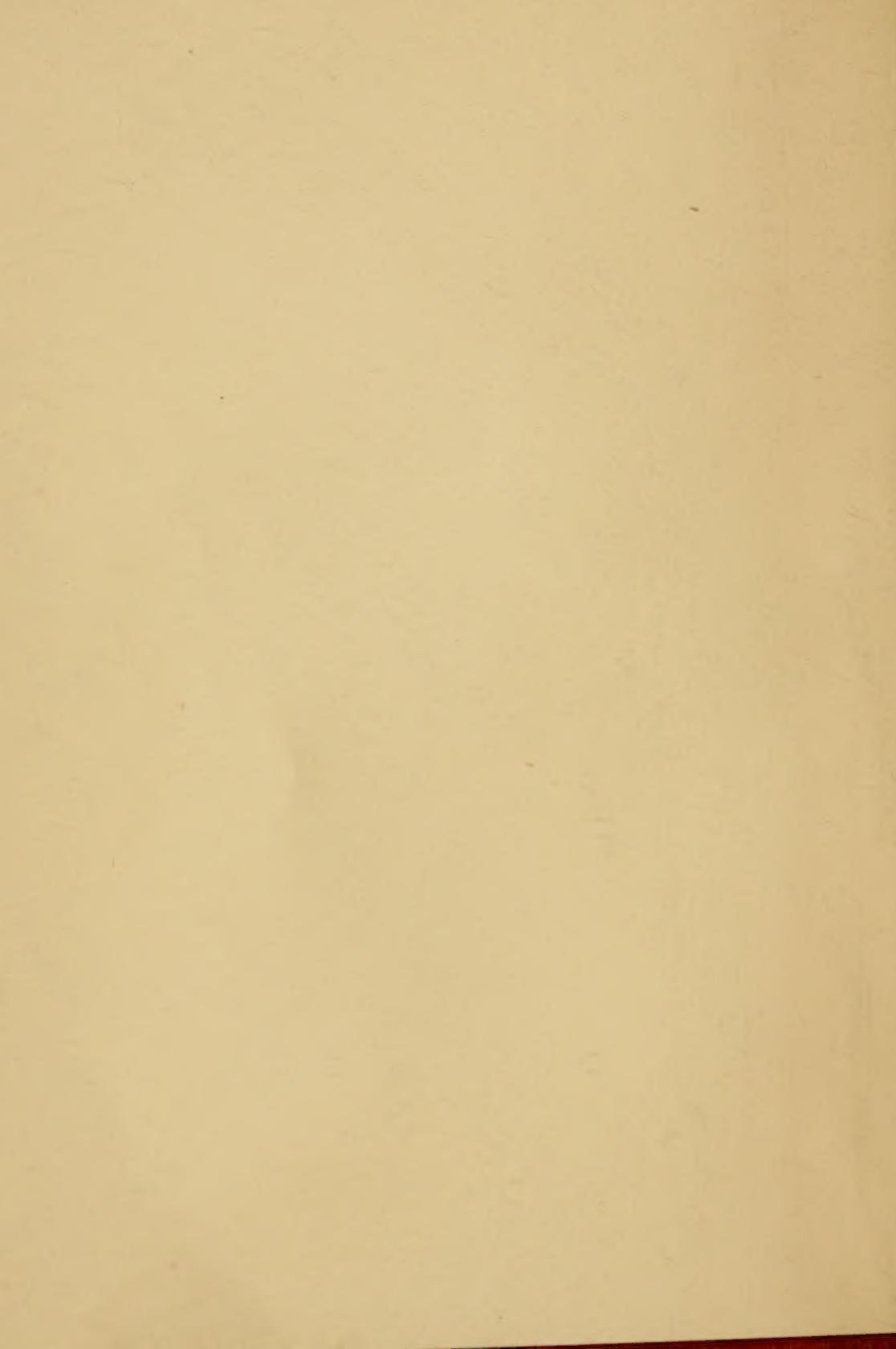




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Hon^{ble} Thomas Jefferson
Monticello
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ANNALS OF NATURE

OR

ANNUAL SYNOPSIS

OF NEW GENERA AND SPECIES OF ANIMALS, PLANTS, &c.
DISCOVERED IN NORTH AMERICA:

BY C. S. RAFINESQUE,

Professor of Botany and Natural History in Transylvania University, at Lexington
in Kentucky, and member of several Learned Societies in the
United States and in Europe, &c.

EXERTION UNFOLDS AND INCREASES KNOWLEDGE.

First Annual Number, for 1820.

DEDICATED TO DR. W. E. LEACH,

OF THE BRITISH MUSEUM, LONDON.

EVER since 1816, I had issued proposals for publishing a Periodical Work under the title of *Annals of Nature*: various circumstances have prevented me from carrying the original plan into execution, and have now induced me to publish it annually or casually (instead of quarterly) in the present form, without confining myself to any particular time, nor extent; but giving a preference to my own unpublished discoveries and those of my friends, over those of other Naturalists and Botanists. Every number shall form a peculiar tract, which shall be sold separate.

The difficulty of ascertaining sometimes whether my discoveries are totally new, will not prevent me from offering those which I consider such. If a few shall afterwards prove otherwise, the blame, if any, must lay with those European compilers, who give us now and then their bulky, costly & learned Cyclopedias, Dictionaries of Natural History, and Systems, without following the wise linnean plan of detailing all the former discoveries. This is particularly the case with Zoologists, who from the time of the compilation of Gmelin, published about 30 years ago, have never thought of giving us a new and complete description of all the animals discovered since; nor has any complete account of our own animals ever been published. In such a state of the science, & considering the difficulty of procuring many European works on this continent, even by applying to their authors, I shall not be prevented from publishing my new species, because it may happen that one out of fifty may be previously noticed in some costly and inaccessible work. I shall however be ready, at all times, to correct any such, or other unavoidable errors and oversights.

I have often felt the need of laying before the learned public, and in a concise and linnean shape, my numerous discoveries, which are accumulating every year; being often unable to find a proper vehicle, I have been compelled to avail myself of magazines and ephemeral publications, which seldom meet their eyes. When I have sent memoirs and tracts for publication to the learned societies of London, Paris, New-York and Philadelphia, they are only published after many years delay, or rejected when they contradict the views of some favorite member. If I propose publishing my works in Europe, they are refused by the publishers, because the author is not one of the celebrated professors of Paris, London or Edinburgh. Meantime I have lost by a shipwreck the labor of many years, and the description and figures of one thousand new animals and plants. Every

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motive urges me then to hasten to divulge my discoveries, & to continue it annually on the present plan, although I should prefer a better one if I had the choice.

The principles of these tracts shall belong to the true linnean school of improvement. I shall follow all the improvements that the worthy Linneus would have adopted if he had lived in this age; but I shall carefully avoid any deviations from the fundamental, rational and everlasting rules of nomenclature and descriptive history.

The following lines shall contain many of my unpublished discoveries, made between 1816 and 1819, in the states of New-York, Pennsylvania, Vermont, New Jersey, Maryland, Virginia, Kentucky, Ohio, Indiana and Illinois, &c; but several must still be delayed, as well as the figures. As my Ichthyology, or natural history of the Fishes of the Ohio, (containing 100 new species) is now under the press, the fishes of that river shall not be mentioned here. If I should occasionally repeat the descriptions of some few new animals and plants, already communicated to some societies, or journalists, the blame is their own. Why do they delay the publication of them? and how am I to know if they ever received them, & mean to publish them? Do they wish me to wait until somebody may follow the path which I have opened, and anticipating my publications, deprive me of the fruit of my labor, (as it has been already attempted) and of the only reward I ever hope for my individual exertions, the esteem of the friends of knowledge? I shall very seldom mention again those which have been already published, except when they are only to be found in journals of very limited circulation; or when it will be needful to illustrate more carefully their characters or history. Very few Reptiles, Shells and Fossils will be introduced, although they include some of my most numerous discoveries; because I have already prepared several letters on our Erpetology for the American Journal of Science; I am besides engaged in writing a general Conchology of the land shells and fresh water shells of the United States, and I have undertaken with Mr. John D. Clifford to describe all the fossil remains of the western states.

To those who may happen to regret the continual increase of new genera and new species, I shall observe, that unless we detect and fix all the unknown genera and species of beings existing in our country and on earth, we cannot extend and secure our researches after their properties, qualities and manners. Those who deplore the increase of natural knowledge, or knowledge of any kind, are below our notice; they ought to be ranked with the enemies of mankind and of our moral powers. But from those who prefer to see new beings and materials appear under a handsome and prolix shape, I shall request to afford me the means of gratifying their peculiar taste, and when they do, I shall not fail to comply. Yet I shall add, that it is better for the science and our purse, that many new objects should be introduced under a small compass, than when a few are scattered through a mass of extraneous or compiled matter. My constant aim has been the extension of knowledge rather than the compilation of old materials. I wish that many naturalists and philosophers would always have the same object in view.

C. S. RAFINESQUE.

Transylvania University, }
March 1, 1820

ANIMALS.

I CLASS. MASTOSIA.—THE SUCKLERS.

1. N. Sp. *Atalapha fuscata*. Ears longer than the head, auriculated and blackish; tail three-sevenths of total length, jutting only by an obtuse point; body brownish above, greyish beneath shoulders and cheeks dark brown; hind feet blackish, hairy above; wings blackish brown.—Found in the northern parts of the state of New York and in Vermont. Total length three and an half inches. My genus *Atalapha* (Prec. dec.) contain all the Bats without fore teeth; there are 3 or 4 species of them in the United States all blended under the name of *Vespertilio* (or *Noctilio*) *noxeboracensis* by the writers.

I. N. G. ERRORS. Four acute fore-teeth to the upper jaw, in two equal pairs, separated by a great interval and a large flat wart, each pair has two unequal teeth, the outside tooth is much larger and unequally bifid, the outside one much larger, inside tooth small and entire. Six fore-teeth to the lower jaw, equal

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Very small, close and truncate. Canine teeth very sharp, curved and long. Grinders unequally trifid. Snout plain, nose without appendages. Ears separated, auriculated. Tail mucronate.—This genus appears to differ from all those of Geoffroy and Cuvier, among the extensive tribe of Bats. The name means house-flyer.

2. *Eptesicus melanops*. Fallowish brown above, pale beneath, face, ears, wings, feet and tail blackish; ears oval, shorter than the head and wrinkled; tail naked, one-third of total length, mucrone one-sixth of the tail; posterior toes ciliate.—Not uncommon in Kentucky, Indiana, &c. total length four and an half inches. I had noticed it under the name of *Vespertilio phaiops* in the American Magazine, vol. 3d. It comes often in the house at night.

3. *Eptesicus mydas*. Fulvous above, grey beneath; wings, ears and tail, pale brown, shafts whitish; ears double the length of the head; tail naked, slightly mucronate, nearly as long as the body.—I have observed it in the barrens of Kentucky flying in the houses. Total length three inches, of which the tail includes five-twelfths. Ears three-quarters of an inch long. I mentioned it under the name of *Vesp. mydas* in my account of the Bats of the western states, (Am. Mag. v. 5). I have since instituted two other genera with them, *Hyperodon* and *Nycticeius* (Prodr. 70 N. G. An); the others are probably *Atalaphes*. I know already fifteen species of Bats in the United States, almost all new ones.

4. *Mephitis interrupta*. Brown, with two short parallel white streaks on the head, and eight on the back, the four anterior ones equal and parallel, and the four posterior ones rectangular, angles in opposite directions.—A rare species, about one foot long, inhabiting Louisiana. The four rectangular streaks of the rump are very singular; the anterior pair begins on each side towards the middle of the dorsal streaks, and reaching beyond them in a parallel line, become transversally angular, forming an unequal right angle facing the dorsal streaks; while the posterior pair forms two complete right angles facing the sides of the rump, their anterior lines being parallel and longitudinal.

5. *Spatax vittata*. Fallow above with three longitudinal, broad and brown streaks, white beneath.—It lives in the barrens and woods of Kentucky, where it is called mole-rat: length seven inches, it has no tail whatever; back bent, head low, eyes small, ears small, oval, acute. It burrows like a mole and feeds on snails, slugs, earthworms, &c. It has almost the shape of a pig, but the snout is rounded and with small whiskers.

6. *Gerbillus megalops*. Grey; ears elliptic, as long as the head, white inside; tail black, longer than the body flexuose slender, tipped with a white tuft.—It inhabits the barrens of Kentucky, where it feeds on seeds and fruits; total length six inches, of which the tail composes more than half. Eyes very large and black, snout black, elongated obtuse.

7. *Gerbillus lemnurus*. Entirely of a fine fallow; ears elliptic, as long as the head, white inside; tail as long as the body, black, tipped with a fallow tuft.—It lives in the woods of Kentucky, Indiana, &c. Eyes small. It rather jumps than runs, while the foregoing species is oftener seen running than jumping.

8. *Cricetus fasciatus*. Rufous, with about ten transversal black streaks over the back, legs with some similar streaks; tail rather shorter than the body, slender and with black rings: pouches external, flaccid.—This is the Hamster of the barrens of Kentucky and the western states; it has a thick body, the head like a dog, small eyes and ears, these oval and acute, the forehead rounded and the pouches hanging like bags.

9. *Lemmus vittatus*. Rufous, with five longitudinal white streaks on the back, the middle one extending over the head to the nose, white beneath; tail truncate as long as the head.—A very pretty little animal, about four inches long, living in the woods and fields of west Kentucky, Illinois, &c. The female has six pectoral paps, and carries her young on her back while running. Eyes small, snout sharp, ears small and oval-rounded.

10. *Lemmus talpoides*. Iron-grey, belly whitish; tail truncate, as long as the head.—It is found in west Kentucky, where it is called ground mouse or snow mouse, because it burrows in the ground like the mole, feeding on roots and grass, while in the winter it burrows under the snow, at the surface of the ground, to feed on tender grass.

11. *Lemmus noveboracensis*. Brown, with a rufous tinge above, brownish grey beneath; tail three-elevenths of total length, obtuse, brownish grey, scaly, setose, with a pencil of hair at the end.—Total length five and an half inches; it has

short and rounded ears, the feet short as in the *T. talpides*, teeth yellow. It is found in the states of New York and New Jersey.

12. *Sciurus ruber*. Entirely of a fine brick red colour, except the belly, which is whitish, ears beardless.—The largest of all the American Squirrels; total length over two feet. Is it a variety of *Sc. vulpinus*? It is found in the Missouri Territory, where it is called Great fox-squirrel. There are yet in the United States many unnoticed species (or varieties) of squirrels. I know already about eight of them, such as *Sc. felinus*, *Sc. phaiopus*, *Sc. melanotus*, *Sc. lateralis*, &c. I am preparing a monography of them.

II CLASS. ORNITHIA.—THE BIRDS.

13. *Milvus leucomelas*. White, unspotted, top of the head and part of the back, wings, tail and bill black, feet yellow.—It is found in west Kentucky and Illinois, it feeds on fishes, and is therefore called Fishing Hawk; size small, tail quite forked.

14. *Ardea phaioma*. Entirely of a deep brown, neck ferruginous behind, white before, bill black, feet yellow.—It lives in Missouri, Illinois and west Kentucky; it is of a small size, total length about eighteen inches; it belongs to the tribe of Bitterns.

15. *Charadrius viridis*. Entirely of a light green, unspotted, wings and tail tinged with brown, bill and feet black.—It has been seen by Mr. Audubon in Missouri, near St. Genevieve; it is a solitary and very wild bird, size of the common Plover. Is it a *Fulica*?

16. *Hirundo phenicephala*. Head scarlet, back grey, belly white, bill and feet black.—A fine and rare swallow, seen only once by Mr. Audubon, near Hendersonville in Kentucky; it must have been a wanderer, and is probably a native of Louisiana or Mexico.

III CLASS. ERPETIA.—THE REPTILES.

17. *Necturus maculosus*. Olive brown, covered with large irregular and unequal black spots; tail elliptical, obtuse, blackish, margin redish, two-fifths of total length; a longitudinal furrow on the back, toes red.—My genus *Necturus* (70 N. G. An.) is distinguished from *Triturus* by having teeth, four toes to all the feet, and the external gills persistent to a late period. The *Salamandra alleganiensis* belongs to it. The present species is found in the Ohio, vulgar name water puppet or scorpion eel. Length over one foot, very slovenly; body covered with a mucous matter. Jaws obtuse with thick lips and small acute teeth, the upper jaw longer. Eyes very small round brown; ears behind them, large round, with a furrow. Three external gills, the anterior black, the second brown, and the posterior reddish. Toes small, rounded, obtuse, distinct, the lateral ones smaller.

18. *Necturus luteus*. Entirely yellow, unspotted; tail obtuse, one-half of total length.—It is similar to the foregoing, found also in the Ohio, length about two feet, vulgar names yellow eel or yellow puppet or yellow alligator.

19. *Necturus phosphoreus*. Entirely brown, unspotted; tail obtuse, nearly one-half of total length, gills red.—Another species from the Ohio, its gills shine in the night of a fiery red colour. Total length eighteen to twenty inches. Vulgar names, Night Alligator, Brown Puppet, Alligator Eel, &c. Many other species of Salamanders belong to this genus.

20. *Triturus hypoxanthus*. Brown above, yellow beneath; tail acute, slightly compressed, one-half of total length.—My genus *Triturus* is the same as the *Triton* of Dumeril, there being already another genus of animals called *Triton*; it differs from the *Salamandra* by having a compressed tail. This species is found in Kentucky, where it is called Ground Puppet, because it is often found in the lobster's holes in moist ground; total length six to eight inches.

21. *Triturus fuscus*. Entirely brown, rather olivaceous above and paler beneath; a furrow on the rump; tail acute, slightly compressed, one-third of total length.—I found it in the northern parts of the state of New York, in small brooks. Vulgar name Black Ebbet. Length three or four inches. Eyes large and black, iris round and brown. Upper jaw longer as in all the genus and without teeth. Posterior feet with five toes as in all the species, the lateral ones smaller. I communicated a description of this animal, together with many other reptiles from

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the state of New York, to the Philosophical Society of New York, ever since 1816.

22. *Triturus viridescens*. Olivaceous green above, with some faint brown spots, back carinated; yellow beneath with small brown dots: head unspotted, green above, yellowish beneath: an irregular row of bright and gilt red dots along the sides: tail longer than the body, acute, very compressed.—A fine species found in Lake George, Lake Champlain, the springs and brooks of the neighborhood, &c. Total length four inches. It must form a peculiar subgenus *Diemictylus*, distinguished by the fore feet semipalmate with four equal toes, the posterior with only three toes and two lateral knobs; jaws nearly equal, eyes elliptic, &c. The iris is oblong, rather oblique, gilt, with a longitudinal brown streak; eyes black. Its vulgar name is Green Ebbet.

23. *Triturus nebulosus*. Brown above, clouded with faint and irregular grey spots, a row of them rounded on each side, fulvous beneath; back convex; tail carinated, obtuse, one-third of total length.—It is found near New York, at Harlem and on Long-Island. Length two or three inches.

24. *Triturus miniatus*. Entirely of a red or orange colour, covered with small brown granular dots and some black dots; back carinated with a double row of scarlet dots, surrounded by a black ring: tail as long as the body, carinated, obtuse.—A very pretty species, common in the states of New York, New Jersey, Connecticut, Vermont, &c. Vulgar name Red Lizard or Red Ebbet. It is commonly of the colour of red lead; but varies with an orange or saffron colour. Length two to four inches. Head oval obtuse flat, without dots; eyes blackish with an oblong and gilt iris. It has almost all the characters of the sub-genus *Diemictylus*; but differs yet from it, by having the toes of the fore feet free and unequal, the lateral ones much shorter whence it may form another sub-genus, *Notophthalmus*. There are at least thirty species of this genus in the United States. I know already well twenty of them.

25. *Ranaria (Rana L.) melanota*. Back olivaceous black, a yellow streak on the sides of the head, chin throat and inside of the legs whitish, with black spots; belly white, without spots.—A pretty frog, living in Lake Champlain and Lake George; vulgar name Black Frog: total length two and half inches. Eyes large, iris gilt violet. The anterior feet have four free toes, and the hind feet five palmed ones.

26. *Crotalurus (Crotalus L.) catenatus*. Brown above, with a chain-like row of white spots on the back; belly white, clouded with black.—Discovered by Mr. Bradbury, on the upper Missouri. Length eighteen inches, one hundred and forty-four abdominal scales and twenty-seven caudal scales.

27. *Crotalurus viridis*. Green with several rows of brown oblong spots, white belly.—Found also by Mr. Bradbury, on the Missouri. It was two feet long, slender and with only three rattles.

28. *Crotalurus cyanurus*. Body yellowish, with broad transversal brown bands, back grey between them; head fulvous, a black oblong spot under the chin; tail black above, blue beneath.—It is found in Kentucky, Tennessee, Illinois, Missouri, Indiana, &c. Length about five feet. The hogs will not eat it. The name of *Crotalus* being radical of *Crotalaria* &c. I have altered it to *Crotalurus*.

29. *Coluber Kentuckensis*. Back olivaceous brown, with four rows of brown spots, carinated scales and a central longitudinal streak bluish green; sides bluish green, with two rows of brown spots; belly whitish, unspotted: two hundred abd. scales; tail one-fifth of total length, with fifty pairs of scales.—Length three feet; head black above, white beneath. Common in Kentucky; called Garter snake, like all the snakes with streaked backs.

30. *Coluber similis*. Back blackish, with a central yellowish streak, having two alternate rows of brown spots; sides yellowish-white, spotted with black, belly white, each scale with two lateral black spots: tail one-fourth of total length. Abd. sc. 165; caudal 60 pairs.—Another species belonging to the streaked snakes, of which I know ten or twelve species in the United States. Length twenty inches; dorsal streak extending over the tail, pale fulvous posteriorly. Dorsal scales carinated.—Found in Kentucky.

31. *Coluber ranthenipus*. Blackish above, with some faint brown lines; white beneath, with a longitudinal and yellowish streak from the neck to the vent, and spotted on the sides with red, marginated of black: tail two-sevenths of total length, with eighty caudal pairs of scales, 140 abdominal scales.—I found it near Newburgh, state of New-York; length twenty-five inches. Vulgar name water

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black snake. It likes to go in the water. Dorsal scales carinated. Tail brown, having at the end a short obtuse and compressed horn, as most of the snakes.

32. *Coluber tessellatus*. Grey, checkered like a chess board with red spots, and some black ones intermixed.—Length three feet. This beautiful snake was found at Louisville in a hoghead of sugar imported from Louisiana. It is called calliope snake in Louisiana.

33. *Coluber fulviventor*. Entirely black above, and brick-red beneath, throat yellow; dorsal scales carinated; about two hundred abdominal scales, and seventy pairs of caudal; tail one fifth of total length.—Length nearly three feet; it has large teeth, but no fangs. Vulgar name chicken snake. Found in Kentucky, Ohio, Indiana, &c.

34. *Anguinus (Anguis L.) fasciatus*. Yellowish-white, with broad brown rings, margined of black on the back, and on the sides a row of small intermediary bands like spots; head mixed with brown.—Length one foot, cylindrical; scales smooth, hexagonal, head with large scales above and flattened. It lives near Lake George and Lake Champlain; vulgar names, eel snake, ring snake, worm snake.

IV CLASS. ICHTHYOSIA.—THE FISHES.

II. N. G. HEMIPLUS. Abdominal. Body oblong, one dorsal fin opposite to the vent; head small, mouth puckered, toothless, looking upwards, lower lip longer, gill cover double; abdominal fin with only five rays, and a scaly lateral appendage at the base.—It belongs to the family *Cyprinidæ*, it differs from *Cyprinus* by the mouth and abdominal fins, which have appendages like the real *G. Salmo*, *Clupea*, *Sparus*, &c. This striking character has been neglected by all the Ichthyologists; I wish to draw their attention to it. The generic name means half-double.

35. *Hemiplus iacustris*. Silvery, with gilt shades, back and top of the head brownish; lateral line curved downwards, a second and upper one straight reaching the dorsal fin only; all the fins olivaceous tipped with brown; dorsal fin nine rayed, anal falcate fourteen rayed, tail forked—I have already mentioned this small fish in the Amer. M. Mag. 1st Dec. of new fishes, sp. 7, vol. 2. p. 121, under the name of *Cyprinus hemiplus*. It is found in Lake George, Lake Saratoga, and Lake Champlain. Length three to six inches. Pect. 14. C. 24. Vulgar names Shiner or Minny.

36. *Cyprinus hematopterus*. Back olivaceous brown, sides coppered, pale beneath; head black, tuberculated above and on the lower lip, gill cover reddish with a black spot; lateral line curved downwards at the base; tail forked, lower fins bloody red, anal and dorsal nine rayed, this last in the middle of the back.—A pretty fish called red-fin chub, not uncommon in the streams falling into the Hudson. Length five or six inches; iris gilt, mouth large terminal toothless, jaws equal; all the fins olivaceous, margined or tipped with bloody red, the pectoral and abdominals are entirely red, the first ray of the pectoral is bluish. P. 15. abd. 9. C. 20. Eyes black.

37. *Cyprinus trivittatus*. Back and fins olivaceous, a brown longitudinal band on the back, a broad bluish band on each side above the lateral line, which is nearly straight; belly white with gilt shades, head brown, rather rough above, gill cover gilt; tail forked, anal and dorsal fins with nine rays, this last in the middle of the back.—Similar to the foregoing and to my *C. vittatus* in many points. Iris gilt brown. Found in the Fishkill and Walkill creeks, state of New-York.

38. *Salmo pallidus*. Lower jaw much longer, body cylindrical, grey crowded with irregular rounded pale yellowish spots, gills silvery, lateral line ascending at the base, tail forked brownish, dorsal fin brown with twelve rays, adipose fin olivaceous, lower fins white, the anal with twelve rays.—Common in Lake Champlain, Lake George, Lake Seneca, &c; vulgar names salmon trout, white trout, or lake trout, &c; length two to four feet. Very good food, flesh reddish.

V CLASS. PLAXOMIA.—THE CRUSTACEA.

III. N. G. SPERCHUS. Antenna double than the head, four nearly equal, with two long truncate articles, the upper pair rather broader and longer. Body compressed, with seven segments, each with a large lateral appendage or scale; the fourth larger and with an additional posterior appendage, the corresponding feet

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larger and with a large rounded and thick hand, all the feet with only one claw. Rump with four large segments, without lateral appendages, but with the usual ones beneath. Tail with short and recurved appendages.—It belongs to the family *Gammaria*, the name was that of an ancient fluvial God of Thessaly.

39. *Sperchius lucidus*. Shining brown, eyes black, nearly round; appendages of the tail shorter than the last article, curved outwards, with two articles and a terminal filament.—Discovered in the springs and brooks near Lexington, Ky. Length about one-third of an inch, almost black when in the water, olivaceous brown when out of it, and pale when dry. Body arched, antenna descending. It swims well.

IV. N. G. *LEPLEURUS*. Four antenna shorter than the head, nearly equal, truncate, with a single segment. Body rather compressed and straight, with twelve segments, all with a large lateral scale except the three anterior and the last, posterior segments and scales longer. First pair of feet with a large oblong cheliform and cuspidate hand; the second and third pair cylindrical pincerous or with two cylindrical and truncate fingers, the four other pairs slender; all the feet without real claws. Appendages beneath the rump almost similar to the hind feet; those of the tail short and with single segments.—Another fresh water genus of Shrimps, of the family *Gammaria*. The name means lateral scales.

40. *Lepleurus rivularis*. Olivaceous, eyes very faint irregular; appendage of the tail truncate straight oblique; antenna nearly horizontal, feet longer than the breadth of the body.—I have detected it in the brooks of the mountains of Pennsylvania and at Shannon run, near Bedford Springs. Length about half an inch; it crawls on the stones rather than swims or jumps.

V N. G. *LIRCEUS*. Four antenna, the two upper ones very long, with four large articles, increasing in size upwards, and many small ones; the two lower antenna shorter than the head and the fourth article of the long antenna, setaceous, adherent with the upper ones at their base. Head rounded, eyes lateral and rounded. Feet with a single claw; body pinnatifid with seven segments without lateral scales; tail large, rounded, utriculated beneath, with concealed bifid appendages. This fresh water genus belongs to the family *Oniscia* and sub-family *Aselotia*. The name was that of a spring in Greece.

41. *Lirceus fontinalis*. Blackish, upper antenna one-third of total length; segments broader than the head and truncate laterally, separated by deep clefts; back convex; tail semitrilobe, margin hyalin, center raised longitudinally.—I detected it in October 1819 in a spring near Lexington. It swims well; feet short with four articles, one of which is a claw, the posterior ones longer and more slender. Length one-fourth of an inch without the antenna; breadth about one-fourth of the length. Tail broad and twice as long as the head; appendages short, articulated, seldom jutting out of the utricule.

VI CLASS. ENTOMIA.—THE INSECTS.

XI. N. G. *SELISTA*. Body depressed, with nine segments, including the head and tail. Head large; forehead notched ending in a large curved forceps with a tooth inside. Two palps as long as the forceps, with two articles and two claws at the end. Eyes lateral round; antenna inserted before the eyes, as long as the frontal forceps, with two long segments and two terminal threads. Fourteen lateral legs, with two articles and two claws besides, or bifid at the end.—A very singular genus of the family *Myriapoda*, and sub-family *Scelopendria*. The name was that of a nymph.

42. *Selista forceps*. Fulvous brown, frontal forceps as long as the head, tail bidentated.—Found near Baltimore by Mr. H. Hayden. It comes into the houses; length one inch.

VII. N. G. *CRYPTOMERA*. Body depressed, linear, narrow, with many segments, each with one pair of lateral filiform legs with four articles; alternate segments shorter and almost entirely covered and concealed by the larger ones. Head truncate; eyes obsolete; two long filiform multi-articulated nearly lateral, and distant antenna; no visible palps.—It belongs to the family *Myriapoda*, sub-family *Chilognathia*, next to the genus *Polydesmus*. The name means concealed parts.

43. *Cryptomera lunularis*. Reddish brown; sixteen pairs of legs, the last pair longer; antenna one-third of total length; sides straight, tail short, lunulate; length about one inch.—Found near Baltimore and Philadelphia on the ground; segments as long than broad.

44. *Cryptomera nemura*. Brown; fourteen pairs of legs, the posterior pair very long; antenna nearly as long as the body; large segments gibbose, rounded behind, scutiform sides notched; tail having two filaments as long as the body; length over one inch.—Found by Mr. Hayden in the cellars of Baltimore; segments longer than broad.

VIII. N. G. STENOMERA Differs from *Cryptomera* by narrow segments visible not covered; the first segment is a narrow one; head oval, antenna setaceous, thick and approximated at the base.—Very near to *Cryptomera*: the name means narrow parts.

45. *Stenomera interrupta*. Antenna twice the length of the head; fourteen pairs of legs, the posterior ones longer and thicker; sides deeply notched, tail bidentate.—I have found it near Hadley's falls (in 1816) on the Hudson river, on mushrooms, upon which it feeds probably. Length one and an half inches; colour pale brown; many of the large segments are slightly lunulate behind, all are broader than long.

IX. N. G. MYCOTHERES Differs from *Cryptomera* by all the segments equal and apparent, and head of various shapes, eyes lateral when visible, &c.—This genus differs from *Julus* by having only one pair of legs to each segment. The name implies feeding on mushrooms, as most of the species do. There are many of them in the United States. I shall merely mention three at present.

46. *Mycotheres Oligopoda*. Antenna one-third of total length, bent outwards; head rounded; body attenuated behind; seven pairs of equal legs; tail bifid.—Found on the Luzerne mountains of New York, near Glen's falls. Length one-fourth of an inch, colour fulvous. It may be the type of a sub-genus, *Exocera*.

47. *Mycotheres leucofoda*. Antenna straight, one-fifth of total length; head truncate body linear, fulvous, about twenty pairs of white legs, the posterior ones rather longer; tail bisetose. Found in the knobs of Kent'y. length less than 1 inch.

48. *Mycotheres vittata*. Fulvous, a longitudinal brown streak on the back; antenna moniliform, longer than the head; about fifty pairs of legs, almost equal; tail elongate obtuse, with a lateral setaceous appendage on each side; head oval, pandurate, obtuse; eyes lateral, visible, round.—A fine species about two inches long and one-twelfth broad. It may form a sub-genus *Nemopleura*. Found in the highlands of New York. The antenna have about fifteen rounded articles. Eyes black, almost inferior. The head and tail are not streaked.

X. N. G. PLEUROLOMA. Body oblong, convex above, unable to contract into a globe; many narrow segments, the middle ones larger, each with a marginal scale on each side and commonly two pairs of ventral legs, with four articles and a ciliated claw; the first segment or neck nearly concealed and without scales or feet. Head short; antenna lateral moniliform, with six oblong articles.—A fine genus next to *Glomeris*: the name means lateral margin. Hind legs shorter as in all the following three genera.

49. *Pleuroloma flavipes*. Antenna grey, one-fifth of the body; head brown, transversely oblong; eyes black, back blackish shining, marginal scales reddish, eighteen segments and only thirty pairs of legs; belly, legs and tail yellow, tail mucronate. Length one and half inches; eyes very small, lateral.—Found on the ground in the woods near Catskill in New York state.

XI. N. G. NARCEUS. Body cylindrical, with many narrow segments, each with two pairs of geminate legs, except the anterior segments which have only one pair. Head obtuse with a visible neck; eyes anterior irregular; antenna lateral hardly longer than the head, recurved behind in a lateral groove, with six depressed articles, the second longer, the last globular. Legs with four articles and a claw, ventral, the posterior ones rather shorter. Tail scutiform, mutic, concealed beneath.—Next to *Julus*: the name is mythological.

50. *Narceus fluctivus*. Blackish brown, ninety pairs of feet, pale purple; the six anterior segments with a single pair; tail obtuse, split beneath; length about three inches.—It is found in the woods of Kentucky. When handled it dyes the fingers of a purplish colour. Discovered by Mr. John D. Clifford.

XII. N. G. ROSTRUM. Differs from *Narceus* by all the segments with two pairs of geminate ventral legs, having five articles and a claw. Eyes rounded in facets. Antenna nearly under the head, recurved upwards in a groove, with seven articles; six oblong, the sixth larger, the seventh or last depressed obtuse.—The name is also Mythological.

51. *Rostrium maculatum*. Blackish brown with reddish brown rings on the margin of the segments, head brown, one hundred and ten pairs; neck broad, tail

arge, obtuse, split beneath; vent linear, margined with yellow—Found in the woods of the highland hills of New-York Length three inches.

XII. *N. G. Acanthos*. Differ from *Noveboracensis* by anterior segments with two pairs of legs; neck hardly visible; head rounded, eyes rounded, lateral; antenna longer than the head, lateral before, straight, club shaped, six oblong articles increasing in size upwards.—The name means little texture.

52. *Abacina tessellatum*. Body reddish brown, striated longitudinally, or tessellated; antenna more than double the length of the head; legs pale, variable in number, about sixty pairs; tail acute—I found it on the knobby hills of Estill county in Kentucky, under stones: length nearly two inches.

XIV. *N. G. Spiniferus*. Body lanceolate, head, thorax and abdomen united in one, without divisions, some faint appearance of segments on the abdomen; six legs; antenna united in front, divergent, curved outwards, club shaped and nearly nail shaped, the end being large and rounded. No visible eyes, nor palps nor beak—It belongs probably to the family *Parasitia* next to *Osteophilus*: the name means united nails.

53. *Symphyla solidago*. Body smooth, lanceolate, acute behind, rounded in front, milky, whitish; antenna one-fourth of total length; legs as long as the breadth of the body—An exceeding small animal only the fortieth part of an inch in length; found in the state of New-York on several species of the genus *Solidago*.

54. *T. arctiflorus coccineus*. Entirely of a pale saffron colour; body elliptic, truncate behind, back convex pilose; legs arched, nearly equal, pilose; eyes brown, nearly lateral—Found in the state of New-York in houses; length half a line, eyes sessile punctiform; palps visible, straight.

55. *Acanthos xanthopus*. Body nearly elliptical and obtuse, smooth and red; legs yellow, the anterior pair longer antenniform, nearly as long as the body—One of the smallest insects, length about one hundredth part of an inch, almost invisible to the naked eye.—I found it on Long-Island in the flowers of *Mentropa uniflora*.

56. *Acanthos ampelae*. Body oboval, obtuse, orange color; legs pale, arched, nearly equal—On the wild grape vines of the state of New-York. Length the twenty-fourth of an inch.

XV. *N. G. Diatoroxus*, (Spider). Thorax rounded, the anterior pair of legs longer, palps straight, club shaped; eyes in two arched rows on the forehead, each with four eyes, convexity upwards, the upper bow with smaller eyes and shorter—The name means eyes in double arches They are wandering spiders.

57. *Diplotoxops bimaculatus*. White, abdomen rounded-ellipsoidal, with two short yellow parallel lines anteriorly, faintly ringed behind; anterior feet nearly as long as the body and arched—Not uncommon in many parts; seen near Lake Champlain, on Long-Island, the Alleghany mountains and in Ohio. Length one-fourth of an inch; abdomen double the size of the thorax

58. *Diplotoxops? coccinea*. Scarlet, legs black; the anterior ones hardly longer; abdomen ellipsoidal obtuse—In the state of New-York, length only one-twelfth of an inch.

59. *Lepisma saccharinum*. Dirty and pale brown, antenna nearly as long as the body; filaments of the tail unequal, the middle one longer than the body and three times as long as the lateral ones—Length one inch; found on the stones in the knobs of Kentucky, it springs and jumps occasionally; feet medial, short, equal.

60. *Termes montana*. Black, antenna and tips of the legs fulvous, thorax semi-cordate anteriorly.—It lives in the Alleghany mountains They form large societies and build their nests in the fallen pine trees. The antenna are divergent, straight, moniliform, jaws large, abdomen ringed obtuse, wings much longer, horizontal, greyish; length one third of an inch.

61. *Formica succinea*. Entirely of a fine shining and transparent amber colour: thorax with three knots; abdomen oboval-elliptical; antenna club shaped upwards, two fifths of total length—It lives in small societies of about one hundred individuals, under stones in the knobs of Kentucky; length about one-tenth of an inch. Head large, rounded; palps visible, antenna bent inwards, the first knot of the thorax longer and bearing the legs. Larva white, oblong and pandurate or bilobed. I have already observed about twenty species of Ants in the U. States, mostly new; I am preparing a monography of them.

62. *Chermes Sulphur-trifoliatum*. Elliptical, nearly truncate at both ends; length double the breadth, pale olivaceous green, back convex, undivided; an-

tenna very short.—Found in Kentucky, on the *S. trifoliatum*; length one-eighth of an inch; it produces a kind of white substance or mealy wax.

63. *Locusta caeleptera*. Back brown, head and belly yellow, wings blue with two red stripes.—Length half an inch; a beautiful little species found in Illinois and Indiana.

64. *Locusta erythropoda*. Yellowish, back with small transversal brown lines; eyes and wings greenish brown; legs with black knees and red feet.—Length one inch. Seen in Indiana and Kentucky.

VII CLASS. HELMINTHIA.—THE WORMS.

65. *Hirudo aterrima*. Entirely black, oblong, obtuse.—Length over one inch; found in the swamps and bayous of the valley of the river Ohio. There are at least twenty other undescribed species of Leeches in the United States.

66. *Hirudo Ohionensis*. Olivaceous, elongated, flattened, obtuse; back with two parallel rows of distant red dots.—Length two or three inches. Found in the Ohio, at the mouth of the Kenhaway.

67. *Hirudo tricolor*. Oblong, obtuse, attenuated behind; red above, with a longitudinal black stripe, yellow or orange colour beneath.—Length less than one inch. In the swamps near Lake Champlain.

68. *Hirudo marmorata*. Oblong, obtuse, blackish variegated with brown white and rufous spots.—Together with the foregoing and same size.

VIII CLASS. APALOSIA.—THE MOLLUSCA.

XVI. N. G. PHILOMYCEUS. Differs from *Limax* by no visible mantle, the longer pair of tentacula terminal and club shaped, the shorter tentacula lateral and oblong.—The name means friend of fungi, on which they feed.

69. *Philomyces quadrilat.* Grey, back smooth, with four longitudinal rows of irregular black spots, long tentacula black and approximated: rather attenuated behind, tail obtuse.—On the banks of the Hudson, length over half an inch.

70. *Philomyces oxyurus*. Fulvous grey, slender, back wrinkled longitudinally; tentacula brown, the lateral ones very small; tail acute, carinated above.—Length two-thirds of an inch, in New York.

71. *Philomyces fuscus*. Entirely brown, tentacula thick, back smooth, tail compressed, acute.—In Ohio, on *Amanita elliptica*; length one-fourth of an inch.

72. *Philomyces fœrnolaris*. Fulvous, back variegated with flexuose brown lines slightly wrinkled transversally; attenuated behind, tail obtuse.—Length from one to two inches, it may change its shape. Found on the Catskill mountains. There are many other species of this genus in the United States.

XVII. N. G. EUMELUS. Differs from *Limax* by no visible mantle, the four tentacula almost in one row in front and cylindrical, nearly equal, the smallest pair between the larger ones.—Name mythological.

73. *Eumelus nebulosus*. Body nearly cylindrical, rounded at both ends; back smooth, crowded with grey and fulvous spots intermixed of the same tinge, without spots beneath; tentacula brown.—Length about one inch; in Ohio and Kentucky.

74. *Eumelus lividus*. Livid brown above, greyish beneath, antenna black, obtuse behind, back smooth and convex.—Length one inch; in Ohio, Indiana and Kentucky.

75. *Limax gracilis*. Body slender, head and lower tentacula fulvous, neck grey, upper tentacula brownish, mantle dark fulvous, back smooth brown, beneath dirty white; tail brown, obtuse above, mucronate and acute beneath.—Probably a real *Limax*. Yet it has the two long tentacula inserted above the neck, while the small ones are terminal, and all slightly club shaped. It may perhaps form a sub-genus *Deroceras*. Length over one inch. Found near Hendersonville in Kentucky, and in woods.

XVIII. N. G. HEMILOMA (Univalve land shell). Spire raised and smooth; opening obliquely elliptical, with an interior raised half margin on the inside lip, a little twisted; Columella decurrent on the whorl obliquely and with a very small umbilicus.—The name means half margin.

76. *Hemiloma ovata*. Ovate, very obtuse, smooth, six spires, breadth two-thirds of the length.—Found near Lexington, in nearly a fossil state, by Mr. John D. Clifford; whitish, length three-sixteenth of an inch.

77. *Pleurocera verrucosa*. Ellipsoidal, top very obtuse, base of the opening obtuse, inside lip thickly plaited; four spires, the two last flattened, the others large, with several rows of warts, back of the opening wrinkled.—Length about two-thirds of an inch, not quite double the breadth; colour olivaceous brown, opening whitish. It lives in the lower parts of the Ohio. This genus which contains nearly twenty species of fluviatile shells, was described in my 70 N. G. Animals, &c. I have discovered already about one hundred and eighty species of fluviatile and land shells in the United States.

IX CLASS. POLYPIA.—THE POLYPS.

XIX. N. G. MEGASTOMA. Body free, globular, cartilaginous, without external organs. A large transversal narrow opening or mouth, like a cleft. Inside hollow, sides covered with undulated, plicated and lobed appendages.—This curious genus belongs to the order *Monostomia*, family *Gymnotremia*, and sub-family *Isimopia*, next to *Megastoma*, *Zocodium*, &c. The name means large cleft.

78. *Megalisma maculata*. Nearly spherical, smooth, brown with black spots.—It was taken on the bank of Newfoundland; diameter six inches. Moving, rolling on itself, contractible—mouth shut or gaping.

79. *Milleporaxoniliformis*. Elongate, curved simple, torulose or beaded; segments unequal, oval or oblong, rounded, solid; pores nearly in transverse rows, subequal, suboval and rather approximate.—Fossil, near Lexington. One among the three hundred N. sp. of fossil animals, discovered in Kentucky by Mr. Clifford and myself.

X CLASS. POROSTOMIA.—THE POROSTOMES.

XX. N. G. SCALENIUM. Body flat, floating, gelatinous, evanescent, homogenous, without organs, unequally triangular.—I have first proposed this last class of animals, which have only invisible pores instead of mouths. This genus belongs to the order *Gymnetia*, family *Amendia*, sub-family *Aplaxia*, next to *Pterops*, &c.

80. *Scalenium planum*. Flat, level and thin, transparent, the three sides unequal and straight, angles nearly acute.—In the Atlantic ocean: breadth six inches.

81. *Scalenium undulatum*. Margin undulated, one side much smaller, sides slightly curved outward, angles obtuse; colour hyaline, faintly coloured with yellowish.—In the Atlantic ocean.

PLANTS.

I CLASS. ELTROGYNIA.—THE ELTROGGYNES.

82. *Vitis denticulata*. Branches and petiols striated and pubescent, petiols subequal, leaves reniform, acute, subtrilobe, denticulate, denticules very small and callose, shining above, white tomentose beneath, nerves rufous; flowers polygamous.—In the state of New-York. I presented three years ago to the Philosophical Society of N. York a memoir of the Vines of that state, containing ten species, whereof seven were new: this is one of them.

83. *Prunus cuneata*. Shrubby, branches straight, round, biangular, leaves cuneate, obtuse, crenate, base entire, glaucous beneath; umbels sessile, commonly quadriflore, calix serrulate, rugose transversally.—On the mountains of Pennsylvania, probably a Cherry shrub, it rises two feet, branches dark purple, leaves and flowers small, peduncles short, three to five flowers together, white; it blossoms in May.

84. *Prunus triflora*. Arborecent, branches crooked and smooth, leaves subsessile, oblong-lanceolate, acuminate, crenate, sub-obtuse; umbels sessile, commonly triflore, calix acute, petals erose.—A tree twenty feet high, probably a Cherry tree. In the mountains of Pennsylvania. Flowers numerous, white, smelling strongly of honey.

85. *Rosa pusilla*. Stem procumbent, smooth and crooked, stipular thorns straight, petiols pubescent, folioles 3-5, shining above, pubescent and pale beneath, obovate, oblong, serrate, base entire, flowers solitary, peduncle hispid, stigmas tomentose, umbilicate, fruits smooth, globular, depressed, calix appendiculated.—A very small shrub, four to six inches high, fruits rather large, saffron colour. I found it at Button lick in the knob hills of Kentucky. I have sent to Europe the Prodromus of a monography of America Roses, in which thirty-three species and twenty varieties are described, whereof one-half are new.

86. *Azalea fragrans*. Foliosiflora, leaves oblong-cuneate, bristly-ciliate, base acute, end obtusely mucronate, glaucous beneath; umbels interfoliate, molliflora, bracteate, bracteas scaly, ovate obtuse, concave, tube elongate, viscid pilose, stamina and style twice as long as the corolla.—A beautiful shrub, three to four feet high, growing on the mountains of Maryland and Virginia. Flowers large, white, smelling like Caprifoliaceae and blossoming in June.

87. *Oxalis montana*. Stemless, creeping, caudex fibrose, petioles flaccid, foli-oles thin, obcordate, dilatate, almost reniform, smooth, slightly ciliate, scape uniflora equal to the leaves, styles and petals longer than the stamina, petals emarginate emarginate.—This is the *O. acetosella* of Pursh, but not of Linnaeus. I found it on the summit of the Catskill mountains in the state of New-York. Petals white, veined with purple, base yellowish, blossoming in June.

88. *Delphinium* (*Delphinium*) *flexuosum*. Nearly smooth, stem upright, simple, thick and flexuose, leaves on long petioles, palmated, divisions bifid, somewhat lacinate, lanceolate acute; raceme thick ovate, flowers nodding, spur ascending, rather curved, as long as the corolla; capsules quaternate.—A small but fine species discovered on Turtle creek, near Pittsburgh. It rises only one foot, it blossoms in May, flowers dark violet with a white palate, raceme often with eight flowers. I have modified the name of *Delphinium* which was nearly identical with *Delphinus* a genus of animals.

89. *Dentaria parvifolia*. Root tuberose vernicular, stem slender, leaves trifoliate, the radical ones with folioles petiolate, ovate, acute, serrate, lacinate, those of the caulinar leaves sessile lanceolate, serrate or entire.—A small species, rising only four to six inches. I found it on the beautiful banks of the Loyalhannock creek in western Pennsylvania; it blossoms in May, flowers of a pale rose colour, stigma capitate, raceme slender, leaves small.

90. *Silene miniata*. Stem viscid, pubescent, striated, leaves oblong, acute, pubescent, the radical ones petiolate, ciliate and slightly undulate; flowers terminal few, calix viscid, cylindrical-clavate, decangular; petals obtuse, bidentate, capsule globos-clavate, unilocular.—A fine perennial species, about a foot high, leaves remote, flowers scarlet, like red lead and dazzling bright; but fading in drying. I have seen it sometimes with four petal, eight stamina, &c. It may be probably necessary to re-establish the genus *Atocion* of Adanson, containing the species of *Silene* with unilocular capsules, in which case this species may be called *Atocion miniatum*.

91. *Rumer sylvatica*. Root tuberose, cylindrical, fusiform, stem angular, furrowed, straight & simple, leaves petiolate, ovate, oblong, nearly entire, flat, acute at both ends; raceme elongate, naked and articulated, calix with the external sepals small, oblong, obtuse, internal ones or petals lacerated ovate, one granular, grain spherical, very large.—Discovered in the woods of western Kentucky, blossoming in August; stem hardly over one foot high, radical leaves small.

92. *Polygonum punctatum*. Stem branched, leaves broad lanceolate, acuminate, dotted beneath, petiolate, sheaths nervose mutic; spikes dense, elongate, bracteas ovate, acuminate, membranaceous, flowers geminate, nearly sessile; calix unequally quinquefid, divisions obtuse, two larger, five stamina, two styles, seed obtuse lenticular.—It grows in western Kentucky and blossoms in August; flowers white, stem two or three feet high. The genus *Polygonum* must soon be divided, this then will form a genus or sub-genus, with the other species having an unequal calix, five stam. two st. and lenticular seed; it might be called *Chulacium*.

93. *Polygonum serotinum*. Shrubby, stem upright, striated, much branched; branches angular, virgate; leaves nearly sessile, ovate-oblong, acute, smooth; sheaths split laterally, lacerated, membranaceous; flowers axillary, fasciculate, pedunculate, polygamous: calix rhomboidal, unequally quinquefid, five stamina, three sessile stigmas; seed unequally triangular, conical, smooth, longer than the calix.—A large species, discovered near Lexington in fields; it forms a small shrub two or three feet high, woody only at the base and blossoming in October. It approximates to *P. ramosissimum* of Mx, & *P. parvifolium* of Nuttall; but not at all to *P. erectum* of L. which Pursh has wrongly united with the former. Branches nearly naked, leaves very small, flowers two to five together on peduncles as long as them, green, tip rose coloured. This species will probably belong to the genus *Polygonella* of Mx, which I have called *Lyonella*. It is polygamous by the abortion of the stamina.

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II CLASS. MESOGYNIA.—THE MESOGYNES.

94. *Lycopus angustifolius*. Leaves sessile, elongate, linear-lanceolate, acuminate, remote, serrate in the middle; base dilatated; whorls pauciflore; bracteas and teeth of the calix subulate; corolla equal to the calix; stamina hardly exerted.—Found in western Kentucky, blossoming in August; size one foot. Perennial.

95. *Geniuna serpentaria*. Stem cylindrical flexuose; leaves cuneate or obovate-oblong, obtus, nearly trinerve, undulate, smooth; flowers fasciculate, sessile; bracteas sub-petiolate, lanceolate, acute; calix campanulate, shorter than half of the corolla, pentagone, sinusses membranaceous, truncate; sepals linear, acute, foliaceous, carinate; corolla tubulose, five toothed; teeth erect, elongate, obtuse, notched; sinusses unequally toothed.—Next to *G. ochroleuca* and *G. cicutari*; flowers straw colour veined with green; five free stamina; filaments rigide; anthers white, obtusely sagittate. It grows in Indiana where its roots are supposed to stupify the venomous snakes and cure their bite.

XXI. N. G. ILYSANTHES. Calix five parted, sub-equal, bracteate; corolla tubulose, bilabiate; upper lip erect, short, bidentate, sinus obtuse; lower lip trilobe, sinusses acute; lobes nearly equal, rounded, entire, concave. Stamina two fertile under the upper lip; anthers unilocular; two sterile filaments under the lower lip. Ovary oblong; style compressed above; stigma bilamellate. Capsul oblong cylindrical, unilocular, bivalve, myriosperme; receptacle central, cylindrical.—This genus differs from *Gratiola* by the calix, corolla and capsul. The name means maid flower. Habit of *Gratiola* and *Lindernia*; leaves opposite sessile; flowers axillary.

96. *Paspalum riparia*. Branched, smooth, divaricate or decumbent; leaves ovate-oblong, obtuse, nearly five nerved, remote toothed, thickish; peduncles alternate upright, as long as the leaves; sepals of the calix subulate, shorter than the capsul.—It grows on the overflowed banks and islands of the Ohio and tributary streams, in the mud or even in the water. Stems quadrangular; flowers pale blue, lower lip margined with white. It blossoms in July and August. Annual. A variety has broader ovate leaves, hardly toothed.

97. *Cuscuta paradoxa*. Stemless, parasite, verticillate; whorls capitate and dense; flowers sessile; calix membranaceous, five parted; sepals embricate, ovate, lanceolate; corolla tubulose, quadrifid, equal to the calix; sepals lanceolate, acute; four stamina, no appendages; two long styles; stigmas capitate.—In the barrens of Indiana and Illinois on the stem of *Vernonia*. A very singular plant; its stems are filiform and very slender in their youth, but dry and fade while the plant blossoms. Flowers white; blossoming in June. Annual.

98. *Cuscuta acuminata*. Stemless, parasite, glomerate, compact, amplexent, dense; flowers sessile; calix membranaceous, five parted; sepals ovate, acute; corolla campanulate, urceolate, 5 fid; sepals short, ovate, acute; stamina five, no appendages; two long styles; stigma capitate.—Very similar to the foregoing. Is it only a variety of it? Found on *Eupatorium*, *Spirea*, &c. in the barrens of Kentucky, blossoming in August; flowers white, seldom whorled; but in large complexicaule glomerations.

99. *Cerardia bregata*. Smooth; leaves nearly petiolate, lanceolate, acute, entire, pale beneath; flowers nearly spiked, sub-sessile; bracteas sessile, ovate lanceolate; calix campanulate, semi-quinquefid; divisions obtuse.—An intermediate species between *C. flava* or *villosa* and *C. glauca* or *quercifolia*, but very distinct from both. It grows on the knob hills of Kentucky, the Cumberland mountains and the Alleghany. It rises about two feet. Stem faintly quadrangular, purplish, simple or branched. Bracteas small; flowers yellow, large, similar to those of *C. flava*, and blossoming in July and August. Perennial.

III CLASS. ENDOGYNIA.—THE ENDOGYNES.

100. *Sambucus humilis*. Perennial; stem herbaceous, flexuose, few leaved; leaves five foliolate; folioles nearly sessile, ovate-elliptical, thin, serrate, acuminate, terminal one larger and petiolate; cyme terminal quinquefid; two short binate and lanceolate bracteas.—On the banks of the Ohio in Virginia; it blossoms in June; stem only one foot high; leaves large; flowers white. It will represent in America the *S. Ebulus*.

101. *Cornus obliqua*. Shrubby; branches nearly cylindrical, semirugose dichte-

tomous; leaves petiolate, elliptical lanceolate, acuminate, smooth, yellowish glaucous beneath; cyme erect, pedunculate, axillary to the last dichotomous and much shorter, naked and trichotomous.—A shrub four to five feet high, growing on the banks of the Kentucky river. I described it in the *Western Review*, vol. 1. p. 229. The *C. albida* of Erhart which is a distinct species, differs from it by lanceolate leaves, not obliquely dimidiate petals, cymes terminal, &c. and the *C. polygama* of Fl. *Ludoviciana* by sessile leaves, fruit black, &c.

102 *Thaustonia ropestris*. Smooth; stems fruticulose, assurgent and geniculate; leaves long-linear, attenuate and acute at both ends; flowers corymbose paniculate; peduncles short, unequal; divisions of the corolla lanceolate acute, style exert, capsule elongate.—A small shrub, a foot high, growing on the cliffs of the Kentucky river, and blossoming in August. It is very different from *H. tenuifolia* of Nuttall which is not frutescent.

103 *Aparine (Galium L.) viscidiflora*. Stem erect; leaves quaternate, semi-petiolate, ovate-lanceolate, nearly obtuse, trinerve, margin and nerves ciliate; flowers indivaricate, lateral, loose and trichotomous panicles; bractees opposite lanceolate; peduncles long and slender; corolla viscid, divisions ovate mucronate, fruit smooth.—A pretty species with dark purple flowers; it grows in the Alleghany mountains of Maryland, &c. blossoming in June. Stem a foot high; Perennial. The Linnean name of *Galium* being nearly the same as *Allium*, the former and better name of Tournefort ought to be employed instead.

104 *Cacalia paniculata*. Stem grooved; leaves petiolate, rhomboidal, acute at both ends; base entire, remainder unequally sinuate; teeth large, acute; flowers paniculate; peduncles divaricate, with some small scaly bracteoles; perianthe five leaved, five flowered; phylles lanceolate, carinate.—It grows in the knob hills of Kentucky, blossoming in August; flowers white.

105 *Cacalia pteranthes*. Stem grooved and crooked; leaves petiolate, ovate or lanceolate, acute thick lacinate; flowers corymbose, paniculate; peduncles elongate; perianthe five leaved, five flowered; phylles oblong, with an undulated wing on the back.—It grows in the barrens of Indiana and Illinois. Flowers white; it has much affinity with the foregoing.

106 *Solidago sphaecolata*. Stem striated, pubescent above; leaves petiolate, ovate acute, mucronate, serrated in the middle, rough on the edges and beneath, inferior ones subcordate; flowers sessile, lateral spikes loose, denseflowered and short, the lower ones recurved, reflexed, the terminal one erect; folioles of the perianthe oblong obtuse, brown or sphaecolate at the end, adpressed, ligules obtuse, hardly longer.—It grows on the hills of Kentucky and Virginia, rising less than two feet; leaves small, about an inch long; flowers of a dirty brownish yellow, blossoming in August. Perennial.

107 *Solidago rupestris*. Stem straight, slender, striated, pubescent above; leaves crowded, broad, linear, sessile, very acute, with faint remote serratures, except at the end, smooth and trinervate; flowers lateral, ascending, peduncled; racemes crowded, paniculate elongate, flexuose, bracteate, divaricate, the terminal one reflexed; bracteoles tubulate; folioles of the perianthe loose, subulate, acute; ligules elongate, narrow, linear.—A fine species, growing on the cliffs of the Kentucky river and blossoming in August; flowers bright yellow; leaves slender, breadth only one-tenth of the length. Stem two feet high. It has some affinity with *S. odora* but is not fragrant. I had wrongly called it *S. parviflora* in some specimens sent to several botanists. Perennial.

108 *Helianthus hirsutus*. Hirsute; leaves shortly petiolate; lanceolate very acute, remote, serrate, pale beneath, somewhat trinervate; flowers terminal, solitary, nearly sessile; folioles of the perianthe adpressed, ovate, acute, ciliate, striated, brownish.—I found it on the knob hills of Kentucky, blossoming in August. Stem two or three feet high, simple, covered with stiff grey hairs very much crowded, those of the leaves are more remote. Perennial.

XXII N. G. PERAMBUS. Perianthe 12-16 partite on a single row, folioles alternately longer and shorter; eight sterile rays without ovary. Phoranthé convex, paleaceous. Florets with a triangular ovary without teeth, tubulose campanulate. Seeds triangular, naked, smooth.—This is another of the numerous genera having affinities with *Rudbeckia*, *Ratibida*, *Leptochys* and *Coneopsis*, from which it differs by the naked seed, &c. and from *Obeliscia* by the simple perianthe and by phoranthé and triangular seeds. The *Coneopsis acuta*, P. *Cor scabra* M. Lindl. and *C. polystachya rosea* and *undulata* Nuttall will belong either to this genus or to *Obeliscia*. The name means alternating around.

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109. *Peramibus hirtus*. Bristly; stem angular, flexuose and nearly dichotome; leaves semi-amplexicaule, lanceolate, acuminate, serrate in the middle, the lower ones ovate-lanceolate; flowers somewhat corymbose, nearly sessile; folioles of the perianth linear, lanceolate, hardly acute; chaffs ovate-lanceolate, acuminate, purplish, as long as the florets; rays elliptical, notched, hardly longer than the perianth.—It grows on the hills near Licking river in Kentucky. Stem two or three feet high, covered with stiff white hairs as well as the leaves: it blossoms in August. I called it once *Coreopsis hirta*; rays yellow. Perennial.

110. *Gynema viscida*. Partly pubescent and clammy; leaves petiolate, elliptical, lanceolate, acuminate at both ends, mucronate, serrate, base entire; flowers corymbose, terminal and axillary, glomerated; folioles of the perianth ovate-lanceolate, acute, rufous, ciliate.—A fine plant not uncommon in Kentucky in fields and woods. It belongs to the genus *Gynema* of my flora ludoviciana. Stem two to three feet high. The whole plant has a very strong balsamic smell. It blossoms in August and September; flowers pale red. I had formerly called it *G. dentata*. Biennial.

IV CLASS. SYMPROGYNIA.—THE SYMPHOGYNES.

111. *Labellia nivea*. Stem simple, smooth, striated above; leaves adpressed, cuneate, obtuse, emarginate, ciliolate, slightly rough, glaucous beneath, laterally notched, notches glandular; spike racemose, elongate, slender; bractcoles subulate; flowers nodding; peduncles shorter than the calix; sepals subulate.—A pretty species, with a very long spike of small snow-white flowers. I found it at the Blue Licks in Kentucky, blossoming in July. Perennial. Stem one or two feet high.

112. *Melothria nigra*. Stem filiform, angular trailing; leaves roughish, subreniform, five lobed, remote, denticulated, middle lobe longer, cirrhes and peduncles fasciculated with the leaves; flowers polygamous, monoical, male, peduncles uniflore, the males multiflore, berries globular ovate, black, shining.—It grows in the valley of the Kentucky river near Esill; stem trailing on the ground from three to ten feet; leaves and flowers small, these yellow, blossoming in August. It offers many varieties, all distinct from *M. pendula*. Annual.

113. *Ludwigia tuberosa*. Roots tuberose, geminate, fusiform; stem simple, flexuose, angular; leaves alternate sessile, smooth, entire, ovate-oblong, acute at both ends; flowers terminal, one to three pedunculated; capsuls 4 gone, obpileate, short, truncate.—It grows on the banks of the Ohio in Virginia; stem only six inches high, it blossoms in September. Perennial.

114. *Oenothera pilosella*. Pilose; stem simple, flexuose, pauciflore; radical leaves petiolate ovate, obtuse, toothed, caulinar, sessile, ovate-oblong, acute, entire; flowers terminal, sessile; tube of the calix shorter than the limb, which is four toothed, split laterally; petals obcordate, as long as the calix; capsul oblong, 4 gone, venose.—Discovered in Indiana near Evansville. Biennial. Six inches high. Flowers yellow, blossoming in August.

115. *Cactus humifusus*. Articulated; articles diffuse, procumbent, obovate, flat; spinules very minute, rufescent; fruits lateral, scattered, inerme, smooth, ovate, scarlet.—This is the common *Cactus* of the United States, which has been mistaken for the *C. Opuntia* by all our botanists. It grows from New York to Kentucky and Missouri, trailing on the ground from one to fifteen feet; articles two to five inches long; flowers yellow, an inch in diameter; fruit size of a plum, good to eat; skin very thin and quite smooth; while in *C. opuntia* it is thick and spinescent.

V CLASS. ANGIOGYNIA.—THE ANGIOGYNES.

116. *Habenaria racemosa*. Stem flexuose, angular; lower leaves elliptical, obtuse, upper ones lanceolate and small; flowers racemose, pedunculate; bracteas oblong, lanceolate, longer than the ovary, which is fusiform; sepals elliptical, oblong, concave, subequal; labellum tripartite: divisions cuneate, flabellate, 5 fid, lacerated; spur shorter than the ovary.—Discovered by Mr. Knevels, near Fishkill. Stem two feet high; flowers purple, blossoming in August, in an oblong and thick raceme, pretty large. The genus *Habenaria* of Brown contains all the species of *Orchis* with two anthers.

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VI CLASS. GYMNOGYNIA.—THE GYMNOGYNES.

117. *Clintonia parviflora*. Leaves with the margin and keel ciliate; umbellule multiflora; flowers erect; sepals unguiculated; claws erect; limb rotate; disk oboval, obtuse.—On the Alleghany mountains in Maryland, a small species with white inodorous flowers.

118. *Clintonia podanisia*. Leaves ciliated only in the margin; umbellule 2-5 flowered; peduncles unequal, one erect, the other curved; flowers erect; semi-campanulate; sepals oblong, acute.—Found with the foregoing; larger flowers large and white. My genus *Clintonia* (Amer. Jour. of Sc.) contains now four species; the other two are *Cl. mutans* (*Dracena borealis* Auct.) and *Cl. oblata*, (the *Convall. umbellulata* of Michaux); they afford many varieties. I have sent a new monography of this genus to the same Journal.

VII CLASS. PHANEROGYNIA.—THE PHANERIANS.

XXIII. N. G. HEDYCHLOE. Flowers capitate, involucre, chaffy or paleaceous. Chaffs uniflora, glumaceous. Glum bivalve; valves unequal, carinate, the internal larger and involving. Stamina two. Ovary pedicelled, elliptical, obtuse, compressed; one style, two stigmas.—The type of this genus is the *Kyllingia pumila*, which I call *Hedychloe fragrans*, and is found from Illinois to Carolina.

119. *Scirpus argyris*. Scapes and leaves cylindrical, smooth; fistulose very long, acute; spikes lateral under the apex, glomerate, ovate, sub-sessile; scales ovate, mucronate, brown, arachnoidal.—It grows in the creeks and rivers of New York and Pennsylvania, rising to five and six feet. It is probably the *Sc. lacustris* of our botanists, but not the European and linnean species.

VIII CLASS. CRYPTOGYNIA.—THE CRYPTIANS.

120. *Polypodium erosum*. Stem filiform and smooth; frond pinnated; foliole pinnatifid; pinnules erose, obtuse, notched, thin and smooth; nerves flexuose; pores scattered, rounded, unequal.—A small species, six inches high at utmost with a short frond; it grows on rocks in the knob-hills of Kentucky.

IX CLASS. MYCOSIA.—THE FUNGIANS.

XXIV. N. G. ANASTOMARIA. Fructification by flexuose lamellar sine; anastomosed like a net.—This genus will be next to *Merulius* and *Deidamia*; some species of them may probably belong to it.

121. *Anastomaria campanulata*. Supitated fulvous; stipe thick; peride campanulate; netted outside, margin erose, insides scaly and dark spotted.—This may be the type of the genus. Size four or five inches. It grows in the state of New-York.

122. *Anastomaria dimidiata*. Sessile, dimidiated, embricated, wrinkled above and fulvous with brown or black zones, netted beneath; veins often bifid near the margin.—Near Catskill, state of New-York. It may be the type of a sub-genus *Campsilicis*.

123. *Sisostroma globularis*. Stipe lateral, exceedingly short; peride globular, white above, flattened and reddish brown beneath, with a marginal concentric furrow.—Found on a Beech tree on the Catskill mountains; pores unequal, polygonal, lacerated. Perhaps a new genus, *Lamyris*, intermediate between *Sisostroma* and *Boletus*.

X CLASS. ALGOSIA.—THE ALGIANS.

XXV N. G. STEPHION. A floating gelatinous and flobose mass, easily divided and homogenous, without any perceptible filaments or organs.—A very singular genus, next to my *G. Potaricus*. It differs from *Conferva*, which consists of fixed filaments, and *Oscillatoria* of interwoven articulated ones. I could not perceive any filaments in it, perhaps a microscope might show some, surrounded by a jelly. The name means Tow in greek.

124. *Stephion fluitans*. Floating, elongated perpendicularly; amorphous, flobose or lacerated; of a dirty yellowish or brown colour.—Very common on the surface of the Ohio in Summer, having the appearance of pieces of ropes or oak-um. It smells like *Conferva*.

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