Convolvuloides Hs.
Ipomœa. *Quamoclit* T.
Campanula.
Phyteuma. *Rapunculus* T.
Polemonium.
Trachelium.
Polypremum. †

θ. PETAL. 1. CAPS. 4-LOCUL
Diervilla A.

ι. PETAL. 1. CAPS. 5-LOCUL.
Dioſma. † *an Anisi ſtellati ſp.?*
Azalea. †. *Chamærhododend.* T.

κ. PETAL. 1. BACCIFERÆ.
Atropæa. *Belladonna* T.
Mandragora.
Solanum.
Melongena T.
Lycopersicum T.
Capſicum.
Phyſalis. *Alkekengi* T.
Strychnos †. *Vomica.* *.
Genipa. *.
Tinus.
Phillyrea.
Patagonica D. *.
Sideroxylon *.
Coffea. *Coffe* Hs.
Fuchſia *.
Tournefortia. *Pittonia* Pl. *.
Lycium. *Jaſminoides* A.
Caprifolium T.
Periclymenum T.
Chamæcerajus T.
Xyloſteum T.

λ. PETALA 5 ÆQUALIA.
Cuminum. *Cuminoides* T.
Telephium T.
Brunia †. *Leviſanus* Pet.
Gronovia. Houſt. apud. Mr.

μ. PET. 5 INÆQUALIA.
Viola.
Impatiens Rv. D.
Balſamina Rv. T.

DIGYNIA.

α. VARIÆ.
Chenopodium.
Beta.
Ulmus.
Salſola. C. *Kali* T.
Panax *. *Araliaſtrum* V.
Gentiana T.
Centaurium minus T.
Heuchera †. *Cortuſa* Hr.
§. XII. 2. *Agrimonoides* T.
§. XX. 2. *Ribes.*
§. V. 3. *Staph. Zanthoxyl.* Ctb.

β. FR. BIFOLLICULARIS.
Plumeria T.
Vinca Rp. Pervinca T.
Nerium.
Tabernemontana Pl. *
Cameraria Pl. *
Apocynum.

γ. UMBELLA SIMPLEX.
Eryngium.
Hydrocotyle.
Sanicula.
Aſtrantia.

δ. UMB. COMPOSITA, INVOLUCRO NULLO.
Carum Rv. *Carvi* T.
Fœniculum T.
Anethum T.
Apium.
Aniſum Rv.
Ægopodium Kn. *Podagrar.* Rv.
Pimpinella.
Paſtinaca.
Heracleum. *Sphondylium* T.
Smyrnium.
Imperatoria Rv.

ε. UMBELLA COMPOSITA, INVOLUCRO PARTICULARI.
Cicuta †. *Cicutaria* Rv.
Phellandrium.
Oenanthe.
Æthuſa. *Cynapium* Rv.
Chærophyllum.
Myrrhis Rv.
Myrrhis *Odorata* Rv.
Scandix.
Ceroſolium Rv.
Thapſia
Coriandrum.
Bupleurum T.
Perfoliata Rv.

ζ. UMBELLA COMPOSITA INV. PART. ET UNIVERS.
Laſerpitium.
Angelica.
Sium.
Siſarum T.
Conium. *Cicuta* Rv.
Thyſſelinum.
Daucus.
Staphylinus Rv.
Caucalis.
Peucedanum.
Athamanta. *Meum* T.
Leviſticum Rv.
Cicutaria T.
Ammi.
Crithmum.
Cachrys.

TRIGYNIA.

Tamarix. *Tamariſcus* T.
Viburnum.
Sambucus T.
Ebulus Pn.
Opulus T.
Cotinus.
Staphylæa V: I. *Staphylodendr.* T

§. V. 2. *Chenopodium.*

TETRAGYNIA.

Parnaſſia.

PENTAGYNIA.

Linum IV. 4.
Droſera. *Ros Solis* T.
Aralia T. V.
Statice T.
Limonium T.
Craſſula D.
Cotyledon.

POLYGYNIA.

Myoſurus Kn. D.

F. HEXANDRIA. *Stamina Sex.*

MONOGYNIA.

α. FL. INCOMPL. VI-PETAL.
Lirium.
Martagon Rp.
Petilium. *Corona Imper.* T.
Fritillaria.
Tulipa.
Erythronium. *Dens canis* T.
Glorioſa. *Methonica* A.
Ornithogalum.
Scilla.
Aſparagus.
Leontice. *Leontopetalum* T.

β. FL. INCOMPL I-PETAL.
Convallaria IV. 1 *Lil. Conv.* T.
Polygonatum T.
Hyacinthus.
Muſcari T.
Polyanthes. *Tuberoſa* Hs.
Suſiana. *Lil. Suſianum.*
Aſphodelus.
Hemerocallis. *Lilio-aſphod.* T.
Liliaſtrum T.
Aloë T.
Yucca D.

γ. FL. COMPLETUS.
Ananas T.
Bromelia Pl.
Tillandſia. *Caraguata* Pl.
Tradeſcantia Rp. *Ephemer.* T.
Burmannia. †.
Lithocardium. * *Sebeſtena* D.
Berberis.

δ. FL. SPATACEUS.
Pancratium D.
Narciſſus.
Amaryllis. *Lilio-Narciſſ.* T.
Leucojum. *Narciſſo-Leuc.* T.
Galanthus †.
Praſum. *Scordoprajum* M.
Porrum.
Cepa.
Allium.
Pontederia †. G. Pet. Gaz 1 12.

ε. FL. INVOLUCRATUS.
Hæmanthus.

ζ. FL. GLUMOSUS.
Juncus.

η. FL. APETALUS.
Peplis. *Portula* D.

DIGYNIA.

Atraphaxis *. *Atripl. or. acul.* D.
Oryza *.

TRIGYNIA.

§. V. 1. *Perſicaria.*
§. VI. 3. *Rumex. Acetoſa.*

TETRAGYNIA.

Scheuchzeria †. *Juncoidi aſ.* S.
Triglochin. Rv. *Juncago* T.
Rumex. *Lapathum* T.
Acetoſa T. VI. 2. ☿ VI.
Anthericum. *Phalangium* T.
Colchicum.
Medeola † G. *Ipecacuanha?*
Meniſpermum.

PENTAGYNIA.

§. VIII. 4. *Paris.*

HEXAGYNIA.

§. VI. 100. *Aliſ. Damaſon.* T.

POLYGYNIA.

Aliſma. VI. 6. *Plantaginoid.* Kn.

G. HEPTANDRIA. *Stamina Septem.*

MONOGYNIA.

Trientalis Rp.
Caſtanea. *Hippocaſtanum.*

H. OCTANDRIA. *Stamina Octo.*

MONOGYNIA.

Rivina Pl. *.
Daphne. *Thymelæa* T.

DIGYNIA.

Erica.
Vaccinium. *Vitis idæa* T.
Oxycoccus T.

TRIGYNIA.

Ruta.
Monotropa. *Hypopitys* D.

TETRAGYNIA.

Oenothera. *Onagra* T.
Epilobium D. *Chamænerion* T.

PENTAGYNIA.

Crateva. * *Tapia* Pl.
Trophœum. *Cardamindum* T.
Pavia B.
Melianthus.
Acer.
Cliffortia. †. G.
Cæſalpina Pl. *

HEXAGYNIA.

Chryſoſplenium T.
Galenia.

POLYGYNIA.

Biſtorta.
Polygonum.
Helxine. *Fagopyrum* T.
Seriana Pl.
Ururu Pl.
Cardioſpermum. *Corindum* T.

DECAGYNIA.

Paris VI. 3.
Adoxa. *Moſchatellina* T.
Sagina. *Alſinella* D.
Potamopithys B.

§. X. 5. *Sedum.*

I. ENNEANDRIA. *Stamina Novem.*

MONOGYNIA.

Camphora †.
Cinnamomum. *Lauri ſpecies.*

TRIGYNIA.

Rheum. *Rhabarbarum* T.

HEXAGYNIA.

Butomus.

K. DECANDRIA. *Stamina Decem.*

MONOGYNIA.

α. ANTHERÆ BICORNES.
Arbutus.
Uva Urſi T.
Andromeda. *Ledum* Rj.
Ledum M.
Chamædaphne Bx.
Poliſolia Bx.
Pyrola.

β. STAMINA IRREGULARIA.
Dictamnus. *Fraxinella* T.
Caſſia T.
Senna T.
Poinciana T.
Cercis. *Siliquaſtrum* T.
Hæmatoxylon † *Camperia* Sl.
Acinodendron. Plk. † *Malab.* off.

γ. STAMINA REGULARIA.
Malpighia Pl.
Averrhoa. † *Bilimbi* HM.
Zygophyllum. *Fabago* T.
Fagonia T.
Tribulus T.
Portulaca.
Clethra †. G. *Alnifolia* Plk.
Anacardium. *Acajv* T.

δ. CALIX NULLUS.
Ledum Rp.

DIGYNIA.

Mitella T.
Saxifragia T.
Geum T.

TRIGYNIA.

Dianthus. *Caryophyllus* T.
Armeria H.
Saponaria †.
Scleranthus *Knawel* D.

PENTAGYNIA.

Garidella T.
Drypis M.
Silene. *X*: 5. *Muſcipula* Rp.
Cucubalus. ☿: 10. X: 5.
Behen.
Alſine.
Arenaria Rp. *Spergula* D.
Lychnoides V.

POLYGYNIA.

Lychnis.
Agroſtema. *Nigellaſtrum.*
Ceraſtium D. *Myoſotis* T.
Spergula †.

DECAGYNIA.

Benzoa †. G. Benzoë: *an?*
Sedum T. VIII. 4. Y. d.
Anacampſeros T.

§. X. 3. *Silen: Viſcaria* Rp.
§. X. 3. *Cucub. Lychnis.*

Phytolacca T.

L. DODECANDR. *Stamina Duodecim.*

MONOGYNIA.

Aſarum.

DIGYNIA.

Lythrum. *Salicaria* T.

TRIGYNIA.

Agrimonia V. 2.
Agrimonoides T. V. 2.

TETRAGYNIA.

§. XXX: 1. *Euph. Tithymalus* T.
Euph. Elutheria Pet. * G.

PENTAGYNIA.

Sempervivum Rp.

DODECAGYNIA.

M. ICOSANDRIA. *Stamina Calici adnata.*

MONOGYNIA.

α. FRUCTU DRUPA.
Zizyphus T.
Eugenia M. *
Amygdalus.
Perſica T.
Prunus.
Armeniaca T.
Ceraſus.
Padus.
Guajacum Pl. *

β. FR. BACCA *vel* POMO
Myrtus.
Punica.
Styrax.
Citrus. S. 100.
Aurantium T.
Limon.

γ. FR. CAPSULA.
Philadelphus. *Syringa* T.

DIGYNIA.

Ribes. *Groſſularia* T. V. 2.
Cratægus T.
Oxyacantha Rp.

TRIGYNIA.

Sorbus.
Aucuparia Rp.
Cotoneaſter.

PENTAGYNIA.

Meſpilus.
Pyrus.
Malus.
Cydonia.
Spiræa.

POLYGYNIA.

Muntingia Pl. *
Roſa.
Rubus.
Chamæmorus Rj.
Fragaria.
Camaroides Pn.
Potentilla. *Pentaphylloides* T.
Quinquefolium T.
Tormentilla. XVI. 8.
Dryadæa †.
Comarum †.
Geum. *Caryophyllata* T.

REGNUM VEGETABILE.

N. POLYANDRIA.

St. multa recept. adnata.

MONOGYNIA.

α. Calice Caduco.
Actæa *Christophoriana* T.
Podophyllum. *Anapodophyl.* T.
Corchorus.
Sanguinaria D. *
Chelidonium T.
Glaucium T.
Papaver T.
Argemone T.
Sarracena T. *Coilophyllum* Mf.
Tilia.

β. Calice Persistente.
Peganum. *Harmala.*
Nymphæa.
Leuconymphæa B.
Michelia. † *Samstravadi* HM.
Anacampseros. *Telephiastr.* D.
Cistus.
Helianthemum T.
Caryophyllus. *Car. arom.* T.
Thea * †.
Mesua †. *Belutta* HM.
Capparis.
Plinia. Pl. *

γ. Calice Tabescente.
Euphorbium L. 3.
Cereus.
Opuntia T. *Tuna* D.
Cactus. *Melocactus* T.

§. N. 3. *Delphinium.*

Pæonia.
Anona. *Guanabanus* Pl.

Pereskia Pl. *
Reseda T.
Luteola T.
Hypericum N. 5.
Androsæmum T.
Aconitum T. N. 5.
Delphinium N. 1.
Staphisagria Rp.

Tetragonia. *Tetragonocarpos.*

Aquilegia.
Nigella.
Aizoum *. *Ficoides* N.
Mesembryanthemum D.

§. N. 3. *Hyper. Ascyrum.*
§. N. 3. *Aconitum.*

Stratiotes. *Aloides* B.

Dillenia †. *Syalita* HM.
Magnolia Pl. *Tulipifera.*
Clematitis.
Atragena. *Viticella* D.
Pulsatilla.
Anemone.
Anemone-ranunculus D.
Nemorosa Rp.
Caltha Rp. *Populago* T.
Helleborus.
Trollius Rv. *Helleboro-Ran.* B
Helleboroides B. *Aconit.* Rv.
Ranunculus.
Ficaria D.
Ranunculoides V.
Ranunculo-asphodel. HS.
Adonis D.
Hepatica D.
Filipendula T.
Ulmaria T.

DIGYNIA.

TRIGYNIA.

TETRAGYNIA.

PENTAGYNIA.

HEXAGYNIA.

POLYGYNIA.

O. DIDYNAMIA.

Stam. 4, quor. 2 longiora.

GYMNOSPERMIA. i. e. Seminibus Pericarpio nudis.

α. Petali Lab. Sup. nullo.
Bulga. *Lugula* T.
Polium.
Teucrium.
Trissago. *Chamæpitys* T.

β. Petali Lab. Sup. erecto.
Origanum T.
Majorana T.
Thymus T.
Satureia T.
Serpillum T.
Thymbra T.
Lavendula.
Stœchas.
Hyssopus.
Clinopodium.
Marrubium.
Betonica.
Glechoma. *Calamintha* T.
Chamaclema B.
Ruyschia. *Ruyschiana* B.
Ocymum.

γ. Petali Lab Sup. concavo.
Mentha.
Menthastrum Rp.
Pulegium Riv.
Moldavica.
Volkamera Hs.
Stachys.
Galeopsis.
Ladanum D. *Tetrakit.* D.
Lamium.
Molucca.
Cardiaca.
Galeobdolon D.
Leonurus.

δ. Petali Lab. Sup. galeato
Dracocephalon.
Scutellaria Rv. *Cassida* T.
Brunella.
Phlomis.

Antirrhinum T.
Linaria T.
Elatine Rp.
Asarina T. *Cymbalar.* Rv.
Scrophularia.
Digitalis.
Gratiola Rv.
Volkameria †. *Digitalis sp.* T.
Chelone A.
Orobanche.
Squammaria Rv. *Anblatum* T.
Acanthus.
Melampyrum.
Fistularia. *Crista galli* Rv.
Pedicularis.
Euphrasia.
Odontites D.
Verbena.
Sherardia V.
Selago. *Camphorata.*
Bontia *.
Dodartia *.
Phelypæa T *.
Crescentia *. *Cujete* Pl.
Celsia †.
Limosella. *Plantaginella* D.
Rhinanthus. *Elephas* T.
Martynia. Houst. apud Mr.
Æginetia † *Tsiemcumulu* HM.

ANGIOSPERMIA. i. e. Seminibus tectis Pericarpio.

FRUCTU SILIQUOSO.

α. Pericarpio uniloculari.
Isatis.
Crambe.
Cakile.
Myagrum.
Bunias. *Rapistrum* T.

β. Peric. biloc. dissep. opposito.
Thlaspi T.
Bursa pastoris T.
Iberis D.
Biscutella. *Thlaspidium* T.
Nasturtium.
Iberis Rp.
Coronopus H. Rp.
Lepidium.
Armoracia Rp.
Cochlearia.
Subularia Rj. *Juncifolia* Rj.

γ. Peric. biloc. dissep. parall.
Alyssum.
Draba D.
Lunaria T. *Bulbonac.* Rp.

Eryssimum.
Irio. *Eruca* T.
Sinapis.
Rapa.
Napus.
Brassica.
Turritis.
Hesperis.
Alliaria Rp.
Conringia Hs.
Dentaria.
Sophia. *Accipitrina* Rv.
Sisymbrium.
Radicula D.
Cardamine.
Raphanus.
Raphanistrum T.
Cleome. *Sinapistrum* T.
Cheri. *Leucojum* T.

FRUCTU SILICULOSO.

P. TETRADYNAM.

Stam. 6, quor. 4 longiora.

Hermannia.
Melochia D. *
Xeræa. *Amarantheides* T.

Azedarach.
Geranium X: 1.
Gruinalis.

Malva.
Alcea T.
Abutilon T.
Malope †.
Lavatera. A.
Gossypium. *Xylon* T.
Alcea. *Malva rosea.*
Althæa †.
Urena *.
Trionum. *Bammia* Rv.
Ibiscus. *Ketmia* T.
Camellia *. *Tsubaki.* Kp.
Sida. *Althæades.* Mg.
Fevillæa. *Inga* Pl.

Q. MONADELPH.

St. Filam. coal. in 1 corp.

PENTANDRIA.

DECANDRIA.

POLYANDRIA.

R. DIADELPHIA.

St. Filamentis coalita in 2 corpora.

HEXANDRIA.

DECANDRIA. i. e. Stamina coalita filamentis 9 in unum corpus, & 1 libero.

Fumaria T.
Capnoides T.
Split Rv.
Capnorchis B.
Cysticapnos B.

α. Fructu Siliculoso.
Polygala.
Cicer.
Lens.
Onobrychis.
Sertula. *Melilotus* T.
Dorycnium. } ? simul.
Trifolium. }
Coreba. *Lagopus* Rv.
Anthyllis Rv. *Vulneraria* T.

β. Fr. incurvo irregulari.
Medica T. *Falcata* Rv.
Medicago T. *Cochleata* Rv.
Hippocrepis. *Ferrum Equ.* T.
Scorpiurus. *Scorpioides* T.
Ornithopodium.
Telis. *Fœnum Græcum* T.
Hedysarum.
Meibomia Hs.

γ. Fr. leguminoso ordin.
Lotus.
Ononis.
Ternatea. *Clitoris.*
Corallodendron.
Coiutea.
Ulex. *Genista-Spartium* T.
Spartium.
Genista.
Anagyris.
Cytisus.
Laburnum.
Orobus.
Vicia.
Arachis. *Cracca* Rv.
Lathyrus.
Clymenum.
Nissolia.
Lupinus.
Faba.
Pisum.
Phaseolus.

δ. Fr. Biloculari.
Biserrula. *Pelecinus* T.
Tragacantha.
Glycia. *Astragalus* T.

S. POLYADELPH.

Fil. coal. in plures part.

POLYAN.

Lasianthus †. G. *Alcea sp. aliis.*
§. XX 1. *Citrus.*

T. SYNGENESIA.

St. Antheræ coalitæ.

MONOGAMIA.

α. Flore Simplici.
Dortmanna Rd.
Rapuntium T. *Cardin.* Rv.
Laureatia M.
Jasione †. *Rapunculus scab cap.*

β. Semiflosculosi T.
Lampsana.
Cichorium.
Catanance.
Zacintha.
Taraxacum. *Dens Leonis* T.
Pilosella.
Hieracium.
Sonchus.
Chondrilla.
Picris †.
Lactuca.
Scorzonera.
Tragopogon.

γ. Flosculosi T.
Chrysocome. *Linosyris* Mg.
Eupatorium.
Sphærocephalus. *Echinopus* T.
Santolina.
Vebesina. *Bidens* T. Pn.
Forbicina Pn.
Carlina.
Xeranthemum T. *Stœbe* Rv.
Serratula D.
Carthamus.
Carduus.
Cinara.
Arctium. *Lappa* T.
Cnicus.
Petasites.
Klenia †. *An Tithymaloides* B.

α. Radio petal. destituto.
Artemisia.
Absinthium.
Abrotanum.
Filago.
Ananthocyclus V.
Tanacetum T.
Baccharis D.
Senecio.

β. Radiati T. calice semigloboso.
Achillea. *Millefolium* T.
Ptarmica T.
Anthemis. *Chamæmelum* T.
Buphthalmum.
Matricaria.
Bellis.
Leucanthemum.
Chrysanthemum.
Cotula.

γ. Radiati T. calice ventricoso.
Calendula. *Caltha* T.
Dimorphotheca V.
Tussilago.
Doronicum.
Arnica Rp.
Solidago *Doria* D.
Virga aurea T.
Jacobæa.
Aster.
Amellus †.
Helenium. *Enula Camp.* Mg.
Erigerum. *Conyzoides* D.
Othonna. *Tagetes* T.

α. Radiati T.
Helianthus. *Corona Solis* T.
Rudbeckia. *Obeliscotheca* V.

β. Flosculosi T.
Jacea.
Cyanus.
Centaurium. *Cent. maj.* T.
Crupina D.

Parthenium. *Parthenia strum* D.
Milleria. Houst. apud Mr.

POLYGAMIA FRUSTRANEA.

POLYGAMIA NECESSARIA.

POLYANDRIA.

U. GYNANDRIA.

Stamina Pistillo aduata.

DIANDRIA.

Orchis.
Satyrium Rv.
Palmata Rv.
Satyrium.
Orchideæ. Trew.
Neottia. *Corallorhiza* Rp.
Serapias. *Helleborine* T.
Herminium. *Monorchis* M.
Cypripedium. *Calceolus Mar.*
Epidendron †. G. *Orchidis aff.* Hr.
Ophris.
? Nidus Avis T.

Bermudiana.

Nepenthes †.

Asclepias. *Vincetoxic.* Rp.
Beidalsar Kn.
Periploca.
Stisseria. *Crassa* Rv.
Passiflora. *Granadilla* T.
Maracuja. T.
Clutia B.

Aristolochia.

Helicteres. Plk. *Isora* Pl.

Grewia †. *? Guidonia* B.
Arum T.
Dracunculus T.
Colocasia Rj.
Arisarum T.

Calla. *Anguina* Trew.
Aroides B.
Acorus Vl: 1.

Ruppia *. *Bucca ferrea* M.

TRIANDRIA.

TETRANDRIA.

PENTANDRIA.

HEXANDRIA.

DECANDRIA.

POLYANDRIA.

V. MONOECIA.

Plantæ Androgynæ.

MONAND. TRIAND. IVAND. VAND. POLYAND. Stamina plus quam 7. MONAD. POL. SYNGENESIA.

Zannichella M *. *Aponoget.* Pn.
Najas *. *Fluvialis* V.
Cynomorion M. *

Thalysia. *Mays* T.
Sphærium *. *Lacryma Joki* T.
Ægilops. S. *
Ischœmum *. *Dactyloides.*
Carex. *Cyperoides* T.
Scirpoides Mg. *Carex* Rp.
Diasperus. *Nauti* Mr.

Alnus.
Betula.
Buxus.
§. V. 4. *Urtica.*

Amaranthus.
Jatropha *. *Manihot* T.
Andrachne. *Telephioides.*
Oxydectes. *Ricinoides* T.

Ceratophyllum. *Dichotoph.* D.
Myriophyllum Pn.
Pentapterophyllum D.
Corylus.
Ostrya M.
Carpinus T. M.
Fagus.
Castanea *.
Quercus.
Ilex T.
Suber T.
Sagittaria Rp. D.
Sparganium.
Typha.

Pinus.
Abies.
Larix. *
Thuya. *
Cedrus. *
Xanthium.

Ricinus.

Bryonia.
Momordica.
Sicyos. *Sicyoides* T.
Tamnus.
Luffa Arab.
Anguria.
Colocynthis.
Cucumis.
Melo.
Pepo.
Cucurbita.
Anguina M.

X. DIOECIA.

Pl. Mares & Feminæ.

HIAND. IIAND. IVAND. VAND. VIAND. VIIAND. IXAND. XAND. POL. MONAD. SYNG.

Salix.

Phœnix *. *Palma.*
Oyrus. *Cajta* T.

Morus.
Hippophaë *. *Rhamnoides* T.
Myrica. *Gale* A.
Urtica. V. 4.
§. V: 1. *Rham. Cervi Spina* D.

Lentiscus.
Toxicodendron.
Humulus. *Lupulus* T.
Cannabis. ♃. 10.
Spinacia.

Smilax.
§. Vl: 3. *Rum. Acetosa.*

Populus.
Laurus.

Mercurialis.
Hydrocharis. *Morsus ranæ* D.

Sassafras †.
Nyssa †. G. *Tupelo* Catb.
§. X: 3. *Cucub. Lychnis.*
§. ♃. 5. *Cann. Cannabina* T.

Papaya T. *
Aruncus. *Barba Capræ* T.
Kiggelaria †. *Arb. Ilicis folio* B.

Juniperus T.
Sabina Rp.
Taxus *.

Ruscus *.

Y. POLYGAMIA.

Species Hybridæ.

MONOECIA.

DIOECIA.

TRIOECIA.

Veratrum. Vl: 3
Valantia A. *. IV: 1
Holcus †. III: 2
Sorgum M. III: 2
Schœnanthum M. III: 2
Halimus * Mg. X: 2
Atriplex. V: 2
Parietaria. IV: 1

§. IV: 1. *Peterium* N: 2

Fraxinus T. Pn. II: 1
Ornus Pn. II: 1
Helichrysum. T: M.

§. X. 5. *Sedum. Rhodia.*

Empetrum. III: 1

Z. CRYPTOGAMIA

Flores abscondit.

ARBORES.

Ficus. III: 1
Caprificus Pn.
Erinoyce Pn.

FILICES.

Equisetum.
Ophioglossum T.
Lunaria Rp.
Pteris. *Thilypteris* D.
Polypodium.
Lonchitis.
Hemionitis T.
Lingua Cervina T.
Adiantum.
Trichomanes.
Acrostichum †.
Muraria.

MUSCI.

Lycopodium D.
Selaginoides Rj.
Selago D.
Lycopodioides Rj.
Fontinalis D.
Sphagnum D.
Mnium D. *Muscoides* V.
Hypnum D.
Bryum D.
Polytrichum D.
Jungermannia. *Hepatica* M.
Lichenastrum D.
Marchantia. *Lichen* D.
Marsilea. *Lunularia* M.
Lichen. *Lichenoides* D.

ALGÆ.

Fucus.
Ulva Rj.
Hydrophace Bx.
Lemna. *Lenticula* M.
Lenticularia M.
Chara Rj. *Hippuris* D.
Conferva Rj.

FUNGI.

Agaricus D.
Amanita D.
Boletus D.
Hydna. *Erinaceus* D.
Merulius B. *Merckella* D.
Elvela. *Fungoides* D.
Peziza D. *Cyathoides* M.
Coniplea. *Lycoperdon* T.
Lycoperdastrum M.
Geaster M.
Carpobolus M.
Byssus Rj.
Nostoc V.

LITHOPHYTA.

Spongia.
Badiaga Bx.
Isis. *Keratophyton* B.
Tubipora *Tubularia* T.
Cellepora †.
Millepora.
Madrepora.
Retipora.
Corallium.
Acetabulum.
Eschara.

OBSERVATIONES IN REGNUM VEGETABILE.

1. Omnem Plantam Fructificatione gaudere, docet in majoribus nuda autopsia ; in minoribus , Filicibus nempe, Muscis, Algis & Fungis oculus armatus , ut testantur Clariss. Michelii , aliorumque observationes ; nec ullam unquam Plantarum speciem Fructificatione carere posse , patet consideranti analogiam , usum , finem , structuram , creationem harum. Reliquæ autem Plantarum partes in multis deficiunt, ut Radix , Caulis , Folia , Fulcra ; & tamen Vegetabilia sunt ; uti Viscus , Lemna , Cuscuta , Tulipa.
2. Fundamentum Botanices consistit in Plantarum Divisione & Denominatione Systematica , Generica , & Specifica.
3. Botanicis pauciſſimis debetur nitor & certitudo Scientiæ , idque præcipue Auctoribus Systematicis , quorum exempla sequendo debemus continuare , excolere , ac perficere Divisionem Plantarum Systematicam (2).
4. Systematica Divisio Plantarum (3), pro basi assumere debet partem harum primariam ; ergo Fructificationem (1), quam unicum esse Botanices fundamentum Systematicum confirmat Natura ; adeoque pro absoluto fundamento demonstrari potest. Hinc recepta fuit à summis Systematicis , Botanices Fulcris & Conditoribus : *Cæsalpino* , *Morisono* , *Hermanno* , *Boerhaavio* , *Rajo* , *Sloaneo* , *Rivino* , *Knautiis* , *Ruppio* , *Tournefortio* , *Plumiero* , *Feuillæo* , *Dillenio* , *Buxbaumio* , *Michelio* , *Magnolio* , *Vaillantio* , *Scheuchzero :* & vix ab ullo Methodico , nostro imprimis tempore , negari potest , nisi forte à solo *Heistero.*
5. FRUCTIFICATIONIS *Partes* Universales duæ , *Flos* scilicet & *Fructus* : Particulares vero septem sunt , cum suis speciebus :
   I. FLOS. 1. *Calix* Spec. 6. *Perianthium* , *Involucrum* , *Amentum* , *Spatha* , *Gluma* , *Calyptra.*
   2. *Corolla* Spec. 2. *Petalum* , *Nectarium.*
   3. *Stamina* Part. 2. *Filamentum* , *Anthera* (Apex vulgo).
   4. *Pistilla* Part. 2. *Stylus* , *Stigma* (Summitas).
   II. FRUCTUS. 5. *Pericarpium* Sp. 9. *Capsula* , *Conceptaculum* , *Siliqua* , *Legumen* , *Nux* , *Drupa* , *Pomum* , *Bacca* , *Strobilus.*
   6. *Semina* Part. 3. *Seminulum* , *Corona* , *Floccus.*
   7. *Receptaculum* Sp. 3. *Floris* , *Fructus* , *Fructificationis.*
6. Essentia Plantarum consistit in Fructificatione (1) ; *Fructificationis* in Flore & Fructu (5: I. II.) ; *Fructus* in Semine (5: 6.) *Floris* in Stamine (5: 3.) & Pistillo (5: 4.) ; *Staminis* in Anthera ; *Pistilli* in Stigmate.
7. Fructum omnem antecedit Flos ; *Floris* essentia consistit in Anthera & Stigmate (6), unde Methodum meam desumsi , cujus itaque robur à priori patet ex jam dictis (1-7).
8. Antheras & Stigmata (7) constituere Sexum Plantarum , à *Grewio* , *Rajo* , *Camerario* , *Morlando* , *Vaillantio* , *Blairio* , *Jussieo* , *Bradleyo* , *Royeno* , &c. detectum , descriptum & pro infallibili assumtum : nec ullum , apertis oculis considerantem cujuscunque plantæ Flores , latere potest : licet hic ob angustiam loci explicari nequeat. Negaturque nostro tempore vix ab ullo alio , nisi à solo *Pontedera.*
9. *Antheræ* sunt organa genitalia MASCULINA , quæ cum Farinam suam genitalem *Stigmati* , genitali FEMININO , inspergunt , fit *Fecundatio* ; quam probant Observationes , Experimenta , Analogia , Anatomia , Antecedentia , Consequentia , Usus.
10. Flores itaque (9) qui Antheras habent, *Masculini* ; qui Stigmata, *Feminini* ; qui utraque simul, *Hermaphroditi* dicuntur.
11. Planta quæ Floribus Masculinis gaudet, *Mas* ; quæ Femininis, *Femina* ; quæ utrisque, *Androgyna* ; quæ Hermaphroditis, *Hermaphrodita* ; quæque Hermaphroditis & simul Masculinis vel Femininis, *Hybrida* dicitur.
12. Nullum Systema Plantarum Naturale, licet unum vel alterum propius accedat, adhucdum constructum est ; nec ego heic Systema quoddam Naturale contendo (forte alia vice ejus Fragmenta exhibebo) ; neque Naturale construi potuit, antequam omnia, ad nostrum Systema pertinentia, notissima sint. Interim tamen Systemata artificialia, defectu Naturalis, omnino necessaria sunt.
13. Nulla Methodus Botanica , à Fructificatione Systematice desumta , adhuc constructa est , quæ non maximam præbuit utilitatem ; nec nocuit ulla unquam , nisi quatenus ex assumtis principiis genera naturalia contra naturam dilaceravit , quod Nos scientes volentesve non commisimus.
14. Genus omne est naturale , in ipso primordio tale creatum : hinc pro lubitu & secundum cujuscunque theoriam non proterve discindendum , vel conglutinandum est.
15. Nomina Generica male constructa , quæque confusionem pariunt , Synonymis Veterum melioribus (paucis novis à me confectis) insignivi. Multa tamen adhuc minus congrua restant.
16. Nominum receptissimorum permutationem , maximam parere difficultatem , exercitatis diu in arte Viris , in confesso est : hinc non mutari deberent , si multitudo errantium errori pareret patrocinium. Neque auctor sum , ut ad mentem meam , seniores Botanici mutent nomina. Veniat tandem serus dies , quo nova & nostris accuratior Gens , per ordinem successionis ætatum , surgat , quam spondeo meam considerraturam fore theoriam , nominaque illa sæpius absurda , præcipue specifica expungat , de quibus in *Fundamentis* meis *Botanicis* Amstelodami nuper editis plura dixi.
17. Methodum meam difficultatem parere nimiam , hariolor Botanicos jam dicere , ad examinandas nempe partes has minimas Floris , vix nudis oculis conspicuas. *Respondeo :* quod si Microscopium , instrumentum maxime necessarium , quivis Curiosus secum habeat , quid plus opus ? Ego tamen examinavi hos omnes Plantarum Flores nudo oculo , absque omni Microscopiorum usu. Ultima tamen Classis videtur à Creatore veluti excluſa à theoria Staminum , adeoque secundum numerum non descripsi. Negat enim Natura conjunctionem harum secundum Stamina ; videsis Cl. *Michelii* opera.
18. Ne ordines nimis longi , adeoque difficiliores evaderent , eos subdivisionibus auxiliaribus à Fructificatione dispescui. Inter hos notabilis maxime est *Pentandria Monogynia* , ubi plantæ *Umbellatæ* recensentur , quas secundum methodum à Cl. *Artedio* in Umbelliferis excogitatam disposui. Fundamentum has distinguendi desumit ab involucro seu calice Umbellæ : Umbellasque omnes in tres ordines dispescit : 1m. continet plantas Umbellatas , quæ involucro omni carent. 2d. , quæ involucro ad Umbellas tantum particulares gaudent. 3t. , quæ involucro ad Umbellas universales & particulares instruuntur. Quæ Methodus in hac familia reliquis palmam præripit.
19. *Vires Vegetabilium* à Botanico , qua talis , dijudicantur secundum theoriam Artis vel Sensuum ; hinc , qui utriusque signa intelligit , ille verè scit vires plantarum. Plantæ quæcunque Classe Naturali , adhuc magis Ordine N. sed maxime Genere N. conveniunt , etiam viribus propius accedunt. ex. gr.
   TRIANDRIA , *Digynia.* α. β. folia armentis & jumentis læta pascua ; semina minora avibus , majora hominibus vulgatissima sunt esculenta.
   TETRANDRIA , *Monogynia* β. Stellatæ Rj. Adstringentes sunt , diureticæ vulgo dicuntur.
   PENTANDRIA , *Monogynia* β. Asperifoliæ Rj. Adstringentes , glutinosæ & vulnerariæ sunt. ---- ---- κ. *Monopetalæ Bacciferæ* , maximam partem venenatæ sunt.
   . . . . . *Digynia* γ. δ. ε. ζ. Umbellatæ T. in siccis locis aromaticæ , calefacientes , resolventes & carminativæ : in humidis autem venenatæ sunt ; Radice & Seminibus pollent.
   ICOSANDRIA *Baccifera* , *Drupifera* vel *Pomifera* ; omnis hic fructus cum oblectamento edatur. POLYANDRIA autem omnis probe distinguenda , quæ sæpius venenata est.
   DIDYNAMIA *Gymnospermia* odorata , cephalica & resolvens est : Folia virtute pollent. TETRADYNAMIA omnis antiscorbutica & diuretica est : exsiccatione amittit vires.
   DIADELPHIA folia Pecoribus ; semina Quadrupedibus (non feris) esculenta & flatulenta sunt. MONADELPHIA mucilaginosa & emolliens est.
   SYNGENESIA amaras continet & stomachicas. GYNANDRIA autem aphrodisiacas. CRYPTOGAMIA vegetabilia sæpe suspecta includit.
   Sensus externi sunt examinatores Diætetici omnis cibi ingerendi , quibus Bona à malis distinguuntur , à Creatore omni animali pro diversitate naturæ , diversi concessi.
   SAPIDA. *Dulcia* nutriunt ; *Pinguia* emolliunt ; *Salsa* stimulant ; *Acida* refrigerant ; *Austera* adstringunt ; *Amara* alcalina , *Acria* corrosiva , *Nauseosa* venenata sunt.
   ODORATA. *Suavia* salutaria , *Suavissima* cardiaca , *Aromatica* resolventia , *Hircina* aphrodisiaca , *Ingrata* suspecta , *Nauseosa* venenata alunt.
   COLOR *ruber* ubicunque acidum indicat , *luridus* & Aspectus totius plantæ *tristis* suspectas reddit plantas.
20. *Ranunculi* nota essentialis consistit in petalis ad ungues interius excavatis pro melle ; reliquæ partes Fructificationis omnes ludunt , idque patet considerranti.

OBSERVATIONES IN REGNUM ANIMALE.

1. Zoologia, pars illa Hiſtoriæ Naturalis Nobiliſſima, longe minus exculta eſt, quam duæ reliquæ ejus partes. Si tamen vel motum, vel mechaniſmum, vel ſenſus externos internoſque, vel denique figuram Animalium, cæteris præſtantiorem, reſpiciamus, omnibus in aprico erit, Animalia eſſe ſumma & perfectiſſima Creatoris opera.
2. Si Zoologias Auctorum ſub examen revocemus, maximam partem nihil niſi narrationes fabuloſas, diffuſum ſcribendi modum, Chalcographorum Icones & Deſcriptiones imperfectas, ac ſæpe nimis extenſas, inveniamus. Pauciſſimi vero ſunt, qui Zoologiam in Genera & Species ſecundum leges Syſtematicas redigere tentarunt, ſi Nobiliſſ. *Willughbejum* & Clariſſ. *Rajum* excipiamus.
3. Hinc Obſervationibus, quas unquam propria autopſia obtinere potuerim adjutus, Syſtema quoddam Zoologiæ conſcribere cœpi, quod heic Tibi ſiſto Illuſtris Lector. In *Tetrapodologia* Ordines Animalium à Dentibus; in *Ornithologia* à figura Roſtri; In *Entomologia* ab Antennis & Alis &c. inprimis deſumſi.
4. In *Ichthyologia* nullam ipſe elaboravi Methodum, verum Suam nobiſcum communicavit ſummus noſtri temporis Ichthyologus Cl. D. *Petr. Artedi*, *Succus*, qui in diſtinguendis Generibus Piſcium Naturalibus, & Specierum differentiis parem ſui vix habuit. Hanc Curioſo Lectori jam ſiſto, ut ideam totius operis heic videat. Plura Ill. Lect. brevi ab Eodem exſpectabit, *Inſtitutiones* nempe *totius Ichthyologiæ*.
5. Sunt qui putent *Zoologiam* minus *utilem* eſſe, quam reliquas Hiſtoriæ Naturalis partes, inprimis ad minutiſſima Animalcula quod attinet; ſed ſi hucuſque notiſſimorum tantummodo Inſectorum Noxam, Utilitatem & Proprietates conſideremus, facile apparebit, quantam utilitatem, eamque magni momenti futuram, affunderent ἰδιότητες eorum, quæ nondum probe cognita nobis ſunt.
6. *Noxa* (5) Inſectorum ex ſequentibus ſatis ſuperque patet: ex. gr. *Blatta* in Finlandia Ruſſiaque & panes, & omnis generis veſtimenta conſumit, ita ut Incolæ intenſiſſima hieme domicilia ſua ad tempus relinquere coacti ſint, uſque dum frigore pereat. *Oeſtrum Lapponicum* tertiam circiter partem Cervorum Rangiferorum ſeu pecudum Lapponicarum, dum adhuc juvenes exiſtunt, deſtruit. *Teredo Navium* quantum detrimentum navibus & palis attulerit, omnibus in confeſſo eſt. *Culices* quanta moleſtia homines & pecudes in provinciis Lapponiæ finitimis afficiant, dicere vix poſſum. *Grylli domeſtici*, notiſſimi illi murorum incolæ, quam moleſtum ſtridorem edant, & quam multas inſomnes noctes dormituris creent, res notiſſima eſt. *Muſcas domeſticas*, in Finmarkia Norvegica, totas domos impleviſſe & nihil intactum reliquiſſe, ipſe in itinere Lapponico vidi. *Pulices* Mulieribus, *Pediculi* Nautis & Militibus quantum laborem & moleſtiam multis in locis faceſcant, nulli non conſtat. Imo Quadrupedia quoque, Aves &c. propriis *pediculis* moleſtantur. *Acari* Inſectorum minima animalcula, ipſa exanthemata corporis humani ſæpiſſime cauſant. Quanto agmine *Locuſtæ Africanæ* paucis abhinc annis in quibuſdam Europæ locis vegetabilia devaſtarint, & quanta ſtrage *Erucæ papilionum* quotannis arborum folia exedant, notiſſimum eſt. *Gyrinus terreſtris* Noſtr. quomodo Plantarum Embryones tenellos primo vere deſtruat, Hortulani optime noſcunt. *Dermeſtes* pretioſiſſimas pelles Quadrupedum & Avium miro modo dilacerat. *Oeſtrum Bovinum* moleſtia maxima defatigatos boves æſtivo tempore afficit. Quam multos homines *Aranei* & *Scorpii* necarint, & *Tarantulæ* inſaniâ affecerint, obſervationes Medicorum teſtantur, ut ſexcenta ejuſmodi præteream.
7. *Uſus* (5) vero Inſectorum maximos in arte Tinctoria præbent *Coccionella*, *Kermes*, *Gallæ* ab Ichneumonibus productæ. *Cantharidum* uſus in Chirurgia, *Meloës* in Medicina, *Bombycum* in arte Textoria, mellis *Apum* in Oeconomia &c. notiſſimus eſt.
8. *Proprietates* (5) Inſectorum qui conſiderare velit curioſus Scrutator, vix ullibi majori afficiatur voluptate. Examina modo: Roſtrum *Curculionis*, Cornua *Lucani*, Antennas *Tragoceri*, Articulos *Meloës*, Alas *Forficulæ*, Plumas *Papilionis*, Oculos *Tabani*, Ventriculum *Ricini*, Aculeum *Crabronis*, Colorem *Cantharidis*, Elaſticitatem *Notopedæ*, Stridorem *Grylli*, Odorem *Cimicis*, Exilitatem *Acari*, Coitum *Libellulæ*, Nidum *Ichneumonis*, Favos *Apum*, Hibernaculum *Oeſtri*, Ædificium *Veſpæ*, Teſtam *Eremitæ*, Vitam *Ephemeræ*, Acervum *Formicæ*, Foveam *Formicæ-Leonis*, Telam *Aranei*, Natatum *Monoculi*, Curſum *Gyrini aqv.* Phoſphorum *Lampyridis*, Scintillas *Scolopendræ*, Renovationem *Cancri*, Motum Spiralem *Erucæ ex Muſca cærulea provenientis*, Vitam fere indeſtructibilem *Erucæ aquaticæ Tabani*, & Metamorphoſes ſic dictas fere omnium *Inſectorum*.
9. Ova plurimorum Inſectorum triplici Integumento obducuntur; abſcedente Integumento Primo appellatur *Eruca*, Secundo *Propolis*, & Tertio tandem *Inſectum* perfectum; hinc in ejuſmodi ovis triplex excluſio Pulli.
10. In Tubo Inteſtinali Hominum tres Species animalium occurrunt, Lumbrici nempe, Aſcarides, & Tæniæ. Quod *Lumbricus* inteſtinorum una eademque ſit ſpecies cum Lumbrico terreſtri vulgatiſſimo, monſtrat figura omnium partium. Quod *Aſcarides* iidem ſint cum Lumbricis illis minutiſſimis, in locis paluſtribus ubique obviis, ex autopſia clariſſime patet. *Tænia* hucuſque pro ſpecie paraſitica habita eſt, quum in Hominibus, Canibus, Piſcibus &c. frequentiſſime ſolitaria reperta fuerit, & maximum negotium illis faceſcat, qui in indaganda Generatione Animalium diligentem operam contulerunt. Ego vero in itinere Reuterholmiano-Dalekarlico Ann. 1734. conſtitutus in præſentia Septem Sociorum meorum hanc inter Ochram acidularem Jærnenſem inveni, quod maxime miratus ſum; quum aqua acidulari ejuſmodi Tænias expellere plurimi tentant. Hinc ſequitur Vermes non oriri ex ovis Inſectorum, Muſcarum & ſimilium (quod ſi fieret nunquam multiplicari poſſent intra Tubum Inteſtinalem, & ſecundum gradus metamorphoſes perirent) ſed ex ovis vermium prædictorum, unà cum aqua bibendo hauſtis; unde patet medicamenta Inſectis adverſa non per conſequens vermes necare.

CAROLI LINNÆI

I. QUADRUPEDIA.

Corpus hirsutum. *Pedes* quatuor. *Feminæ* viviparæ, lactiferæ.

ANTHROPOMORPHA. *Dentes* primores 4. utrinque: vel nulli.	Homo.	Nosce te ipsum.	H { Europæus albesc. Americanus rubesc. Asiaticus fuscus. Africanus nigr.
	Simia.	ANTERIORES. POSTERIORES. *Digiti* 5. . . . . 5. Posteriores anterioribus similes.	Simia cauda carens. Papio. Satyrus. Cercopithecus. Cynocephalus.
	Bradypus.	*Digiti* 3. vel 2. . . . 3.	Ai. *Ignavus.* Tardigradus.
FERÆ. *Dentes primores* 6. utrinque: *intermedii* longiores: *omnes* acuti. *Pedes* multifidi, unguiculati.	Ursus.	*Digiti* 5. . . . . 5. Scandens. *Mammæ* 4. (Ald.) *Calcaneis* insistit. *Pollex* extus positus.	Ursus. Coati *Mrg.* Wickhead *Angl.*
	Leo.	*Digiti* 5. . . . . 4. Scandens. *Mammæ* 2. ventrales. *Lingua* aculeata.	Leo.
	Tigris.	*Digiti* 5. . . . . 4. Scandens. *Mammæ* 4 umbilicales. *Lingua* aculeata.	Tigris. Panthera.
	Felis.	*Digiti* 5. . . . . 4. Scandens. *Mammæ* 8. sc. 4. pect. 4. abdom. *Lingua* aculeata.	Felis. Catus. Lynx.
	Mustela.	*Digiti* 5. . . . . 5. Scandens. *Dentes* molares 4. utrinque.	Martes. Zabellina. Viverra. Mustela. Putorius.
	Didelphis.	*Digiti* 5. . . . . 5. *Mammæ* 8. intra bursulam abdomin.	Philander. *Possum.*
	Lutra.	*Digiti* 5. . . . . 5. Palmipes.	Lutra.
	Odobænus.	*Digiti* 5. . . . . 5. Palmipes. *Dentes* intermedii superiores longiss.	Ross. *Morjus.*
	Phoca.	*Digiti* 5. . . . . 5. Palmipes. *Mammæ* duæ umbilicales.	Canis marinus.
	Hyæna.	*Digiti* 4. . . . . 4. *Collum* superne jubatum. *Cauda* brevis.	Hyæna *Veter.* *Veram Londini nuper vidit & descripsit* ARTED.
	Canis.	*Digiti* 5. . . . . 4. *Mammæ* 10. sc. 4. pect. 6. abdom.	Canis. Lupus. Squilla. Vulpes.
	Meles.	*Digiti* 5. . . . . 5. *Ungues* medii digitis ipsis longiores. *Corpus* superne albicat: infeme nigricat.	Taxus. Zibetha.
	Talpa.	*Digiti* 5. . . . . 5. *anteriores* maximi.	Talpa.
	Erinaceus.	*Digiti* 5. . . . . 5. *Spinis* vel *lorica* squamosa munitus.	Echinus terrestris. Armadillo.
	Vespertilio.	*Digiti* 5. . . . . 5. *Pes anticus* in alam expansus. *Mammæ* 2. pectorales.	Vespertilio. Felis volans *Seb.* Canis volans *Seb.* Glis volans *Seb.*
GLIRES. *Dentes primores* 2. utrinque. *Pedes* multifidi.	Hystrix.	*Aures* humanæ. *Corpus* spinosum.	Hystrix.
	Sciurus.	*Digiti* 4. . . . . 5. *Cauda* longissima lanigera.	Sciurus. . . . volans.
	Castor.	*Digiti* 5. . . . . 5. palmipes postice. *Cauda* horizontalis, plana, nuda.	Fiber.
	Mus.	*Digiti* 4. . . . . 5. *Cauda* teres, squamosa, hirsuta.	Rattus Mus domesticus. . . brachiurus. . . macrourus. Lemures. Marmota.
	Lepus.	*Digiti* 5. . . . . 4. *Cauda* brevissima, villosa.	Lepus. Cuniculus.
	Sorex.	*Digiti.* 5. . . . . 5. *Dentes canini* adsunt.	Sorex.
JUMENTA. *Dentes primores* incerti, obtusi. *canini* exerti, validi.	Equus.	*Mammæ* 2. inguinales. *Pedes* integri.	Equus. Asinus. Onager. Zebra.
	Hippopotamus.	*Mammæ* 2 inguinales (*Arist.*) *Pedes* quadrifidi.	Equus marinus.
	Elephas.	*Mammæ* 2. pectorales. *Pedes* 5. callis instructi.	Elephas. ? Rhinoceros.
	Sus.	*Mammæ* 10. abdominales. *Pedes* biungulati: raro simplices.	Sus. Aper. Porcus. Babyroussa. Tajacu.
PECORA. *Dentes primores* inferiores tantum: *Superiores* nulli. *Pedes* ungulati.	Camelus.	*Cornua* nulla.	Dromedarius. Bactrianus. Glama. Pacos.
	Cervus.	*Cornua* annua, primum pilosa. solida, ab apice crescentia. plurimis ramosa: feminis rara.	Camelopardalis. Caprea. Axis. Cervus. Platyceros. Rheno. *Rangifer.* Alces.
	Capra.	*Cornua* sursum versa. crecta, scabra.	Hircus. Ibex. Rupicapra. Strepsiceros. Gazella. Tragelaphus.
	Ovis.	*Cornua* retrorsum flexa intorta, rugosa.	Ovis vulgaris. . . Arabica. . . Africana. . . Angolensis.
	Bos.	*Cornua* antrorsum versa. lunulata, lævia.	Bos. Urus. Bison. Bubalus.
Ordines.	Genera.	Characteres Generum.	Species.

II. AVES.

Corpus plumosum. *Alæ* duæ. *Pedes* duo. *Rostrum* osseum. *Feminæ* oviparæ.

ACCIPITRES. *Rostrum* uncinatum.	Psittacus.	*Digiti* pedis antici 2. postici 2.	Psittacus.
	Strix.	*Digiti* pedis antici 3. posticus 1. quorum extimus retrorsum flexilis.	Bubo. Otus. Noctua. Ulula.
	Falco.	*Digiti* pedis antici 3. posticus 1.	Aquila. Vultur. Buteo. Falco. Cyanopus. Milvus. Lanius. Pygargus. Nisus. Tinnunculus.
PICÆ. *Rostrum* superne compressum, convexum.	Paradisæa.	*Pennæ* 2. longissimæ, singulares, nec alis, nec uropygio infixæ.	Manucodiata. Avis Paradisiaca.
	Coracias.	*Pes* 4dact. *Rectrices* exteriores gradatim breviores.	Pica.
	Corvus.	*Pes* 4dact. *Rectrices* æquales.	Corvus. Cornix. Monedula. Lupus. Glandaria. Caryocatactes.
	Cuculus.	*Digiti* pedis antici 2. postici 2. *Rostrum* læve.	Cuculus. Torquilla s. Junx.
	Picus.	*Digiti* pedis antici 2. *Rostrum* angulatum.	Picus niger. . . . viridis. . . . varius.
	Certhia.	*Pes* 4dact. *Rostr.* gracile incurvum.	Certhia.
	Sitta.	*Pes* 4dact. *Rostr.* triangulare.	Picus cinereus
	Upupa.	*Pes* 4dact. *Caput* plumis cristatum.	Upupa.
	Ispida.	*Pes* 4dact. cujus digitus extimus medio adnectitur tribus articulis.	Ispida. Merops.
MACRORHYNCHÆ. *Rostr.* longiss. acut.	Grus.	*Caput* cristatum.	Grus.
	Ciconia.	*Ungues* plani, subrotundi.	Ciconia.
	Ardea.	*Unguis* medius inferne serratus.	Ardea.
ANSERES. *Os* dentato-serratum.	Platelea.	*Rostr.* depresso-planum, *apice* subrot.	Platea.
	Pelecanus.	*Rostr.* depressum, *apice* unguiculato, inferne bursa instructum.	Onocrotalus.
	Cygnus.	*Rostr.* conico-convexum.	Olor. Ildet. Anser. Ans. Bernicla.
	Anas.	*Rostr.* conico-depressum.	Anas fera. Glaucium. Boschas. *A. domest.* Penelope. Querquedula.
	Mergus.	*Rostr.* cylindriforme, *apice* a hunco.	Mergus. Merganser.
	Graculus.	*Rostr.* conicum, *apice* adunco.	Carbo aquat. Graculus aquat.
	Colymbus.	*Rostr.* subulatum. *Pedes* infra æquilibr.	Colymbus. C. minim. Podiceps. Arctica.
	Larus.	*Rostr.* subulatum. *Pedes* in æquilibr.	Cataracta. Larus. Sterna. Piscator.
SCOLOPACES. *Rostrum* cylindraceo-tetragonum.	Hæmatopus.	*Pes* 3dact. *Rostri* apex compressus.	Pica marina.
	Charadrius.	*Pes* 3dact. *Rostri* apex teres.	Pluvialis. Hiaticula.
	Vanellus.	*Pes* 4dact. *Rostrum* digitis brevius. *Caput* pennato cristatum.	Capella.
	Tringa.	*Pes* 4dact. *Rostrum* digitis brevius. *Caput* simplex.	Tringa. Ocrophus. Pugnax. Gallinula.
	Numenius.	*Pes* 4dact. *Rostrum* digitis longius.	Gallinago. Limosa. Arquata. Recurvirostra.
	Fulica.	*Pes* 4dact. *Digiti* membranis aucti. *Caput* carnoso-cristatum.	Gallinula aquatica.
GALLINÆ. *Rostrum* conico-incurvum.	Struthio.	*Pes* 2dact. absque postico.	Struthio-camelus.
	Casuarius.	*Pes* 3dact. absque postico. *Caput* galea & palearibus ornatum.	Emeu.
	Otis.	*Pes* 3dact. absque postico. *Caput* simplex.	Tarda.
	Pavo.	*Pes* 4dact. *Caput* corolla pennac. orn.	Pavo.
	Meleagris.	*Pes* 4dact. *Frons* papilla. *Gula* membranâ unicâ longitudinali instructa.	Gallopavo.
	Gallina.	*Pes* 4dact. *Frons* membrana serrata. *Gula* membr. duplici longitud. inst.	Gallina.
	Tetrao.	*Pes* 4dact. *Supercilia* papillosa nuda.	Phasianus. Urogallus. Tetrao. Bonasia. Lagopus. Perdix. Coturnix.
PASSERES. *Rostrum* conico-attenuatum.	Columba.	*Rostr.* rectum, ad basin furfuraceum. *Nares* oblongæ, membranula superne instructæ.	Columba. Turtur. Palumbus. Oenas.
	Turdus.	*Rostr.* parum convexum. *Plumæ* rostri basin tegunt.	Turdus. Merula.
	Sturnus.	*Rostr.* rectum subteres. *Lingua* bifida cornea.	Sturnus.
	Alauda.	*Unguis* digiti postici digitis ipsis longior.	Alauda.
	Motacilla.	*Rostr.* gracile. *Fauces* nigricant. *Lingua* apex bifidus laceratus.	Motacilla. Oenanthe. Merula aquatica.
	Luscinia.	*Rostr* gracile rectum. *Lingua* apex bifidus laceratus.	Luscinia. Ficedula. Erithacus. Troglodytes. Carolina *Rudb.*
	Parus.	*Rostr.* gracile. *Lingua* apex truncatus, 4 setis instructus.	Parus. P. caudatus. . . cristatus.
	Hirundo.	*Rostr.* gracile, ad basin depressum, minimum: *rictu* amplissimo.	Hirundo. Caprimulgus.
	Loxia.	*Rostr.* crassum, magnum, breve, curvum, undique convexum.	Coccothraustes. Loxia. Pyrrhula.
	Ampelis.	*Rostr.* crassum, rectum. *Remigum* apices nonnulli membranacei.	Garrulus Bohem.
	Fringilla.	*Rostr.* crassum. *Maxilla* utraque alteram sinu quodam ad basin recipit.	Fringilla. Carduelis. Emberiza. Spinus. Passer.

III. AMPHIBIA.

Corpus nudum, vel squamosum. *Dentes molares* nulli: *reliqui* semper. *Pinnæ* nullæ.

SERPENTIA.	Testudo.	*Corpus* quadrupedum, caudatum, tecta munitum.	Testudo testudinata. . . . terrestris. . . . marina. Luteria.
	Rana.	*Corpus* quadrupedum, cauda destitutum, squamis carens.	Bufo. Rana arborea. . . aquatica. . . Carolina.
	Lacerta.	*Corpus* quadrupedum, caudatum, squamosum.	Crocodilus. Allegator. Cordylus. Draco volans. Scincus. Salamandra aq. . . terrestris. Chamæleo. Seps. Senembi *Mrg.*
	Anguis.	*Corpus* apodum, teres, squamosum.	Vipera. Cæcilia. Aspis. Caudisona. Cobras de Cabelo. Anguis Æsculapii. Cenchris. Natrix. Hydrus.

AMPHIBIORUM Classem ulterius continuare noluit benignitas Creatoris; Ea enim si tot Generibus, quot reliquæ Animalium Classes comprehendunt, gauderet; vel si vera essent quæ de Draconibus, Basiliscis, ac ejusmodi monstris ex τερατολόγοις fabulantur, certè humanum genus terram inhabitare vix posset.

PARADOXA.

HYDRA corpore anguino, pedibus duobus, collis septem, & totidem capitibus, alarum expers, asservatur Hamburgi, similitudinem referens Hydræ Apocalypticæ à S. JOANNE CAP. XII. & XIII. descriptæ. Eaque tanquam veri animalis speciem plurimis præbuit, sed falso. Natura sibi semper similis plura capita in uno corpore nunquam produxit naturaliter. Fraudem & artificium, cum ipsi vidimus, dentes Ferino-mustelini, ab Amphibiorum dentibus diversi, facillime detexerunt.

RANA-PISCIS s. RANÆ IN PISCEM METAMORPHOSIS valdè paradoxa est, quum Natura mutationem Generis unius in aliam diversæ Classis non admittat. Ranæ, ut Amphibia omnia, pulmonibus gaudent & ossibus spinosis. Pisces spinosi, loco pulmonum, branchiis instruuntur. Ergo legi Naturæ contraria foret hæc mutatio. Si enim piscis hic instructus est branchiis, erit diversus à Rana & Amphibiis. Si verò pulmones, erit Lacerta: nam toto cælo à Chondropterygiis & Plagiuris differt.

MONOCEROS *Veterum*, corpore equino, pedibus ferinis; cornu recto, longo, spiraliter intorto, Pictorum figmentum est. MONODON *Artedi* ejusmodi cornu gerit, cæteris verò partibus multum differt.

PELECANUS rostro vulnus infligens femori suo, ut emanante sanguine sitim pullorum levet, fabulosè ab iisdem traditur. Ansam fabulæ dedit saccus sub gula pendulus.

SATYRUS caudatus, hirsutus, barbatus, humanum referens corpus, gesticulationibus valde deditus, salacissimus, Simiæ species est, si unquam aliquis visus fuit. *Homines* quoque *Caudati*, de quibus recentiores peregrinatores multa narrant, ejusdem generis sunt.

BOROMETZ s. AGNUS SCYTHICUS plantis accensetur, & agno adsimilatur; cui caulis alterius plantæ è terra erumpens umbilicum intrat; idemque sanguine præditus à feris devorari temerè dicitur. Est autem artificiosè ex radicibus Filicinis Americanis compositus. Naturaliter autem est *Embryo Ovis* allegoricè descriptus, qui omnia data habet attributa.

PHOENIX, Avis species, cujus unicum in mundo individuum, & quæ decrepita ex ferali busto, quod sibi ex aromatibus struxerat, repuerascere fabulosè fertur, felicem subitura prioris vitæ periodum. Est verò PALMA DACTYLIFERA. vid. *Kæmpf.*

BERNICLA s. ANSER SCOTICUS & CONCHA ANATIFERA è lignis putridis in mare abjectis nasci à Veteribus creditur. Sed fucum imposuit *Lepas* interaneis suis penniformibus, & modo adhærendi, quasi verus ille anser *Bernicla* inde oriretur.

DRACO corpore anguino, duobus pedibus, duabus alis, Vespertilionis instar, est *Lacerta alata*, vel *Raja* per artem monstrosè ficta, & siccata.

AUTOMA MORTIS Horologii minimi sonitum edens in parietibus, est *Pediculus pulsatorius* dictus, qui ligna perforat, eaque inhabitat.

REGNUM ANIMALE.

IV. PISCES.

Corpus apodum, pinnis veris inſtructum, nudum, vel ſquamoſum.

PLAGIURI.

Cauda horizontalis.

Thrichechus.	*Dentes* in utraque maxilla. *Dorſum* impenne.	Manatus ſ. *Vacca mar.*
Catodon.	*Dentes* in inferiore maxilla. *Dorſum* impenne.	Cet. Fiſtula in roſtro *Art.* Cete *Claſſ.*
Monodon.	*Dens* in ſuperiore max. 1. *Dorſum* impenne.	Monoceros. *Unicornu.*
Balæna.	*Dentes* in ſup. max. cornei. *Dorſum* ſæpius impenne.	B. Groenland. B. Finniſch. B. Maxill. inf. latiore. *Art.*
Delphinus.	*Dentes* in utraque maxilla. *Dorſum* pinnatum.	Orcha. Delphinus. Phocæna.

CHONDROPTERYGII.

Pinnæ cartilagineæ.

Raja.	*Foramina* branch. utrinq. 5. *Corpus* depreſſum.	Raja clav. aſp. læv. &c. Squatino-Raja. Altavela. Paſſinaca mar. Aquila. Torpedo. Bos *Vet.*
Squalus.	*Foram.* branch. utrinq. 5. *Corpus* oblongum.	Lamia. Galeus. Catulus. Vulpes mar. Zygæna. Squatina. Centrine. Priſtis.
Acipenſer.	*Foram.* branch. utrinq. 1. *Os* edentul tubulatum.	Sturio. Huſo. *Ichthyocolla.*
Petromyzon.	*Foram.* branch. utrinq. 7. *Corpus* bipenne.	Enncophthalmus. Lampetra. Muſtela.

BRANCHIOSTEGI.

Pinnæ oſſic. carentes. *Branch* oſſ. & membran.

Lophius.	*Caput* magnitudine corporis. *Appendices* horizontaliter latera piſcis ambiunt.	Rana piſcatrix. Guacucuja.
Cyclopterus.	*Pinnæ* ventrales in unicam circularem concretæ.	Lumpus. *Lepus mar.*
Oſtracion.	*Pinnæ* ventrales nullæ. *Cutis* dura, ſæpe aculeata.	Orbis div. ſp. Piſc. triangul. Atinga. Hyſtrix. Oſtracion. Lagocephalus.
Baliſtes.	*Dentes* contigui maximi. *Aculei* aliquot robuſti in dorſo.	Guaperua. Hyſtrix. Capriſcus. *Caper.*

ACANTHOPTERYGII.

Pinnæ oſſeæ, quarum quædam aculeatæ.

Gaſteroſteus.	*Membr. branch.* officulis 3. *Venter* laminis oſſeis inſtr.	Aculeatus. Spinachia. Pungitius.
Zeus.	*Corpus* compreſſum. *Squamæ* ſubaſperæ.	Aper. Faber. *Gallus mar.*
Cottus.	*Membrana branch.* oſſic. 6 *Caput* aculeatum, corpore latius.	Cataphractus. Scorpio mar. Cottus. *Gobio fl. capit.*
Trigla.	*Appendices* ad pinn. pect. articulatæ 2 vel 3.	Lyra. Gurnardus. Cuculus. Lucerna. Hirundo. Milvus. Mullus barb. & imberb.
Trachinus.	*Operula branch.* aculeata. *Oculi* vicini in vertice.	Draco. Araneus mar. Uranoſcopus.
Perca.	*Memb. branch.* officul. 7. *Pinnæ* dorſales. 1 vel 2.	Perca. Lucioperca. Cernua. Schraitſer.
Sparus.	*Opercula branch.* ſquamoſa. *Labia* dentes tegunt. *Dentes* molares obtinet.	Salpa. Melanurus. Sparus. Sargus. Chromis. Mormyrus. Mæna. Smaris. Boops. Dentex. Erythrinus. Pagrus. Aurata. Cantharus.
Labrus.	*Labia* craſſa dentes teg. *Color* ſpecioſus.	Julis. Sachettus. Turdus diverſar. ſpecier.
Mugil.	*Memb. branch.* oſſic. 6. *Caput* totum ſquamoſum.	Mugil. *Cephalus.*
Scomber.	*Memb. branch.* oſſic. 7. *Pinnæ dorſi* 2 vel plures.	Glaucus. Amia. Scomber. Thynnus. Trachurus. *Saurus.*
Xiphias.	*Roſtrum* apice enſiformi. *Pinnæ ventrales* nullæ.	Gladius.
Gobius.	*Pinnæ vent.* in 1 ſimpl. concr. *Squamæ* aſperæ.	Gob. niger. Jozo. Paganellus. *Apkua.*

MALACOPTERYGII.

Pinnæ oſſeæ, quarum omnes molles.

Gymnotus.	*Membr. branch.* officul. 5. *Pinna* dorſalis nulla.	Carapo.
Muræna.	*Membr. branch* oſſic. 10. *Tubuli* in apice roſtri. 2.	Anguilla. Conger. Fluta. Serpens mar.
Blennus.	*Pinnæ ventr.* conſtant oſſ. 2. *Caput* admodum declive.	Alauda non criſt. & galer. Blennus. Gattorugine.
Gadus.	*Membr. branch.* oſſic. 7. *Pinnæ* dorſi. 2 vel 3.	Aſellus diverſar. ſpecier. Merluccius. Anthias 2dus. Muſtela. Egrefinus.
Pleuronectes.	*Membr. branch.* oſſ. 6. *Oculi* ambo in eodem later.	Rhombus diverſ. ſpecier. Paſſer. Limanda. Hippogloſſus. Bugloſſ. Solea.
Ammodytes.	*Membr. branch.* oſſic. 7. *Pinnæ* ventr. nullæ.	Ammodytes. *Tobianus.*
Coryphæna.	*Membr. branch.* oſſic. 5. *Pinna* dorſi à capite ad caudam.	Hippurus. Pompilus. Novacula. *Petlen.*
Echeneis.	*Striæ* tranſverſæ, aſperæ, in ſuperna capitis parte.	Remora.
Eſox.	*Membr. branch.* oſſic. 14.	Lucius. Belone. Acus maxima ſquamoſa.
Salmo.	*Membr. branch.* oſſic. 10-12. *Corpus* maculoſum.	Salmo. Trutta. Umbla. Carpio lacuſtr.
Oſmerus.	*Membr. branch.* oſſic. 7--8. *Dentes* in max. lingu. palat.	Eperlanus. *Spirinchus.* Saurus.
Coregonus.	*Membr. branch.* oſſic. 8--10. *Appendix* pinniformis.	Albula. *Lavaretus.* Thymallus. Oxyrhynchus.
Clupea.	*Membr. branch* oſſc. 8. *Venter* acutus ſerratus.	Harengus. Spratti. Encraſicholus. Aloſa.
Cyprinus.	*Membr. branch.* oſſic. 3. *Dentes* ad oſtificium ventriculi tantum.	Erythrophthal Mugil. fluv. Brama. Ballerus. Capito. Naſus. A. M. Caraſſius. Cypr. nobilis. Tinca. Barbus. Rutilus. Alburnus. Leuciſcus. Phoxinus. Gobius fl.
Cobitus.	*Caput* compreſſum. *Pinnæ* dorſi & ventrales eâdem à roſtro diſtantia.	Cobitis. Barbatula. Miſgurn.
Syngnathus.	*Opercula branch.* ex lamina 1. *Maxillæ* à lateribus clauſæ.	Acus lumbr. Acus *Ariſtot.* Hippocampus.

V. INSECTA.

Corpus cruſta oſſea cutis loco tectum. *Caput* antennis inſtructum.

COLEOPTERA.

Alæ elytris duobus tectæ.

	§. Facie externa facile disting.	
Blatta.	*Elytra* concreta. *Alæ* nullæ. *Antennæ* truncatæ.	Scarab. tardipes. Blatta fœtida.
Dytiſcus.	*Pedes* poſtici remorum forma & uſu. *Ant.* ſetaceæ. *Sterni* apex bifuricus.	Hydrocantharus. Scarab. aquaticus.
Meloë.	*Elytra* mollia, flexilia, corpore breviora. *Ant* moniliformes. *Ex* articulis oleum fundens.	Scarab. majalis. Scarab. unctuoſus.
Forficula.	*Elytra* breviſſima, rigida. *Cauda* bifurca.	Staphylinus. Auricularia.
Notopeda.	Poſitum in dorſo *exſilit. Ant.* capillaceæ.	Scarab. elaſticus.
Mordella.	*Cauda* aculeo rigido ſimplici armata. *Ant.* ſetaceæ, breves.	Negatur ab *Ariſtotele.*
Curculio.	*Roſtrum* productum, teres, ſimplex. *Ant.* clavatæ in medio Roſtri poſitæ.	Curculio.
Buceros.	*Cornu* 1. ſimplex, rigidum, fixum. *Ant.* capitatæ, foliaceæ.	Rhinoceros. Scarab. monoceros.
Lucanus.	*Cornua* 2 ramoſa, rigida, mobilia. *Ant.* capitatæ, foliaceæ.	Cervus volans.
	§. Antennæ truncatæ.	
Scarabæus.	*Ant.* clavatæ foliaceæ. *Cornua* nulla.	Scarab. pilularis. Melolontha. Dermeſtes.
Dermeſtes.	*Ant.* clavatæ horizontaliter perfoliatæ. *Clypeus* planiuſculus, emarginatus.	Cantharus faſciatus.
Caſſida.	*Ant.* clavato-ſubulatæ. *Clypeus* planus, antice rotundatus.	Scarab. clypeatus.
Chryſomela.	*Ant.* ſimplices, clypeo longiores. *Corpus* ſubrotundum.	Cantharellus.
Coccionella.	*Ant.* ſimplices, breviſſimæ. *Corpus* hemiſphæricum.	Cochinella vulg.
Gyrinus.	*Ant.* ſimplices. *Corpus* breve. *Pedibus* poſticis ſaliens.	Pulex aquaticus. Pulex plantarum.
Necydalis.	*Ant.* clavato-productæ. *Clypeus* anguſtus, rotundatus.	Scarabæo-formica.
Attalabus.	*Ant.* ſimplices, conſtructæ articulis orbicularibus, præter ultim. globoſum.	Scarab. pratenſis.
	§. Antennæ Setaceæ.	
Cantharis.	*Clypeus* planus, margine undique promin. *Elytra* flexilia.	Cantharis *offic.*
Carabus.	*Clypeus* fere planus, marg. prominente. *Elytra* fragilia.	Cantharus fœtidus. Cantharellus auratus.
Cicindela.	*Clypeus* cylindraceus vel teres. *Forceps* oris prominens.	Cantharus Marianus.
Leptura.	*Clypeus* ſubrotundus. *Pedes* longi. *Corpus* tenue acuminatum.	Scarab. tenuis.
Cerambyx.	*Clypeus* ad latera mucrone prominet. *Ant.* corpus longitudine æquant, vel ſuperant.	Capricornus.
Bupreſtis.	*Clypeus* ſuperne 2 punctis elevatis notatus.	Scarab. ſylvaticus.

ANGIOPTERA.

Alæ omnibus datæ, elytris deſtitutæ.

Papilio.	*Roſtrum* ſpirale. *Alæ* 4.	Papilio alis erectis. Pſyche--- planis. Phalæna -- compreſſis.
Libellula.	*Cauda* folioſa. *Alæ* 4. expanſæ.	Perla. Virgunicula.
Ephemera.	*Cauda* ſetoſa. *Alæ* 4. erectæ.	Muſca Ephemera.
Hemerobius.	*Cauda* ſetoſa. *Alæ* 4. compreſſæ.	Phryganea.
Panorpa.	*Cauda* cheliformis. *Alæ* 4. *Roſtr.* corn.	Muſca ſcorpiurus.
Raphidia.	*Cauda* ſpinoſo-ſetacea. *Alæ* 4. *Cap.* corn.	*Non dicitla.*
Apis.	*Cauda* aculeo ſimplici. *Alæ* 4.	Crabro. Veſpa. Bombylius. Apis.
Ichneumon.	*Cauda* aculeo partito. *Alæ* 4.	Ichneumon. Muſca tripilis.
Muſca.	*Stylus* ſub alis capitatus. *Alæ* 2.	Muſcæ div. ſpec. Oeſtrum *Vet.* Oeſtrum *Lapponum.* Tabanus. Culex. Teredo nav. Tipula. Formica-leo.

HEMIPTERA.

Alæ elytris deſtitutæ, Quibuſdam tantum individuis concretæ.

Gryllus.	*Pedes* 6. *Alæ* 4. *ſuperiores* craſſiores.	Gryllus domeſticus. Gryllo-talpa. Locuſta. Mantis.
Lampyris.	*Pedes* 6. *Clypeus* planus. *Alæ* 4.	Cicindela.
Formica.	*Pedes* 6. *Alæ* 4. *Cauda* aculeum condit.	Formica.
Cimex.	*Pedes* 6. *Alæ* 4. cruciferæ. *Roſtrum* ſtyliforme, rectum.	Cimex lectularius. Orſodachne. Tipula aquatica. Bruchus.
Notonecta.	*Pedes* 6. quorum *poſtici* remorum figura & uſu. *Alæ* 4. cruciferæ.	Notonecta aquatica.
Nepa.	*Pedes* 4. *Frons* chelifera. *Al.* 4. crucif.	Scorpio aquat.
Scorpio.	*Pedes* 8. *Frons* chelifera, aculeata. *Alæ* 4. laxæ.	Scorpio terreſtris.

APTERA.

Alæ nullæ.

Pediculus.	*Pedes* 6. *Antennæ* capite breviores.	Pediculus humanus. Ped. avium. Ped. piſcium. Ped. pulſatorius.
Pulex.	*Pedes* 6. ſaltatrices.	Pulex vulgaris.
Monoculus.	*Pes* 1.? *Antennæ* bifidæ.	Pulex arboreſc. *Swam.* *Monoculus Bradl.* *Apus Friſch.*
Acarus.	*Pedes* 8. articulis 8 conſtantes. *Oculi* 2. *Ant.* minimæ.	Ricinus. Scorpio-araneus. Pedic. inguinalis. Pedic. Scarabæi. Pedic. Scabiei. Araneus coccineus.
Araneus.	*Pedes* 8. *Oculi* communiter 8.	Araneus. Tarantula. Phalangium.
Cancer.	*Pedes* 12. *priores* cheliformes.	Cancer. Aſtacus. Pagurus. Squilla. Majas. Eremita. Gammarus.
Oniſcus.	*Pedes* 14.	Aſellus *Officin.* Aſellus aquat.
Scolopendria.	*Pedes* 20. & ultra.	Scolop. terreſtris. Scolop. marina. Julus.

VI. VERMES.

Corporis *Muſculi* ab una parte baſi cuidam ſolidæ affixi.

REPTILIA.

Nuda, artubus deſtituta.

Gordius.	*Corpus* filiforme, teres, ſimplex.	Seta aquatica. Vena Medina.
Tænia.	*Corpus* faſciatum, planum, articulatum.	Lumbricus longus.
Lumbricus.	*Corpus* teres, annulo prominenti cinctum.	Inteſtinum terræ. Lumbricus latus. Aſcaris.
Hirudo.	*Corpus* inferne planum, ſuperne convex. tentaculis deſtitutum.	Sanguiſuga.
Limax.	*Corpus* inferne planum, ſuperne conv. tentaculis inſtructum.	Limax.

TESTACEA.

Habitaculo Lapideo inſtructa.

Cochlea.	*Teſta* univalvis, ſpiralis, unilocularis.	Helix. Labyrinthus. Voluta Cochlea varia. Buccinum. Lyra. Turbo. Caſſida. Strombus. Fiſtula. Terebellum. Murex. Purpura. Aporrhais. Nerita. Trochus.
Nautilus.	*Teſta* univalvis, ſpiralis, multilocularis.	Nautilus. Orthoceros. Lituus.
Cypræa.	*Teſta* univalvis, convoluta, rima longitudinali.	Concha Veneris. Porcellana.
Haliotis.	*Teſta* univalvis, patula, leviter concava, perforata, ad angulum ſpiralis.	Auris marina.
Patella.	*Teſta* univalvis, concava, ſimplex.	Patella.
Dentalium.	*Teſta* univalvis, teres, ſimplex.	Dentalium. Entalium. Tubus vermicul.
Concha.	*Teſta* bivalvis.	Mytulus. Vulva marina. Pholus. Bucardium. Perna. Chama. Solenes. Tellina. Pinna. Oſtrea. Pecten. Mitella. *Vomer.*
Lepas.	*Teſta* multivalvis. *Valvulæ* duabus plures.	Concha anatifera. Verruca teſtudin. Balanus marinus.

ZOOPHYTA.

Artubus donata.

Tethys.	*Corpus* forma variabile, molle, nudum.	Tethya. Holothurium. Penna marina.
Echinus.	*Corpus* ſubrotundum, teſta tectum, aculeis armatum.	Echinus marinus.
Aſterias.	*Corpus* radiatum, corio tectum, ſcabrum.	Stella marina. Stella oligantis. St. pentactinoides. St. polyſactinoid.
Meduſa.	*Corpus* orbiculatum, gelatinoſum, ſubtus filamentoſum.	Urtica marina. Urt. vermiformis. Urt. crinita. Urt. aſtrophyta.
Sepia.	*Corpus* oblongum, interne oſſeum, anterius octo artubus donatum.	Sepia. Loligo.
Microcoſmus.	*Corpus* variis heterogeneis tectum.	Microcoſm marin.