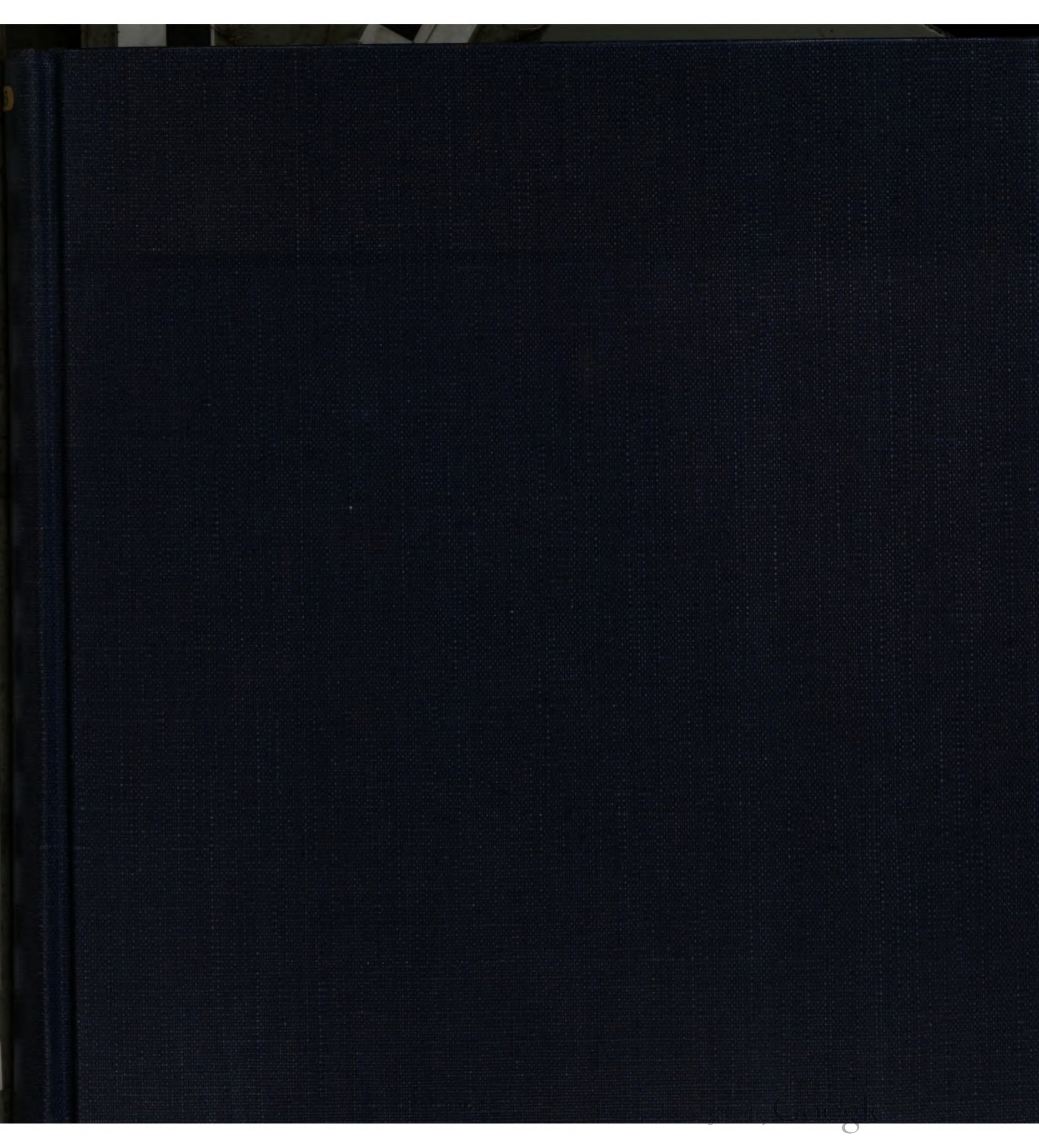

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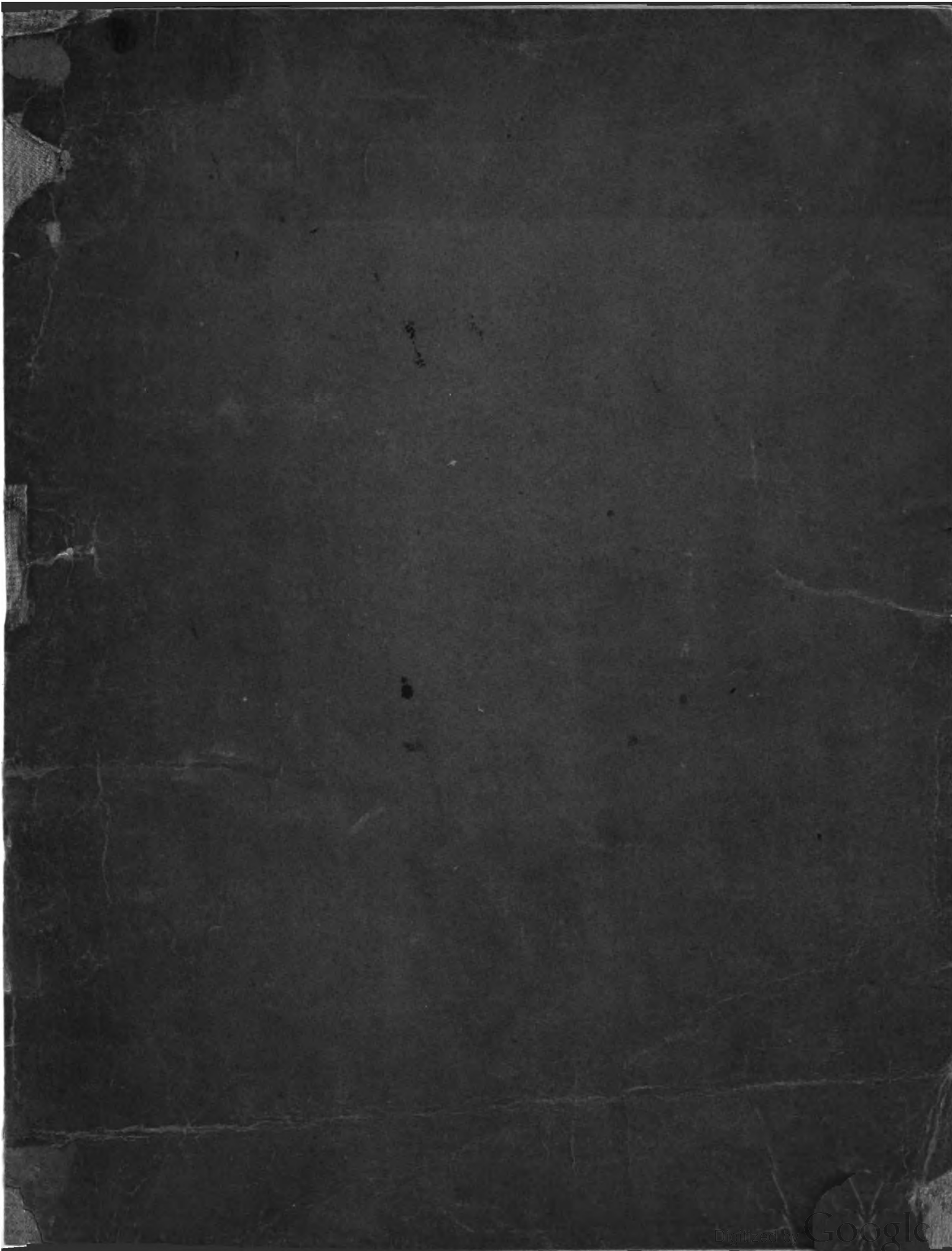
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Hand

General Ar-
 rangement.

THE Linnean arrangement of the Animal Kingdom has, with some slight emendations, been adopted as the ground-work of the zoological articles contained in the later editions of the *Encyclopædia*. In these Supplemental volumes, we propose to introduce all the recent discoveries in Zoology, and also to avail ourselves of the opportunity thus afforded, of describing the various classes of animals under an arrangement more accordant to the improved views of Science, and to the Order of Nature. We shall have occasion fully to explain the principles upon which our system is founded, in the article ZOOLOGY. At present, it is only necessary to mention, that all the different branches of this grand department of Natural History will be treated of under these heads; viz. ANNULOSA, CIRRHIPEDES, INSECTA, MOLLUSCA, RADIATA, and VERTEBRATA. From these heads, references will be made to the zoological articles in the body of the work, and also from the older names to the corresponding appellations in the arrangement adopted in these volumes.

The term ANNULOSA (from *Annulus*, a ring or segment), is applied to animals whose bodies are more or less divided transversely into segments.

This type of animals was proposed in one of the General Ar-
 rangement.
 last volumes of the *Annales de Muséum*, by M. G. Cuvier. It comprehends five classes, the classification of which will form the subject of the present article. †

As the leading characters of the classes are very obvious, we shall, in the first place, lay them before our readers through the medium of a table, and shall then detail them more fully.

Class 1. CRUSTACEA. Branchiæ or gills for respiration. Legs † for motion.

Class 2. MYRIAPODA. || Tracheæ or air-tubes for respiration. Legs more than eight. Head distinct from the thorax. Antennæ two.

Class 3. ARACHNIDES. Tracheæ for respiration. Legs eight or six. Head not distinct from the thorax. Antennæ none.

Class 4. INSECTA. Tracheæ for respiration. Legs six. Head distinct from the thorax. Antennæ two.

Class 5. VERMES. Tracheæ for respiration. Legs none. Antennæ none.

CLASS I.—CRUSTACEA.

History.

All the Crustacea, as their name imports, are enveloped in a crust or shell (*crusta*). Many of the larger species were known to ancient Naturalists. They were named Crustacea by the Latins, Malacostracoi (Μαλακίστρακοί) by the Greeks. Aristotle has dedicated a chapter to the species known to him; Athenæus enumerates those used as food; and Hippocrates has made mention of such species as were considered useful in medicine.

To the observations of Aristotle, very little was added by Pliny; and from his time until that of Rondeletius, Belon, Gesner, Aldrovandus, and Johnson, who placed the Crustacea between the Fishes and Mollusca, little or nothing was done that tends in any way to elucidate the natural history or structure of these animals.

By the great reformer Linné, they were arranged under the genera Monoculus, Cancer, and Oniscus, along with apterous insects; but the most prejudiced of his followers now admit that they have characters sufficient to establish them as a distinct class.

J. C. Fabricius, a pupil of Linné, divided the Crustacea from insects, and formed several distinct classes for their reception; but as he has altered his system in his different works, it seems necessary only to state the last, which is given in the Supplement to his *Entomologia Systematica*. In this work is the following arrangement:

Class POLYGONATA. Many maxillæ within the lip.
 Gen. 1. Oniscus, 2. Ligia, 3. Idotea, 4. Cymothoa, 5. Monoculus.

Class KLEISTAGNATHA. Many maxillæ, closing the mouth. Lip none.

Gen. 1. Cancer, 2. Calappa, 3. Ocypode, 4. Leucosia, 5. Parthenope, 6. Inachus, 7. Dromia, 8. Doriippe, 9. Orithyia, 10. Portunus, 11. Matuta, 12. Hippa, 13. Symethis, 14. Limulus.

Class EXOCHNATA. Many maxillæ outside the lip, covered by the palpi.

Gen. 1. Albunea, 2. Scyllarus, 3. Pallinurus, 4. Palæmon, 5. Alpheus, 6. Astacus, 7. Penæus, 8. Crangon, 9. Pagurus, 10. Galathea, 11. Squilla, 12. Podosydon, 14. Gammarus.

Before the publication of this work, Müller (in

* The animals which compose this type are partly treated of in the Articles ENTOMOLOGY and HELMINTHOLOGY of the *Encyclopædia*.

† For the comparative characters of this type, see ZOOLOGY. In the present article, we propose to give the characters and economy of the Genera, and an example of one Species of each, with the exception of INSECTA, which will be treated of under that head in a separate article.

‡ By this term, we mean those organs which actually perform the functions of legs. On this subject more will be said under the article ZOOLOGY.

|| This class was instituted by Dr Leach. Latreille comprehended the animals composing it under the general denomination ARACHNIDES.

Crustacea. 1792) produced his celebrated work on the *Entomostroaca*, which contains several crustaceous genera, which he disposed into the following groups.

Division I. MONOCULI. With but one eye.

* *Shell univalve*.

Gen. 1. Amymone, 2. Nauplius. (These two genera, Jurine of Geneva has discovered to be but larvæ of the genus Cyclops of Müller.)

** *Shell bivalve*.

Gen. 3. Cypris, 4. Cythere, 5. Daphnia.

*** *Shell composed of a solid crust*.

Gen. 6. Cyclops, 7. Polyphemus.

Div. II. BINOCULI. With two eyes.

* *Shell univalve*.

Gen. 8. Argulus, 9. Caligus, 10. Limulus.

** *Shell bivalve*.

Gen. 11. Lynceus.

A great portion of the species, composing the Entomostroaca of Müller, were described by the microscopic observers, Joblot, Frish, Réaumur, De Geer, Baker, Ledermüller, and Geoffroy, and were by the latter author arranged into two genera, which he named Binoculus and Monoculus.

By that learned anatomist G. Cuvier, the Crustacea were considered as forming a class, which he placed between the Vermes and Insecta. This indefatigable observer discovered, that the Crustacea breathed by branchiæ or gills, and he disposed them into three great sections, viz.

I. MONOCULUS, including the genera, 1. Limulus, 2. Caligus, 3. Cyclops, 4. Apus, 5. Polyphemus of Müller:

II. CANCER, comprehending the genera, 6. Cancer, 7. Inachus, 8. Astacus, 9. Palinurus, 10. Squilla, 11. Scyllarus of Fabricius:

III. ONISCUS, including, 12. Physodes, 13. Oniscus, 14. Cymothoa of Fabricius.

Lamarck, in his *Système des Animaux sans Vertèbres*, has disposed the Crustacea into the two following orders, viz.

Ord. I. CRUSTACE'S PEDICLES, including the genera, * 1. Cancer, 2. Calappa, 3. Ocypode, 4. Grapsus, 5. Dorippe, 6. Portunus, 7. Podophthalmus, 8. Matuta, 9. Maja, 10. Porcellana, 11. Leucosia, 12. Arctopsis, ** 13. Albunea, 14. Hippa, 15. Ranina, 16. Scyllarus, 17. Astacus, 18. Pagurus, 19. Galathea, 20. Palinurus, 21. Crangon, 22. Palæmon, 23. Squilla, 24. Branchiopoda.

Ord. II. CRUSTACE'S SESSILIOLES, * 25. Gammarus, 26. Asellus, 27. Caprella, 28. Oniscus, 29. Cyamus, 30. Ligia, 31. Cyclops, ** 32. Polyphemus, 33. Limulus, 34. Daphnia, 35. Amymone, 36. Cephaloculus. With the second section, Lamarck has placed the genus Forbicina (*Lepisma saccharina* of Linné), which, in our opinion, belongs to the genuine class Insecta.

By Dumeril (*Zoologie Analtique*), these animals are placed in two orders, which are divided into families.

Ord. I. ENTOMOSTRACE'S.

Fam. 1. ASPIDIOTES. Gen. 1. Limulus, 2. Caligus, 3. Binoculus, 4. Ozolus, 5. Apus.

Fam. 2. OSTRACINS. Gen. 6. Lynceus, 7. Daphnia, 8. Cypris, 9. Cythere.

Fam. 3. GYMNONECTES. Gen. 10. Argulus, 11. Crustacea Cyclops, 12. Polyphemus, 13. Zœe, 14. Branchiopoda.

Ord. II. ASTACOIDES.

Fam. 4. CARCINOIDES. Gen. 15. Calappa, 16. Hepatus, 17. Dromia, 18. Cancer, 19. Matuta, 20. Portunus, 21. Podophthalmus, 22. Porcellana, 23. Ocypode, 24. Grapsus, 25. Pinnotheres.

Fam. 5. OXYRINQUES. Gen. 26. Maja, 27. Leucosia, 28. Dorippe, 29. Orithyia, 30. Ranina.

Fam. 6. MACROURES. Gen. 31. Pagurus, 32. Albunea, 33. Hippa, 34. Scyllarus, 35. Palinurus, 36. Galathea, 37. Astacus, 38. Penæus, 39. Palæmon, 40. Crangon.

Fam. 7. ARTHROCEPHALES. Gen. 41. Squilla, 42. Mysis, 43. Phronima, 44. Talitrus, 45. Gammarus.

The genera, 46. Oniscus, 47. Physodes, and 48. Armadillo, he has placed with apterous insects.

Bosc, in his *Histoire Naturelle des Crustacés*, has adopted, with some slight modifications, the system of Lamarck: he divides the Crustacea into two sections, viz.

Sec. I. CRUSTACE'S PEDICLES. Eyes pedunculated.

Div. 1. Body short; tail flat, simple, applied against the lower part of the abdomen.

Gen. 1. Cancer, 2. Calappa, 3. Ocypode, 4. Grapsus, 5. Dorippe, 6. Portunus, 7. Podophthalmus, 8. Orithyia, 9. Matuta, 10. Dromia, 11. Porcellana, 12. Leucosia, 13. Pinnotheres, 14. Maja.

Div. 2. Body oblong; tail elongated, terminated with appendices.

Gen. 15. Albunea, 16. Posydon, 17. Hippa, 18. Ranina, 19. Scyllarus, 20. Astacus, 21. Pagurus, 22. Galathea, 23. Palinurus, 24. Crangon, 25. Palæmon, 26. Alpheus, 27. Penæus, 28. Squilla, 29. Branchiopoda.

Sec. II. CRUSTACE'S SESSILIOLES. Eyes sessile.

Div. 1. Body covered with several crustaceous segments.

Gen. 1. Zœe, 2. Gammarus, 3. Talitrus, 4. Caprella, 5. Asellus, 6. Idotea, 7. Sphæroma, 8. Ligia, 9. Cyamus, 10. Cymothoa, 11. Cyclops, 12. Bopyrus.

Div. 2. Body covered with a crustaceous shield, composed of one or two parts.

Gen. 30. Caligus, 31. Binoculus, 32. Limulus, 33. Apus, 34. Daphnia, 35. Cythere, 36. Cypris, 37. Polyphemus.

We shall now give the system of Latreille, published in his *Considérations Générales*.

Order I. ENTOMOSTRACA.

Fam. 1. ASPIDIOTA. Gen. 1. Limulus, 2. Apus, 3. Caligus, 4. Binoculus.

Fam. 2. OSTRACODA. Gen. 5. Lynceus, 6. Daphnia, 7. Cypris, 8. Cythere.

Fam. 3. GYMNOTA. Gen. 9. Cyclops, 10. Polyphemus, 11. Zœe, 12. Branchiopoda.

Ord. II. MALACOSTRACA.

Fam. 1. CANCERIDES. Gen. 13. Podophthalmus, 14. Portunus, 15. Dromia, 16. Cancer, 17. Hepatus, 18. Calappa, 19. Ocypode, 20. Grapsus, 21. Plagusia, 22. Pinnotheres.

Crustacea. Fam. 2. OXYRINCHI. Gen. 23. Dorippe, 24. Mictyris, 25. Leucosia, 26. Corystes, 27. Lithodes, 28. Maja, 29. Macropus, 30. Orithyia, 31. Matuta, 32. Ranina.

Fam. 3. PAGURII. Gen. 33. Albunea, 34. Remipes, 35. Hippa, 36. Pagurus.

Fam. 4. PALINURINI. Gen. 37. Scyllarus, 38. Palinurus, 39. Porcellana, 40. Galathea.

Fam. 5. ASTACINI. Gen. 41. Astacus, 42. Thalassina, 43. Alpheus, 44. Penæus, 45. Palæmon, 6. Crangon.

Fam. 6. SQUILLARES. Gen. 46. Squilla, 47. Mysis.

Fam. 7. GAMMARINÆ. Gen. 48. Phronima, 49. Gammarus, 50. Talitrus, 51. Corophium, 52. Caprella, 53. Cyamus.

Some other animals which we consider as genuine Crustacea, he has arranged with the class Arachnides; and has formed an order for their reception, named Tetracea, which he has divided into two families, viz.

Fam. 1. ASSELLOTA. Gen. 54. Asellus, 55. Idotea, 56. Cymothoa, 57. Sphæroma.

Fam. 2. ONISCIDES. Gen. 58. Ligia, 59. Philoscia, 60. Oniscus, 61. Porcellio, 62. Armadillo.

In the article *Crustaceology* of the *Edinburgh Encyclopædia*, Dr Leach gave the system of Latréille, with some modifications; and arranged with the Crustacea those animals which he afterwards separated as a distinct class under the title *Myrianoda*. We shall now lay before our readers a sketch of the system there proposed, as altered by the remarks in the Appendix to that article.

CLASS. CRUSTACEA.

Subclass I. ENTOMOSTRACA.

Tribe I. THECATA. Shell shield-shaped.

Fam. 1. XIPHOSURA. Gen. 1. Limulus.

Fam. 2. PNEUMONURA. Gen. 2. Caligus, 3. Binoculus.

Fam. 3. PHYLLOPODA. Gen. 4. Apus.

Tribe II. OSTRACODA. Shell bivalve.

Fam. 1. MONOPHTHALMA. Gen. 5. Lynceus, 6. Daphnia, 7. Cypris, 8. Cythere.

Tribe III. GYMNOTA. Shell naked.

Fam. 1. PSEUDOPODA. Gen. 9. Cyclops.

Fam. 2. CEPHALOTA. Gen. 10. Polyphemus, 11. Zöe, 12. Branchiopoda.

Subclass II. MALACOSTRACA.

Order I. BRACHYURA.

Tribe 1. CANCERIDES. Gen. 13. Podophthalmus, 14. Lupa, 15. Portunus, 16. Carcinus, 17. Portunus, 18. Cancer, 19. Xantho, 20. Atelecyclus, 21. Dromia, 22. Hepatus, 23. Ocypode, 24. Uca, 25. Gonoplax, 26. Gecarcinus, 27. Grapsus, 28. Plagusia, 29. Pinnotheres.

Tribe 2. OXYRINCHI. Gen. 30. Leucosia, 31. Maja, 32. Parthenope, 33. Hyas, 34. Eurynome, 35. Blastus, 36. Pisa, 37. Inachus, 38. Macropodia (falsely written Septopodia), 39. Megalopa, 40. Corystes, 41. Mictyris, 42. Dorippe, 43. Orithyia, 44. Matuta, 45. Ranina.

Order II. MACROURA.

Tribe 1. PAGURII. Gen. 46. Albunea, 47. Remipes, 48. Hippa, 49. Pagurus.

Tribe 2. PALINURII. Gen. 50. Scyllarus, 51. Palinurus, 52. Porcellana, 53. Galathea.

Tribe 3. ASTACINI. Gen. 54. Astacus, 55. Nephrops, 56. Thalassina, 57. Gebia (misprinted Upogebia), 58. Callianassa, 59. Alpheus, 60. Hippolyte, 61. Pandalus, 62. Penæus, 63. Palæmon, 64. Athanas, 65. Crangon, 66. Mysis (repeated under the generic title Praunus).

Order III. GASTERURI.

Tribe 1. GNATHIDES. Gen. 67. Gnathia.

Tribe 2. GAMMERIDES. Gen. 68. Talitrus, 69. Orchestia, 70. Dexamine, 71. Leucothoe, 73. Melita, 74. Mæra, 75. Gammarus, 76. Ampithoe, 77. Pherusa, 78. Corophium, 79. Podocerus, 80. Jassa.

Tribe 3. PHRONIMARIDES. Gen. 81. Phronima.

Tribe 4. CAPRELLIDES. Gen. 82. Cyamus, 83. Caprella, 84. Proto.

Tribe 5. APSEUDIDES. Gen. 85. Apseudea.

Tribe 6. ASELLIDES. Gen. 86. Anthura, 87. Campecopea, 88. Nesæa, 89. Cymodoce, 90. Dynamene, 91. Sphæroma, 92. Cymothoa, 93. Limnoria, 94. Idotea, 95. Stenosoma, 96. Jæra, 97. Janira.

Tribe 7. ONISCIDES. Gen. 98. Ligia, 99. Philoscia, 100. Oniscus, 101. Porcellio, 102. Armadillo.

Lamarck, in his *Extrait du Cours de Zoologie du Muséum d'Histoire Naturelle*, &c. has given the following classification of these animals:

Order I. CRYPTOBRANCHA.

Section I. BRACHYURI.

* *Body broader than long, rounded or truncated anteriorly.*

CANCERIDES.

a Shore Crabs.

Genus 1. Cancer, 2. Dromia, 3. Hepatus, 4. Callappa, 5. Ocypode, 6. Grapsus, 7. Plagusia, 8. Pinnotheres.

b Swimming Crabs.

Genus 9. Podophthalmus, 10. Portunus, 11. Matuta, 12. Orithyia.

** *Body subtriangular, terminated anteriorly in a point.*

OXYRHYNCI.

Genus 13. Dorippe, 14. Leucosia, 15. Macropus, 16. Arctopsis, 17. Maja.

Section II. MACROURI.

* *Tail furnished with cilia or hooks.*

PAGURII.

Genus 18. Porcellana, 19. Corystes, 20. Ranina, 21. Albunea, 22. Hippa, 23. Pagurus.

** *Tail furnished with swimming scales.*

ASTACINI.

Genus 24. Scyllarus, 25. Palinurus, 26. Astacus, 27. Galathea, 28. Crangon, 29. Alpheus, 30. Palæmon.

Order II. GYMNOBRANCHA.

Section I. PEDIOCULI.

SQUILLARI.

Genus 31. Squilla, 32. Mysis, 33. Branchiopoda.

Section II. SESSIOCULI.

Genus 34. Caprella, 35. Phronima, 36. Gammarus, 37. Asellus, 38. Idotea, 39. Cymothoa, 40. Sphæroma, 41. Ligia, 42. Oniscus, 43. Cyamus.

Section III. ENTOMOSTRACA.

1. *With two eyes.*

Crustacea. Genus 44. Polyphemus, 45. Limulus, 46. Caligus, 47. Ozolus, 48. Zœe, 49. Lynceus.

2. *With one eye.*

Genus 50. Daphnia, 51. Cytherea, 52. Cypris, 53. Cyclops, 54. Cephaloculus.

Having given a sketch of the systems adopted by these authors, we shall proceed to detail that proposed by Dr Leach in the Second Part of the eleventh Volume of the *Transactions of the Linnean Society of London.*

Classification.

Subclass I. ENTOMOSTRACA. *Legs* branchial, or furnished with appendages. *Mandibles* wanting or simple. *Eyes* sessile or pedunculated.

Subclass II. MALACOSTRACA. *Legs* simple, without appendages. *Mandibles* palpigerous. *Eyes* pedunculated or sessile.

SUBCLASS I. ENTOMOSTRACA.

The animals of this subclass are but little known, and consequently their arrangement is extremely imperfect. Some of the genera are parasitic, being found on the bodies of other animals, and some even undergo transformation during their growth.

The following arrangement is artificial; but is well calculated to enable the student to discover the genera.

Synopsis of the Genera.

Division I. Body covered by a horizontal shield. *Eyes* sessile.

Subdivision 1. Shield composed of two distinct parts.

Gen. 1. LIMULUS.

Subdivision 2. Shield composed of but one part.

* *With jaws.*

Gen. 2. APUS.

** *With a rostrum, but no jaws.*

a *Antennæ*, four.

Gen. 3. ARGULUS.

b *Antennæ*, two.

4. CECROPS, 5. CALIGUS, 6. PANDARUS, 7. ANTHOSOMA.

Division II. Body covered by a bivalve shell. *Eyes* sessile.

Subdivision 1. Head protracted.

Gen. 8. LYNCEUS, 9. CHYDORUS, 10. DAPHNIA.

Subdivision 2. Head concealed.

Gen. 11. CYPRIS, 12. CYTHERE.

Division III. Body covered neither by a bivalve shell or shield. *Eye* one, sessile.

Gen. 13. CYCLOPS, 14. CALANUS, 15. POLYPHEMUS.

Division IV. Body covered by neither a bivalve shell or shield. *Eyes* pedunculated.

Gen. 16. BRANCHIOPODA.

Division I. Subdivision 1.

Gen. 1. LIMULUS, Müller, Fabr. &c.

XIPHOSURA, Gronovius.

POLYPHEMUS, Lamarck.

Shell coriaceous, rounded in front, narrower behind; *anterior shell* largest, somewhat lunate, convex, with three carinæ or keels; *eyes* two, ovate, very small, and scarcely prominent, one on each side

of the lateral carina; *hinder shell* somewhat triangular, truncate-marginate, the sides toothed, having a moveable spine between each tooth; *tail* horny, three-sided, articulated to the notched extremity of the second shell by a hinge like joint.

Antennæ none.

Mandibles two, two-jointed, inserted under the anterior margin of the shell, their bases meeting; the second joint furnished with a moveable thumb-like process.

Legs ten, didactyle; fifth pair longest, the last joint but one with its extremity bearing elongate lamellæ; anterior legs internally spinose near their base.

All the Limuli inhabit the sea. *Monoculus Polyphemus* of Linné belongs to the genus.

Limulus heterodactylus and *L. virescens* of Latreille, probably form two distinct genera, belonging to the same subdivision.

Sp. 1. *Sowerbii*. Anterior shell with seven spines, arranged 1, 3, 3; hinder shell with five, 3, 1, 1, the lateral spines elongate and simple; tail above somewhat spinulose.

Limulus Sowerbii. Leach, *Zool. Miscel.* ii. 72. tab. 84.

The locality of this species, which is extremely common, is unknown.

Subdivision 2. *

Gen. 2. APUS, Cuvier, Latreille, Leach.

Apos, Scopoli.

Shell crustaceous-membranaceous, orbiculate-ovate, behind deeply emarginate; the back, with the exception of the anterior part, carinated; *eyes* two, inserted at the anterior and middle part of the back, somewhat prominent, slightly lunate, approaching each other, especially anteriorly where they touch each other.

Antennæ two, short, somewhat filiform, biarticulated, scarcely asserted, inserted behind the mandibles.

Mandibulæ two, corneous, somewhat cylindrical, short, hollow within, points arcuated and compressed, the extreme apex strait and very much denticulated.

Legs branchial and very numerous.

The Apus inhabit stagnant waters and ponds their anterior legs are spiny at the base, like those of the Limuli.

Sp. 1. *Montagui*. Carina of the shell produced into a point behind; anterior legs with articulated setæ; no lamella between the caudal setæ.

Plate XX. fig. 1. *Apus Montagui*, natural size; 2. anterior leg magnified; 3. part of one of the setæ of the anterior leg highly magnified; 4. setæ of the tail magnified.

Inhabits England, near Christ-church in Hampshire, where it was discovered by Montagui, who sent it to Dr Leach as the Linnean *Monoculus apus*.

Apus productus of Latreille, is synonymous with the Linnean *Monoculus apus*.

Subdivision 2. ** a.

Gen. 3. ARGULUS, Müller, Jurine, Leach.

BINOCULUS, Geoffroy, Latreille.

Shell oval, somewhat membranaceous, semi-transparent, anteriorly rounded, behind deeply notched; *eyes* two, hemispheric, inserted at the anterior and lateral parts of the clypeus.

Antennæ, very small, inserted above the eyes.

Crustacea.

Rostellum sterniform.

Legs twelve, unequal in size and form; *first pair* shorter, very membranaceous, capable of changing their form, broader at their tips, and formed for adhering to objects; *second pair* prehensile, curved, much thicker towards their base, the thighs furnished with three spinules beneath; *tarsi* three-jointed, the last joint with two claws and a pulvillus; *four hinder pair* inserted at the sides of the abdomen, somewhat cylindric, formed for swimming, with their points bifid.

Abdomen cylindric; *tail* bilobate.

Sp. 1. *Foliaceus*, Jurine.

Argulus delphinus. Müll. *Entom.* 123.

Monoculus argulus. Fabr. *Ent. Syst.* ii. 489.

Monoculus gyrini. Cuv. *Tab. Elém.* 454.

Binoculus gasterostei. Latr. *Gen. Crust. et Ins.*

Argulus foliaceus. Jurine, *An. de Museum.* vii. 451.

Argulus argulus. Leach, *Edin. Encycl.* vii. 388.

This species, which is the only one of the genus that has hitherto been noticed, inhabits ponds and rivulets, adhering to the larvæ of frogs and to fishes.

The larva has been described by Müller as a distinct species, under the name *Argulus charon*: in this state it differs from the full grown animal in size, and in having four cylindric, equal, biarticulated, penicillated oars, two of which are attached to the animal above the eyes, and are furnished at their tips with four setæ, the other two below the eyes being terminated with three setæ: The two anterior legs are incrassated, elongated, and terminated by a strong bent claw.

The full grown animal lays from one to four hundred eggs, which are ovate and smooth, being generally deposited on stones in two contiguous longitudinal series. These eggs are hatched in about thirty days.

Subdivision 2. ** b.

Gen. 4. CECROPS. New Genus.

Shell coriaceous-membranaceous, composed of two parts; the *anterior segment* inverse heart-shaped, deeply and obtusely notched behind; anteriorly notched; the *lacinia* rounded and externally bearing the *antennæ*. *Antennæ* two-jointed, the first joint largest, thickest, the second bearing at its point a simple seta; *hinder segment* smaller, inversely heart-shaped, occupying the notch of the anterior segment.

Abdomen of the breadth of the shell, notched behind.

Rostrum elongate-conic, perpendicular, inserted between the middle and anterior legs; having on each side of its base a moveable ovate appendage.

Legs six; *anterior pair* biarticulated with a strong curved claw; *second pair* triarticulate, more slender, the last joint double, the exterior joint shortest; *third pair* strong, uniarticulate, with a very strong claw. *Four legs* spurious, placed behind the others, double, the double parts biarticulate, situated on a common coxa.

FEMALE with two large ovate connected bags of a coriaceous substance, situated beneath the abdomen and projecting behind, in which she carries her eggs.

Sp. 1. *Latreillii*.

Plate XX. fig. 1. male; 2. female; 3. under side of male; 4. under side of female; 5. *antennæ* magnified,

6. *Anterior leg* magnified; 7. *hinder leg* magnified; 8. *middle leg*.

Of this curious animal the history is unknown. That it is parasitic its structure evidently shows, and from analogy we may infer, that it is an inhabitant of the ocean, and that it attaches itself to the larger marine animals. There are several specimens preserved in the British Museum.

Gen. 5. CALIGUS, Müll. *Latr. Bosc, &c.*

Shell coriaceous-membranaceous, bipartite; the *anterior segment* inversely cordiform, very deeply notched behind (the notch receiving the *hinder segment*, which is round), the *anterior part* subproduced, notched; the *lacinia* at their base externally bearing *antennæ*; *antennæ* biarticulate, the first joint thickest, the second with a simple seta at its extremity.

Abdomen narrower than the thorax; with its base contracted and bearing the *hinder legs*, its extremity on each side with a rounded process of the length of the body. *Rostrum* rounded, rather more slender towards its apex, which is obtuse. *Legs* fourteen; *anterior, second, and fourth pairs* with a strong claw; the *second pair* short; the *third* slender elongate, the last joint double, with unequal *lacinia*; the fifth with the last joint on one side setose, the setæ ciliated on each side; the sixth with a double triarticulated tarsus, the last joints on each side setose, the setæ ciliated on each side; the seventh part with its last joint trifid.

The *hinder segment* of the thorax beneath, terminated by a large broad lamella, ciliated behind.

Caligus curtus of Müller, forms the type of this genus.

Sp. 1. *Mülleri*.

Plate XX. fig. 1. Natural size; 2. magnified; 3. seventh leg; 4. fifth leg; 5. one of the ciliated setæ of the fifth leg much magnified; 6. third leg; 7. fourth leg; 8. sixth leg.

Inhabits the common cod-fish. It was first sent to us by Dr Spalding, of Edinburgh, to whose kindness we are indebted for several very curious animals.

Gen. 6. PANDARUS. New genus.

CALIGUS, Müller, *Latr. Bosc, Leach, &c.*

Shell coriaceous-membranaceous, composed of but one part, deeply notched behind; the angles acute; the middle of the notch toothed; anteriorly narrower, rounded, with a process on each side externally bearing the *antennæ*. *Antennæ* composed of two joints, the second joint terminated by several setæ. *Abdomen* somewhat narrower than the shell, the base above with two transverse lamellæ, the first of which is four-lobed, the second bilobate; the apex notched, with two filaments, longer than the body, with a lamella at their base above. *Rostrum* elongate, attenuated, inserted behind the anterior legs. *Legs* fourteen; *anterior pair* short, terminated by a short claw, and arising from beneath an ovate process; *second pair* with a double unequal tarsus; *third pair* without any determinate form, without any claw; *fourth pair* bifid; *fifth and sixth pairs* bifid, their coxæ connected by a lamella; *seventh pair* bifid, the exterior *lacinia* longest, with a notch externally towards its apex.

Sp. 1. *Bicolor*. *Shell* and the middle of the abdominal lamellæ black; *tail* with filaments double the length of the body.

Inhabits the *Squalus galeus* of Linné.

Crustacea.

Sp. 2. *Boscii*. Body entirely pale, testaceous; tail with filaments once and an half the length of the body.

Inhabits the *Squalus mustelus* of Linné.

Plate XX. fig. 1. *Pandarus Boscii* natural size; 2. magnified; 3. anterior leg magnified; 4. antenna magnified; 5. sixth leg magnified; 6. seventh leg magnified; 7. fifth leg magnified; 8. fourth leg magnified; 9. second leg magnified; 10. third leg magnified.

Gen. 7. ANTHOSOMA. New genus.

Shell coriaceous-membranaceous unipartite, rounded before and behind; the anterior part as if unilobate, the lobe higher than the shell, behind on each side, bearing the antennæ; antennæ six-jointed. Abdomen much narrower than the shell, on every side imbricated with membranaceous foliaceous lamellæ which surround or embrace it. Two of the lamellæ are dorsal, the one being placed over the other; the other lamellæ are placed on the sides of the belly, three on each side; apex of the abdomen terminated by two very long filaments, and with two shorter filaments below them. Rostrum elongate cylindric, inserted behind the anterior legs, furnished at its extremity with two strait corneous mandibles. Legs six; anterior pair three-jointed, the second joint near the apex above unidentate, the last terminated by a claw; second pair triarticulated, the last joint ovate, compressed; third pair biarticulate, the second joint very thick, internally dentated, armed at its extremity by a strong claw.

Sp. 1. *Smithii*. Plate XX. fig. 1. natural size; 2. two specimens adhering to part of the gill-cover of a shark; 3. antenna magnified; 4. middle leg magnified; 5. hinder leg magnified; 6. anterior leg magnified.

This species was discovered sticking to a shark which was thrown ashore on the coast of Exmouth in Devon, by T. Smith, Esq. of Paper Buildings, Temple. He informed the writer of this article, that it adhered solely by means of its anterior legs to the axillæ and gill-covers, which were much thickened by the inflammation caused by their irritation.

Division II. Subdivision 1.

Gen. 8. LYNCEUS, Müll. Latr. Bosc, Leach.

Eyes two. Antennæ four, capillary.

Sp. 1. *Brachyurus*. Shell globose; tail deflexed. *Lynceus brachyurus*.

Müll. Entomost. 69. tab. 8. f. 1. 12.

Bosc, Hist. Nat. des Crust. ii. 264.

Leach, Edin. Encycl. vii. 388.

Latr. Gen. Crust. et Ins. i. 17.

Monoculus brachyurus.

Fabr. Ent. Syst. ii. 407.

Inhabits marshes; is very common in the spring, moving about with great agility amongst aquatic plants. The female carries her eggs on the posterior and superior part of her belly.

Gen. 9. CHYDORUS.

LYNCEUS, Müll. Latr. Bosc, Leach.

Eyes two. Antennæ two, capillary.

Sp. 1. *Sphaericus*. Shell globose; tail inflexed. *Lynceus sphaericus*.

Müll. Entomost. 71. t. ix. f. 7, 9.

Latr. Gen. Crust. et Ins. i. 17.

Bosc, Hist. Nat. des Crust. ii. 264.

Leach, Edin. Encycl. vii. 388.

Monoculus sphaericus.

Fabr. Ent. Syst. ii. 407.

Gen. 10. DAPHNIA.

Müll. Latr. Bosc, Leach.

Eye one only. Antennæ two, branching.

The extraordinary appearance presented by the animals of this genus caused them to be mentioned by Leuwenhoeck, Needham, Swammerdam, and other microscopical investigators. Their shell, although apparently bivalve, is formed but of one piece, open in front. Their head is terminated by a kind of pointed but immoveable beak. Their mouth is placed within the shell. The eye is absolutely single, and not formed by the union of two eyes, and is covered by granules. The number of legs is not known. One of the species is called *Pulex caudatus* by Schæffer, 1755, t. 1. f. 1. 8. and in the *Encyclopædia Britannica*, Pl. 37. fig. 1, a species is rudely figured as an animalcule.

Sp. 1. *Pulex*. Tail inflexed; shell mucronated behind.

Monoculus pulex.

Linn. Faun. Suec. 2047.

Fabr. Ent. Syst. ii. 491.

Daphnia pennata.

Müll. Entom. 82. t. 12. f. 4. 7.

Daphnia pulex.

Latr. Gen. Crust. et Ins. i. 18.

Leach, Edin. Encycl. vii. 338.

Inhabits ponds and marshes. Geoffroy (*Hist. des Insect. ii. 655.*) has given a description of this species under the very expressive name of *Monocle le Perroquet d'eau*.

Subdivision 2.

Gen. 11. CYPRIIS, Müll. Latr. Bosc, Leach.

Antennæ terminated by a brush.

Many of the *Cyprides* were noticed by Joblot, Ledermuller, Baker, and De Geer, but they were first reduced to one genus by the illustrious Müller.

The animals of this genus inhabit pools and ditches, containing pure water; they swim with very great rapidity, and, whilst in motion, conceal their whole body within their shell, which is truly bivalve. The members of the body of the cyprides are not known; they move with such quickness whilst living, and are so soft when dead, that it is scarcely possible to investigate their characters more fully. Their antennæ are long, and very flexible; these organs are furnished at their tips with a brush or pencil, composed of hairs. The hinder part of their bodies is formed of a tail, which is almost entirely concealed within their shell. Their head is terminated by an elongate point, and they have but one eye. Of their economy nothing is known, but they have been observed to change their covering like other Entomostraca.

Plate XX. fig. 1. *Cypris nephroïdes* natural size; 2. magnified.

Sp. 1. *Conchacea*. Shell ovate, tomentose.

Monoculus conchaceus.

Linn. Fn. Suec. 2050.

Fabr. Ent. Syst. ii. 496.

Cypris pubera.

Müll. Entomost. 56. t. 5. f. 1. 5.

Crustacea.

Crustacea.

Cypris conchacea.

*Latr. Gen. Crust. et Insect. i. 18.**Leach, Edin. Encycl. vii. 388.*

Inhabits France, Germany, and England.

Gen. 12. CYTHERE. Müll. *Latr. Bosc, Leach.**Antennæ* simply pilose.

This genus was first discovered and established by Müller, who first observed all the species described in his *Entomostraca*. It is distinguished from *Cypris* by the antennæ, which are not terminated by a pencil of hairs. The legs are eight in number, and are rarely drawn within the shell, which is really bivalve.

The Cytheres have no tail, and their antennæ, like those of the Cyprides, have their articulations pilose. They have but one eye. All the species inhabit the sea, and may be found among the confervæ and corallines, which fill the pools left by the tide in most of the rocky coasts of Europe.

Sp. 1. *Viridis*. Shell reniform, velvety, and green.Cythere viridis. Müll. *Entomost. 64, tab. 7. f. 1. 2.**Latr. Gen. Crust. et Ins. i. 19.**Bosc, Hist. Nat. des Crust. ii. 261.**Leach, Edin. Encycl. vii. 388.*

Inhabits the European Ocean. Is occasionally found on the shores of Scotland amongst fuci and confervæ.

Division III.

Gen. 13. CYCLOPS, Müll. *Lam. Latr. Bosc, Leach.*

Body ovate-conic, elongate. *Eye* one, situated on the thorax. *Antennæ* four, simple. *Legs* eight.

All the animals of this genus inhabit fresh waters. The females carry their eggs in a pouch resembling a bunch of grapes on each side of the tail. The organs of generation of the male are placed in the antennæ; those of the female beneath the belly, at the base of the tail, which is abruptly narrower than the abdomen. The antennæ are hairy at the base of their joints.

Sp. 1. *Geoffroyii*. Tail strait and bifid; colour brownish.

Monoculus quadricornis.

*Linn. Fn. Su. 2049.**Fabr. Entom. Syst. ii. 500.*

Cyclops quadricornis.

*Müll. Entomost. 109. t. 18. f. 1. 14.**Latr. Gen. Crust. et Insect. i. 19.**Bosc, Hist. Nat. des Crust. ii. 228. pl. 18. f. 4. female.**Leach, Edin. Encycl. vii. 388.*

Inhabits Europe. Is very common in fresh waters. Geoffroy, in his *Histoire Naturelle des Insectes* (tom. ii. 656. pl. 21. f. 5.), has described and figured this species under the title *Le Monocle à queue fourchue*. It was first noticed by Leuwenhoeck, and his observations were afterwards increased by those of Baker, Roessel, and De Geer.

Gen. 14. CALANUS.

CYCLOPS, Müll. *Latr. Bosc, Leach.*

Body ovate conic, elongate. *Eye* one, situated on the thorax. *Antennæ* two, simple. *Legs* eight.

Cyclops longicornis.

*Müll. Entomost. 115. t. 19. f. 7. 9.**Latr. Gen. Crust. et Insect. i. 20.**Bosc, Hist. Nat. des Crust. ii. 229.**Leach, Edin. Encycl. vii. 389.*

Monoculus longicornis.

Fabr. Ent. Syst. ii. 501.

Inhabits the Norwegian and German Ocean. It was first discovered by the celebrated Gunnerus in the Finnarchian Sea, and was described by Müller in his *Zoologiæ Danicæ Prodromus*, under the title *Cyclops Finnarchicus*, which name he afterwards changed in his *Entomostraca*.

Gen. 15. POLYPHEMUS, Müll. *Latr. Bosc, Leach.*

CEPHALOCULUS. Lamarck.

Eye one, forming the head; *legs* ten; two bifid, elongate, and extended horizontally.

This genus, containing one species, was established by Müller. Naturalists have generally considered it as the larva of some other genus, but the multiplied observations of Müller, Lamarck, and Bosc, have cleared up all doubts on the subject, and it is now generally admitted as a distinct and perfect animal. The head is round, distinct from the thorax, and apparently composed of one large eye. The body is divided into two parts by a kind of contraction; the anterior part contains the legs and tail; the posterior part contains only the eggs and the young. The tail is long, and is attached to the under part of the body, being terminated by two setæ.

The *polyphemus* inhabits marshes and moves quickly by the combined efforts of its short legs and bifid oars, generally swimming on its back.

Sp. 1. OCULUS. *Body* luteous, with a few blue spots. *Polyphemus oculus*.

*Müll. Entom. 119. pl. 20. f. 1. 5.**Latr. Gen. Crust. et Insect. i. 20.**Bosc, Hist. Nat. des Crust. ii. 290. pl. 18. f. 5. 6.**Leach, Edin. Encycl. vii. 389.*

Cephaloculus stagnorum.

Lam. Syst. des Anim. sans Vert. 170.

Inhabits lakes and marshes. In the *Edinburgh Encyclopædia*, Dr Leach stated it as probable that there were several species that had been confounded with *P. oculus*; but repeated observations have since convinced him of the error of this conjecture, and led to the conclusion that there is but one, which is subject to very considerable variation in size and colour.

Division IV.

Gen. 16. BRANCHIOPODA,

Lam. Latr. Bosc, Leach.

Body filiform and very soft. *Head* divided from the thorax by a very narrow but distinct neck. *Eyes* two, lateral. *Antennæ* two, short, two-jointed, capillary inserted behind and above the eyes. *Front* with two moveable processes (which are broader towards the apex in the male sex), that are notched, those of the female furnished with a papilla at their point.

Subsidiary Observations. In the front of the male, at the base of the moveable processes on the front, are two long hair-like filaments, and the clypeus is, as it were, double. In both sexes, the mouth is armed with a hooked rostriform papilla, supported by four little processes. The trunk of the body is keel-shaped, and is formed of eleven joints, each of which is furnished with two branchial feet, the anterior pair with two, the posterior pairs with three lamellæ. The tail is about the length of the body, composed of

Crustacea.

Crustacea. six or nine obscure joints, the oval segment bearing two fins.

The organs of generation are situate at the base of the tail.

Sp. 1. *Stagnalis*. Body transparent, of a light brown colour, slightly tinged with green or blue, particularly on the head and legs.

Cancer stagnalis. *Linn. Fn. Su.* 2043.

Branchiopoda stagnalis.

Lam. Syst. des Anim. sans Vert. 161.

Latr. Gen. Crust. et Ins. i. 22.

Leach, Edin. Encycl. vii. 389.

We shall transcribe the ingenious observations made on this species by the late Dr Shaw of the British Museum, published in the first volume of the *Transactions of the Linnean Society of London*.

"It is generally found in such waters as are of a soft nature, and particularly in those shallows of rain-water which are so frequently seen in the spring and autumn, and in which the *Monoculus pulex* of Linnæus, and other small animals, abound. At first sight, it bears some resemblance to the larva of a dytiscus; but, when viewed closely, it is found to be of a much more curious and elegant appearance than that animal. The legs, of which there are several pair (eleven?) on each side, are flat and filmy, and have the appearance of so many waving fins, of the most delicate structure imaginable. The whole animal is extremely transparent, and the general colour is brown, slightly tinged with blueish green.

"*Monoculus conchaceus* of Linnæus very frequently assaults them, and adheres with such force to their tails and legs, as sometimes to tear off a part in the struggle. It delights much in sunshine, during which it appears near the surface of the water, swimming on its back, and moving in various directions, by the successive undulations of its numerous fin-like legs, and moving its tail in the manner of a rudder. On the least disturbance, it starts in the manner of a small fish, and endeavours to secret itself, by diving in the soft mud. It changes its skin at certain periods, as is evident from the exuvie or shoughs being frequently found in the water in which these animals are kept.

"In March and April, the females deposit their eggs without any settled order, and perfectly loose in the water. They appear to the naked eye, like very minute globules of a light brown colour. Each ovum, when magnified, closely resembles the farina of a mallow. It is thickly beset with spines on every side, and coated over with a transparent gelatinous substance, reaching just to the extremities of the spines, and is most probably intended to assist in causing them to adhere to the substances on which they may chance to fall, or as a security from the attacks of smaller animals. In about a fortnight or three weeks, the eggs are hatched, and the young animals may be seen to swim with great liveliness, by means of three very long pair of arms or rowers, which appear disproportionate to the size of the animal, and indeed it bears, in this very small state, not much resemblance to the form it afterwards assumes; but, in the short space of a very few hours, the body assumes a lengthened form, and begins to acquire the

Crustacea. tail-fin. The eyes in this state do not appear pedunculated. On the seventh day after hatching, they approach pretty nearly the form of the perfect animal; they, however, still retain the two first pairs of rowers or arms. The legs are at this period very visible. About the ninth day it loses the long oars, and appears still more like the animal in its advanced state.

The Doctor farther observes, that it is highly probable, that a considerable time elapses before the animal assumes its full size, but the time he was unable to determine, as those he kept died before they had acquired any considerable size. When first hatched, they are scarcely larger than the common mite.

Subclass II. MALACOSTRACA.

This subclass has occupied a very considerable portion of attention, the result of which shall be given in the following pages.

Legion I. PODOPHTHALMA. *Eyes* pedunculated or elevated on footstalks.

Order I. BRACHYURA. *Tail* short and simple at its extremity.

Order II. MACROURA. *Tail* lengthened with appendices at its extremity.

Legion II. EDRIOPHTHALMA. *Eyes* sessile.

Legion I. PODOPHTHALMA.

The *Malacostraca podophtalma* include those animals, which, in common language, are denominated Crabs, Lobsters, Cray-fish, Prawns, Pandalas, and Shrimps, all of which have the power of reproducing their claws when they are lost.

Crabs and Lobsters are said "to change their crust annually," but this, like many other statements in zoology, is incorrect. We have seen *Maja squinado* and the common Lobster (*Astacus gammarus*) so overgrown with *Ostreæ*, *Anomiæ*, *Flustræ*, *Spongiæ*, and *Sertulariæ*, as scarcely to be enabled to move the joints of their legs, and as the oysters were of a year's growth, and as the *anomiæ* were above them, and the coralline matters upon the *anomiæ*, there can be no doubt but the crust was at least two years old.

Order I. BRACHYURA.

Latreille arranges the *Brachyura* (from the proportional breadth and length of the thorax or shell) into two families; but the discovery of genera, unknown to that illustrious Entomologist, has convinced us that such a distribution is extremely unnatural; and although, from the infant state of our knowledge, we cannot venture to propose named divisions; yet we shall endeavour to dispose the genera into what appear to be natural groupes.

Synopsis and distribution of the Genera.

A. *Abdomen* of the male five-jointed, the middle joint longest; of the female seven-jointed. *Anterior pair of legs didactyle.*

Division I. Shell nearly rhomboidal. Two anterior legs very long, with deflexed fingers.

Genus I. LAMBRUS.

Division II. Shell truncate behind. Two anterior legs of the male elongate, of the female moderate.

Crustacea.

Subdivision 1. Antennæ long, ciliated on each side.

Genus 2. CORYSTES.

3. THIA.

4. ATELECYCLUS.

Subdivision 2. Antennæ moderate, simple. Hinder pair of legs with compressed claws.

Genus 5. PORTUNUS.

6. CARCINUS.

7. PORTUNUS.

8. LUPA.

Subdivision 3. Antennæ moderate, simple. Four hinder pair of legs compressed.

Genus 9. MATUTA.

Subdivision 4. Antennæ simple, short. Four hinder pair of legs simple.

Genus 10. CANCER.

11. XANTHO.

12. CALAPPA.

B. Abdomen in both sexes seven-jointed. Two anterior legs didactyle.

Division III. Eight hinder legs simple, and alike in form.

Subdivision 1. Shell anteriorly arcuated, the sides converging to an angle.

(Two anterior legs unequal).

Genus 13. PILUMNUS.

14. GECARCINUS.

Subdivision 2. Shell quadrate or subquadrate. Eyes inserted in the front.

* Shell quadrate. Eyes with a short peduncle.

Genus 15. PINNOTERES.

** Shell quadrate. Eyes with a long peduncle.

Genus 16. OCYPODE.

17. UCA.

18. GONOPLAX.

Subdivision 3. Shell quadrate. Eyes inserted at the anterior angles of shell.

Genus 19. GRAPSUS.

Division IV. Two hinder legs at least dorsal.

Subdivision 1. Two posterior legs dorsal. Eyes with the first joint of the peduncle elongated.

Genus 20. HOMOLA.

Subdivision 2. Four hinder legs dorsal. Eyes with the first joint of the peduncle short.

Genus 21. DORIPPE.

22. DROMIA.

Division V. Shell rostrated in front. Eight hinder legs alike and simple.

Subdivision 1. Fingers deflexed.

Genus 23. EURYNOME.

24. PARTHENOPE.

Subdivision 2. Fingers not deflexed. External antennæ with the first joint simple. Anterior pair of legs distinctly thicker than the rest.

Genus 25. PISA.

26. LISSA.

Subdivision 3. Fingers not deflexed. External antennæ with their first joint simple. Anterior pair of legs scarcely thicker than the others, which are moderately long.

Genus 27. MAJA.

Subdivision 4. Fingers not deflexed. External antennæ with the first joint simple. Anterior pair of legs about the thickness of the rest, which are very long and slender.

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Genus 28. EGERIA.

29. DOCLEA.

Subdivision 5. Fingers not deflexed. External antennæ with the first joint externally dilated.

Genus 30. HYAS.

C. Abdomen in both sexes six-jointed. Two anterior legs didactyle.

Division VI. Fifth pair of legs minute, spurious.

Genus 31. LITHODES.

Division VII. Second, third, fourth, and fifth pair of legs alike and slender.

Subdivision 1. Eyes retractile.

Genus 32. INACHUS.

Subdivision 2. Eyes not retractile.

Genus 33. MACROPODIA.

D. Abdomen of the male six-jointed: of the female five-jointed; the last joint very large. Eyes not retractile.

Division VIII.

Genus 34. LEPTOPODIA.

35. PACTOLUS.

E. Abdomen of both sexes four-jointed. Two anterior legs didactyle.

Division IX.

Genus 36. LEUCOSIA.

37. IXA.

The following genera belong to this order, but their situation has not yet been fixed, namely,

Genus 38. HEPATUS.

39. PLAGUSIA.

40. MICTYRIS.

41. ORITHYIA.

42. RANINA.

43. MEGALOPA.

A. Division I.

Gen. 1. LAMBRUS. *Leach.**External antennæ simple. External double palpi, with the second joint of their internal footstalk, internally notched for the insertion of the palpi.*Sp. 1. *Longimanus*. Thorax spiny, the spines simple: arms smooth beneath.Parthenope longimana. *Fabr. Ent. Syst. Supl. 353.*

Maja longimana.

Bosc, Hist. Nat. des Crust. i. 250. pl. 7. f. 1.

Lambrus longimanus.

Leach, Trans. Linn. Soc. xi. 310.

This species inhabits the Indian Ocean.

Division II. *Subdivision 1.*Gen. 2. CORYSTES, *Latr. Leach.**External antennæ longer than the body, the third segment composed of elongate, cylindric joints. External double palpi with the internal footstalk narrow, the second joint largest, having its internal side broadly emarginate. Anterior pair of legs; of the male twice the length of the body, subcylindric, the hand gradually somewhat thicker and somewhat compressed; of the female of the length of the body, with a compressed hand: other legs with tibiæ and tarsi of equal length; claws elongate, strait, acute and longitudinally sulcated. Abdomen of the male with the first joint linear transverse, the second longer and produced on each side, third nearly equally quadrate, the fourth transverse and narrower than the third, the fifth narrower, nearly triangular, with the tip rounded; of the female with six first joints transverse ar-*

3 F

Crustacea.

Crustacea. coated in front, seventh triangular, with the apex rounded. *Shell* oblong-ovate, anteriorly slightly rostrated, behind margined. *Eyes* not thicker than their bending-backward peduncles; *orbits* above with one fissure.

Sp. 1. *Cassivelaunus*. Shell granulated, crenulated behind; front bifid; the sides tridentate. Cancer *cassivelaunus*.

Penn. Brit. Zool. iv. 6. t. 7. male and female. *Herbst*, i. 195. t. 12. f. 72. male.

Cancer *personatus*. *Herbst*, i. 193. t. 12. f. 71. female. *Albunea dentata*. *Fabr. Supl. Ent. Syst.* 398.

Bosc, Hist. Nat. des Crust. ii. 4.

Corystes dentatus. *Latr. Gen. Crust. et Ins.* i. 40. *Corystes cassivelaunus*.

Leach, Edinb. Encycl. vii. 395.

— *Trans. Linn. Soc.* xi. 312.

C. *cassivelaunus* inhabits most of the sandy shores of the European Ocean, and are often thrown up after heavy gales of wind. Latreille formerly considered the male as a distinct species, under the title *Corystes longimanus*.

Gen. 3. THIA. *Leach*.

External antennæ longer than the body, the third segment composed of elongate cylindric joints. *External double palpi* with the second joint of their internal footstalk much shorter than the first, with its internal apex truncate-emarginate. *Anterior pair of legs* of the male a little longer than the body, with the hand compressed: *other legs* with the tarsi half the length of the tibiæ, with acute flexuous claws, which are longitudinally sulcated. Abdomen of the male with the first joint transverse, arcuate, linear; the second a little longer, anteriorly slightly arcuately produced; the third very long, narrower towards the apex, which is slightly emarginate; the fourth subquadrate, apex slightly notched; the fifth triangular. *Shell* somewhat circular with the sides gradually converging into an angle behind; hinder part somewhat granulate-margined; the front somewhat produced. *Eyes* very small, scarcely prominent; *orbit* without any fissure behind.

Sp. 1. *Polita*. Shell convex, polished and sprinkled with punctures; orbit behind emarginate; sides on each side obscurely four-folded; front entire and arcuate.

Cancer *residuus*. *Herbst*, iii. 53. t. 48. f. 1?

Thia polita. *Leach, Trans. Linn. Soc.* xi. 312.

Locality unknown.

Gen. 4. ATELECYCLUS. *Leach*.

External antennæ half the length of the body, the third segment composed of elongate and cylindric joints. *External double palpi* with the second joint of the internal footstalk shortest, with the internal apex produced, and the internal side notched towards the joint. *Anterior legs* of the male longer than the body, with a compressed hand; of the female as long as the body, with a compressed hand: *other legs* with tibiæ and tarsi of equal lengths, furnished with elongate, quadrate nails, that are longitudinally sulcated, having their tips naked, rounded and sharp, the hinder ones obscurely subcompressed. Abdomen of the male with the first joint transverse, linear, twice the length of the second; the third much elongated, narrower towards its extremity, the apex

nearly strait; the fourth subquadrate, with the anterior angles produced; fifth flask-shaped, with a very sharp extremity; of the female with the first five joints transverse, and of nearly an equal length; the sixth joint transverse quadrate, anteriorly notched, the last elongate, subtriangular behind, subproduced. *Shell* subcircular, the sides gradually converging into an angle behind; hinder part truncate and granulate-margined. *Eyes* narrower than their footstalks; *orbits* behind with two fissures, below with one.

Sp. 1. *Heterodon*. Shell granulated, the sides with seven serrulated teeth, and other smaller teeth between some of the other teeth: Front with three serrulated teeth, the middle of which is the largest.

Cancer (*hippa*) *septem-dentatus*. *Montagu, Trans. Linn. Soc.* xi. tab. 1.

Atelecyclus septem-dentatus.

Leach, Edinb. Encycl. vii. 430.

— *Trans. Linn. Societ.* xi. 313.

This elegant crab was discovered by Montagu on the southern coast of Devon, where it is not an uncommon species in deep water. To the fishermen it is well known by the name of *old-man's face crab*.

Division II. *Subdivision 2.*

Gen. 5. PORTUMNUS. *Leach*.

Eyes not thicker than their peduncles; *orbits* entire. *Anterior pair of legs* equal; *other legs* with compressed claws, internally towards their base dilated; *fifth pair* with a compressed, foliaceous, lanceolate claw. Abdomen of the male with the fourth joint elongate. *Shell* with the transverse and longitudinal diameters the same.

Sp. 1. *Variiegatus*. Shell obscurely granulated on each side with five teeth, the second and third somewhat obsolete; front with three teeth; wrists internally with one tooth.

Cancer (*latipes*) *variiegatus*.

Planc, de Couch. Min. notis, p. 24. t. iii. f. 7.

B. C. male.

Cancer *latipes*.

Penn. Brit. Zool. iv. 3. t. 1. f. 4. female.

Portumnus variiegatus.

Leach, Edinb. Encycl. vii. 391.

— *Malac. Podoph. Britann.* t. iv. male and female.

— *Trans. Linn. Soc.* xi. 314.

Planc first discovered this species on the shores of the Adriatic sea. It burrows beneath the sand, where it may be found by digging at low water, on most of our sandy shores.

When living it is most beautifully mottled, and the legs are sometimes of a luteous-orange colour.

Gen. 6. CARCINUS. *Leach*.

Eyes narrower than their peduncles; *orbits* behind and beneath with one fissure. *Anterior pair of legs* unequal, the hands externally smooth; *hinder pair* compressed, and slightly formed for swimming. Abdomen of the male with the fourth joint transverse, and scarcely narrower than the third. *Shell* with the transverse diameter greatest.

Sp. 1. *Mænas*. Shell with five teeth on each side; front with three rounded teeth or lobes: hands with one tooth, wrist with a spine.

Cancer *Mænas* of authors.

Crustacea. *Carcinus Maenas*.

Leach, *Edinb. Encycl.* vii. 390.
— *Trans. Linn. Societ.* xi. 314.

This most common species inhabits all the shores and estuaries of Britain. It burrows under the sand, or conceals itself beneath fuci and stones. It is sent to London in immense quantities, and is eaten by the poor.

Gen. 7. PORTUNUS. *Fabr. Latr. Bosc, Lam. Leach.*

Eyes much thicker than their peduncles; orbits behind with two fissures, below with one fissure. Abdomen of the male with the fourth joint transverse. Anterior pair of legs somewhat unequal, the hands externally with elevated lines, arms generally unarmed; hinder pair compressed, foliaceous and formed for swimming. Shell with the transverse diameter greatest; the side with five, rarely with six teeth.

* Hinder claws with an elevated longitudinal line; external double palpi, with the second joint of their internal footstalk, truncate at the internal apex.

a Orbits at the insertion of the antennæ imperfect. Wrists bidentate.

Sp. 1. *Puber*. Antennæ half the length of the body, shell pubescent, front with many teeth.

Cancer puber. *Linn. Syst. Nat.*

Cancer velutinus. *Penn. Brit. Zool.* iv. 8. pl. iv. fig. 8. Portunus puber.

Latr. Gen. Crust. et Ins. i. 27.

Leach, *Edin. Encycl.* vii. 390.

— *Trans. Linn. Soc.* xi. 315.

Inhabits the rocky shores of the Mediterranean Sea and European Ocean. It is very common all along the southern coasts of Devon. In France it is used as an article of food.

b. Orbit internally slightly imperfect. Wrists unidentate.

Sp. 2. *Corrugatus*. Shell convex, with transverse serrate-granulate ciliated lines, the sides with five teeth on each side, the three hinder of which are more acute; front trilobate, the lobes subgranulate-serrate, the middle one largest; hands above unidentate, hinder claws with sharp points.

Cancer corrugatus.

Penn. Brit. Zool. iv. 5. pl. v. fig. 9.

Portunus corrugatus.

Leach, *Edin. Encycl.* vii. 390.

— *Trans. Linn. Soc.* xi. 315.

Inhabits the British Seas. Pennant observed it opposite to Loch Jura in Sky, and the young state has been taken by C. Prideaux, Esq. in the Plymouth Sound.

** Hinder claws without the elevated line. External double palpi with the internal apex of the second joint of the internal footstalk emarginate. Orbits internally beneath the insertion of the antenna imperfect.

Sp. 3. *Marmoreus*. Shell convex, obsolete and slightly granulated, with five nearly equal teeth on each side; front with three equal teeth, with rounded points; hands smooth, with one tooth above; hinder tarsi with acute points.

Cancer (*pinnatus*) marmoreus.

Montagu's MSs

Portunus marmoreus.

Leach, *Edin. Encycl.* vii. 390.

— *Malacost. Pedophth. Britan.* tab. 8.

— *Trans. Linn. Soc.* xi. 317.

This elegant species, which derives its name from its colour, was discovered by G. Montagu, Esq. It is very common on the sandy shores of southern Devon, from Torcross to the mouth of the river Ex, and is frequently found entangled in the shore-nets of the fishermen, or thrown on the shore after storms.

It is distinguished from every other discovered species, by the rounded dentations of the front, the very slight elevation of the lines on the hands, and by the convexity, remarkable smoothness, and marbled appearance of the shell.

Young specimens are plain brown, and much resemble the young of *P. depurator*, from which they may very easily be separated by their more considerable convexity.

Gen. 8. LUPA. Leach.

Eyes much thicker than their peduncles; orbit above with two fissures, beneath with one fissure.

Anterior pair of legs equal, the arms anteriorly spinose; hinder pair very much compressed. Abdomen of the male with the fourth joint much lengthened, much narrower than the third. Shell very transverse, furnished on each side with nine teeth, the last of which is the longest.

This genus was instituted by Dr Leach in the *Edinburgh Encyclopædia*, and has since been given, with amended characters, in the *Zoological Miscellany*, and in the eleventh volume of the *Transactions of the Linnean Society*. As far as we have been enabled to learn, all the species inhabit the Great Ocean, harbouring amongst floating marine plants, swimming with great swiftness and ease near the surface of the water.

* Shell on each side terminated by a very long spine.

a. Fingers very long and filiform, hands externally smooth.

Sp. 1. *Forceps*. Shell granulated, wrists with a spine on each side, hands above at the base, and externally at the base, with one spine; fingers slightly bending upwards, and denticulated within; hinder claw very much compressed, round ovate.

Portanus forceps.

Fabr. Suppl. Ent. Syst. 368.

Bosc, Hist. Nat. des Crust. i. 220.

Cancer forceps. *Herbst*, iii. t. 55. fig. 4.

Lupa forceps.

Leach, *Zool. Miscel.* i. 123. t. 54.

— *Trans. Linn. Societ.* xi. 319.

Plate XXI. This curious Lupa inhabits the Caribbean Sea. It was first figured by Dr P. Browne, in his *History of Jamaica*.

b. Fingers moderately long; hands externally with elevated lines.

Sp. 2. *Trispinosa*. Shell granulated, arms anteriorly with three spines.

Lupa trispinosa. Leach, *Trans. Linn. Soc.* xi. 319.

** Shell with the hinder lateral spine not very long.

Sp. 3. *Banksii*. Shell pubescent, front with four teeth, arms anteriorly with five teeth.

Lupa Banksii. *Trans. Linn. Soc.* xi. 319.

Crustacea.

Crustacea.

A. Division II. Subdivision 3.

Gen. 9. MATUTA.

Dald. Fabr. Lam. Bosc, Latr. Leach.

External double palpi, with the internal footstalk, elongate-subtriangular, the second joint with the internal side excavated and palpigerous. *Fourth pair of legs*, with the claw acute and narrower than the others. *Shell* very transverse on each side, terminated by a long spine.

Sp. 1. *Victor*. Shell on every side punctate, not striated behind.

Matuta victor. *Latr. Gen. Crust. et Insect. i. 42.*
Inhabits the Indian Ocean.

A. Division II. Subdivision 4.

Gen. 10. CANCER of authors.

External antennæ short, inserted between the internal canthus of the eye and the front; *internal antennæ* placed in foveolæ in the middle of the clypeus, with their peduncle nearly lunate. *External double palpi* with the second joint of the internal footstalk notched at the internal apex. *Shell* margined behind; *orbits* behind with one fissure, and externally with one fold; beneath with one fissure and externally with one fold. Anterior pair of legs unequal.

Sp. 1. *Pagurus*. Shell granulated with nine folds on each side; front with three lobes.
Cancer pagurus of authors.

This species is the common crab of Britain. It is considered to be in season between Christmas and Easter, and about harvest, being much esteemed as an article of food. Its natural history is but little known. During the summer months, it is very abundant on all our rocky coasts, especially where the water is deep. At low tide, they are often found in holes of rocks, in pairs, male and female; and if the male be taken away, another will be found in the hole at the next recess of the tide. By knowing this fact, an experienced fisherman may twice a-day take, with little trouble, a vast number of specimens, after having once discovered their haunts.

In the winter, they are supposed to burrow in the sand, or to retire to the deeper parts of the ocean. They are taken in wicker-baskets, resembling mouse-traps, or in large nets with open meshes, which are placed at the bottom of the ocean, and baited with garbage.

Gen. 11. XANTHO. *Leach.*

External antennæ very short, inserted in the internal corner of the eye; *internal antennæ* received in foveolæ under the prominent margin of the clypeus, the peduncle sublinear. *External double palpi*, with the second joint of the internal footstalk notched at the internal apex. *Shell* submargined behind; *orbits* entire above, below externally with one fissure; *anterior pair of legs* unequal.

Sp. 1. *Florida*. Wrists above with two tubercles; shell on each side with four obtuse teeth; the interstices cut out; fingers black.

Cancer floridus.

Montagu, Trans. Linn. Societ. xi. 85. t. 2. f. 1.
Cancer incisus. *Leach, Edin. Encycl. vii. 391.*
Xantho incisus. *Leach, Edin. Encycl. vii. 430.*
Xantho florida. *Leach, Trans. Linn. Societ. xi. 320.*

This species was first described by Montagu, who considered it to be the *Cancer floridus* of Linné; but an examination of the characters in the *Amœnitates Academicæ*, will readily convince the naturalist of the incorrectness of this opinion; nor is it the *Cancer floridus* of Herbst; which induces me to believe that some one must have misled Mr Montagu with regard to the synonym, as he could never have considered them the same, had he examined the reference.

Cancer donone of Herbst, probably is referable to the genus Xantho.

Gen. 12. CALAPPA. *Dald. Fabr. Lam. Latr. Bosc, Leach.*

Shell with the hinder angles arched, receiving the legs when contracted. *Hands* crested, and equal.

One of the species is very common in the Mediterranean Sea, and is mentioned by Aristotle and Athenæus. Of the economy of the genus nothing is known, but, from the general structure of the parts, it is probably similar to that of Cancer.

Sp. 1. *Granulatus*. Shell tuberculated, the hinder angles dentated; hinder teeth strong, acute; hinder margin subemarginated at the base of the tail.
Calappa granulata.

Fabr. Supl. Ent. Syst. 346.

Latr. Gen. Crust. et Insect. i. 28.

Bosc, Hist. Nat. des Crust. i. 184.

Leach, Edinb. Encycl. vii. 391.

Inhabits the Mediterranean Sea.

B. Division III. Subdivision 1.

Gen. 13. PILUMNUS. *Leach.*

External double palpi, with the second joint of the internal footstalk with the internal apex truncate-emarginate. *Claws* simple, with naked tips.

Sp. 1. *Hirtellus*. Body and legs bristly; shell with five teeth on each side; claws somewhat mucronated on the outside.

Cancer hirtellus.

Linn. Syst. Nat. 1045.

Penn. Brit. Zool. iv. 6. p. 6. f. n.

Leach, Edinb. Encycl. vii. 391.

Inhabits the south coast of Devonshire.

Gen. 14. GECARCINUS. *Leach.*

External double palpi, with the internal footstalk composed of two nearly equal joints; *palpi* inserted beneath or within; *anterior pair of legs*, unequal; *claws* and *tibiæ* spinose; shell truncate-subcordate.

There are probably many species of this genus, but their characters have not been made out by naturalists. Travellers speak of three sorts. Their economy is very curious, and is detailed by Sloane, Catesby, and others.

They inhabit the mountains of the Antilles. In the beginning of the year they descend from the mountains in vast numbers, and deposit their eggs in the sea. During this march, which is said to be conducted with great regularity, and to be under the guidance of a commander, the strongest proceed first. They are often obliged to halt for want of rain, and to go into the most convenient encampment until the weather change. The main body is said to consist of females, which never leaves the mountains till the rain be set in. They chiefly proceed during the

Crustacea.

Crustacea. night, sheltering in hollow trees and in shady places during the hot part of the day.

Sp. 1. *Ruricola*. Tarsi with six elevated, serrated lines; hands smooth.

Cancer ruricola.

Linn. Syst. Nat. 2040.

Fabr. Suppl. Ent. Syst. 339.

Herbst, tab. 3. f. 36.

Ocypode ruricola.

Bosc, Hist. Nat. des Crust. i. 196.

Leach, Edinb. Encycl. vii. 393.

Gecarcinus ruricola.

Leach, Edinb. Encycl. vii. 330.

— *Trans. Linn. Societ.* xi. 322.

Inhabits Southern America.

B. Division III. Subdivision 2. *

Gen. 15. PINNOTERES. *Latr. Bosc, Leach.*

ALPHEUS. *Dalderff.*

Antennæ very short (the three first joints largest), inserted in the interior corner of the eyes. *External double palpi*, with the internal footstalk, one-jointed. *Anterior pair of legs* unequal. *Eyes* thick. *Shell* ovate-orbicular, orbiculate-quadrate, or transverse-subquadrate.

All the species of this most interesting genus, inhabit the bivalve shells of the acephalous Mollusca, and were supposed by the ancients to be consentaneous inmates with the animal, bound by mutual interest. The fable is beautifully told by Oppian, and is alluded to by Cicero. "*Pinna verò (sic enim Græcè dicitur), duabus grandis patulis conchis, cum parva squilla quasi societatem coit comparandi cibi. Itaque cum pisciculi parvi in concham hiantem innativerint, tum admonita à squilla pinna morsu, comprimit conchas.*" *Nat. Dear.* Lib. ii. sec. 48.

Aristotle supposed them to act as sentinels, and believed that they guarded the pinna (the animal in whose shell they were first observed), from the attacks of its enemies. Rondeletius and some other naturalists held the same opinion.

Sp. 1. *Cranchii*. Shell orbiculate-subquadrate, soft, very smooth, with the sides dilated behind; front strait, obscurely submarginate; hands oblong, below and the thighs above with a ciliated line; thumb subarcuate; abdomen very broad, the sides of the segments arcuate, the second, and following ones distinctly notched; the fifth segment somewhat broader; the last narrower than the preceding segment. *Female*.

Pinnoteris Cranchii.

Leach, Malacost. Podophth. Britann. tab. 14.

fig. 4—5.

The male of this species, which was discovered by Mr J. Cranch, whose name it bears, is unknown. It is distinguished from *P. pisum* (the common species), by the form of the front of the shell, which is strait and slightly notched; by the dilated hinder part of the shell, and by the abdomen, all the joints of which, excepting the first, are distinctly notched behind.

Plate XXI.

Division III. Subdivision 2. **.

Gen. 16. OCYPODE.

Dald. Fabr. Latr. Lam. Bosc, Leach.

Eyes very large, with their peduncle generally extending beyond their tips, in the form of a spine. *Anterior pair of legs* unequal.

The economy of the *Ocypodes* is unknown, but it is probably not very different from that of the *Uca*. They inhabit the shores of the sea; and, as their name indicates, run with great swiftness.

Sp. 1. *Ceratophthalma*. Arms granulated; hands cordate; spine of the peduncle of the eye smooth and very long.

Ocypode Ceratophthalma.

Fabr. Suppl. Batom. Syst. 465.

Latr. Gen. Crust. et Ins. i. 32.

Leach, Trans. Linn. Soc. xi. 322.

Inhabits the shores of the Indian Ocean.

Gen. 17. UCA. *Leach.*

OCYPODE. *Latr. Bosc, Fabr. &c.*

Eyes small, terminating their peduncle. *Anterior pair of legs* very unequal.

The *Uca* inhabit the shores of the sea, swamps, and the banks of rivers, living in holes beneath the ground. They multiply very much, and serve as food to otters, bears, birds, crocodiles, &c. The females carry about their eggs under the abdomen. They live on animal substances, which they devour with avidity. Their motion is rapid; Sir J. Banks assures us that he could never come up with them when running, and that the only means by which he could take them was by running to and stopping their holes before they could reach it, and which he effected by lying in ambush until the animals had gone to a very considerable distance from their haunts.

Sp. 1. *Una*. Shell with one tooth on each side.

Cancer vocans major. *Herbst*, t. i. f. 10.

Cancer vocans. *Bosc, Hist. Nat. des Crust.* i. 198.

Uca una. *Leach, Trans. Linn. Soc.* xi. 323.

Inhabits South America.

Gen. 18. GONOPLAX. *Leach.*

OCYPODA. *Bosc.*

Eyes terminating their peduncle. *Anterior pair of legs* equal; of the male very long; of the female twice the length of the body. *Antennæ* half of the length of the body, inserted at the internal canthus of the eyes.

The animals of this genus inhabit the ocean, preferring such parts as have a slimy bottom. They burrow laterally in the clay or slime, making two entrances to their hole; entering by one, and going out by the other. We have seen several fossil species inclosed in marle, that appear to belong to this genus.

Sp. 1. *Bispinosa*. Shell on each side with two spines, arms above, and wrists internally with one spine.

Cancer angulatus. *Penn. Brit. Zool.* iv. t. 5. f. 10.

Fabr. Suppl. Entom. Syst. 341.

Ocypoda angulata. *Bosc, Hist. Nat. des Crust.* i. 198.

Gonoplax bispinosa.

Leach, Edinb. Encycl. vii. 430.

—, *Trans. Linn. Soc.* xi. 323.

Inhabits the British Sea. It is not uncommon at Salcombe and in the Plymouth Sound; and likewise occurs at Weymouth, and at Redwharf in Anglesea.

Division III. Subdivision 3.

Gen. 19. GRAPSUS. *Lam. Latr. Bosc, Leach.*

Crustacea.

Sp. 1. *Pictus*. Shell with the sides plicated behind, anteriorly with the angles bidentate; front with four dentated folds; fingers with their joints concave; wrists internally strongly unidentate.

Cancer grapsus.

Linn. Syst. Nat. 1048.*Fabr. Suppl. Ent. Syst.* 342.

Grapsus pictus.

Latr. Gen. Crust. et Insect. i. 83.*Leach, Edinb. Encycl.* vii. 393.—, *Trans. Linn. Soc.* xi. 323.

Inhabits the South American Ocean.

B. Division IV. Subdivision 1.

Gen. 20. HOMOLA. *Leach*.

Shell elongate-quadrate, a little produced in front: eyes large, somewhat globose, their footstalks lengthened, the second joint very short and very abruptly thicker than the first. *External antennae* very long, inserted beneath the eyes, the two first joints long, the first thickest: *internal antennae* inserted within the orbit of the eye, and capable of being lodged in the internal corner. *External double palpi* with their internal footstalk composed of two lengthened and narrow joints; *palpi* three-jointed; the first joint shortest. *Legs* ten; first pair largest and didactyle; the three following pair simple, alike in form, and having their claws spiny within; fifth pair monodactyle, the claws and *basis* being spiny within. *Abdomen* composed of seven joints.

Sp. 1. *Spinifrons*. Shell anteriorly spinous; sides anteriorly beset with small spines; hinder thighs internally with three spines.

Homola spinifrons.

Leach, Trans. Linn. Soc. xi. 324.—, *Zoolog. Miscel.* ii. 82. t. 88.

Inhabits the Mediterranean Sea.

B. Division IV. Subdivision 2

Gen. 21. DORIPPE. *Dald. Fabr. Lam. Latr. Bosc, Leach*.

External double palpi with the internal footstalk having its first joint dilated interiorly, the second narrow, bearing palpi at its extremity. *Shell* subtriangular, anteriorly truncated. *Second and third pair of legs* alike, with acute, elongate, simple subquadrate claws; *fourth and fifth pair* shorter, dorsal and monodactyle. *External antennae* inserted above and between the eyes: *internal antennae* inserted below and between the eyes.

Sp. 1. *Quadridentis*. Middle of the clypeus with four teeth, the lateral ones shortest; sides of the shell unidentate at their middle part; four anterior thighs subdentate.

Dorippe quadridentis.

Fabr. Suppl. Ent. Syst. 361.*Bosc, Hist. Nat. des Crust.* i. 207.*Latr. Gen. Crust. et Ins.* i. 41.*Leach, Edin. Encycl.* vii. 395.—, *Trans. Linn. Societ.* xi. 324.

Inhabits the Mediterranean Sea.

Gen. 22. DROMIA. *Dald. Fabr. Latr. Bosc, Leach*.

External double palpi two-jointed, with the second joint somewhat broader, shorter, and at its interior apex palpigerous. *Second and third pair of legs*

simple; *fourth and fifth* shorter and didactyle. *External antennae* inserted below the eyes; the two first joints largest, and abruptly thicker than the others; *internal antennae* inserted below, and somewhat between the eyes.

Sp. 1. *Rumphii*. Shell hairy, on each side with five strong teeth, without any remarkable interval between them; arms and legs without knots.

Cancer Dromia. *Linn. Syst. Nat.* 1048.

Dromia Rumphii.

Fabr. Suppl. Ent. Syst. 359.*Leach, Edin. Encycl.* vii. 391.

Inhabits the East Indian Ocean. It is named after Rumphius, by whom it was first described and figured. *Rarit. Amb.* t. 11. No. 1.

B. Division V. Subdivision 1.

Gen. 23. EURYNOME. *Leach*.

External antennae rather long, with the first joint shorter than the second. *Shell* verrucated, anteriorly terminated by a bifid rostrum, with divaricating laciciae. *Eyes* distant, thicker than their peduncle, which is of moderate length. *External double palpi* with the interior point of the second joint of their internal footstalks truncate-emarginate. *Anterior legs* equal; of the male three times the length of the body; of the female longer than the body.

Sp. 1. *Aspera*. Anterior legs and thighs tuberculated; shell with eight tubercles on the back that are more elevated than the others, which are irregular and margined with hairs; the sides with four lamellae; rostrum with simple acuminate laciciae.

Cancer asper. *Penn. Brit. Zool.* iv. 8.

Eurynome aspera.

Leach, Edin. Encycl. vii. 431.—, *Mulac. Podophth. Britan.*—, *Trans. Linn. Societ.* xi. 325.

Inhabits the British Sea.

Gen. 24. PARTHENOPE. *Fabricius, Leach*.MAJA I. *Latreille*.

External antennae very short; the two first joints largest, the first more so than the second. *Shell* tubercose, anteriorly acuminate; the rostrum entire; *eyes* distant, not thicker than their peduncles, which are very short. *External double palpi* with the internal apex of the second joint of their internal footstalk truncate-emarginate. *Anterior legs* unequal; of the male very thick.

Sp. 1. *Horrida*. Tubercles of the shell impressed; the punctures as if eaten; legs spiny; hands and wrists verrucated; abdomen and breast carious.

Cancer longimanus spinosus.

Seb. Mus. iii. 48. tab. 19. fig. 16; 71.Cancer horridus. *Linn. Syst. Nat.* i. 104.

Parthenope horrida.

Fabr. Suppl. Ent. Syst. 353.*Leach, Edin. Encycl.* vii. 431.—, *Zoologic. Miscel.* ii. tab. 98.

Maja horrida.

Latr. Gen. Crust. et Insect. i. 37.*Leach, Edin. Encycl.* vii. 394.

Inhabits the Asiatic Ocean.

B. Division V. Subdivision 2.

Gen. 25. PISA. *Leach*.

Crustacea.

BLASTUS. *Leach.*

External antennæ with clubbed hairs, the first joint longer than the second. *External double palpi* with the second joint of the internal footstalk with its internal apex truncate or emarginate. *Claws* internally denticulated. *Shell* villose, the lacinia of the rostrum diverging. *Orbits* behind with two, below with one fissure.

* *Shell densely villose, the sides on each side behind terminated with a spine.*

Sp. 1. *Gibbsii.* Rostrum descending; shell with a spine behind the eyes on each side; arms and thighs simple.

Cancer biaculeatus.

Montagu, Trans. Linn. Soc. xi. 2. t. 1. f. 1.

Pisa biaculeata. Leach, Edin. Encycl. vii. 431.

Pisa Gibbsii.

Leach, Trans. Linn. Soc. xi. 327.

Malac. Podophth. Britan. tab. 19.

Inhabits deep water on the coasts of Devon and Cornwall.

Sp. 2. *Nodipes.* Rostrum horizontal; arms and tips of the thighs knotted.

Pisa nodipes.

Leach, Zool. Miscell. ii. t. 78.

Trans. Linn. Soc. xi. 328.

** *Shell villose, with spiny sides.*

Sp. 3. *Tetraodon.* Shell on each side with six spines; two small, the rest larger.

Cancer tetraodon. *Penn. Brit. Zool. iv. 7. t. 9. f. 15.*

Maja tetraodon. Bosc, Hist. Nat. des Crust. i. 284.

Blastus tetraodon. Leach, Edin. Encycl. vii. 431.

Pisa tetraodon. Leach, Trans. Linn. Soc. xi. 328.

Inhabits the south-west coast of England.

Gen. 26. **LISSA.** *Leach.*

MAJA. *Latr. Bosc.*

External antennæ with clubbed hairs, the first joint longer than the second. *External double palpi* with the second joint of the internal footstalk truncate-emarginate at the internal apex. *Claws* internally simple, with naked points. *Shell* tuberoso, the lacinia of the rostrum meeting together. *Orbits* with one fissure behind, and one below.

Sp. 1. *Chiragra.* Rostrum obtuse, with the anterior angles subreflexed; legs knotted.

Cancer chiragra. *Herbst, tab. 17. f. 96.*

Inachus chiragra. Fabr. Supl. Ent. Syst. 357.

Maja chiragra.

Bosc, Hist. Nat. des Crust. i. 255.

Latr. Hist. Nat. des Crust. et des Insect. vi. 97.

Lissa chiragra. Leach, Zool. Miscel. ii. 70, t. 78.

Inhabits the Mediterranean Sea.

Division V. Subdivision 3.

Gen. 27. **MAJA.** *Lam. Latr. Bosc, Leach.*

External antennæ with two first joints thickest, and of nearly equal length. *Shell* convex ovate-subtriangular, very spiny. *Eyes* not thicker than their elongate peduncle. *External double palpi* with the second joint of their internal footstalk, deeply notched at its internal apex. *Claws* with naked sharp points.

Sp. 1. *Squinado.* Shell fasciculate-pilose, orbit above with one spine, the sides with five strong spines, cly-

peus beneath the front with a short spine excavated above.

Cancer squinado.

Herbst, iii. t. 56. full grown.

— i. t. 14. f. 85—84. junior.

Cancer maja.

Scopoli, Entom. Carn. 1126.

Sowerby, Brit. Miscell. t. 39.

Maja squinado.

Latr. Gen. Crust. et Insect. i. 37.

Bosc, Hist. Nat. des Crust. i. 257.

Leach, Edin. Encycl. vii. 394—431.

— *Trans. Linn. Societ. xi. 326.*

Inhabits the southern coasts of Devon and Cornwall. By the fishermen it is named Thornback, or king-crab.

B. Division V. Subdivision 4.

Gen. 28. **EGERIA.** *Leach.*

Shell spinous anteriorly, terminated by an elongate rostrum; *eyes* large, much thicker than their peduncles; *orbits* behind with two fissures, below with one fissure. *External antennæ* inserted at the sides of the rostrum with the two first joints thickest, the second joint much thicker than the first. *Two anterior legs* of the male about twice the length of the body, filiform, and scarcely thicker than the others; *eight hinder legs* very long very slender, alike in form, in order of size 2, 3, 4, and 5. *Claws* elongate, somewhat arcuate, and very slender. *External double palpi* with the second joint of the internal footstalk with its internal side strait, the interior apex being abruptly produced.

Sp. 1. *Indica.* Beak acutely notched; shell behind the beak with six tubercles, arranged in transverse lines, 3, 2, 1, 1.

Doclea Indica. Leach, Zool. Miscel. ii. 40. tab. 78.

Inhabits the Indian Ocean, where it is by no means uncommon.

Gen. 29. **DOCLEA.** *Leach.*

Shell villose, with the sides somewhat spinous; front terminated by a short beak; *eyes* moderate in size, but much thicker than their peduncles; *orbits* behind and below with one fissure. *External antennæ* inserted at the base of the beak, the second joint shorter than the first. *Anterior pair of legs* of the female as long as the body, and more slender than the others, which are very long and slender; *claws* elongate, arcuate, slender. *External double palpi* with their internal footstalk having the internal side of the second joint towards the apex deeply notched.

Sp. 1. *Rissonii.* Shell and legs with brown pubescence; hinder part of the shell with one spine; each side with three spines.

Doclea Rissonii. Leach, Zool. Miscel. ii. 42. tab. 74.

Locality unknown.

B. Division V. Subdivision 5.

Gen. 30. **HYAS.** *Leach.*

Shell elongate-subtriangular, subtuberculated, the sides behind the eyes produced into a lanceolate projection; *rostrum* fissured, the lacinia approximating. *External antennæ* with the first joint dilated, larger than the second. *External double palpi* with the second joint emarginate at the internal apex.

Crustacea. Sp. 1. *Araneus*. The lastiform process behind the eyes, tuberculated behind.

Cancer araneus.

Lin. Syst. Nat. 1044.

Cancer bufo.

Herbst, i. 142. t. 17. f. 59.

Inachus araneus.

Fabr. Supl. Ent. Syst. 359.

Hyas araneus.

Leach, Edin. Encycl. vii. 437.

— *Trans. Linn. Soc.* xi. 329.

Inhabits the Scottish Sea in great plenty; on the English coasts it is more rare.

Division VI.

Gen. 31. LITHODES. *Latreille, Leach*.

External double palpi with narrow subcylindric footstalks. Eyes approximating at their base. Shell very spiny, anteriorly rostrated.

Sp. 1. *Maja*. Legs and shell with sharp spines; beak spiny, with the tip bifurcate; fingers with tufts of hair.

Cancer maja.

Lin. Syst. Nat. 1046.

Cancer horridus.

Pen. Brit. Zool. iv. 7. pl. 7. fig. 14.

Inachus maja. *Fabr. Ent. Syst. Suppl.* 358.

Maja vulgaris.

Bosc, Hist. Nat. des Crust. i. 251.

Lithodes arctica.

Latr. Gen. Crust. et Insect. i. 40.

Lithodes maja.

Leach, Edin. Encycl. vii. 395.

— *Trans. Linn. Soc.* xi. 332.

Inhabits the Northern Sea, and in our seas is very rare, or at least very local; occurring only on the rocky shores of Yorkshire, and of Scotland.

C. Division VII. Subdivision 1.

Gen. 31. INACHUS. *Fabricius, Leach*.

Shell slightly spined, with a spine on each side protecting the eye when retracted. Eyes distant, scarcely thicker than their peduncles. External double palpi, with the second joint of the internal footstalk, truncate at its internal point. External antennæ with the three first joints thickest. Second pair of legs thicker than the following ones. Claws curved.

Sp. 1. *Dorsettensis*. Beak short, emarginate, the clypeus beneath produced into a spine; shell anteriorly, with four little tubercles placed transversely; then with three spines (the anterior one strongest); behind with three strong sharp spines (the middle one generally longest and strongest), forming a slightly recurved line; hinder margin with two distinct obsolete tubercles.

Cancer Dorsettensis.

Pen. Brit. Zool. iv. 8. pl. 9. fig. 18.

Cancer scorpio.

Fabr. Sp. Ins. i. 504.

Gmel. Syst. Natur. i. 2078.

Herbst, i. 237, 130.

Inachus scorpio.

Fabr. Ent. Syst. Supl. 358.

Macropus scorpio.

Latr. Hist. Nat. des Crust. et des Insect. vi. 109.

Maja scorpio.

Bosc, Hist. Nat. des Crust. i. 252.

Inachus Dorsettensis.

Leach, Edin. Encycl. vii. 431.

— *Malac. Podolph. Britan.* tab. 22. fig. 1—6.

— *Trans. Linn. Soc.* xi. 330.

Inhabits the British Seas.

Division VI. Subdivision 2.

Gen. 32. MACROPODIA. *Leach*.

MACROPUS. *Latreille*.

Shell slightly spined, beak long and fissured. Eyes distant, subreniform, much thicker than their peduncles. External antennæ half the length of the body, the second joint three times the length of the first. External double palpi slender, the internal footstalk with two equal joints; palpi very hairy, the middle joint shortest, the third a little longer than the first. Four anterior claws with their tips bent; four hinder ones abruptly curved at their base.

Sp. 1. *Phalangium*. Beak acuminate, much shorter than the antennæ; shell behind the rostrum with three tubercles placed in a triangle, the hinder tubercle largest; arms internally subscabrous and hirsute. *Cancer phalangium*.

Penn. Brit. Zool. iv. 8. pl. 9. fig. 17.

Macropus longirostris.

Latr. Gen. Crust. et Insect.

Macropodia longirostris.

Leach, Edin. Encycl. vii. 395.

Leach, Zool. Miscel. ii. 18.

— *Trans. Linn. Soc.* xi. 331.

— *Malac. Podolph. Britan.* tab. 23.

Inhabits the mouths of rivers, and is very common in Great Britain.

D. Division VIII.

Gen. 33. LEPTOPODIA. *Leach*.

Shell not spinous, the beak very long and entire. Eyes distant, globose. External antennæ half the length of the body, the second joint three times the length of the third. External double palpi slender, the internal footstalk, with the second joint half the length of the first. Palpi very hairy, the last joint largest, the two first joints nearly equal. Claws long, alike in form, and slightly bent.

Sp. 1. *Sagittaria*. Hands granulose; beak on each side, and the arms and thighs anteriorly spinous.

Inachus sagittarius.

Fabr. Supl. Ent. Syst. 359.

Cancer sagittarius. *Herbst*, 3.

Macropus sagittarius.

Latr. Hist. Nat. des Crust. et des Insect. vi. 112.

Maja sagittaria.

Latr. Gen. Crust. et Insect. i. 38, 4.

Leach, Edin. Encycl. vii. 395.

Maja sagittis.

Bosc, Hist. Nat. des Crust. i. 253.

Leptopodia sagittaria.

Leach, Zool. Miscel. ii. 16. tab. 67.

— *Trans. Linn. Soc.* xi. 332.

Inhabits the Carribean Sea.

Crustacea.

Crustacea.

Gen. 35. PACTOLUS. Leach.

Shell not spiny. Beak very long and entire. Legs of moderate length; the first, second (and third), pairs furnished with a simple claw; the fourth and fifth pairs didactyle.

The abdomen of the female has the first joint narrow, the second, third, and fourth joints transverse-linear, the fifth very large and somewhat rounded, as in the case with the genus *Leptopodia*.

Sp. 1. *Boscii*. Beak on each side spinulose; legs ciliate-punctate.
Pactolus Boscii.

Leach, *Zool. Miscel.* ii. 20. tab. 68.

— *Trans. Linn. Soc.* xi. 333.

A single specimen of this curious animal is preserved in the British Museum; but its locality is not known. Fabricius seems to have described it as the other sex of his *Inachus sagittarius*.

E. Division IX.

Gen. 36. LEUCOSIA. Fabr. Latr. Bosc, Leach.

Shell rounded or rhomboidal, slightly produced in front. External double palpi with the second joint of their internal footstalk simple. Anterior pair of legs distinctly thicker than the others, which are simple.

This genus requires to be investigated. It contains two indigenous species; namely *Cancer tumefactus* of Montagu, and *Cancer tuberosus* of Pennant.

* Second joint of the internal footstalk of the external double palpi dilated.

Sp. 1. *Anatum*.*Cancer anatum*.

Herbst, i. 95. tab. 3. fig. 19.

** Second joint of the internal footstalk of the external double palpi nearly linear.

Sp. 2. *Craniolaris*.*Cancer craniolaris*. Herbst, i. 90. tab. 2. fig. 17.

Gen. 37. IXA. Leach.

Shell very transverse, subcylindric, much broader than long. External double palpi with the second joint of the internal footstalk excavated. Anterior pair of legs scarcely thicker than the rest.

Sp. 1. *Cylindrus*. Shell with two channels, the sides rough and terminated by a spine.
Leucosia cylindrus.

Latr. *Hist. Nat. des Crust. et des Insect.* vi. 119.

Cancer cylindrus.

Herbst, i. 108. tab. 2. f. 29, 30, 31. male.

Ixa cylindrus.

Leach, *Trans. Linn. Soc.* xi. 334.

Inhabits the Indian Ocean.

Brachyurous Genera of uncertain situation.

Gen. 38. HEPATUS. Latreille.

External double palpi with the second joint of their internal footstalk elongate-triangular, gradually becoming sharp from the base to the point. Shell arcuate before, the sides converging behind. Legs all formed for walking; anterior pair didactyle, the hands crested.

Sp. 1. *Fasciatus*. Latreille.

This species is figured by Herbst, tab. 38. fig. 2. The shell and legs are banded with red, sometimes with brown.

Gen. 39. PLAGUSIA. Latreille.

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Eyes with a short peduncle, inserted at the anterior angles of the shell. Shell quadrate. Interior antennæ inserted in two fissures on the clypeus.

Sp. 1. *Depressa*. Middle of the clypeus with two teeth; sides of the shell with five teeth; dorsal tubercles naked.

Cancer depressus. Fabr. *Ent. Syst. Suppl.* 343.

Plagusia depressa. Latr. *Gen. Crust. et Insect.* i. 84.

Inhabits the shores of the Mediterranean Sea.

Gen. 40. MICTYRIS. Latreille.

External double palpi with the first joint very large. Antennæ very short. Shell subovate, truncate behind, elevated. Arms at the base of the wrist bent like a knee.

Sp. 1. *Longicarpus*.

Latr. *Gen. Crust. et Insect.* i. 41.

Leach, *Edinb. Encycl.* vii. 395.

Gen. 41. ORITHYIA. Daldorff, Fabricius, Latreille, Bosc, Leach.

Shell rounded. Legs all placed in the same horizontal line, the hinder pair with the last joint compressed, or formed for swimming; the first pair didactyle.

Sp. 1. *Mamillaris*.*Orithyia mamillaris*.

Fabr. *Suppl. Ent. Syst.* 363.

Latr. *Gen. Crust. et Insect.*

Inhabits the Indian Ocean. It is figured by Herbst, tab. 18. f. 101.

Gen. 42. RANINA. Lamarck, Latreille, Leach.

Legs, with the exception of the first pair, which is monodactyle, formed for swimming; the two hinder pairs placed above the others.

Sp. 1. *Serrata*. Arms much dentated; front of the shell with dentated lobes.

Ranina serrata.

Latr. *Gen. Crust. et Insect.* i. 45.

Leach, *Edinb. Encycl.* vii. 396.

Inhabits the Indian Ocean.

Gen. 43. MEGALOPA. Leach.

This genus contains but one species, which is described in the seventh volume of the *Transactions of the Linnean Society*, under the title *Cancer rhomboidalis*. *Cancer granarius* of Herbst probably belongs to the same genus. See *Trans. Linn. Soc.* vii. tab. vi. fig. 1.

Order II. MACROURA.

This order contains the families, *Pagurii*, *Palinurini*, *Astacini*, and *Squillares* of Latreille.

Synopsis and distribution of the Genera.

A. Tail on each side with simple appendices.

Division I. Legs ten; anterior pair largest and dactyle.

Genus 44. PAGURUS.

45. BRAGUS.

B. Tail on each side with foliaceous appendages, forming with the middle tail-process a fan-like fin.

a. Interior antennæ with very long footstalks.

Division II. External antennæ squamiform. Legs ten, alike and simple.

Genus 46. SCYLLARUS.

47. THENUS.

Division III. External antennæ setaceous, and very long. Legs ten, alike and simple.

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Genus 48. PALINURUS.

Division IV. External antennæ very long and se-taceous. Legs ten, anterior pair didactyle, fifth pair spurious.

Genus 49. PORCELLANA.

50. GALATEA.

b. Interior antennæ with moderate peduncles.

Division V. Exterior lamella of the tail simple. Antennæ inserted in the same horizontal line, the interior ones with two setæ, the exterior ones simple. Legs ten.

Genus 51. GEBIA.

52. CALLIANASSA.

53. AXIUS.

Division VI. Exterior lamella of the tail bipartite. Antennæ inserted in the same horizontal line, the internal ones with two setæ, the external ones with a spine-shaped squama at the first joint of the peduncle. Legs ten (anterior pair largest and didactyle).

Genus 54. ASTACUS.

55. NEPHROPS.

Division VII. External antennæ with a large broad squama or scale at their base. Abdomen with the second joint anteriorly and posteriorly produced below. Legs ten.

Subdivision 1. External antennæ inserted in the same horizontal line with the interior ones, which have two setæ. Tail with the external lamella composed of but one part.

Genus 56. CRANGON.

Subdivision 2. External antennæ inserted below the internal ones; interior ones with two setæ inserted in the same horizontal line. Exterior lamella of the tail bipartite.

Genus 57. ATYA.

58. PROCESSA.

Subdivision 3. External antennæ inserted below the internal ones; interior ones with two setæ, one placed above the other. (External lamella of the tail composed of but one part).

* Internal antennæ with the superior seta excavated below. Claws spinulose.

Genus 59. PANDALUS.

60. HIPPOLYTE.

61. ALPHEUS.

** Internal antennæ with the superior seta not excavated. Claws simple.

Genus 62. PENÆUS.

Subdivision 4. External antennæ inserted below the internal; interior ones with three setæ. (External lamella of the tail composed of but one part).

Genus 63. PALÆMON.

64. ATHANAS.

Division VIII. External antennæ inserted below the internal ones, with a large scale at their base. Legs sixteen.

Genus 65. MYSIS.

C. Tail with two setæ, one on each side.

Division IX.

Genus 66. NEBALIA.

The genera whose situation has not been ascertained are the following, namely,

Genus 67. ALBUNEA.

68. REMIPES.

69. HIPPA.

Genus 70. THALASSINA.

71. SQUILLA.

Crustacea.

Division I.

Gen. 44. PAGURUS. *Fabr. Latr. Bosc, Leach, &c.*

External antennæ, with the second joint of their peduncle, with a moveable spine affixed to the apex above. Abdomen membranaceous. Tail three-jointed, crustaceous, the second joint on each side appendiculated. Four hinder legs spurious, short, didactyle.

The curious economy of the genus Pagurus attracted the attention of the ancients. One species is well described by Aristotle under the name *καρυσιον*.

All the species are parasitical, and inhabit the cavities of turbinated univalves. They all change their habitation during their growth, first occupying the smallest shells, and latterly those of very considerable dimensions. The abdomen is naked and slender, being covered merely with a skin of a delicate texture; but its extremity is furnished with appendages, by means of which it secures itself within the shell of which it makes choice. It is really astonishing with what facility these animals move, bearing at the same time the shell, which is destined to preserve the body from injury, and to guard these animals from the attacks of fishes, who would otherwise devour them. All the species are termed indiscriminately *Soldier-crabs* and *Hermit-crabs*, from the idea of their living in a tent, or retiring to a cell.

Sp. 1. *Bernhardus* (common soldier-crab). Arms hairy, muricated, the left the largest; hands subcordate, fingers broad.

Pagurus, Bernhardus.

Fabr. Suppl. Ent. Syst. 411.*Latr. Gen. Crust. et Insect.* i. 46.*Leach, Edinb. Encycl.* vii. 396.Cancer Bernhardus. *Linn. Syst. Nat.*

Inhabits the European Ocean, and is very abundant in the British Seas, inhabiting various kinds of univalve shells, changing its habitation as it grows. Pagurus araneiformis, *Edinb. Encycl.* vii. 396, is merely the young of this species.

Gen. 45. BIRGUS. *Leach.*

External antennæ with the second joint of its peduncle crested. Abdomen crustaceous. Tail two-jointed, crustaceous, the first joint on each side appendiculated. Fourth pair of legs didactyle; fifth pair (didactyle?).

Sp. 1. *Latro*. Shell anteriorly with a simple acuminate rostrum.

Cancer latro. *Linn. Syst. Nat.* 1049.Cancer (*astacus*) latro. *Herbst*, ii. 34. tab. 24.

Pagurus latro.

Fabr. Ent. Syst. ii. 468.*Leach, Edinb. Encycl.* vii. 390.Birgus latro. *Leach, Trans. Linn. Soc.* xi. 337.

This species is said to inhabit Amboyna, and to live in cavities and holes of rocks, from whence it wanders abroad in the night, in order to procure cocoa nuts, on which it is supposed to feed.

Division II.

Gen. 46. SCYLLARUS.

Fabr. Dald. Lam. Latr. Bosc, Leach.

Hinder legs with the tarsi beneath produced into

Crustacea. a thumb. *Thorax* convex, sublinear. *Eyes* inserted behind the exterior antennæ.

Sp. 1. *Arctus*. External antennæ very much dentated; shell above with a triple series of dentations. *Cancer arctus*. *Linn. Syst. Nat.* 1053.
Scyllarus arctus.

Latr. Gen. Crust. et Insect. i. 47.

Leach, Edinb. Encycl. vii. 397.

Inhabits the European Ocean, and is said by Pennant to have been taken in the British Sea.

Gen. 47. THENUS. *Leach*.

Hinder legs with simple tarsi. *Thorax* subdepressed, broader anteriorly. *Eyes* inserted at the anterior angles of the thorax.

Sp. 1. *Indicus*. External antennæ serrated; thorax granulated, carinated, trispinous; abdomen granulated, the granules arranged transversely.

Inhabits the Indian Ocean.

Division III.

Gen. 48. PALINURUS.

Dald. Fabr. Lam. Latr. Bosc, Leach.

The animals of this genus have the power of producing a sound by rubbing their exterior antennæ against the sides of the projecting clypeus.

Sp. 1. *Vulgaris*.

Astacus homarus. *Penn. Brit. Zool.* iv. 16. pl. 11.

Inhabits the European Ocean. It is commonly eaten in London, and is sometimes denominated spiny-lobster or sea crey-fish.

Division IV.

Gen. 49. PORCELLANA. *Lam. Latr. Bosc, Leach*.

External double palpi with the first joint of the internal footstalk dilated internally. *Shell* orbiculate subquadrate.

Sp. 1. *Platycheles*. Anterior margin of the shell with three entire teeth; claws very large and much depressed; wrists internally denticulated; hands externally deeply ciliated.

Cancer platycheles.

Penn. Brit. Zool. iv. 6. pl. 6. and 12.

Porcellana platycheles.

Latr. Gen. Crust. et Insect. i. 49.

Leach, Edinb. Encycl. vii. 398.

—, *Trans. Linn. Soc.* xi. 339.

Inhabits the rocky shores of the southern and western coasts of Britain, concealing itself beneath stones, to the under side of which it adheres closely.

Gen. 50. GALATEA.

GALATHEA. *Fabr. Latr. Lam. Bosc, Leach*.

External double palpi with the internal edge of the first joint not dilated. *Shell* ovate.

* *Rostrum acuminate, acute, with four spines on each side. Anterior legs compressed. Abdomen with the sides of the segments obtuse. Tail with the intermediate lamella triangular, the tip emarginate, the apex of the lacinia rounded. Interior antennæ with the first joint of the peduncle trispinose.*

a *Second joint of the internal footstalk of the external double palpi longer than the first.*

Sp. 1. *Fabricii*. Anterior legs granulate-spinose; hands externally subserrated; wrists and arms internally spinose. Plate XXI.

Galathea Fabricii. *Leach, Trans. Linn. Soc.* xi. Crustacea. 340.

b. *Second joint of the internal footstalk of the external double palpi shorter than the first.*

Sp. 2. *Spinigera*. Anterior legs subgranulate squamose, above and on each side spinose; arms externally without spines.

Astacus strigosus. *Penn. Brit. Zool.* iv. 18. pl. 14.

Cancer (astacus) strigosus. *Herbst, tab.* 26. f. 2.
Galathea strigosa.

Fabr. Ent. Syst. ii. 471.—*Suppl.* 414.

Latr. Gen. Crust. et Insect. i. 49.

Leach, Edinb. Encycl. vii. 398.

Galathea spinigera.

Leach, Malac. Podoph. Brit. tab. 28. B.

** *Rostrum elongate, spiniform, the base on each side bispinose. Anterior pair of legs subcylindric. Abdomen with the sides of the segments acute. Tail with the intermediate lamella transverse-quadrate, the apex subemarginate. Interior antennæ with the first joint of the peduncle four-spined. (External double palpi with the first joint of the internal footstalk longer than the second.)*

Sp. 2. *Rugosa*. Anterior legs spinose, especially internally; abdomen with the second segment anteriorly with six, the third with four spines.

Astacus Bamffius. *Pennant, Brit. Zool.* iv. 17. pl. 27.
Galathea rugosa.

Fabr. Suppl. Ent. Syst. 415.

Bosc, Hist. Nat. des Crust. ii. 87.

Latr. Hist. Nat. des Crust. et des Insect. vi. 199. 2.

Cancer rugosus. *Gmelin, Syst. Nat.* i. 2985.

Galathea longipeda. *Lam. Syst. des Anim. sans Vert.* 158.

Galathea Bamffia. *Leach, Edinb. Encycl.* vii. 398.

Galathea rugosa. *Leach, Malac. Podoph. Brit.* tab. 29.
Trans. Linn. Soc. xi. 341.

Inhabits the European Ocean and Mediterranean Sea. It is very rare in Britain, but has been found on the Bamffshire coast and in the Plymouth Sound.

Division V.

Gen. 51. GEBIA. *Leach*.

Two anterior legs equal, subdidactyle, with the thumb short. *Interior antennæ* with an elongate peduncle, the second joint shortest, the third largest and cylindrical. *External double palpi* with the third joint of the internal footstalk shortest. *Tail* with broad lamellæ, the exterior ones costated, the middle one quadrate.

Sp. 1. *Deltäura*. Abdomen with the back membranaceous; tail with the apex of the exterior lamella dilated, and somewhat rounded; interior one truncate and formed like the Greek Delta.

Gebia deltäura. *Leach, Trans. Linn. Soc.* xi. 342.

Inhabits beneath the sand on the southern coast of Devonshire, and is found by digging to the depth of two or three feet.

Gen. 52. CALLIANASSA. *Leach*.

Four anterior legs didactyle; anterior pair largest, very unequal; second pair less; third pair monodactyle; fourth and fifth pairs spurious. *Interior antennæ* with an elongate biarticulate peduncle, the

Crustacea. second joint longest. *External double palpi* with the second joint of the internal footstalk largest and compressed. *Tail* with broad lamellæ, the middle process elongate-triangular, with the apex rounded.

The thorax anteriorly abruptly subacuminate, the rostriform process divided from the shell by a suture. Anterior pair of legs very much compressed, the hand articulated. The larger leg, with the base of its wrist furnished with a curved process.

Sp. 1. *Subterranea*. Shell with the rostriform process with one longitudinal ridge, the point rounded. *Cancer astacus subterraneus*.

Montagu, *Trans. Linn. Soc.* xi.

Callianassa subterranea.

Leach, *Edin. Encycl.* vii. 400.

— *Trans. Linn. Soc.* xi. 343.

This animal lives beneath the sand on the sea-shore. It was first described by Montagu, who found it by digging in a sand-bank in the estuary of Kingsbridge, on the southern coast of Devon.

Gen. 53. *AXIUS*. Leach.

Four anterior legs didactyle; anterior pair largest, and somewhat unequal; third, fourth, and fifth pairs, furnished with a compressed claw. *Interior antennæ* with a three-jointed peduncle, the first joint longest. *External double palpi* with the two first joints somewhat large and equal. *Tail* broad, the intermediate lamella elongate-triangular.

Sp. 1. *Stirynchus*. Rostrum margined, the middle carinated; thorax behind the rostrum with two elevated abbreviated lines notched behind.

Axius Stirynchus. Leach, *Trans. Linn. Soc.* xi. 343. Inhabits the British Sea.

Division VI.

Gen. 54. *ASTACUS*.

Fabr. Lam. Latr. Bosc, Penn. Leach.

Eyes subglobose, not thicker than their peduncles. *Exterior antennæ*, with the first joint of the peduncle furnished with a spiniform squama that does not reach to the apex of the peduncle.

The coxæ of the third pair of legs of the female, of the fifth pair of the male, perforated. These perforations are for the passage of the semen and of the eggs, and although placed differently in other genera, yet they serve the same functions.

* *Abdomen with the sides of its segments obtuse.*

ASTACI MARINI.

Sp. 1. *Gammarus*. Rostrum on each side with four teeth, and with one on each side of its base.

Cancer gammarus. Linn. *Syst. Nat.* i. 1050.

Astacus gammarus. Penn. *Brit. Zool.* iv. 9. pl. 10.

Astacus marinus.

Fabr. Suppl. Ent. Syst. 406.

Latr. Gen. Crust. et Insect. i. 51.

Astacus gammarus.

Leach, *Edin. Encycl.* vii. 398.

— *Trans. Linn. Soc.* xi. 344.

This species, which is the common lobster of our markets, inhabits deep clear water at the foot of rocks which hang over the sea. They breed during the early summer months, and are very prolific, Baxter having counted no less than 12,444 eggs under the abdomen. In warm weather they are very ac-

Crustacea. tive; they have the power of springing backward in the water to a most astonishing distance into their holes in the rocks, as has been repeatedly observed by naturalists of credit. Their food consists of dead animal matter, and, it is said, also of sea-weeds. The female is stated to deposit her eggs in the sand, but the young state is not known.

The common lobster inhabits the European Ocean. It is found in very great abundance in the north of Scotland, but it is much more common on the coast of Norway, from whence the London markets are for the most part supplied.

Aristotle has very distinctly described this species under the name *αστακος*.

** *Abdomen with the sides of its segments sharp.*

ASTICI FLUVIATILES.

Sp. 1. *Fluviatilis*. Rostrum laterally dentated, the base with one tooth on each side.

Cancer astacus. Linn. *Syst. Nat.* i. 1051.

Astacus astacus.

Penn. *Brit. Zool.* iv. 18. pl. 15. fig. 27.

Astacus fluviatilis.

Fabr. Suppl. Ent. Syst. 406.

Latr. Gen. Crust. et Insect. i. 51.

Leach, *Edin. Encycl.* vii. 400.

— *Trans. Linn. Soc.* xi. 344.

Gen. 55. *NEPHROPS*. Leach.

Eyes reniform, abruptly much thicker than their peduncles. *Exterior antennæ* with the first joint of their peduncle furnished at its apex with a squama, which is produced beyond the apex of the peduncle.

The coxæ of the third pair of legs of the female, of the fifth pair of the male, perforated.

Sp. 1. *Norvegicus*. Abdomen with hairy arcolæ; shell somewhat spiny in front.

Cancer Norvegicus. Linn. *Syst. Nat.* i. 1053.

Astacus Norvegicus.

Penn. *Brit. Zool.* iv. 17. pl. 12. fig. 24.

Inhabits the northern parts of Europe. It is found in the Frith of Forth during the summer months, often attaching itself to the lines of the fishermen. Colour, when living, flesh red. Fabricius, Bosc, and Latreille, cannot have seen this animal, as they all describe it as having four, instead of six didactyle legs.

Division VII. Subdivision 1.

Gen. 56. *CRANGON*. *Fabr. Latr. Bosc, Leach.*

Anterior pair of legs largest, with a compressed monodactyle hand, the rest simple; the second and third pair more slender, the fourth and fifth thicker.

Sp. 1. *Vulgaris*. Thorax behind, and on each side of the rostrum, unispinose.

Cancer crangon. Linn. *Syst. Nat.* i. 1052.

Astacus crangon. Penn. *Brit. Zool.* iv. 20.

Crangon vulgaris. *Fabr. Suppl. Ent. Syst.* 410.

Latr. Gen. Crust. et Insect. i. 55.

Bosc, Hist. Nat. des Crust. ii. 96.

Leach, *Edin. Encycl.* vii. 401. pl. 21. fig. 5.

— *Trans. Linn. Soc.* xi. 346.

Inhabits the sandy coasts of the European Ocean, often entering estuaries, especially during the breeding season. It is the common shrimp of our markets.

Crustacea.

Division VI. Subdivision 2.

Gen. 57. *ATYA*. Leach.

Four anterior legs equal, the last joint cloven; third pair largest, unequal, with a simple claw; fourth and fifth pairs simple, terminated by a simple claw. Tail broad, the intermediate lamella with its extremity subacuminate, rounded.

Sp. 1. *Scabra*. Rostrum carinated trifid, the middle tooth longest; six hinder legs rough. Plate XXI. *Atya scabra*. Leach, *Trans. Linn. Soc.* xi. 345.

Gen. 58. *PROCESSA*. Leach.

Anterior pair of legs, with one side didactyle, the other armed with a simple claw; second pair unequal, didactyle, slender; one very long, with the wrist and fore-arm many-jointed; the other shorter, with the wrist many-jointed; other legs terminated by simple claws.

Sp. 1. *Canaliculata*. Base of the rostrum with one tooth; intermediate lamella of the tail longitudinally canaliculated.

Processa canaliculata.

Leach, *Malac. Podoph. Brit.* tab. 41.

The thighs of the third and fourth pairs of legs are spinulose beneath; at the base of the rostrum there is an elevation dividing it from the thorax.

The above species, which forms the type of the genus, was discovered at Torcross, on the southern coast of Devon, by Montagu.

Division VII. Subdivision 3. *

Gen. 59. *PANDALUS*. Leach.

Anterior pair of legs adactyle; second pair didactyle, unequal. External double palpi with the last joint of the internal footstalk longer than the preceding joint.

Sp. 1. *Annulicornis*. Rostrum ascending, many-toothed, apex notched; inferior antennæ annulated with red, and internally spinulose.

Pandalus annulicornis.

Leach, *Malac. Podoph. Britann.* tab. 40.

—, *Trans. Linn. Soc.* xi. 346.

Gen. 60. *HIPPOLYTE*. Leach.

Four anterior legs didactyle. External double palpi with the last joint of the internal footstalk shorter than the preceding joint.

Sp. 1. *Varians*. Rostrum strait, with two teeth above and below; shell above and beneath the eyes with one spine.

Hippolyte varians.

Leach, *Trans. Linn. Societ.* xi. 347.

Inhabits the rocky shores of southern Devonshire. It varies much in colour, being often found red, green, and blueish-green.

Gen. 61. *ALPHEUS*. Fabr. Latr. Bosc, Leach.

Four anterior legs didactyle. External double palpi with the last joint of the internal footstalk three times longer than the preceding joint.

Sp. 1. *Spinus*.

Cancer spinus. Sowerby, *Brit. Miscel.*

Leach, *Trans. Linn. Soc.* xi. 347.

Inhabits the Scottish Ocean.

Division VII. Subdivision 3. **

Gen. 62. *PENÆUS*. Fabr. Latr. Bosc, Leach.

Six anterior legs didactyle. External double palpi with five exerted joints, the last of which is obtuse.

Sp. 1. *Trisulcatus*. Thorax trisulcated behind; rostrum descending, multidentate above.

Penæus trisulcatus.

Leach, *Trans. Linn. Soc.* xi. 347.

Inhabits the Welsh Sea.

Division VII. Subdivision 4.

Gen. 63. *PALÆMON*. Fabr. Latr. Bosc, Leach.

Four anterior legs didactyle; anterior pair smaller than the second pair. External double palpi with the last joint shorter than the preceding joint.

Sp. 1. *Serratus* (common Prawn). Rostrum ascending above, with from six to eight teeth, the apex emarginate; below with from four to six teeth.

Astacus serratus.

Penn. *Brit. Zool.* iv. 19. pl. 16. f. 28.

Cancer (astacus) squilla. Herbst, ii. 55. tab. 27. f. 1.

Palæmon squilla.

Latr. *Gen. Crust. et Insect.* i. 54.

Leach, *Edinb. Encycl.* vii. 401.

Palæmon serratus.

Leach, *Trans. Linn. Soc.* xi. 348.

Variety a Rostrum with six teeth above.

Subvariety 1. Rostrum beneath with four teeth.

2. Rostrum beneath with five teeth.

Variety β Rostrum above with seven teeth.

Subvariety 1. Rostrum beneath with four teeth.

2. _____ five teeth.

3. _____ six teeth.

Variety γ Rostrum with eight teeth above.

Subvariety 1. Rostrum beneath with four teeth.

2. _____ five teeth.

3. _____ six teeth.

Although all the above varieties are common, yet β occurs most frequently. We have seen the upper edge of the rostrum with ten, the lower with five teeth; and both edges with but three teeth. The apex is generally notched above, but in two instances we observed the point to be entire. The situation of the teeth on the upper edge is variable, but in most instances the second tooth is at a greater distance from the first than the rest, which are generally equidistant, and rarely extend far beyond the middle, the rostrum from that part being edentate, with the exception of the emarginate apex.

Herbst, Latreille, and Dr Leach, formerly considered this species as *Cancer squilla* of Linné, but Dr L. has, since the publication of the error, met with the true *C. squilla* of that author, and has described it in the eleventh volume of the *Transactions of the Linnean Society*, p. 348.

Palæmon serratus of Fabricius is distinct, and, if his description be correct, it is not even referable to this Genus, he having expressly given, as its specific character ("Antennis posticis bifidis"), hinder antennæ bifid; whereas, in his generic character, he has stated these organs to be trifid ("Antennæ superiores trifidæ").

Gen. 64. *ATHANAS*. Leach.

Four anterior legs didactyle. Anterior pair larger than the second pair. External double palpi with the last joint longer than the preceding joint.

Sp. 1. *Nitescens*. Rostrum strait, and simple.

Crustacea. Cancer (astacus) nitescens. *Montagu's MSS.*
 Athanas nitescens.
Leach, Trans. Linn. Soc. xi. 349.
 Inhabits the southern coast of Devonshire.

Division VIII.

Gen. 65. *MYSIS*. * *Latreille, Leach.*

PRAUNUS. Leach.

Legs bifid, the last joint of the four anterior pairs with the interior lacinia unarticulate, ovate, compressed; of the other pairs of legs multiarticulate. *External double palpi* with the middle joint of the internal footstalk longest, the first very short.

At the base of the abdomen of the female is situated the external uterus, composed of two valve-like membranes, in which the young ones, just excluded from the egg, live and grow until they become strong enough to take care of themselves.

The animals of this genus swim with their head uppermost, and with their eyes spreading, which gives to them a singular and grotesque appearance.

* *Intermediate lamella of the tail emarginate.*

Sp. 1. *Spinulosa*. Tail with the intermediate lamella externally spinulose, the apex acutely emarginate; exterior lamellæ acuminate, and very broadly ciliated.

Praunus flexuosus. Leach, Edinb. Encycl. vii. 401.

Mysis spinulosa. Leach, Trans. Linn. Soc. xi. 350.

Inhabits the Frith of Forth near Leith.

Colour when alive, pellucid cinereous. Eyes black, red at their base. *Laminae* of the external antennæ with a black longitudinal line and spots. A clouded spot on each side of the hinder part of the thorax, and another above the legs. Every segment of the body most beautifully marked with a reddish-rust-coloured spot, disposed in an arborescent form; tail fin spotted with the same colour, mixed with black. Pouch of the female with two rows of fuscous-black spots. Under side of the abdomen regularly mottled with rufous black.

It was observed with young from the middle of June to the middle of July. The females are one-third more abundant than the males. Length an inch and a quarter.

Sp. 2. *Fabricii*. Intermediate lamella of the tail obtusely notched; exterior lamellæ with rounded points.

Mysis Fabricii. Leach, Trans. Linn. Soc. xi. 350.

Inhabits the Greenland Sea, affording the principal sustenance of the great northern whale (*Balæna mysticetus*.)

** *Intermediate lamella of the tail entire.*

Sp. 3. *Integra*.

Praunus integer.

Leach, Edinb. Encycl. vii. 401.

Mysis integra. Trans. Linn. Soc. xi. 350.

Inhabits brackish pools of water left by the tide at Loch Ranza in the isle of Arran. Common in the month of August with young.

Length one-third of an inch. Females more abundant than the males. Colour whilst living pellucid, cinereous, spotted with black and reddish brown.

Division IX.

Gen. 66. *NEBALIA. Leach.*

Thorax anteriorly with a moveable rostrum. *Anterior pair of legs* longest, simple; other pairs equal, approximate with the last joint bifid. *Antennæ* two, inserted above the eyes, the last joint bifid and multiarticulate.

Sp. 1. *Herbstii*. Gray or cinereous-yellowish; eyes black.

Cancer bipes.

Oth. Fabr. Fn. Grön. No. 223. fig. 2.

Herbst, ii. tab. 24. fig. 7.

Mysis bipes.

Latr. Hist. Nat. des Crust. et des Insect. vi. 285.

Monoculus rostratus.

Montagu, Trans. Linn. Soc. xi. 14. tab. 2. f. 5.

Nebalia Herbstii.

Leach, Zool. Miscel. i. 100. t. 44.

—, *Trans. Linn. Societ. xi. 351.*

Inhabits the European Ocean; it is common beneath stones lying on black mud, on the southern coast of Devon.

Macrourous Genera of uncertain situation.

Gen. 67. *ALBUNEA.*

Dald. Fabr. Bosc, Lam. Latr. Leach.

Internal antennæ with their peduncles shorter than the two setæ by which they are terminated. *Legs* ten, anterior pair with monodactyle hands, the thumb uncinated; hinder legs minute, spurious, filiform; the other legs terminated by a compressed sulcate joint. *Tail* not fan-shaped.

Sp. 1. *Symnista*. Shell anteriorly serrated.

Cancer symnista. *Linn. Syst. Nat. i. 1053.*

Albunea symnista.

Fabr. Ent. Syst. Suppl. 397.

Latr. Gen. Crust. et Insect. i. 44.

Leach, Edinb. Encycl. vii. 396.

Inhabits the Indian Ocean.

Gen. 68. *REMIPES. Latreille, Leach.*

Internal antennæ with their peduncles shorter than the two setæ by which they are terminated. *Legs* ten; the three hinder pairs, alike, and formed for swimming; second pair longer than the first, terminated by a comic compressed joint. *Tail* not fan-shaped.

Sp. 1. *Testudinarius*.

Remipes testudinarius.

Latr. Gen. Crust. et Insect. i. 45.

Leach, Edinb. Encycl. vii. 396.

Inhabits the New Holland Seas.

Gen. 69. *HIPPA. Fabr. Lam. Latr. Bosc, Leach.*

EMERITA. Gronovius.

Internal antennæ, with their peduncles shorter than the two setæ by which they are terminated. *Legs* ten; anterior pair adactyle; second and third pair with the last joint lunate; fourth pair with the last

* In the *Edinburgh Encyclopædia* Dr Leach gave the Genus, *MYSIS* solely on the authority of the generally accurate Latreille, who formed the genus without any actual examination of its characters; and as he described but twelve legs, and misplaced it in the system, Dr Leach holds himself justified in having described the same Genus under the new name (*PRAUNUS*), which we have now rejected for that given by Latreille.

Crustacea. joint trigonal; hinder pair minute, filiform, spurious.
Tail not fan-shaped.

Sp. 1. *Emeritus*. Tail inflexed, the last joint ovate.
Hippa emeritus.

Fabr. Ent. Syst. Suppl. 370.

Latr. Gen. Crust. et Insect. i. 45.

Leach, Edinb. Encycl. vii. 396.

Inhabits the Indian Ocean.

Gen. 70. *THALASSINA*. *Latreille, Leach.*

Internal antennæ terminated by two setæ, and inserted in the same horizontal line with the external ones. *Legs* ten, the two anterior pairs didactyle. *Tail* composed of five plates resembling a fan.

Sp. 1. *Scorpionoides*.

Thalassina scorpionoides.

Latr. Gen. Crust. et Insect. i. 52.

Leach, Edinb. Encycl. vii. 400.

Gen. 71. *SQUILLA*.

Fabr. Bosc, Lam. Latr. Leach, &c.

Internal antennæ with three setæ. *Legs* fourteen; anterior pair largest, monodactyle, the thumb much spined within; second, third, and fourth pairs with a monodactyle hand, the thumb being crooked and simple; the fifth, sixth, and seventh pairs spurious.

Sp. 1. *Mantis*. Body above with many elevated longitudinal lines; thumbs with six teeth.

Squilla mantis.

Latr. Gen. Crust. et Insect. i. 55.

Leach, Edinb. Encycl. vii. 402.

Inhabits the Mediterranean Sea.

Gen. 72. *ZÖE*. *Latr. Leach.*

ZÖEA. *Bosc.*

Eyes two, sessile, inserted one on each side of the head; *Rostrum* perpendicular, of the length of the thorax. *Thorax* somewhat ovate; shell diaphanous, with the back produced into a spine. *Legs* obscure and short, with the exception of the hinder ones, which are elongate, and formed for swimming. *Tail* as long as the thorax, and generally bent under it, composed of five joints, the first four very narrow, the last larger, lunate and spinulose.

Sp. 1. *Pelagica*. Spine of the back twice the length of the thorax, and bent backwards.

ZÖE Pelagica.

Bosc, Hist. Nat. des Crust. ii. 135. pl. 15. f. 3, 4.

Latr. Gen. Crust. et Ins. i. 21.

Leach, Edin. Encycl. vii. 389.

Inhabits the Atlantic Ocean. Was first described by *Bosc* in the above quoted work.

Legion II. EDRIOPHTHALMA.

The *Malacostraca Edriophthalma*, or at least a greater part of them, were placed amongst the *MACROURA* by *Latreille*, who considered them as forming a particular family of that order. Had he examined the following new and curious genera, he would doubtless have formed a very different opinion. Many of the genera he even included amongst the *Arachnides*, as shall be shown hereafter.

Synopsis and distribution of the Genera.

SECTION I.

Body laterally compressed. Legs fourteen. Antennæ two, inserted one on each side of the front of the head. (Tail furnished with styles.)

Genus 1. *PHRONYMA*.

SECTION II.

Body laterally compressed. Legs fourteen, with lamelliform coxæ. Antennæ four, inserted by pairs. (Tail furnished with styles.)

Division I. *Antennæ* four-jointed, the last segment composed of many little joints; the upper ones very short.

Genus 2. *TALITRUS*.

3. *ORCHESTIA*.

Division II. *Antennæ* four-jointed, the last joint composed of several little joints; upper ones rather shortest.

Genus 4. *ATYLUS*.

Division III. *Antennæ* three-jointed, the last joint composed of several little joints; upper ones longest.

Genus 5. *DEXAMINE*.

6. *LEUCOTHÖE*.

Division IV. *Antennæ* four-jointed, the last segment composed of several little joints; upper ones longest.

Subdivision 1. Four anterior legs monodactyle, second pair with a much dilated compressed hand.

Genus 7. *MELITA*.

8. *MÆRA*.

Subdivision 2. Two anterior pair monodactyle and alike.

Genus 9. *GAMMARUS*.

10. *AMPITHÖE*.

11. *PHERUSA*.

Division V. *Antennæ* four-jointed, under ones longest, leg-shaped. (Four anterior legs monodactyle.)

Subdivision 1. Second pair of legs with a large hand.

Genus 12. *PODOCERUS*.

13. *JASSA*.

Subdivision 2. Second pair of legs with a moderate-sized hand.

Genus 14. *COROPHIUM*.

SECTION III.

Body depressed. Antennæ four. Legs fourteen.

A. *Tail without appendices.*

Division I. Body with all the segments bearing legs.

Subdivision 1. Body linear.

Genus 15. *PROTO*.

16. *CAPRELLA*.

Subdivision 2. Body broad.

Genus 17. *LARUNDA*.

Division II. Body with all the segments not bearing legs.

Genus 18. *IDOTEA*.

19. *STENOSOMA*.

B. *Tail on each side, with one or two appendices.*

Division III. *Antennæ* inserted in nearly the same horizontal line.

Genus 20. *ANTHURA*.

Division IV. *Antennæ* inserted in pairs, one above the other.

Subdivision 1. Tail with one lamella on each side.

Genus 21. *CAMPECOPÆA*.

22. *NÆSA*.

Subdivision 2. Tail with two lamellæ on each side.

* *Superior antennæ with a very large peduncle.*

Claws bifid.

Crustacea.

- Genus 23. CYMODOICE.
 24. DYNAMENE.
 25. SPILÆROMA.
 ** Superior antennæ with a very large peduncle.
 Claws single.
- Genus 26. ÆGA.
 *** Superior antennæ with a moderate peduncle.
- Genus 27. EURYDICE.
 28. LIMNORIA.
 29. CYMOTHOA.
 C. Tail terminated with two setæ.
- Division V.
 Genus 30. APSEUDES.
 D. Tail furnished with styles.
- Division VI. Interior antennæ distinct.
 Subdivision 1. Styles of the tail exerted. Anterior legs monodactyle.
 Genus 31. JANIRA.
 32. ASELLUS.
 Subdivision 2. Styles of the tail not exerted. Anterior legs simple.
- Genus 33. JÆRA.
 Division VII. Interior antennæ not distinct.
 Subdivision 1. Styles of the tail double, with a double footstalk.
 Genus 34. LIGIA.
 Subdivision 2. Styles of the tail four, the lateral ones biarticulate.
 * Body not capable of contracting into a ball.
 a. External antennæ eight-jointed.
- Genus 35. PHILOSCIA.
 36. ONISCUS.
 b. External antennæ with seven joints.
- Genus 37. PORCELLIO.
 ** Body contractile into a ball.
- Genus 38. ARMADILLO.
 Genus of uncertain situation.
- Genus 39. BOPYRUS.

SECTION I.

Gen. 1. PHRONYMA. *Latreille, Leach, Lamarck.*
 Head large, nutant; antennæ biarticulate, the first joint small. Thorax seven-jointed, all its segments bearing legs. Legs compressed, two anterior pairs with the antepenultimate joint furnished at its point with a foliaceous process; the penultimate joint with the point bifid and terminated with a small claw; third and fourth pairs simple, longer, somewhat thicker, terminated by a bent claw; fifth pair large, very long, thicker, didactyle; the first joint gradually thickened towards its point; the second subtrigonal; the third ovate, and abruptly narrowed at its base; the last narrowed at its base; the fingers curved, and internally furnished each with one tooth; sixth and seventh pairs simple, terminated with a nearly strait claw. Abdomen triarticulate, each segment, on each side, with a double appendice, placed on a peduncle. Tail biarticulate, the first joint on each side furnished with a biarticulate process, terminated by two styles; second joint with four processes, each terminated by two styles; the inferior processes biarticulate, the superior triarticulate.

Sp. 1. *Sedentaria.* Fifth legs with the apex of the thumb and base of the finger internally denticulated. Cancer *sedentarius.* *Forsk. Fn. Arab.* 95.

Phronima *sedentaria.*

Latr. Gen. Crust. et Ins. i. 57.
Leach, Edin. Encycl. vii. 403—433.
 — *Trans. Linn. Soc.* xi. 355.

Cancer (*gammarellus*) *sedentarius.*
Herbst, ii. 136. tab. 37. fig. 8.

Inhabits the Mediterranean Sea and Zetland Sea, residing in a cell composed of a gelatinous substance, open at each extremity, where it sits in an incurved posture.

The only specimen of this most interesting, rare, and curious animal, that has come under our inspection, was sent to us by the Reverend Dr J. Fleming, one of our most zealous Naturalists, who found it on the 3d November 1809, at Burray in Zetland, amongst rejectamenta of the sea.

All authors have erred in giving but ten legs to this animal. Of the parts of the mouth, we can, at present, say nothing.

SECTION II.

Division I.

Gen. 2. TALITRUS. *Latreille, Bosc, Leach.*
 Four anterior legs in both sexes subequal, monodactyle. Upper antennæ shorter than the two first joints of the under ones.

Sp. 1. LOCUSTA. Antennæ subtetaceous-rufous, of the male longer than the body, of the female shorter; body cinereous, varied with darker cinereous. *Oniscus locusta.* *Pallas?*
Talitrus locusta.

Latr. Gen. Crust. et Insect. i. 58.
Bosc, Hist. Nat. des Crust. ii. 152.
Leach, Edin. Encycl. vii. 402.

Astacus locusta. *Penn. Brit. Zool.* iv. 21.
 Cancer (*gammarus*) *saltator.*

Montagu, Trans. Linn. Soc. xi. 94.

Inhabits the sandy shores of the European Ocean. The specific name *Locusta* is probably derived from the form of its protruded mouth, which has a general resemblance to the same part in the gryllides.

It has never been observed in the water; it burrows in the sand, and leaps about on the shore.

Talitrus littoralis, described in the seventh volume of the *Edinburgh Encyclopædia*, is merely the female of *T. locusta*.

The use of this animal (which is generally denominated *sand-hopper*) in the economy of nature, appears to be that of contributing to the dissolution of putrid animal and vegetable matter; serving in return as food to the shore-birds, who devour it with avidity.

Gen. 3. ORCHESTIA. *Leach.*

Four anterior legs of the male monodactyle, second pair with a compressed hand; of the female with the anterior pair monodactyle, the second didactyle. Upper antennæ not longer than the two first joints of the under ones.

Sp. 1. *Littorea.*

Cancer *gammarus littoreus.*

Montagu, Trans. Soc. xi. 96.
Leach, Edinb. Encycl. vii. 402. pl. 21. fig. 6.
 — *Trans. Linn. Soc.* xi. 356.

Inhabits many of our shores, and is found at the

Crustacea.

Crustacea. mouths of rivers, but has never been observed in the water. It resides under stones and fuci, and in the evening it leaps about, and is devoured by birds.

Division II.

Gen. 4. ATYLUS. *Leach.*

Upper antennæ with the second joint longer than the third; *under ones* with the second joint somewhat shorter than the third. *Eyes* sub-prominent, rounded, inserted in a process on each side of the head, between the antennæ. *Tail* on each side with three double styles, and above with one moveable style on each side.

Sp. 1. *Carinatus*. Head with the rostrum descending; five last segments of the abdomen carinated, and acutely produced behind.

Gammarus carinatus. *Fabr. Ent. Syst.* ii. 515. 3. *Atylus carinatus*.

Leach, Zool. Miscel. ii. 22. tab. 69.

— *Trans. Linn. Soc.* xi. 357.

The locality is unknown.

Division III.

Gen. 5. DEXAMINE. *Leach.*

Four anterior legs sub-equal, monodactyle, furnished with a filiform-subovate hand. *Antennæ* with their first joint shortest. *Eyes* oblong, not prominent, inserted behind the superior antennæ. *Tail* on each side with three double styles, and above on each side with one moveable style.

Sp. 1. *Spinosa*, segments of the abdomen behind, produced into spines.

Cancer (gammarus) spinosus.

Montagu, Trans. Linn. Soc. xi. 3.

Dexamine spinosa.

Leach, Edin. Encycl. vii. 433.

— *Zool. Miscel.* ii. 24.

— *Trans. Linn. Soc.* xi. 359.

Inhabits the sea of the western coasts of Britain.

Gen. 6. LEUCOTHÖE. *Leach.*

Anterior pair of legs didactyle, the thumb biarticulate; *second pair* with a dilated and compressed hand, furnished with a crooked thumb.

Sp. 1. *Articulosa*.

Cancer articulosa.

Montagu, Trans. Linn. Soc. vii. 71. tab. 6. f. 6.

Leucothöe articulosa.

Leach, Edin. Encycl. vii. 403.

— *Trans. Linn. Soc.* xi. 358.

Inhabits the British Sea, but is very rare.

Division IV. Subdivision 1.

Gen. 7. MELITA. *Leach.*

Anterior pair of legs monodactyle; second pair with the thumb inflexed on the palm. *Tail* on each side with an elongate foliaceous lamella.

Sp. 1. *Palmata*. Body blackish; antennæ and legs annulated with pale colour.

Cancer palmatus. *Montagu, Trans. Linn. Soc.* vii. 69.

Melita palmata.

Leach, Edin. Encycl. vii. 403.

— *Trans. Linn. Soc.* xi. 358.

Plate XXI.

Inhabits the sea-shore on the Devonshire coast, under stones.

VOL. I. PART II.

Gen. 8. MÆRA. *Leach.*

Four anterior legs didactyle; thumb of the second pair bent on the side of the hand. *Tail* with no foliaceous appendices.

Sp. 1. *Grossimana*.

Cancer gammarus grossimanus.

Montagu, Trans. Linn. Soc. ix. 97. t. 4. f. 5.

Mæra grossimana.

Leach, Edin. Encycl. vii. 403.

— *Trans. Linn. Soc.* xi. 359.

Inhabits the southern coast of Devonshire, beneath stones.

Division IV. Subdivision 2.

Gen. 9. GAMMARUS. *Latreille, Leach.*

Superior antennæ furnished at the base of the fourth joint with a little jointed seta. *Tail* above with bundles of spines.

* *Tail with the superior double styles, having the upper style process very short.*

Sp. 1. *Aquaticus*. Process between the antennæ rounded, obtuse.

Gammarus pulex.

Leach, Edin. Encycl. vii. 402—432.

Gammarus aquaticus.

Leach, Trans. Linn. Soc. xi. 359.

Inhabits ponds, ditches, and springs in great plenty. We formerly considered it to be the same with the *Gammarus pulex* of Latreille and Bosc, but, on examining the subject more closely, we find their figures, are those referred to by them, representing the hands much dentated within.

Sp. 2. *Marinus*. Process between the antennæ sub-acuminate.

Gammarus marinus. *Leach, Trans. Linn. Soc.* xi. 359.

Inhabits the sea on the southern coast of Devonshire in plenty.

** *Tail with the superior double styles, having the style processes subequal.*

Sp. 3. *Locusta*. *Eyes* lunate.

Cancer gammarus locusta.

Montagu, Trans. Linn. Soc. ix. 92.

Gammarus locusta.

Leach, Edin. Encycl. vii. 403.

— *Trans. Linn. Soc.* xi. 359.

Inhabits the British Sea.

Sp. 4. *Campylops*. *Eyes* flexuous.

Gammarus campylops.

Leach, Edin. Encycl. vii. 403.

— *Trans. Linn. Soc.* xi. 360.

Inhabits the sea about Loch Ranza, in the Isle of Arran, where we took a single pair of this interesting animal.

Gen. 10. AMPITHÖE. *Leach.*

Superior antennæ with no seta at the base of their fourth joint. *Tail* simple above. *Hands* ovate.

Sp. 1. *Rubricata*.

Cancer gammarus rubricatus.

Montagu, Trans. Linn. Soc. ix. 99.

Gammarus rubricatus.

Leach, Edin. Encycl. vii. 402.

Ampithöe rubricata.

Leach, Edin. Encycl. vii. 432.

— *Trans. Linn. Soc.* xi. 360.

Inhabits the sea of the southern coast of Devon.

Crustacea.

Gen. 11. PHERUSA. Leach.

Superior antennæ with no seta at the base of their fourth joint. Tail simple above. Hands filiform.

Sp. 1. *Fucicola*. Testaceous-cinereous, or gray-cinereous, mottled with reddish.

Pherusa fucicola.

Leach, *Edin. Encycl.* vii. 432.

— *Trans. Linn. Soc.* xi. 360.

Plate XXI.

Inhabits fuci on the southern coast of Devonshire.

Division V. Subdivision 1.

Gen. 12. PODOCERUS. Leach.

Eyes prominent. Four anterior legs monodactyle.

Sp. 1. *Variiegatus*. Body varied with red and white.

Podocerus variegatus,

Leach, *Edin. Encycl.* vii. 433.

— *Trans. Linn. Soc.* xi. 361.

Inhabits the southern coast of Devonshire, amongst confervæ and corallinae.

Gen. 13. JASSA. Leach.

Eyes not prominent. Four anterior legs monodactyle with oval hands; second pair with its internal edge dentated.

Sp. 1. *Pulchella*. Thumb of second pair of legs with its internal edge notched at the base; colour white painted with red.

Var. *a*. Hands of the second pair with an elongate obtuse tooth.

Var. *β*. Hands of the second pair with the internal edge tridentate.

Jassa pulchella.

Leach, *Edin. Encycl.* vii. 433.

— *Trans. Linn. Soc.* xi. 361.

Inhabits the sea of southern Devon, amongst fuci.

Division V. Subdivision 2.

Gen. 14. COROPHIUM. Latreille, Leach.

Sp. 1. *Longicorne*.

Cancer grossipes. *Linn. Syst. Nat.* i. 1055.

Astacus grossipes. *Penn. Brit. Zool.* iv. pl. 16. fig. 81.

Corophium longicorne.

Latr. Gen. Crust. et Insect. i. 59.

Leach, *Edin. Encycl.* vii. 403—432.

— *Trans. Linn. Soc.* xi. 662.

Inhabits the coast of the European Ocean. At low tide, it may be observed crawling amongst the mud. It is very common at the mouth of the river Medway, from whence we have received a vast number of specimens.

SECTION III.

A. Division I. Subdivision I.

Gen. 15. PROTO. Leach.

Second, third, and fourth pair of legs appendiculated at their bases.

To this genus belongs *Squilla pedata*, and probably also *Ventricosa* of Müller, with *Cancer gammarus pedatus* of Montagu, which is probably the same with *S. pedata* of Müller. See *Transactions of the Linnean Society*, Vol. XI. page 6. tab. 11. fig. 6.

Gen. 16. CAPRELLA. Lamarck, Latr. Bosc, Leach.

Second, third, and fourth pairs of legs not appendi-

culated at their bases; the third and fourth pairs spurious, subgelatinous, and globose.

The animals composing this genus, inhabit the sea, living amongst sertulariæ and marine plants, moving geometrically like the larvæ of the *Phalænidea*.

The specific characters may be taken from the number and situation of the spines on the head and back, form of the second pair of legs, &c.

Sp. 1. *Phasma*. Hands of the second pair of legs narrow, their internal edge acutely notched backwards; back anteriorly with three spines, turning forwards. *Cancer phasma*.

Montagu, *Trans. Linn. Soc.* vii. 66. tab. 6. f. 3.

Inhabits the southern coast of Devon.

Astacus atomos of Pennant, and *Squilla lobata* of Müller belong to the genus *Caprella*, of which we have some unpublished species.

A. Division I. Subdivision 2.

Gen. 17. LARUNDA. Leach.

CYAMUS. Latreille, Bosc.

PANOPE. Leach.

Antennæ four-jointed, upper ones longest. Legs compressed, with strong claws; the third and fourth pairs elongate, spurious, cylindric, without claws; the two anterior pairs monodactyle.

External uterus, or pouch of the female, composed of four valves.

Sp. 1. *Ceti*. Bases of the third and fourth pairs of legs with processes resembling the figure 6; the hands of the second pair of legs anteriorly with three obtuse teeth. Plate XXI.

Oniscus ceti.

Linn. Syst. Nat. i. 1060.

Pall. Spec. Zool. ix. 4. f. 14.

Squille de la baleine.

De Geer, Mém. sur les Insect. vii. pl. 42. f. 6. 7.

Pycrogonum ceti. *Fabr. Suppl. Ent. Syst.* 570.

Cyamus ceti. *Latr. Gen. Crust. et Insect.* i. 60.

Panope ceti. *Leach, Edinb. Encycl.* vii. 404.

Larunda ceti. *Leach, Trans. Linn. Soc.* xi. 364.

Inhabits whales, and, according to Latreille, it is also found on some species of the genus *Scomber*.

By the Greenland fishermen it is termed the whale-louse.

Division II.

Gen. 18. IDOTEA. Fabr. Latr. Bosc, Leach.

ASELLUS. Olivier, Lamarck.

FNTOMON. Klein.

External antennæ half the length of the body, or less; the third and fourth joints equal. Body ovate.

Sp. 1. *Pelagica*. Body linear-oval; tail rounded, the middle with a very obsolete tooth; antennæ one third of the length of the body.

Idotea pelagica. *Leach, Trans. Linn. Soc.* xi. 365.

Inhabits the Scottish Seas.

Mr Stevenson sent us this species from the Bell-Rock, and afterwards procured for us a large log, perforated by *Limnoria terebrans*, which contained a vast number of them in the deserted cavities formed by that animal. It was taken in the Firth of Forth by the Rev. Dr Fleming, in whose collection there are specimens.

Crustacea. Colour when alive ash-gray or fuscous, speckled with darker colour, and often variegated or mottled with white spots; legs pale.

The female seems to be very rare, as amongst four hundred specimens of the animal, one only of that sex was found.

Length one inch and a quarter.

Gen. 19. *STENOSOMA*. Leach.

External antennæ as long as the body, the third joint, longer than the fourth. *Body* linear.

Sp. 1. *Lineare*. Last segment of the tail somewhat narrowed at its base, and dilated towards its apex, which is truncate and notched.

Oniscus linearis.

Penn. Brit. Zool. iv. pl. 18. fig. 2.

Idotea hectica. Leach, *Edin. Encycl.* vii. 404.

Stenosoma hecticum.

Leach, *Edin. Encycl.* vii. 433.

Stenosoma lineare.

Leach, *Trans. Linn. Soc.* xi. 366.

Inhabits the European Ocean. It sometimes occurs in the Firth of Forth, and amongst the Hebrides.

B. Division III.

Gen. 20. *ANTHURA*. Leach.

Antennæ short subequal, inserted one after another in the same horizontal line, the internal ones a little longest. *Body* linear. *Tail* with the last joint but one very short, the last elongate, narrower, with two elongate lamellæ on each side.

Sp. 1. *Gracilis*. Lateral processes of the tail obliquely truncated.

Oniscus gracilis.

Montagu, *Trans. Linn. Soc.* ix. tab. 5. fig. 6.

Anthura gracilis.

Leach, *Edin. Encycl.* vii. 404.

— *Trans. Linn. Soc.* ix. 366.

B. Division IV. Subdivision 1.

Gen. 21. *CAMPECOPEA*. Leach.

Tail with its last segment furnished on each side with a compressed, curved, appendage. *Body* six-jointed, the last joint of the same size with the others. *Antennæ* setaceous, upper ones longest, their peduncle biarticulate; the space between the antennæ very great. *Anterior claws* bifid (the others I have not seen).

Sp. 1. *Hirsuta*. Brown, the last joint of the body with a few faint blueish spots.

Oniscus hirsutus.

Montagu, *Trans. Linn. Soc.* vii. t. 6. f. 8.

Campecopea hirsuta.

Leach, *Edin. Encycl.* vii. 405.

— *Trans. Linn. Soc.* xi. 367.

Inhabits the southern coast of Devonshire; but is rather rare. Length one eighth of an inch.

Gen. 22. *NÆSA*. Leach.

Tail on each side of the last segment with a strait, subcompressed process attached to a peduncle. *Body* six-jointed, the last joint largest. *Antennæ* setaceous, subequal; upper ones with a very large biarticulated peduncle, the first joint largest: space between the antennæ easily to be discerned. *Claws* bifid.

Sp. 1. *Bidentata*. Last segment of the body armed with two spines or teeth: colour cinereous, faintly streaked with blue, or reddish.

Oniscus bidentatus.

Adams, *Trans. Linn. Soc.* v. 8. t. 2. f. 8.

Næsa bidentata.

Leach, *Edin. Encycl.* vii. 405.

— *Trans. Linn. Soc.* xi. 367.

Inhabits the coasts of Wales and Devonshire.

Division IV. Subdivision 2. *

Gen. 23. *CYMODICE*. Leach.

Eyes touching the anterior margin of the first segment of the body. *Body* seven-jointed. *Tail* at the base on each side with two sub-compressed but not foliaceous appendages, the exterior ones largest; the apex of the tail notched with a lamella in the centre. *Claws* bifid.

Sp. 1. *Truncata*. Apex of the tail truncate.

Oniscus truncatus.

Montagu's MSS.

Leach, *Trans. Linn. Soc.* xi. 303.

— *Edin. Encycl.* vii. 433.

This species is very rare, and has been found but three times on the southern coast of Devonshire.

Gen. 24. *DYNAMENE*. Leach.

Eyes not reaching to the anterior margin of the first segment of the body. *Body* seven-jointed. *Tail* with two equal foliaceous appendages on each side of its base; the apex notched. *Claws* bifid.

Dynamene.

Leach, *Edinb. Encycl.* vii. 405.

— *Trans. Linn. Soc.* xi. 308.

Gen. 25. *SPHÆROMA*. Latreille, Leach.

Eyes not reaching to the anterior margin of the first segment of the body. *Body* seven-jointed. *Tail* with its apex entire; the base on each side with two equal foliaceous appendages. *Claws* bifid.

Sp. 1. *Serrata*. *Body* smooth, unarmed; tail very smooth on each side, obliquely truncated; lamellæ elliptic, acute, the external ones externally serrated. *Oniscus globator*.

Pall. *Spec. Zool. Fasc.* ix. tab. 4. fig. 18.

Cymothesa serrata. Fabr. *Ent. Syst.* ii. 510.

Sphæroma cinerea. Latr. *Gen. Crust. et Insect.* i. 65.

Sphæroma serrata.

Leach, *Edinb. Encycl.* vii. 405.

— *Trans. Linn. Soc.* xi. 303.

B. Division IV. Subdivision 2. **.

Gen. 26. *ÆGA*. Leach.

Eyes large, granulated, oblong, oblique, marginal. *Tail* with its appendages foliaceous.

Sp. 1. *Emarginata*. Tail with the last joint acuminate; the interior lamella internally obliquely truncated, externally emarginated. Plate XXI.

Æga emarginata. Leach, *Trans. Linn. Soc.* xi. 370.

B. Division IV. Subdivision 2. ***.

Gen. 27. *EURYDICE*. Leach.

Eyes distinct, simple, lateral. *Head* as broad as the first segment of the body.

Sp. 1. *Pulchra*. Tail with the last joint semioval; body cinereous, variegated with black.

Gen. 28. *LIMNORIA*. Leach.

Head as broad as first segment of the body. *Eyes* granulated.

Crustacea.

Sp. 1. *Terebrans*. Body cinereous; eyes pitchy-black.

Limnoria terebrans.

Leach, Edinb. Encycl. vii. 433.

— *Trans. Linn. Soc.* xi. 370.

Inhabits the British Ocean, perforating buildings of wood, piles, &c. It is common at the Bell-Rock, and on the coasts of Suffolk and Yorkshire. It generally produces seven young ones.

Gen. 29. *CYMOThOA*. *Fabr. Dald. Leach, &c.*

Head narrow and small. Eyes obsolete. Body with the first segment notched to receive the head.

Sp. 1. *Æstrum*.

Cymothoa æstrum. *Fabr. Ent. Syst.* ii. 505.

C. Division V.

Gen. 30. *APSEUDES*. *Leach*.

Sp. 1. *Talpa*. Shell anteriorly sharp, rostriform, with three excavated longitudinal lines.

Cancer gammarus talpa.

Mont. Tr. Linn. Soc. ix. t. 4. f. 6.

Apsuedes talpa.

Leach, Edinb. Encycl. vii. 404.

— *Trans. Linn. Soc.* xi. 372.

Inhabits the British Sea.

D. Division VI. Subdivision 1.

Gen. 31. *JANIRA*. *Leach*.

Claws bifid. Eyes moderate lateral-subvertical. Internal antennæ shorter than the peduncle of the external ones.

Sp. 1. *Maculosa*. Body cinereous, maculated with fuscous.

Oniscus maculosus. *Montagu's MSS.*

Janira maculosa.

Leach, Edinb. Encycl. vii. 434.

— *Trans. Linn. Soc.* xi. 373.

Inhabits the southern coast of Devonshire, amongst marine plants.

Gen. 32. *ASELLUS*. *Geoffroy, Olivier, Latreille, Bosc, Leach*.

ENTOMON. *Klein*.

Claws simple. Eyes minute, lateral. Interior antennæ of the length of the setiferous joint of the exterior ones.

Sp. 1. *Aquaticus*. Colour cinereous, either spotted with grey or whitish.

Oniscus aquaticus.

Linn. Syst. Nat. i. 1061.

Aselle d'eau douce.

Geoff. Hist. des Insect. ii. 672. pl. 22. fig. 2.

Squille asselle.

De Geer, Mém. sur les Insect. vii. 496. pl. 31. fig. 1.

Aselle ordinaire.

Latr. Hist. Nat. des Crust. et des Insect. vi. 359.

Asellus vulgaris.

Bosc, Hist. Nat. des Crust. ii. 170. pl. 15. fig. 7.

Latr. Gen. Crust. et Insect. i. 63.

Leach, Edinb. Encycl. vii. 404.

Idotea aquatica. *Fabr. Suppl. Ent. Syst.* 303.

Entomon hieroglyphicum. *Klein, Dub.* fig. 5.

Asellus aquaticus.

Leach, Trans. Linn. Soc. xi. 373.

Inhabits ponds and ditches, and is generally considered a sign of the purity of the water.

Division VI. Subdivision 2.

Gen. 33. *JÆRA*. *Leach*.

Eyes moderately large, situated between the sides and the vertex of the head.

Sp. 1. *Albifrons*. Cinereous; front whitish.

Oniscus albifrons. *Montagu's MSS.*

Jæra alifrons.

Leach, Edinb. Encycl. vii. 434.

— *Trans. Linn. Soc.* xi. 373.

Inhabits marine plants, and beneath stones, on the southern coast of Devon.

Division VII. Subdivision 1.

Gen. 34. *LIGIA*.

Fabricius, Latreille, Bosc, Leach.

External antennæ with the last joint composed of several other joints.

Sp. 1. *Oceanica*. Antennæ as long as the body; back subscabrose.

Ligia oceanica.

Fabr. Suppl. Ent. Syst. 301.

Leach, Edinb. Encycl. vii. 406.

Ligia scopulorum.

Leach, Edinb. Encycl. vii. 406.

Oniscus oceanicus.

Linn. Syst. Nat. i. 1061.

Inhabits the rocky shores of the European Ocean. The last joint of the antennæ varies much in the number of its segments, even in the same individual.

Division VII. Subdivision 2. * a.

Gen. 35. *PHILOSCIA*. *Latreille, Leach*.

External antennæ with their bases naked. Tail abruptly narrower than the body.

Sp. 1. *Muscorum*. Body variegated; sometimes plain brick-red.

Oniscus muscorum. *Scop. Ent. Carn.* 1145.

Oniscus sylvestris. *Fabr. Ent. Syst.* iv. 397.

Philoscia muscorum.

Latr. Gen. Crust. et Insect. i. 69.

Leach, Edinb. Encycl. vii. 406.

Inhabits France, Germany, and England, under stones and mosses.

Gen. 36. *ONISCUS* of authors.

Antennæ inserted beneath the anterior margin of the head, on a prominent part.

Sp. 1. *Asellus*. Above obscure cinereous, rough; the sides and a series of dorsal spots yellowish.

Oniscus asellus.

Linn. Syst. Nat. i. 1061.

Latr. Gen. Crust. et Insect. i. 70.

Leach, Edinb. Encycl. vii. 406.

— *Trans. Linn. Soc.* xi. 375.

Oniscus murarius.

Fabr. Suppl. Ent. Syst. 300.

Inhabits rotten wood and old walls throughout the greater part of Europe.

It was formerly used in medicine, and was supposed to cure agues, consumptions, &c. but has now,

Crustacea.

Crustacea. like many other medicines, deservedly grown out of fashion, and is rejected from the modern pharmacopœias. It is commonly named *pig's louse*, *millipied* or *carpenter*.

Division VII. Subdivision 2. * b.

Gen. 37. PORCELLIO. Latreille, Leach.

External antennæ inserted on a prominence under the anterior margin of the head. *Tail* with its lateral styles conic, prominulous.

Sp. 1. *Scaber*. Body rough.
Oniscus asellus.

Fabr. Suppl. Ent. Syst. 300.

Porcellio scaber.

Latr. Gen. Crust. et Insect. i. 70.

Leach, Edinb. Encycl. vii. 406.

— *Trans. Linn. Soc.* xi. 37.

Division VIII. Subdivision 2. **

Gen. 38. ARMADILLO. Latr. Leach.

External antennæ seven-jointed, inserted on a prominence in a cavity on each side of the head. *Tail* with the lateral styles not prominent.

Sp. 1. *Vulgaris*. Griseous lead-coloured; hinder margin of the segments whitish.

Oniscus armadillo.

Linn. Syst. Nat. i. 1062.

Armadillo vulgaris.

Latr. Gen. Crust. et Insect. i. 70.

Leach, Edinb. Encycl. vii. 406.

— *Trans. Linn. Soc.* xi. 376.

Inhabits Europe, amongst moss and under stones. It is commonly named the *pill-milliped*, and paves the way to the myriapoda, in general external appearance and in economy, allied to the Genus *Glomeris*.

Genus of uncertain place.

Gen. 39. BOPYRUS. Latr.

CLASS II.—MYRIAPODA.

Myriapoda. THIS Class was proposed by Dr Leach in the *Edinburgh Encyclopædia*, Vol. VII. and has since been distinctly established, and its characters more decidedly shown, in a paper published in the eleventh volume of the *Transactions of the Linnean Society*.

By Linné the animals composing this group were denominated SCOLPENDRÆ and JULI, and were arranged with apterous insects. His pupil J. C. Fabricius, in the Supplement to his *Entomologia Systematica*, placed them in a particular class named MITOSATA, * comprehending all the species, like Linné, under the generic appellations of JULUS and SCOLPENDRA. G. Cuvier, in his *Tableau Élémentaire*, arranged the Myriapoda with Insects, in which he was followed by A. M. C. Duméril, who has, however, adopted the new genera proposed by Latreille.

They were arranged in the older works of Latreille along with Insects; but in his last work he has placed them in a peculiar order of the class ARACHNIDES, which he has denominated MYRIAPODA; and has divided them into two families, namely,

Fam. I. CHILOGNATHA. Gen. 1. GLOMERIS. 2. JULUS. 3. POLYDESMUS. 4. POLLYXENUS.

Fam. II. SYNGNATHA. Gen. 5. SCUTIGERA. 6. SCOLOPENDRA.

Lamarck arranged them with the Arachnides, into three genera, 1. SCOLOPENDRA; 2. SCUTIGERA; 3. JULUS; and in his last work, he had adopted a fourth genus, POLLYXENUS.

Having given a slight sketch of what has been done by systematic writers, we may observe, that we differ from them merely in considering them as constituting a distinct class, and in disposing the species under some additional generic heads, which a minute examination of their structure has most fully warranted.

Classification.

All the Myriapoda have their head distinct from Myriapoda. the body, furnished with two antennæ. *Mandibles* simple, incisive. All or most of the segments of the body furnished with two or four legs.

The nervous system is composed of a series of ganglia, one in each segment of the body; these ganglia are brought into communication with each other by a longitudinal bundle of nerves, or, as it is generally, but improperly, denominated, by a spinal marrow.

The two families established by Latreille, are adopted as Orders, and his names are retained.

Order I. CHILOGNATHA. *Maxillæ* none. *Palpi* obscure. *Lip* simple. (*Antennæ* inserted on the upper margin of the head.)

Order II. SYNGNATHA. *Maxillæ* two, distinct, with their bases united. *Palpi*, *maxillary* two, filiform; *labial* two terminated by a little hook.

Order I. CHILOGNATHA. †

Fam. I. GLOMERIDEA. *Body* contractile into a globe. *Eyes* distinct.

Gen. 1. GLOMERIS.

Fam. II. JULIDEA. *Body* not contractile into a globe. *Eyes* distinct.

Genus 2. JULUS.

3. CRASPEDOSOMA.

Fam. III. POLYDESMIDEA. *Eyes* obsolete.

Genus 4. POLYDESMUS.

Family I. GLOMERIDEA.

Gen. 1. GLOMERIS. *Latr. Dumér. Leach.*

ARMADILLO. *Cuvier.*

Antennæ with the two first joints shortest, the sixth largest including the last, which is very small. *Body* elongate-ovate, convex above, arched beneath; first segment a little semicircular lamina, the second

* In the *Entomologia Systematica* the Genus ONISCUS was included in this Class.

† The Genus POLLYXENUS of Latreille we have not seen. It is figured by Geoffroy, *Hist. des Insect.* iii. pl. 59. fig. 10—12.

Myriapoda. larger than the others; the last semicircular and arched. *Legs*, sixteen pairs.

Sp. 1. *Marginata*. Black, the margins of the segments luteous or orange.

Oniscus marginatus.

Villers, Entom. iv. 187. tab. 11. fig. 15.

Glomeris bordé.

Latr. Hist. Nat. des Crust. et des Insect. vii. 66.

Oniscus marginatus.

Oliv. Encycl. Méth. Hist. Nat. vi. p. 24.

Julus limbatus.

Oliv. Encycl. Méth. Hist. Nat. vii. p. 414.

Oniscus zonatus.

Panz. Fn. Ins. Germ. Fascic. ix. f. 23.

Julus oniscoidea.

Townson's Tracts, p. 151.

Stewart, Elem. Nat. Hist. ii. 307.

Glomeris marginata.

Latr. Gen. Crust. et Insect. i. 74.

Leach, Edinb. Encycl. vii. 407.

— *Trans. Linn. Soc. xi.*

Plate XXII.

Inhabits Britain, France, and Germany, under stones; but has generally been considered by British Naturalists as a variety of *Armadillo vulgaris*.

Family II. JULIDÆ.

Gen. 2. *JULUS* of authors.

Body serpentiform, cylindrical. *Antennæ* with the second joint longer than the third. *Legs* a great many.

The British species of this obscure genus may be found described in the eleventh volume of the *Transactions of the Linnean Society*. The following species, which is the most common, will best serve as an example of the genus.

Sp. 1. *Sabulosus*. Black-cinereous, with two reddish dorsal lines; last joint mucronated; legs luteous.

Julus sabulosus.

Linn. Syst. Nat. i. 1065.

— *Fn. Sv. ii. 2067.*

Fabr. Ent. Syst. ii. 395.

Latr. Gen. Crust. et Insect. i. 76.

Leach, Edinb. Encycl. vii. 407.

— *Trans. Linn. Soc. xi.*

Inhabits Europe, lurking beneath stones, especially in sandy places.

Gen. 3. *CRASPEDOSOMA*. *Leach*.

Body linear, depressed, the sides of the segments laterally prominent. *Antennæ* towards their extremities somewhat thicker, the second joint shorter than the third.

This genus was discovered by the late R. Rawlins, Esq., one of the most promising naturalists of this country.

* *Middle of the segments prominent.*

Sp. 1. *Raulinsii*. Back fuscous-brown, with four lines of white spots; belly and legs reddish.

Craspedosoma Raulinsii.

Leach, Edinb. Encycl. vii. 407—434.

— *Trans. Linn. Soc. xi. 380.*

Plate XXII.

Inhabits the neighbourhood of Edinburgh, where it occurs in some plenty under stones and amongst moss. It was first noticed by Mr Rawlins, the founder of the genus.

** *Hinder angles of the segments produced.*

Sp. 2. *Polydesmoides*. *Body* reddish-gray; belly pale; legs reddish, with their bases pale; produced angles of the body each furnished with a seta.

Julus polydesmoides *Montagu's MSS.*

Craspedosoma polydesmoides.

Leach, Edinb. Encycl. vii. 407—434.

— *Trans. Linn. Soc. xi. 380.*

Plate XXII.

Inhabits Devonshire, under stones. It is common all along the borders of Dartmoor, and on the southern coast.

Family III. POLYDESMIDEÆ.

Gen. 4. *POLYDESMUS*. *Latr. Dumér. Leach*.

Antennæ with the second joint scarcely longer than the first, and much shorter than the third. *Body* linear, the segments laterally compressed, margined. *Eyes* obsolete.

Sp. 1. *Complanatus*. Reddish cinereous, last segment of the body mucronated.

Julus complanatus.

Linn. Syst. Nat. i. 1065.

Fabr. Ent. Syst. ii. 393.

Polydesmus complanatus.

Latr. Gen. Crust. et Insect. i. 76.

Leach, Edinb. Encycl. vii. 408.

— *Trans. Linn. Soc. xi. 381.*

Plate XXII.

Inhabits Europe, under stones.

Order II. SYNGNATHA.

Fam. I. CERMATIDEÆ. *Body* with the segments each bearing four legs.

Genus 1. CERMATIA.

Fam. II. SCOLOPENDRIDEÆ. *Body* with each segment bearing two legs: *hinder legs* distinctly longer than the others.

Stirps 1. Legs on each side fifteen.

Genus 2. LITHOBIUS.

Stirps 2. Legs on each side twenty-one.

Genus 3. SCOLOPENDRA.

— 4 CRYPTOPS.

Family III. GEOPHILIDEÆ. *Body* with each segment bearing two legs: *hinder legs* not distinctly longer than the others. *Legs* many, varying in number in the same species.

Genus 5. GEOPHILUS.

Family I. CERMATIDEÆ.

Genus 1. CERMATIA. *Illiger, Leach*.

SCUTIGERA. *Lam. Latr. Dumér. Leach*.

Legs thirty.

Sp. 1. *Coleoptrata*. *Body* reddish-yellowish, with longitudinal lines and bars on the legs of blue black.

Scolopendra coleoptrata.

Linn. Syst. Nat. i. 1062.

Fabr. Ent. Syst. ii. 389.

Julus araneoides. *Pall. Spec. Zool. Fas. ix. t. 4. f. 16.*

Scutigera araneoides.

Latr. Gen. Crust. et Insect. i. 77.

Scutigera coleoptrata.

Leach, Edinb. Encycl. vii. 408.

Inhabits houses in the south of Europe. It is common also in Africa.

Family II. SCOLOPENDRIDEÆ.

Gen. 2. LITHOBIUS. *Leach*.

Antennæ conic-setaceous (joints about forty-five), conic-setaceous, the two first joints largest. *Under*

Myriapoda. lip anteriorly broadly notched, the margin very much denticulated. *Eyes* granulated.

Sp. 1. *Forpicatus*. Head broad; under lip entirely and deeply covered with impressed dots; legs testaceous-yellowish.

Scolopendra forpicata.

Linn. Syst. Nat. i. 1062.

Fabr. Ent. Syst. ii. 390.

Lithobius forpicatus.

Leach, Edinb. Encycl. vii. 408.

— *Trans. Linn. Soc.* xi. 381.

Plate XXII.

Inhabits Europe, beneath stones.

The other species are described in the eleventh volume of the *Transactions of the Linnean Society of London*.

Gen. 3. SCOLOPENDRA of authors.

Antennæ conic-setaceous, composed of (seventeen) subconic joints. *Mouth* covered by hemispheric galeæ. *Exterior palpi* with a double footstalk; the last joint internally compressed, and armed with two claws. *Mandibles* strong, corneous, without teeth. *Under lip* divided by a fissure, the anterior margin narrower, strait and denticulated. *Body* with the segments margined. *Anterior pair of legs* small, the last pair largest, with the inner edge of the first joint spinose. *Eyes* eight, four on each side of the anterior margin of the head, arranged in a rhomboidal form.

Of this genus we have no indigenous species. The genus contains several species which have been confounded together under the title of *Scolopendra morsitans*, to which the generic instead of the specific character has been applied.

* *Body with the segments nearly of equal size.*

Sp. 1. *Gigas*. Segments transversely-quadrate, with rounded angles, of ferruginous brown colour, luteous behind; antennæ, palpi, galeæ, and legs testaceous; legs (anterior pair excepted) with the first (and rarely the second) joint spinulose.

Scolopendra gigas. *Leach, Trans. Linn. Soc.* xi.

Locality unknown.

Fine specimens of this species are preserved in the cabinet of Professor Jameson of Edinburgh, and in the British Museum.

** *Body with the segments transverse, alternately longer and shorter; the fifth and sixth subequal.*

Sp. 2. *Alternans*. Hinder legs with the first joint rounded, and internally spinulose.

Scolopendra alternans.

Leach, Trans. Linn. Soc. xi. 383.

Plate XXII.

Locality unknown.

Sp. 3. *Subspinipes*. Hinder legs with the first joint subrounded, flat above, at the internal apex subspinose.

Scolopendra subspinosa.

Leach, Trans. Linn. Soc. xi.

Locality unknown.

British Museum.

Sp. 4. *Trigonopoda*. Hinder legs trigonate, the first joint above and below internally spiniferous.

Scolopendra trigonopoda.

Leach, Trans. Linn. Soc. xi.

Locality unknown.

British Museum.

*** *Segments of the body elongate, or subelongate, irregular, now longer, then shorter.*

Sp. 5. *Morsitans*.

Scolopendra morsitans of authors.

Inhabits India.

Gen. 4. CRYPTOPS. *Leach*.

Antennæ conic-setaceous, composed of (seventeen) globose-subconic joints. *Under lip* not denticulated, anterior margin scarcely emarginate. *Hinder legs* with the first joint toothless. *Eyes* obscure.

Sp. 1. *Hortensis*. Testaceous-ferruginous; back deeper in colour; antennæ and legs hairy.

Scolopendra hortensis.

Donovan, Brit. Ins.

Cryptops hortensis.

Leach, Edinb. Encycl. vii. 408.

— *Trans. Linn. Soc.* xi.

Plate XXII.

Inhabits gardens in and near Exeter. It has likewise been found near Plymouth, in Devonshire.

Family III. GEOPHILIDES.

Gen. 5. GEOPHILUS. *Leach*.

Eyes obscure. (*Lip* divided by a fissure?) *Mandibles* strong. *Antennæ* cylindric in some, towards the apex gradually somewhat narrower in others; composed of (fourteen) subcylindric joints, a little narrower at their base.

* *Antennæ with short joints.*

Sp. 1. *Carpophagus*. Head, antennæ, and arms fulvescent; body violet, anteriorly yellowish; legs pale yellowish.

Var. B. Body obscurely subviolet-testaceous, anteriorly subttestaceous.

Geophilus carpophagus.

Leach, Trans. Linn. Soc. xi. 384.

Inhabits Devonshire, in garden fruit; it is not uncommon.

Sp. 2. *Subterraneus*. Body yellow, head subferruginous.

Scolopendra subterranea.

Shaw, Trans. Linn. Soc. ii. 7.

Geophilus subterraneus.

Leach, Trans. Linn. Soc. xi. 385.

Inhabits the earth. Is very common in England.

Sp. 3. *Acuminatus*. Body ferruginous, anteriorly gradually narrower; head anteriorly and the legs paler.

Geophilus acuminatus.

Leach, Trans. Linn. Soc. xi. 386.

Inhabits moss and beneath the ground. It is rare.

** *Antennæ with elongate joints.*

Sp. 4. *Longicornis*. Body yellow; head ferruginous; antennæ long.

Geophilus longicornis.

Leach, Trans. Linn. Soc. xi. 386.

Plate XXII.

Inhabits the earth and under stones.

Obs. *Scolopendra electrica* of Linné, belongs to this genus.

Myriapoda.

From *αράχνη*, a spider, and *ἰδοῦς*, resemblance; a class of animals formerly arranged with insects, but first shown to be distinct by the celebrated Lamarck, and established as such, by Latreille and Cuvier.

Of the history of the Arachnides little can be said; we shall therefore content ourselves with giving a general view of the ideas entertained by authors. Linné arranged all of these animals with which he was acquainted with apterous insects, under the generic titles, PHALANGIUM, ARANEI, ACARUS and SCORPIO; and in this disposition he was followed by Cuvier.

Lamarck, in his *Système des Animaux sans Vertébrés*, has included amongst the Arachnides, the MYRIAPODA, and certain animals which we have considered as forming a subclass of insects, as shall be hereafter mentioned; and he has disposed what we consider as genuine ARACHNIDES, into two divisions.

I. Mouth furnished with mandibles and with maxillæ.

Genus 1. SCORPIO, 2. ARANEA, 3. PHRYNUS, 4. GALEODES, 5. PHALANGIUM, 6. CHELIFER, 7. ELAIS, 8. TROMBIDIUM.

II. Mouth furnished with a rostrum or haustellum.

Genus 9. HYDRACHNA, 10. BDELLA, 11. ACARUS, 12. PYCNOGONUM, 13. NYMPHUM.

Duméril, in his *Zoologie Analytique*, has placed the Arachnides with the apterous insects. He arranges the genus, 1. IKODES, Latr. with PEDICULUS and PULEX; the other genera he has placed in a peculiar family; 2. ARANEA, 3. MYGALE, 4. PHRYNUS, 5. SCORPIO, 6. CHELIFER, 7. GALEODES, 8. PHALANGIUM.

Lamarck, in his *Extrait du Cours*, &c. has placed the Arachnides with some genuine insects and Myriapoda, but he has formed for them a separate order, which he terms Arachnides palpati, and disposes them into the following little groups of genera.

I. PYCNOGONIDES.

Genus 1. NYMPHUM, 2. PHOXICHILUS, 3. PYCNOGONUM.

II. ACARIDES.

* Parasiticæ.

a. Six legs.

Genus 4. ASTOMA, 5. LEPTUS, 6. CARIS.

b. Eight legs.

Genus 7. UROPODA, 8. ARGAS, 9. IKODES, 10. ACARUS.

** Vagabundæ.

a. Land.

Genus 11. ORIBATA, 12. SMARIS, 13. CHEYLETUS, 14. BDELLA, 15. ERYTHREUS, 16. TROMBIDIUM.

b. Aquatic.

Genus 17. ELAIS, 18. LIMNOCHARIS, 19. HYDRACHNA.

III. PHALANGIDES.

Genus 20. SIRO, 21. TROGULUS, 22. PHALANGIUM, 23. GALEODES.

IV. SCORPIONIDES.

Genus 24. CHELIFER, 25. SCORPIO, 26. THELEPHONUS, 27. PHRYNUS.

V. ARANEIDES.

Genus 28. ARANEA, 29. MYGALE.

Classification.

The following classification is that lately published in the eleventh volume of the *Transactions of the Linnean Society*. It may not be improper to observe, that, from the ARACHNIDES of Latreille, we have not only removed the *Tetracera* and *Myriapoda* (the first being referable to the *Crustacea*, the second to a new class), but also the *Parasita* and *Thysanura*, which form a subclass of genuine insects, and have added to the ARACHNIDES the genus *Nycteribia*, which agrees with them in general structure.

Subclass I. CEPHALOSTOMATA. Mouth situated in the front of the head.

Subclass II. NOTOSTOMATA. Mouth situated on the back.

Subclass I. CEPHALOSTOMATA.

A. Legs with coxæ, thighs, tibiæ, and tarsi, distinct in form.

Order I. PODO SOMATA. Body four-jointed, and formed as it were of the junction of the coxæ. Mouth tubular. Eyes four, placed on a common tubercle. Legs eight.

Order II. POLYMEROSOMATA. Body composed of a series of segments; abdomen not pedunculated. Mouth furnished with didactyle mandibles and with maxillæ. Eyes two, four, six, or eight. Legs eight.

Order III. DUOMEROSOMATA. Body composed of two segments, the abdomen pedunculated. Mouth furnished with mandibles, and with maxillæ. Eyes six or eight. Legs eight.

B. Legs, with the coxæ, thighs, tibiæ, and tarsi, not distinct from each other in form.

Order IV. MONOMEROSOMATA. Body formed but of one segment. Mouth rostriform, or in some furnished with maxillæ and mandibles. Legs eight or six.

Order I. PODO SOMATA.

The singular animals which compose this order inhabit the sea. The females are furnished with two palpiform organs inserted at the base of the rostrum, on which parts they carry their eggs, attached in globular masses.

The legs are composed of three-jointed coxæ, one-jointed thighs, two-jointed tibiæ and tarsi, the latter parts furnished with claws.

Family I. PYCNOGONIDÆ. Mandibles none.

Genus 1. PYCNOGONUM.

2. PHOXICHILUS.

Family II. NYMPHONIDÆ. Mandibles two, biarticulate, didactyle.

Genus 3. AMMOTHEA.

4. NYMPHUM.

Family I. PYCNOGONIDÆ.

Gen. 1. PYCNOGONUM of authors.

Legs rather strong; coxæ with subequal joints; tibiæ with the first joint largest; tarsi with the first joint very small; claws simple, strong, acute.

Egg-bearing organs ten-jointed, the last joint very acute, unguiform, attached to the first joint of the body at the base of the rostrum.

Sp. 1. *Balanarum*. Plate XXIII.

Arachnides. Pycnogonum balænarum.

Fabr. Ent. Syst. iv. 416.
Latr. Gen. Crust. et Insect. i. 144.
Leach, Edin. Encycl. vii. 413. pl. 221. fig. 2.
— Trans. Linn. Soc. xi. 388.

Inhabits the European Ocean. It is not uncommon in the Plymouth Sound, where it is taken by the trawl-fishers.

Gen. 2. PHOXICHILUS. *Latr. Leach.*

Legs very slender; *coxæ* with the middle joint longest, subclavate; *tibiæ* with the first joint shorter; *tarsi* with the first joint very small; *claws* double, unequal, the longer one acute.

Egg-bearing organs seven-jointed, the last joint tuberculiform, inserted at the base of the rostrum, one on each side, and attached to the first segment of the body.

The specific characters of none of the species are yet ascertained. To the genus, however, belong *Pycnogonum spinipes*, *Oth. Fabr. Fn. Grœn. 232.* and *Phalangium hirsutum*, *Montagu, Trans. Linn. Soc. ix. tab. 5. fig. 7.*

Family II. NYMPHONIDÆ.

Gen. 3. AMMOTHEA. *Leach.*

Mandibles much shorter than the rostrum, with equal joints, the fingers arcuate, and meeting at their tips. *Palpi* nine-jointed, the third joint very long. *Legs* slender; *coxæ* with the middle joint longest; *tibiæ* with the first joint somewhat shortest; *tarsi* with the first joint small; *claws* double, unequal.

Egg-bearing organs nine-jointed, inserted under the first legs, behind the rostrum.

Sp. 1. *Carolinensis*. Body entirely brown, testaceous; back with three trigonate tubercles. *Ammothea Carolinensis*.

Leach, Zool. Miscel. i. 34. tab. 13.
— Trans. Linn. Soc. xi.

Plate XXIII.

Inhabits the sea about Southern Carolina.

Gen. 4. NYMPHUM. *Lamarck, Leach.*

NYMPHON. *Fabricius, Latreille.*

PYCNOGONUM. *Müller.*

Mandibles longer than the rostrum, with equal joints, the fingers curved, meeting along their whole length, and abruptly hooked at their extremities. *Palpi* six-jointed, the second joint elongate, the sixth very small. *Legs* very slender, *coxæ* with the middle joint longest; *tibiæ* with the second joint rather longest; *tarsi* with the first joint somewhat shortest, *claws* simple.

Egg-bearing organs ten-jointed, inserted behind the rostrum, almost under the anterior pair of legs.

Sp. 1. *Gracile*. Cinereous, thighs cylindrical.

Nymphum gracile.

Leach, Zool. Miscel. i. 45. tab. 19. fig. 1.

Plate XXIII.

Inhabits the British seas everywhere; but as it never attains the size of the *phalangium*, misnamed by Linné *grossipes* (which is figured by Ström in his history of Sondmor, 208. tab. 2. fig. 16.), we are doubtful if it be the same species; but as the Linnæan name is so ridiculously inapplicable, little fault can be found with the more appropriate name for which it has been exchanged.

Sp. 2. *Femoratum*. Reddish, thighs dilated and compressed.

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Nymphum femoratum.

Leach, Zool. Miscel. i. 45. tab. 19. fig. 2.

Inhabits the shores on the southern coast of Devon.

Order II. POLYMEROSOMATA.

Fam. I. SIRONÆ. *Palpi* simple. *Mandibles* didactyle.

Genus 5. SIRO.

Fam. II. SCORPIONIDÆ. *Palpi* arm-shaped. *Mandibles* didactyle. *Legs* alike.

Stirps 1. *Tail* none. *Eyes* two or four. *Pecten* none.

Genus 6. OBISIUM.

7. CHELIFER.

Stirps 2. *Tail* elongate, articulated, terminated by a curved sting. *Eyes* six or eight. *Pecten* one on each side of the base of the abdomen.

Genus 8. SCORPIO.

9. BUTHUS.

Fam. III. TARANTULIDÆ. *Mandibles* monodactyle. *Palpi* arm-shaped. *Anterior* legs shaped like antennæ; six hinder ones alike, simple. *Eyes* eight.

Stirps 1. *Tail* filiform. *Palpi* didactyle.

Genus 10. THLEPHONUS.

Stirps 2. *Tail* none. *Palpi* terminated by a movable hook.

Genus 11. TARANTULA.

Family I. SIRONÆ.

Gen. 5. SIRO. *Latreille, Leach.*

Mandibles two, two-jointed, cylindrical, compressed, their points armed with a forceps. *Palpi* two, five-jointed, joints elongate, the second longest. *Body* oval. *Eyes* two, placed one in each side of the thorax, on an erect peduncle. *Legs* elongate, filiform; *tibiæ* and *tarsi* two-jointed, the latter parts terminated by an arcuate claw.

Sp. 1. *Rubens*. Pale red, legs paler.

Siro rubens.

Latr. Gen. Crust. et Insect. i. 143.

Leach, Edinb. Encycl. vii. 416.

— Trans. Linn. Soc. xi. 390.

Plate XXIII.

Inhabits moss at the roots of trees and in woods.

Family II. SCORPIONIDÆ.

The animals composing this family constitute a most natural group.

Stirps 1.

Gen. 6. OBISIUM. *Illiger, Leach.*

Body cylindrical. *Thorax* composed of one segment. *Mandibles* porrect. *Eyes* four.

Sp. 1. *Trombidioides*. Second joint of the arms elongate; fingers long and strait.

Chelifer Trombidioides.

Latr. Gen. Crust. et Insect. i. 133.

Obisium Trombidioides.

Leach, Edinb. Encycl. vii. 428.

— Trans. Linn. Soc. xi. 391.

Plate XXIII.

Inhabits France and England, under stones.

Gen. 7. CHELIFER. *Geoffroy, Leach.*

Thorax composed of three parts. *Mandibles* short. *Eyes* two.

Sp. 1. *Fasciatus*. Hands oval; segments of the abdomen bordered with whitish.

Chelifer fasciatus. *Leach, Trans. Linn. Soc. ix.*

Inhabits beneath the bark of willow and other trees.

Arachnides. It sometimes occurs near London. It is mentioned by Geoffroy (*Hist. des Insect.* ii. 618.)
 Plate XXIII.

Stirps 2.

Gen. 8. SCORPIO of authors.

Eyes six.

Sp. 1. *Europæus*. Pecten with nine teeth; hands angulated, subcordate; wrists unidentate; body obscure brown; legs and last joint of the tail brownish-yellow.

Scorpio *Europæus*.

Villers, Entom. iv. 131. tab. 2. f. 11.

Latr. Gen. Crust. et Insect. i. 131.

Leach, Edinb. Encycl. vii. 429.

— *Trans. Linn. Soc.* xi. 391.

Inhabits the south of Europe.

Gen. 9. BUTHUS. *Leach*.

Eyes eight.

Sp. 1. *Occitanus*. Pecten with twenty-eight teeth; body yellowish; tail longer than the body, with elevated granulated lines; no point beneath the sting.

Scorpio *occitanus*.

Amoreaux, Jour. de Phys. an. 1789.

Latr. Gen. Crust. et Ins. i. 132.

Leach, Edinb. Encycl. vii. 428.

Buthus occitanus. *Leach, Trans. Linn. Soc.* xi. 391.

Inhabits southern Europe; it occurs in France and in Portugal.

Family III. TARANTULIDÆ.

Stirps 1.

Gen. 10. THELYPHONUS. *Latreille, Leach*.

Maxillæ subtriangular, large, meeting within. *Palpi* very thick, terminated by a didactyle hand.

Body elongate. *Thorax* ovate, with two eyes on its anterior margin towards the middle, and three on each side, placed in a triangle.

Sp. 1. *Proscorpio*.

Phalangium caudatum. *Linn. Syst. Nat.* i. 1029.

Tarantula caudata. *Fabr. Ent. Syst.* ii. 433.

Thelyphonus proscorpio.

Latr. Gen. Crust. et Ins. i. 130.

Leach, Edinb. Encycl. vii. 428.

— *Trans. Linn. Soc.* xi.

Inhabits Southern America.

Stirps 2.

Gen. 11. TARANTULA. *Brown, Fabricius, Leach*.

PHRYNUS. *Olivier, Lam. Fabr. Hermann*.

Maxillæ obverse-conic, divergent; internal apex produced, compressed, and rounded. *Palpi* terminated by a moveable, horny, bent claw.

Body depressed. *Thorax* broad, reniform, or lunate, with two eyes about the middle of its anterior margin, and three on each side, placed in a triangle.

Sp. 1. *Lunata*. *Palpi* nearly three times the length of the body; apex of the third joint with four spines, the two upper ones strongest.

Tarantula lunata.

Fab. Ent. Syst. ii. 433.

Leach, Edinb. Encycl. vii. 428.

— *Trans. Linn. Soc.* xi. 392.

Phrynus lunatus. *Latr. Gen. Crust. et Insect.* i. 128.

Inhabits the East Indies.

Order III. DUOMEROSOMATA.

Fam. I. SOLPUGIDÆ. *Eyes* four. *Anus* simple.

Genus 12. SOLPUGA.

Fam. II. PHALANGIDÆ. *Eyes* two. *Anus* simple.

Genus 13. PHALANGIUM.

14. OPILIO.

Fam. III. ARANEIDÆ. *Eyes* six or eight. *Anus* with nipples for spinning.

Stirps 1. *Legs* simple. *Hinder eyes* not placed on the anterior and superior part of the thorax, nor forming an irregular hexagon. *The two exterior nipples* of the anus longer than the others, and projecting. *Lip* not advancing between the maxillæ nor prominent, but as long as broad.

* *Eyes* eight. *Mandibles* projecting.

Genus 15. MYGALE.

16. ATYPUS.

17. ERIODON.

** *Mandibles* perpendicular. *Eyes* six.

Genus 18. SEGESTRIA.

19. DYSDERA.

*** *Mandibles* perpendicular. *Eyes* eight.

Genus 20. FILISTATA.

21. DRASSUS.

22. CLOTHO.

23. CLUBIONA.

24. ARANEA.

25. AGELENA.

26. ARGYRONETA.

Stirps 2. *Legs* simple. *Hinder eyes* not placed on the anterior and superior of the thorax, nor forming an irregular hexagon. *Nipples* of the anus short and nearly equal, of a conic form. *Lip* nearly semicircular, broader than long, and projecting between the maxillæ. (*Eyes* eight).

* *Eyes* not describing the segment of a circle. *Maxillæ* straightened towards their extremities, but not dilated.

Genus 27. SYCTODES.

28. THERIDION.

29. LATRODECTUS.

30. PHOLOUS.

** *Eyes* not describing the segment of a circle. *Maxillæ* straight with their points dilated.

Genus 31. ULOBORUS.

32. TETRAGMATHA.

33. LINYPHIA.

34. EPEIRA.

35. NEPHILA.

*** *Eyes* describing the segment of a circle.

Genus 36. EPISENIUS.

37. MICROMMATA.

38. THOMISUS.

Stirps 3. *Legs* not formed for leaping. *Hinder eyes* placed on the anterior and superior part of the thorax, forming an irregular hexagon.

* *Anterior legs* longest.

Genus 39. OXYOPES.

40. STORENA.

41. CTENUS.

** *Hinder pair* of legs longest.

Genus 42. LYCOSA.

43. DOLOMEDES.

Stirps 4. *Legs* formed for leaping. (*Eyes* eight. *Thorax* never carinated).

Genus 44. ERESUS.

Arachnides.

Genus 45. SALTICUS.

46. ATTYS.

Family I. SOLPUGIDÆ.

Gen. 12. SOLPUGIDÆ.

*Lichtenst. Fabr. Herbst, Leach.*GALEODES. *Olivier, Lamarck, Latreille.*RHAX. *Bermann.*

Eyes placed on a common tubercle. Mandibles very large, strait. Palpi very large, formed like legs, the last joint simple. Body elongate.

Sp. 1. *Arachnoides*. Pale-yellowish, mixed with cinereous.

Solpuga arachnoides.

Lichtenst. Catal. Homb. 1797, 151, 196.

Solpuga araneoides.

Fabr. Suppl. Ent. Syst. 294.

Galeodes araneoides.

*Oliv. Encycl. Méth. Hist. Nat. vi. 590.**Latr. Gen. Crust. et Insect. i. 185.*

Inhabits the Cape of Good Hope.

Family II. PHALANGIDÆ.

Gen. 13. PHALANGIUM of authors.

Eyes placed in a common peduncle. Mandibles corneous, subcylindric, compressed, biarticulate, inflexed or geniculated at the second joint, the apex of which bears a forceps with equal fingers. Palpi formed like legs terminated by a hook. Body more or less oval. Second pair of legs almost six times the length of the body; tarsi all capillary, very slender, the first joints elongate, four times (or more) longer than broad.

Sp. 1. *Opilio*. *Latr. Gen. Crust. et Insect. i. 157.*

Male, Phalangium cornutum.

*Linn. Syst. Nat. i. 1028.**Fabr. Ent. Syst. ii. 430.*

Female, Phalangium opilio.

*Linn. Syst. Nat. i. 1027.**Fabr. Ent. Syst. ii. 429.*

Inhabits Europe, on walls and rocks.

Gen. 14. OPILIO.

Eyes placed on a common peduncle. Mandibles corneous, subcylindric, compressed, biarticulate, inflexed or geniculated at the second joint, the apex of which has a forceps with equal fingers. Palpi formed like legs, terminated by a hook. Body more or less oval. Second pair of legs three or four times the length of the body, the fourth and following joints a little elongate, twice as long as broad.

Sp. 1. *Histrix*.

Phalangium histrix.

Latr. Gen. Crust. et Insect. i. 140.

Inhabits France and England.

Family III. ARANEIDÆ.

The animals composing this most natural family, are familiarly denominated spiders, and, as we have before mentioned, were included by Linné, Fabricius, and other authors, in one genus, which they called Aranea; but as the species are very numerous, they were obliged to divide them into sections, which they distinguished by the situation of their eyes. These organs are immovable, and consist each of a single lens, which deprives them of the faculty of seeing in every direction.

The Araneidæ are by far the most interesting animals of that class of which they form the type; and

consequently their habits and structure excited the attention of naturalists at a very early period.

Aristotle and Pliny were acquainted with those species that have the power of darting out long threads. Vide *Aristotelis Historia Animalium*, lib. ix. cap. 89. and *Plini Hist. Naturalis*, lib. xii. cap. 74.

Spiders frequently change their skins, and their skins are often found in their webs, being dry and transparent, with their mandibles attached to them. When about to cast their covering, they suspend themselves in some corner, and creep out of a crack which takes place on their back, gradually withdrawing their legs from the skin, as if from a glove. They have likewise the power of reproducing their legs; the mode in which this takes place, was made known to us by Sir Joseph Banks, and which we shall relate as nearly as possible in the words of that accurate observer of nature.

As he was writing one evening in his study, one of the web-spinning spiders, of more than the middle size, passed over some papers on the table, holding a fly in its mouth. Much surprised to see a spider of this description walking about with its prey, and being struck with somewhat unusual in its gait, he caught it and placed it within a glass for examination; when instead of eight, he perceived that it had but three legs, which accounted for the inability of the creature to spin its web; but the curious circumstance of its having changed its usual economy, and having become a hunting instead of a spinning spider, as well as a wish to learn whether its legs would be renewed, induced him to keep the animal in the glass, from whence it could not escape, and to observe its conduct.

On the following morning the animal eat two flies, given to it, by sucking out the juices, but left the carcasses entire. Two or three days afterwards, it devoured the body and head of a fly, leaving only the wings and legs. After this time, it sometimes sucked and sometimes eat the fly given to it. At first it consumed two flies in a day, but afterwards not more than one in two days. Its excrement, which it voided, was at first of a milky-white colour, but afterwards the white had a black spot in the centre, of a more solid appearance than the surrounding fluid.

Soon after its confinement, it attempted to form a web on the side of the vessel, but performed the business very slowly and clumsily, from the want of the proper number of legs. In about a fortnight it had completed a small web, upon which it generally sat.

A month after having been caught, it shed its skin, leaving the slough on the web. After this change five new legs appeared, not half as long as the other three legs, and of very little use to the animal in walking. These new members, however, extended themselves a little in three days, and became half as long as the old ones. The web was now increased, and the animal continued immovably sitting on it in the day time, unless drawn from it, or attracted by a fly thrown to it as its usual provision.

Twenty-nine days afterwards, it again lost its skin, leaving the slough hanging in the web, opposite to a hollow cell it had woven, so as to prevent it from

Arachnides being completely seen when lodged in it. The legs were now larger than before the change of skin, and they grew somewhat longer still in three or four days, but did not attain the size of the old legs.

The animal now increased its web, and being put into a small bowl, as a more commodious residence, soon renewed a better web than the first. In this state it was left on the first of November. No farther observations have yet been made on the subject.

The principal use of the *Aranæidæ*, in the economy of nature, seems to be that of preventing the too great increase of insects.

The palpi of the different sexes should be carefully described, as they seem to afford some most excellent subsidiary generic characters.

Stirps 1. *

Gen. 15. MYGALE. *Walckanæer, Latreille, Leach.*
Labium very small and quadrate, inserted under the base of the maxillæ. *Palpi* attached to the apex of the jaws. *Eyes* on each side geminated.

A. *Claws of the tarsi, with a few very obscure, or with no denticulations beneath.*

* *Last joint of the tarsi and palpi with a brush of hair.*

Sp. 1. *Avicularia*. (Bird-catching Mygale). Blackish, very hairy, the hairs elongate: palpi and legs with ferruginous tips; tarsi broad; claws not exerted. (*Palpi* of the male globose, produced into a very long, very slender hook).

Aranea avicularia.

Linn. Syst. Nat. i. 1084.

Fabr. Ent. Syst. ii. 424.

Mygale avicularia.

Latr. Gen. Crust. et Insect. i. 82.

Leach, Edin. Encycl. vii. 420.

Inhabits South America.

** *Palpi and tarsi without any brush.*

Sp. 2. *Cæmentaria*. Ferruginous brown; mandibles blackish; carina and margin of the thorax paler.

Mygale cæmentaria.

Latr. Gen. Crust. et Insect. i. 84.

Leach, Edin. Encycl. vii. 421.

Inhabits the South of France. It is described by Dorthes in the second volume of the *Transactions of the Linnean Society*, tab. 17. fig. 6.

B. *Claws of the tarsi internally much dentated.*

Sp. 3. *Calpeiana*.

Mygale calpeina.

Walck. Tab. des Aran. 5.

Latr. Gen. Crust. et Insect. i. 85.

Leach, Edin. Encycl. vii. 421.

Gen. 16. ATYPUS. *Latreille, Leach.*

OLETERA. *Walckanæer.*

Eyes on each side geminated. *Lip* very small and quadrate, inserted under the base of the maxillæ. *Palpi* inserted at the external base of the maxillæ, which are dilated at that part.

Sp. 1. *Sulzeri*. Black and shining; mandibles very long and strong; thorax nearly quadrate; plain behind, abruptly elevated before; the two middle eyes placed on an eminence; back of the abdomen coriaceous and more shining; joints of the legs whitish.

Atypus.

Latr. Nouv. Diction. d'Hist. Nat. tab. 24. p. 138.

Atypus sulzeri.

Latr. Gen. Crust. et Insect. i. 85.

Leach, Edin. Encycl. vii. 421.

Oletère dittorme. *Walck. Tab. des Aran. 7. Plate XXIII.*

Inhabits France and England. In the latter country it was discovered by Dr Leach near Exeter, and he has twice obtained specimens that occurred near London.

Gen. 17. ERIODON. *Latreille, Leach.*

Missulena. Walckanæer.

Lip linear, esserted between the maxillæ. *Palpi* inserted at the external base of the maxillæ, which are dilated at that part. *Eyes* disposed somewhat like the letter H.

This genus was first established by Latreille, in the *Nouveau Dictionnaire d'Histoire Naturelle*, xxiv. p. 133.

Sp. 1. *Occatorius*.

Missulène herseuse. Walck. Tab. des Aran. 8.

Eriodon occatorius.

Latr. Gen. Crust. et Insect. i. 86.

Leach, Edin. Encycl. vii. 421.

Inhabits Notasia. Discovered by Le Sueur and Peron.

Stirps 1. **

Gen. 18. SEGESTRIA.

Latreille, Walckanæer, Leach.

Maxilla strait, longitudinal, with the base thickened, dilated externally, somewhat wedge-shaped, the middle longitudinally convex. *Lip* elongate-quadrate, longer than broad, the middle longitudinally convex or subcarinated. *Legs*, the first pair longest, rest in proportion, the second, then the fourth, the third pair being shortest. *Eyes* placed in a transverse line, the extremities somewhat recurved.

Sp. 1. *Senoculata*. Thorax blackish-brown; abdomen oblong, griseous, with a longitudinal band of blackish spots; legs pale brown with obscure bands. *Aranea senoculata. Fabr. Ent. Syst. ii. 426.*

Segestria senoculata.

Walck. Tab. des Aran. 48.

Latr. Gen. Crust. et Insect. i. 89.

Leach, Edin. Encycl. vii. 421.

Inhabits rocks and old buildings. It is common in France, near Paris, and in England it is not rare. *Segestria cellaria* has once been found at Plymouth in a cellar, and is now in Dr Leach's collection.

Gen. 19. DYSDERA. *Latreille, Walckanæer, Leach.*

Maxilla strait, longitudinal, with the base thickened and externally dilated at the insertion of the palpi; the apex internally obliquely truncated, and thence externally acutely terminated. *Palpi* with the first joint short and nearly obsolete. *Lip* elongate, quadrate, gradually narrowing towards its point. *Eyes* forming a horse-shoe, the open part in front. *Legs* with the first, then the fourth, then the second pair longest; the third shortest. *Claws* with a little brush beneath.

Sp. 1. *Eythrina*. Mandibles and thorax sanguineous; legs lightly coloured; abdomen soft, greyish yellow and silky.

Arachnides.

Arachnides. *Aranea Erythrina*. Fourcroy, *Fn. Paris*, ii. 224.

Dysdera Erythrina.

Latr. Gen. Crust. et Insect. i. 90.

Walck. Tab. des Aran. 47.

Leach, Edinb. Encycl. vii. 421.

Plate XXIII.

Inhabits the south of France, and England, beneath stones. It is rare in the latter country, but has been taken in Devonshire, near Plymouth and Exeter, and near London. *Aranea Hombergii* of Scopoli, is merely a variety of this species.

Stirps 1. ***

Gen. 20. FILISTATA. *Latreille*.

Eyes placed on an uneven elevation, the four anterior ones forming a semicircle, open in front; the four hinder ones disposed in pairs, in nearly the same transverse line. *Maxillæ* much inclined towards the lip, with no groove at the insertion of the palpi. *Palpi* inserted in the lower side of the maxillæ. *Lip* much longer than broad. *Legs* with the fourth pair larger than the first pair.

This genus contains but one species. *Filistata testacea* of Walckanäer's MS. Of this animal, which was discovered near Marseilles, we have seen no description.

Gen. 21. DRASSUS. *Walckanäer, Latreille, Leach*.

GNAPHOSA. *Latreille*.

Palpi inserted under the lateral and external margin of the maxillæ towards their middle. *Maxillæ* longitudinal, arcuated, gradually becoming broader from the base towards the middle, somewhat concave internally, smooth externally, their middle impressed, the points bent inwards above the lip, and obliquely truncated within. *Lip* elongate, ovate-quadrate, or rather oval; the base transversely truncated, inclosing the maxillæ. *Legs* with the first, and afterwards the second pair longest.

* *Lip somewhat oval; the external side of the maxillæ much bent and arched.*

Sp. 1. *Melanogaster*. Mandibles blackish; thorax and legs obscure brown; thighs light reddish-brown; abdomen cinereous-brown and silky.

Drassus melanogaster.

Latr. Gen. Crust. et Insect. i. 87.

Drassus lucifagus.

Walck. Tab. des Aran. 45.

Inhabits France and England, under stones.

** *Lip ovate-quadrate.*

Sp. 2. *Ater*. Entirely black.

Drassus ater.

Latr. Gen. Crust. et Insect. i. 87.

Leach, Edin. Encycl. vii. 422.

Inhabits the vicinity of Paris, and near London, beneath stones.

Gen. 22. CLOTNO. *Walckanäer, Latreille, Leach*.

Maxillæ much inclined towards the lip, with no groove at the insertion of the palpi. *Lip* not much longer than broad. *Feet* with the fourth, the second, then the third longest. *Eyes* close together, disposed four and four in two lines, bent backwards in somewhat a concentric manner; those of the hinder line disposed in pairs.

Sp. 1. *Durandii*. Thorax rusty brown, margined with pale yellow; abdomen black, with five red spots arranged 2, 2, 1; legs livid brown.

Clotho Durandii.

Latr. Gen. Crust. et Ins. vol. iv. append.

Leach, Edin. Encycl. vii. 422.

Inhabits Montpellier, building its web amongst stones.

Gen. 23. CLUBIONA. *Latreille, Walckanäer, Leach*.

Maxillæ strait and longitudinal; the basis a little dilated externally; the apex rounded and obliquely truncated on the inside. *Lip* elongate, quadrate, gradually narrowing towards the point. *Legs*, the first or the fourth pair longer than the second pair.

* *The two outermost eyes on either side neither placed very close together, nor inserted on a distinct prominence. (The maxilla in all with an incrassated base; the fourth pair of feet (rarely the first) longest.)*

Sp. 1. *Lapidicola*. Thorax and mandibles pale reddish; feet very light red; abdomen ash-grey coloured.

Clubiona lapidicola.

Walck. Tab. des Aran. 46.

Latr. Gen. Crust. et Insect. i. 91.

Leach, Edin. Encycl. vii. 422.

Inhabits France and England, under stones, constructing a globular cell of the size of a common hazel nut, in the centre of which are deposited a vast number of pale yellowish eggs, agglutinated into a spherical mass.

The mandibles of the male are porrect, and rather more than half of the length of the thorax; those of the female rather vertical.

** *The two external eyes on each side placed rather close to each other. (Maxillæ not always thickened at their base; the first and then the second pair of legs longest.)*

A. *Maxillæ* somewhat thickened at their base, and transversely impressed before the middle.

Sp. 2. *Nutrix*. Ungulæ black; thorax and mandibles light red; legs very light red; abdomen yellowish green, with an obscure longitudinal band.

Clubiona nutrix.

Walck. Tab. des Aran. 43.

Latr. Gen. Crust. et Insect. i. 92.

Leach, Edin. Encycl. vii. 422.

Inhabits the environs of Paris; it is common in a place called Sevres, building a nest amongst the leaves of the *Eryngium campestre*. Mandibles of the male stronger than those of the female.

It has once occurred in England, near Cheltenham.

B. *Maxillæ* not thickened at their base; front not transversely impressed.

Sp. 3. *Atrox*. Brown; legs pale; tibiæ with dark spots; middle of the back of the abdomen, with a somewhat quadrate black spot, margined with yellow.

Clubiona atrox.

Walck. Tab. des Aran. 44.

Latr. Gen. Crust. et Insect. 93.

Leach, Edin. Encycl. vii. 422.

Aranea atrox.

De Geer, Mém. sur les Insect. vii. 253. pl. 14. fig. 24; 25.

Inhabits old walls and fissures of rocks. It is very common in Britain and France. A tolerable figure

Arachnides.

Arachnides, is given in the work of Dr Lister on *British Spiders*, p. 68. fig. 21.

Gen. 24. ARANEA of authors.

TEGENERIA. Walckanäer.

Maxilla strait and longitudinal, with their internal angle distinctly truncate, diameter equal, apex rounded. *Lip* elongate, nearly quadrate, longer than broad, towards the superior angles a little narrower. *Legs*, the anterior pair about the same length with the fourth pair; third pair shortest. *Eyes* disposed in two transverse lines near each other, and bent backwards.

Sp. 1. *Domestica*. Livid-cinereous; thorax of the male immaculate; of the female on each side with longitudinal blackish band; abdomen blackish, middle of its back with a longitudinal, maculose, dentated band, and the lateral lineolæ livid.

Aranea domestica.

Fabr. Ent. Syst. ii. 412.

Linn. Syst. Nat. i. 1031.

Latr. Gen. Crust. et Insect. i. 96.

Leach, Edin. Encycl. vii. 423.

Tegeneria domestica.

Walck. Tab. des Aran. 49.

Inhabits houses in Europe: spinning its web in a place where there is a cavity, such as the corner of a room. The mode of constructing the web is curious. Having chosen a convenient situation, she fixes one end of her thread to the wall, and passes on to the other side, dragging the thread along with her till she arrive at the other side, where she fixes the other end of it. Thus she passes and repasses until she has made as many parallel threads as are necessary; she then crosses these by other threads. This net is intended for the capture of her prey, and, in addition to it, the animal prepares a cell for herself, where she remains concealed, and on the watch. Between the cell and the net, the spider builds a bridge of threads, which, by communicating with the threads of the large net, both gives her intelligence when any thing touches the web, and enables her to pass quickly in order to seize it.

Gen. 25. AGELENA. Walckanäer.

Maxilla strait and longitudinal, their internal angle slightly truncate; diameters equal, apex rounded. *Lip* not longer than broad, towards the superior angle a little narrower. *Legs* moderately long, the anterior and fourth pairs of nearly equal length, the third pair shortest. *Eyes* disposed in two transverse lines near to each other, and bent backwards.

Sp. 1. *Labyrinthica*. Griseous-pale-reddish; thorax on each side with a blackish longitudinal line; abdomen black, above and on each side with white oblique lines forming obtuse angles, running together anteriorly in pairs; the weaving appendices or nipples conic, elongate.

Aranea labyrinthica.

Linn. Syst. Nat. i. 1031.

Fabr. Ent. Syst. ii. 418.

Latr. Gen. Crust. et Insect. i. 95.

Leach, Edin. Encycl. vii. 423.

Agelena labyrinthica.

Walckanäer, Tab. des Aran. 51.

Inhabits the fields. It is very common in most

parts of Europe during the summer months. In Britain it is most abundant in the autumn. It spins a horizontal web on the ground, in which it watches for its prey, consisting principally of flies and other dipterous insects. The spider itself lives in a funnel-shaped cavity, often extending below the surface of the ground.

Gen. 26. ARGYRONETA. Latreille, Walckanäer, Leach.

Maxilla short, strait, elongate-quadrate, the sides of nearly equal diameters; anteriorly convex; the apex rounded. *Lip* short, shorter than the maxillæ; of a narrow elongate-triangular form; the anterior aspect convex; the apex obtuse or truncate. *Legs*, the first, the fourth pair longest; the second pair shortest. *Eyes* with the four middle ones forming a quadrangle, the two on each side set obliquely and subgeminated.

Sp. *Aquatica*. Blackish-brown; abdomen black velvety, with some impressed dots on its back.

Aranea aquatica.

Linn. Syst. Nat. i. 1036.

Fabr. Entom. Syst. ii. 418.

Argyroneta aquatica.

Latr. Gen. Crust. et Insect. i. 95.

Walck. Tab. des Aran.

Leach, Edin. Encycl. vii. 423.

Inhabits Europe, frequenting slow running waters and ditches, in which it spins a web most beautifully constructed under the water, in which it lives, being surrounded by air, which shines through the water with a silvery lustre. The eggs are deposited in a globose silky bag. It is extremely common in most of the ditches round London, and may be observed, especially in the beginning of the summer, building its nest beneath the water, or running along the lines by which it is suspended.

Stirps 2. *

Gen. 27. SYCTODES. Latreille, Walckanäer, Leach.

Maxilla oblique and longitudinal, covering the sides of the lip; their bases thickened, the apex internally obliquely truncated. *Lip* somewhat quadrate, the base a little contracted. *Legs* with the fourth, then the first pair longest; the third pair shortest.

Sp. 1. *Thoracica*. Pale reddish-white, spotted with black; thorax large and somewhat orbicular, elevated roundly behind; abdomen lighter in colour, and subglobose.

Syctodes thoracica.

Walck. Tab. des Aran. 79.

Latr. Gen. Crust. et Ins. i. 99. tab. 5. fig. 4.

Leach, Edinb. Encycl. vii. 423.

Inhabits Paris, in houses. It has twice occurred near Dover, but both the individuals were females.

Gen. 28. THERIDIUM.

THERIDIUM. Walckanäer, Latreille, Leach.

Maxilla with an oblique direction covering the sides of the lip, converging towards their points; of equal breadth; the internal apex obtuse, or obliquely truncated. *Lip* small, triangular or semicircular; the apex truncate or subrounded. *Legs* elongate, the first, then the fourth pair longest. *Eyes* with four in the centre, forming a quadrangle, the under

Arachnides. ones placed on a common elevation; two others on each side geminated, and situated on a common elevation.

Sp. 1. *Sisiphum*. Rufous; abdomen globose, with white lines.

Theridion sisiphum.

Latr. Gen. Crust. et Insect. i. 97.

Walck. Tab. des Aran. 74.

Leach, Edinb. Encycl. vii. 423.

Inhabits Europe, in the corners of buildings, walls and rocks. It is figured by Lister, t. 14. f. 14.

Gen. 29. *LATRODÆCTUS*. *Walckanæer, Latreille.*

Maxillæ, with an oblique direction covering the sides of the lip, converging towards their points; of equal breadth; the internal apex truncate or sub-rounded. *Lip* small, triangular, or semicircular; the apex truncate or rounded. *Legs* elongate, the first then the second pair largest. *Eyes* placed four and four, in two transverse, strait and parallel lines.

Sp. 1. *Tredecim-guttatus*. Black, abdomen globose, with thirteen sanguineous spots.

Aranea, 13-guttata.

Ross, Fn. Etrus. ii. 136. tab. 9. fig. 10.

Fabr. Ent. Syst. ii. 409.

Latrodecete Malmignatte. Walck. Tab. des Aran. 81.

Theridion tredecim-guttatum.

Latr. Gen. Crust. et Insect. i. 98.

Leach, Edin. Encycl. vii. 424.

Latrodecetus, 13-guttatus.

Latr. Considerat. 424.

Inhabits Italy, and is not uncommon in the plains of that country.

Gen. 30. *PHOLCUS*. *Walckanæer, Latreille, Leach.*

Maxillæ oblique, covering the side of the lip, converging from the base to the apex; apex internally truncated. *Lip* transversely quadrate, the lateral angles of the apex rounded and somewhat margined. *Legs* very long and very slender; the first, then the second and fourth (nearly equal) longest. *Eyes* inserted on a tubercle, two geminated, and placed transversely in the middle; three on each side amassed in a triangle, one larger than the rest.

Sp. 1. *Phalangioides*. Pale-livid; abdomen elongate, cylindric oval, very soft, obscure cinereous; tip of the tibiae and thighs with a pale ring of whitish colour.

Pholcus phalangioides.

Walck. Tab. des Aran. 80.

Latr. Gen. Crust. et Insect. i. 99.

Leach, Edin. Encycl. vii. 424.

Aranea Pluchii.

Scopol. Ent. Carn. 1120.

Aranea opilionides.

Schrank, Enum. Ins. Aust. 1103.

Aranea phalangioides.

Fouri. Ent. Paris, ii. 213.

Inhabits houses in Europe; in the western parts of England it is extremely common. Its body vibrates like that of a tipulideous insect.

*Stirps 2. ***

Gen. 31. *ULOBORUS*. *Latreille, Leach.*

Eyes equal and very minute, disposed in two transverse lines, the first nearly strait, or scarcely bent backwards, the two middle eyes a little closer than the others; the posterior line bent forwards. *Maxillæ* strait, broad and inversely triangular, the side broader than the apex. *Lip* very broad and semicircular. *Legs* with the first pair much the largest, then the fourth and afterwards the second, the third being consequently the smallest.

Sp. 1. *Walckanæerius*. Pale reddish yellowed; thorax and abdomen silky, back white; abdomen oblong banded with fasciculi of hairs; legs banded with darker rings.

Uloberus Walckanæerius.

Latr. Gen. Crust. et Insect. i. 110.

Leach, Edinb. Encycl. vii. 424.

Inhabits the pines of Germany and France, in which it constructs its web.

Gen. 32. *TETRAGNATHA*. *Latreille, Leach.*

Eyes subequal, disposed in two strait and almost parallel transverse lines, the four middle ones forming nearly a regular quadrangle. *Maxillæ* strait, elongate and narrow, almost equally broad; the apex externally dilated and round; *Lip* semicircular and somewhat notched. *Legs* very long and very slender, the first pair longest, then the second, afterwards the fourth.

Sp. 1. *Extensa*. Reddish, abdomen oblong, golden green, with the sides and two lines below yellowish; the middle below longitudinally black.

Aranea extensa.

Lin. Syst. Nat. i. 1084.

Fabr. Ent. Syst. ii. 407.

Tetragnatha extensa.

Latr. Gen. Crust. et Insect. i. 101.

Walck. Tab. des Aran. 68.

Leach, Edinb. Encycl. vii. 424.

Inhabits Europe, frequenting moist places, in which it constructs a vertical web, sitting on it with its legs extended.

Gen. 33. *LINYPHIA*. *Latreille, Walckanæer, Leach.*

Eyes with the four middle ones disposed in an irregular quadrangle; the eyes on each side geminated, and placed obliquely. *Maxillæ* nearly strait, inversely-suboval. *Lip* semicircular. *Legs* elongate and slender, the first pair longest, then the second, then the third.

Sp. 1. *Triangularis*. Pale reddish, inclining to yellow; thorax with a black dorsal line, bifid in front; abdomen oval, inclining to globose, with spots and angulated bands of brown and white; legs immaculate.

Linyphia triangularis.

Latr. Gen. Crust. et Insect. i. 100.

Walck. Tab. des Aran. 70.

Leach, Edinb. Encycl. vii. 424.

Inhabits hedges in Europe, constructing its web on gerania and pines.

Gen. 34. *EPËIRA*. *Walckanæer, Latreille, Leach.**

Eyes with the four middle ones placed on an abruptly formed tubercle, in the form of a quadrangle, the two anterior ones largest and most distant; the

* This genus, as defined by Latreille, requires much division into other genera: That author has divided the genus into sections, most of which would form good genera.

Arachnides. lateral eyes on each side subgeminated, and placed obliquely on a tubercle. *Maxillæ* subcircular, internally membranaceous. *Lip* semicircular, short with the point membranaceous. *Legs* moderately long, hispid, the thighs rather strong, the first pair largest, then the second, afterwards the fourth pair.

Thorax inversely elongate-subcordate, anteriorly broadly truncated. *Abdomen* subglobose, large, much broader than the thorax.

Sp. 1. *Diadema*. Reddish; abdomen globose-oval, with an elevated angle on each side of its base, dorsal band broad, triangular, dentated, darker, with a triple cross of luteous white dots or spots, and with four impressed dots disposed in a quadrangle.

Aranea Diadema.

Linn. Syst. Nat. i. 1030.

Araignée à croix.

De Geer, Mém. sur les Insect. vii. 218. pl. ii. f. 3.

Epëira Diadema.

Walck. Tab. des Aran. lviii.

Latr. Gen. Crust. et Insect. i. 106.

Leach, Edinb. Encycl. vii. 424.

Inhabits Europe. It frequents the borders of woods, rocks and gardens, and is well known in Britain by the names Sceptre or Diadem-spider.

Gen. 35. *NEPHILA*. *Leach*.

Eyes with the four middle ones placed on a gradually formed elevation, in the form of a quadrangle, the two anterior ones rather largest; the lateral ones on each side placed on a tubercle, subgeminated and set obliquely. *Maxillæ* elongate, with their base narrow, their apex truncate. *Lip* elongate, rather narrower at their base, the apex abruptly subacuminate. *Legs* elongate, slender, somewhat hairy, the first pair longest, then the second, then the fourth.

Thorax elongate-quadrate, anteriorly abruptly narrower, notched behind. *Abdomen* elongate, not or scarcely broader than the thorax.

Sp. 1. *Maculata*. Blackish; thorax fuscous-ferruginous; coxæ and base of the palpi croceous-luteous; abdomen luteous, the belly and sides infuscate; the latter with lines, the former with spots of white.

Aranea maculata. *Fabr.* 2. 134. t. 110.

Nephila. *Leach, Zool. Miscel.*

Inhabits China.

Stirps 3. ***

Gen. 36. *EPISENUS*. *Walckanäer, Latreille, Leach*.

Eyes forming the segment of a circle; of nearly an equal size, placed on an eminence. *Maxillæ* strait and longitudinal, the base a little dilated, the apex rounded. *Lip* very semicircular, much broader than long. *Legs* much lengthened; the anterior and then the fourth pair of legs longest; the third pair shortest.

Sp. 1. *Truncatus*. Thorax condiform, a little longer than broad, anteriorly acute; above obscure dark brown, beneath reddish brown; abdomen pyramidal, brown anteriorly, margined, behind truncated; third pair of legs whitish, the others brown, points of the first and fourth with white bases.

Episenus truncatus.

Latr. Gen. Crust. et Insect. i. 126.

Leach, Edinb. Encycl. vii. 425.

Inhabits the vicinity of Turin.

Gen. 37. *MICROMMATA*. *Latreille, Leach*.

SPARASSUS. *Walckanäer*.

Eyes subequal, disposed nearly in a semicircle, and surrounded by hairs. *Maxillæ* strait, quadrate-suboval, the longitudinal angle anteriorly; the internal side with a concave base, the apex obliquely truncated. *Lip* short and semicircular. *Legs* elongate; fourth longest, then the second, which are a little shorter than the first; the tips of the tarsi beneath furnished with a little double brush.

Sp. 1. *Smaragdina*. Bright green; back of the abdomen with dark longitudinal band; (that of the male with three longitudinal red lines.)

Micrommate.

Latr. Nouv. Dict. d'Hist. Nat. 24. tab. p. 135.

Aranea smaragdula.

Fabr. Ent. Syst. ii. 412.

Sparassus smaragdulus.

Walck. Tab. des Aran. 30.

Micrommata smaragdina.

Latr. Gen. Crust. et Insect. i. 115.

Leach, Edin. Encycl. vii. 426.

Gen. 38. *THOMISUS*. *Walckanäer, Latreille, Leach*

HETEROPODA. *Latreille*.

MISUMENA. *Latreille*.

Eyes generally subequal, placed in two transverse lines in a kind of semicircle. *Maxillæ* oblique, covering the side of the lip, and in some degree converging; the internal apex truncate. *Lip* somewhat oval, or nearly quadrate, generally longer than broad. *Legs*, the first and second pair longest; the second pair rather longest; the third and fourth pair of legs much less, sometimes one being largest, sometimes the other.

The mandibles of the animals composing this genus, are either perpendicular or somewhat inflexed, in many conical, with very short claws.

* *Thorax* convex, cordiform, the sides, especially behind, abruptly sloping, anteriorly broadly truncate; the largest legs not double the length of the body; the first and second pair much thicker than the others, sometimes one, sometimes the other being longest. The first joint of the tarsi, with several moveable little spines, in a single or in a double series, the claws of the tarsi naked. *Lip* sometimes oval, the apex truncate or obtuse. Apex of the maxilla wedge-shaped.

Sp. 1. *Citreus*. Thorax at the insertion of the eyes transversely elevated; the sides anteriorly produced and prominent; eyes equal; abdomen roundish-triangular, broader behind, with a red line on each side; body yellowish-citron-coloured.

Thomisus citreus.

Walck. Tab. des Aran. 21.

Latr. Gen. Crust. et Insect. i. 111.

Leach, Edinb. Encycl. vii. 426.

Inhabits Europe, living in flowers. It is very common in Britain; the male is rare, smaller than the female, of a brown colour, banded with yellowish-green.

** *Thorax* convex, cordiform, the sides, especially behind, abruptly sloping, the anterior part broadly truncated; the larger legs not twice the length of the body, all of nearly an equal

Arachnides.

degree of thickness; the hinder four not much shorter; the anterior with four little spines; the claws of all the tarsi scarcely visible. Lips somewhat oval; the apex truncate or obtuse. Maxillæ at their points wedge-shaped.

Sp. 2. *Lynceus*. Lateral eyes largest, placed on an eminence, the tubercles of the hinder ones thickest; body pale yellowish-grey, variegated with punctures and spots of a blackish colour; abdomen very large, of a triangular-oval form, broader behind.

Thomisus lynceus.

Latr. Gen. Crust. et Insect. i. 112.

Leach, Edinb. Encycl. vii. 426.

Inhabits France and Scotland. Latreille considers it to be much allied to *Thomisus onustus* of Walckanäer.

*** Thorax depressed, somewhat oval, very obtuse before; the larger legs not twice the length of the body: all the legs of equal thickness; the tarsi hairy beneath, the first joint with a few little spines; the apex with two brushes under the claws; abdomen oblong; the maxillæ beyond the insertion of the palpi, nearly of an equal breadth, distinctly and abruptly truncated; lip somewhat quadrate; hinder eyes distant.

Sp. 3. *Oblongus*. Pale-yellowish, with white hairs above; abdomen somewhat cylindrical, with obscure longitudinal lines.

Thomisus oblongus.

Walck. Tabl. des Aran. 38.

Latr. Gen. Crust. et Insect. i. 113.

Leach, Edinb. Encycl. vii. 426.

Inhabits France, Denmark, and England, on plants.

**** Thorax depressed, cordiform, anteriorly truncated; the four anterior legs more than double the length of the body; the under parts of the tarsi generally hairy, always furnished with two little brushes under the claws; maxillæ short, much inflexed above the lip, nearly of an equal breadth beyond the insertion of the palpi; apex abruptly truncated; lip nearly quadrate, broad; the second pair of legs longest.

A. Tarsi hairy beneath. Eyes disposed in two nearly parallel lines; the third pair of legs shorter than the fourth.

Sp. 4. *Regia*. The four lateral eyes largest; body pale-dirty yellow, inclining to red; thorax, with the anterior margin, and a posterior band yellowish-grey, the hinder band margined with black above.

Aranea regia. Fabr. Ent. Syst. ii. 408.

Thomisus leucosia.

Walck. Tabl. des Aran. 36.

Latr. Gen. Crust. et Insect. i. 113.

Leach, Edinb. Encycl. vii. 426.

Inhabits the Isle of France.

B. Tarsi scarcely hairy beneath. Eyes disposed in a semicircle; third pair of legs longer than the fourth.

Sp. 5. *Venatorius*. Yellowish-red; abdomen yellow-grey, clouded with ash-grey; legs spotted with black.

Aranea venatoria. Linn. Syst. Nat. i. 1035.

VOL. I. PART II.

Thomisus venatorius.

Latr. Gen. Crust. et Insect. i. 114.

Leach, Edinb. Encycl. vii. 427.

Inhabits the American Islands.

Obs. *Aranea venatoria* of Fabricius, is the same with the *Mygale nidulans* of Walckanäer.

C. Tarsi scarcely hairy beneath. Eyes placed in a semicircle. Third pair of legs longer than the fourth.

Sp. 6. *Levipipes*. Body grey, spotted with black; abdomen plain, rhomboidal.

Aranea levipes.

Linn. Syst. Nat. i. 1037.

Fab. Ent. Syst. ii. 413.

Thomisus tigrinus.

Latr. Gen. Crust. et Insect. i. 114.

Walck. Tabl. des Aran. 34.

Thomisus levipes.

Leach, Edinb. Encycl. vii. 427.

Inhabits Europe; it resides on the branches of trees, and runs with great celerity.

*Stirps 3. **

Gen. 39. *OXYOPES. Latreille, Leach.*

SPHASUS. Walckanäer.

Maxillæ strait, longitudinal and elongate, of an equal breadth from the base to the apex, which is externally gradually arcuated, internally obliquely truncated. Lip oblong-quadrate. Legs long and slender; the first pair longest, then the fourth and second, which are nearly of equal length; tarsi short; claws exerted, with no brush beneath. Eyes disposed in four transverse lines, forming an elongate hexagon.

Sp. 1. *Variiegatus*. Body hairy and grey, variegated with red and white; legs pale, reddish, spotted with brown; the tibial spines elongate.

Oxyope.

Latr. Nouv. Dict. d'Hist. Nat. tom. xxiv. tabl. p. 135.

Spasus heterophthalmus.

Walck. Tab. des Aran. xix.

Oxyopes variegatus.

Latr. Gen. Crust. et Insect. i. 116.

Leach, Edinb. Encycl. vii. 427.

Inhabits France.

Gen. 40. *STORENA. Walckanäer, Latreille, Leach.*

Maxillæ much longer than the lip, which they cover. Lip oval and lengthened. Eyes disposed in three transverse lines, forming a nearly equal sided hexagon.

Sp. 1. *Cærulea*.

Storene bleue. Walckanäer.

Latreille, Considerat. 424.

Gen. 41. *CTENUS. Walckanäer, Latreille, Leach.*

Maxillæ strait. Lip very much shorter than the maxillæ. Eyes disposed in three transverse lines, forming an angulated curved line.

Sp. 1. *Ambiguus*.

Ctène douteux.

Walckanäer.

Latreille, Consider. 424.

*Stirps 3. ***

Gen. 42. *LYCOSA. Latreille, Walckanäer, Leach.*

Maxillæ strait, anteriorly convex; externally

3 K

Arachnides.

Arachnides. towards the side, somewhat arcuated, internally slightly margined, gradually narrowing towards the base; the apex obliquely truncated, forming almost an inverted triangle. *Lip* elongate, quadrate. *Legs* strong, the fourth pair longest, then the second; the third shortest.

Sp. 1. *Tarentula*. Body above cinereous-fuscous; mandibles and palpi towards their middles ferruginous, their tips black; thorax with a radiated dorsal line and margins griseous; abdomen anteriorly above with trigonal spots, behind with arcuate, transverse streaks of black, bordered with white; beneath bright saffron colour, with a transverse black band; thighs and tibiae beneath rufous-white, with two black spots.

Aranea tarentula.

Linn. Syst. Nat. i. 1035.

Fabr. Ent. Syst. ii. 425.

Lycosa tarentula.

Walck. Tabl. des Aran. xi.

Latr. Gen. Crust. et Insect. i. 119.

Leach, Edinb. Encycl. vii. 427.

Inhabits the south of Europe. This species is the celebrated *Tarentula* spider, of which such marvellous accounts have been given by travellers, who have described its bite as generally fatal, and to be curable only by music, the effects of which were, to cause the patient to dance until a profuse perspiration was produced, by which a certain cure was effected.

The name *tarentula* is derived from *Tarentum* (now *Taranto*), in the kingdom of *Naples*, near which place they were supposed to be found in the greatest plenty. It is figured in *Albin's spiders*, tab. 39.

Sp. 2. *Saccata*. Above smoky-black, clouded with cinereous villosity; carina of the thorax obscure, reddish, with a cinereous villous line; base of the abdomen with a little bundle of griseous hairs; legs livid-red, with blackish spots.

Lycosa saccata.

Walck. Tabl. des Aran. 13.

Latr. Gen. Crust. et Insect. i. 120.

Leach, Edinb. Encycl. vii. 427.

Inhabits Europe. It is very common in Britain; the female may be observed in gardens, carrying her bag of eggs, of a green colour. Palpi, mandibles and anterior margin of the thorax livid red in the female, black in the male.

Gen. 43. DOLOMEDES.

Latreille, Walckanäer, Leach.

Maxilla strait, oval-quadrate, the apex externally rounded, internally obliquely truncated. *Lip* somewhat square, the diameters nearly equal, the points of the angles rounded. *Legs* elongate, the fourth pair longest, then the second, the third shortest: *Claws* exerted without brushes below.

Sp. 1. *Mirabilis*. Pale reddish, covered with greyish down; thorax heart-shaped, anteriorly, abruptly sloping; the anterior angles and dorsal line whitish; abdomen conical, suboval, back darker.

Aranea saccata.

Linn. Syst. Nat. i. 1036.

Dolomedes mirabilis.

Walck. Tabl. des Aran. 16.

Latr. Gen. Crust. et Insect. i. 117.

Leach, Edin. Encycl. vii. 427.

Aranea Listeri.

Scopol. Ent. Carn. 1093?

Aranea obscura.

Fabr. Ent. Syst. ii. 419.

Inhabits the woods of Europe. The female carries about her eggs inclosed in a dirty orange-coloured or whitish bag; this economy is common to the whole genus.

Stirps 4.

Gen. 44. ERESUS. *Walckanäer, Latreille, Leach.*

Maxilla strait, longitudinal, subcuneiform, the apex broader, externally rounded, internally obliquely truncated. *Legs* strong, short, formed for leaping; the fourth pair longest, then the first; the third pair shortest, a little shorter than the second. *Eyes* disposed in two quadrangles, one quadrangle inclosed by another.

Sp. 1. *Moniligerus*. Black; abdomen above cinnamon-coloured, with four or six black dots, arranged in two longitudinal lines; joints of the legs whitish; hinder sides of the thorax, the thighs, and the first joint of the four hinder legs pale-cinnabar.

Eresus cinnabarinus.

Walck. Tabl. des Aran. 21.

Latr. Gen. Crust. et Insect. i. 122.

Leach, Edin. Encycl. vii. 428.

Aranea moniligera.

Villers, Ent. iv. 128. tab. 11. f. 8.

Aranea quadriguttata.

Rossi, Fn. Etrusc. ii. 135. pl. 1. f. 8, 9.

Inhabits France, Germany, and England.

Gen. 45. SALTICUS. *Latreille, Leach.*

ATTUS. *Walckanäer.*

Maxilla strait, longitudinal, subrhomboidal, or inverse-cuneate-ovate. *Lip* elongate suboval, the apex obtuse. *Palpi* clavate. *Thorax* truncate-ovate or parallelogrammic. *Eyes* disposed in the form of a horse-shoe, the two middle ones largest. *Legs* thick and short; the first pair thickest and not longer than the fourth pair; the second and the third pairs of nearly an equal length, and shorter than the two other pairs.

Sp. 1. *Scenicus*. Black; margin of the thorax covered with white down; abdomen short ovate, above with a reddish-gray pubescence, with three transverse arcuate lines, and the anus white; the first band basal and entire, the others acutely bent anteriorly, and interrupted in their middle.

Aranea scenica.

Linn. Syst. Nat. i. 1035.

Fabr. Ent. Syst. ii. 422.

Atte paré. Walck. Tabl. des Aran. 24.

Salticus scenicus.

Latr. Gen. Crust. et Insect. i. 123.

Leach, Edin. Encycl. vii. 428.

Inhabits walls and palings. It is found in most parts of Europe, and is called in Britain the Hunting-spider.

Palpi of the female whitish; legs of the same sex reddish-gray, with darker spots. Male with very large mandibles.

Gen. 46. ATTUS. *Walckanäer.*

SALTICUS. *Latreille, Leach.*

Maxilla strait, longitudinal, subrhomboidal or

Arachnides.

Arachnides inversely cuneate-ovate. Lip elongate, suboval, with the apex obtuse. Palpi filiform. Thorax elongate, narrow, subconic. Eyes disposed in the form of a horse-shoe; the two middle eyes largest. Legs slender, elongate, the first pair thickest and not longer than the fourth pair; the second and third pairs of nearly an equal length, and shorter than the two other pairs.

This genus we have separated from Salticus, with which it was placed by Latreille; and we have given it the name applied by Walckenaër to both these genera, which he did not think distinct from one another.

Sp. 1. *Formicarius*. Thorax anteriorly black, behind red; abdomen fuscous, with a white spot on each side; legs red.

Attus formicarius.

Walck. *Tabl. des Aran.* 26.

Salticus formicarius.

Latr. *Gen. Crust. et Insect.* i. 124.

Leach, *Edin. Encycl.* vii. 428.

Araignée fourmi.

De Geer, *Mém. sur les Insect.* vii. 293. tab. 18. fig. 1, 2.

Inhabits Europe, residing on plants and walls. It is very rare in Scotland, and has not been observed in England.

Order IV. MONOMEROSOMATA.

SECTION I.

Legs formed for walking.

A. Mouth with mandibles.

Fam. I. TROMBIDIDÆ. Palpi porrect, and furnished at their extremities with a moveable appendage.

Stirps 1. Eyes two placed on a pillar. Body apparently divided into two parts by a transverse line; the anterior division bearing the eyes, mouth and our anterior legs.

Genus 47. TROMBIDIUM.

48. OCYPETE.

Stirps 2. Body not divided by a transverse line. Palpi with the under part of their last joint furnished with a moveable appendage. Eyes sessile.

Genus 49. ERYTHRÆUS.

Fam. II. GAMMASIDÆ. Palpi porrect, simple.

Genus 50. GAMMASUS.

Fam. III. ACARIDÆ. Mouth furnished with mandibles. Palpi simple, very short, not porrected.

Genus 51. ORIBITA.

52. NOTASPIS.

53. ACARUS.

B. Mouth furnished with a rostrum.

Fam. IV. IKODIDÆ. Eyes obscure or concealed.

Stirps 1. Palpi and Rostrum exerted.

Genus 54. ARGAS.

55. IXODES.

Stirps 2. Palpi and Rostrum hidden.

Genus 56. UROPODA.

Fam. V. CHEYLETIDÆ. Eyes distinct.

Stirps 1. Palpi distinct.

Genus 57. CHEYLETUS.

58. SMARIS.

59. BDELLA.

Stirps 2. Palpi concealed.

Genus 60. SARCOPTES.

SECTION II.

Legs formed for swimming.

Fam. I. EYLÄIDÆ. Mouth furnished with mandibles.

Genus 61. EYLÄIS.

Fam. II. HYDRACHNIDÆ. Mouth without mandibles.

Genus 62. HYDRACHNA.

Genus 63. LINNOCHARES.

Section I. A.

Family I. TROMBIDIDÆ. *Stirps 1.*

Gen. 47. TROMBIDIUM of authors. Legs eight.

Sp. 1. *Tinctorium*. Body subquadrate, coccineous, immaculate, very tomentose and hairy; the hairs setaceous, elongate, bearded.

Acarus tinctorius. Linn. *Syst. Nat.* i. 1025.

Trombidium tinctorium.

Fabr. Ent. Syst. ii. 398.

Latr. *Gen. Crust. et Insect.* i. 145.

Leach, *Edin. Encycl.* vii. 416.

Inhabits Guinea: It is often preserved in collections, and is probably a common animal. Its colour is destroyed by alcohol.

Gen. 48. OCYPETE. Leach.

Legs six.

Sp. 1. *Rubra*. Red; back with a few long hairs, the legs with many short hairs of a rufous-cinereous colour; eyes black-brown.

Ocypete rubra. Leach, *Trans. Linn. Soc.* xi.

— *Edinb. Encycl.* vii. 434.

This curious little animal, which is not larger than a grain of small sand, is parasitic, and is frequently to be found on the largest tipularidous insects, adhering to their legs. We have obtained no less than sixteen specimens from one insect.

Family I. *Stirps 2.*

Gen. 49. ERYTHRÆUS. Latreille, Leach.

Palpi with their moveable appendage subcheliferous. Hinder legs longest, then the first.

Sp. 1. *Phalangioides*. Legs very long, the last joint broad, compressed; body obscure-red, with a dorsal band of orange-yellow.

Erythræus phalangioides.

Latr. *Gen. Crust. et Insect.* i. 146.

Leach, *Edin. Encycl.* vii. 416.

Inhabits Europe, running on the ground with great rapidity.

Family II. GAMMASIDÆ.

Gen. 50. GAMMASUS. Latreille, Leach.

Body depressed, the skin of the back partly or entirely coriaceous.

* Anterior portion of the back, and a triangular part behind, coriaceous.

Sp. 1. *Coleopratorum*. Coriaceous parts of the back fuscous; anterior pair of legs a little longer than the hinder ones.

Gammase des Coléoptères.

Latr. *Hist. Nat. des Crust. et des Insect.* vii. 399.

Gammase des Coléoptères.

Latr. *Gen. Crust. et Ins.* i. 147.

Leach, *Edin. Encycl.* vii. 415.

Arachnides.

Arachnides. *Acarus coleopratorum*.

Linn. Syst. Nat. i. 1026.

Fabr. Ent. Syst. iv. 432.

Inhabits the excrements of horses and oxen, often attaching itself to Scarabæi; *Histeres*, &c. in great numbers; we have counted nearly one hundred on *Scarabæus stercorarius* (the common Dörbeetle).

** *Back entirely coriaceous*.

Sp. 2. *Marginatus*. Ovate, brown; belly coriaceous, the sides alone membranaceous and whitish; anterior legs nearly twice the length of the body.

Gammasus marginatus.

Latr. Gen. Crust. et Insect. i. 148.

Leach, Edin. Encycl. vii. 415.

Inhabits dung and dead animals.

Family III. ACARIDÆ.

Gen. 51. ORIBITA. *Latreille, Leach*.

Body covered by a coriaceous skin; anterior part rostrated; the produced part inclosing the organs of mastication. *Abdomen* subglobose. *Tarsi* with claws.

Sp. 1. *Geniculata*. Fuscous-castaneous, shining, hairy; legs pale-fuscous; thighs subclavate.

Acarus geniculatus. *Linn. Syst. Nat.* i. 1025.

Oribita geniculata.

Latr. Gen. Crust. et Insect. i. 149.

Leach, Edin. Encycl. vii. 415.

Inhabits trees and beneath stones. It is common in Sweden, Germany, and England.

Gen. 52. NOTASPIS. *Hermann*.

Body covered by a coriaceous skin, the anterior part rostrated, the produced part inclosing the organs of mastication. *Abdomen* subglobose, the sides anteriorly with a wing-like process. *Tarsi* with claws.

Sp. 1. *Humeralis*. *Abdomen* blackish-chesnut; the produced parts membranaceous.

Mitte à rebord.

De Geer, Mém. sur les Insect. vii. 133? pl. 8.

fig. 6.

Oribita humeralis.

Latr. Gen. Crust. et Ins. i. 150.

Leach, Edin. Encycl. vii. 415.

Inhabits moss, and beneath stones. It is not uncommon in the southern parts of Devonshire.

Gen. 53. ACARUS of authors.

Body soft. Mouth naked. *Tarsi* with a pedunculated vesicle at their extremities.

Sp. 1. *Domesticus*. White, with two brown spots; body ovate, the middle coarctate, with very long hairs; legs equal.

Ciron du fromage. *Geoff. Hist. des Insect.* ii. 622.

Mitte domestique.

De Geer, Mém. sur les Insect. vii. 88. pl. 5.

fig. 1—4.

Acarus siro.

Linn. Syst. Nat. i. 1024.

Fabr. Ent. Syst. iv. 430.

Leach, Edin. Encycl. vii. 415.

Acarus domesticus.

Latr. Gen. Crust. et Insect. i. 150.

Tyroglyphus.

Latr. Préc. des Caract. Génér. des Insect. 185.

Inhabits houses, living in cheese and flower that have been kept too long.

SECTION I. B.

Family IV. IXODIDÆ. *Stirps* 1.

Gen. 54. ARGAS. *Latreille, Leach*.

RHYNOHOPRION. *Hermann*.

Palpi short, conic, four-jointed.

Sp. 1. *Marginatus*. Pale-yellowish, or fleshy violet, margined; with very short squamulæ, with branched blood-vessels.

Acarus marginatus. *Fabr. Ent. Syst.* iv. 427.

Argas reflexus.

Latr. Gen. Crust. et Insect. i. 155.

Leach, Edin. Encycl. vii. 414.

Plate XXIII.

Inhabits houses in France, sucking the blood of doves.

Gen. 55. IXODES. *Latreille, Leach*.

CYNORHÆSTES. *Hermann*.

Palpi equally broad, longer than broad.

Dr Leach has written a paper on the British species of this genus, in the eleventh volume of the *Transactions of the Linnean Society*.

Sp. 1. *Ricinus*. Scutus rounded, smaller; with the vagina of the rostrum, and the legs fuscous; abdomen varying in colour.

Acarus ricinus.

Linn. Syst. Nat. i. 1023.

Fabr. Ent. Syst. iv. 425.

Idodes ricinus.

Latr. Gen. Crust. et Insect.

Leach, Edin. Encycl. vii. 414.

— *Trans. Linn. Soc.* xi.

Inhabits Europe, attaching itself to dogs. In Britain it is called the Dog ticque.

Family IV. *Stirps* 2.

Gen. 56. UROPODA. *Latreille, Leach*.

Body oval, orbiculate; back corneous, clypeiform, the disc being gradually convex; beneath flat. *Anus* produced into a long filiform peduncle (by which it adheres to coleopterous insects). *Legs* very short, pressed close to the body, the first pair shortest, the second rather longer, the third distinctly longer, the fourth pair longest.

Sp. 1. *Vegetans*. Brown, very smooth, shining. *Mitte vegetative*.

De Geer, Mém. sur les Insect. vii. 123. pl. 7. fig. 15.

Latr. Hist. Nat. des Crust. et Insect. vii. 381, et viii. pl. 67. f. 8.

Uropoda vegetans.

Latr. Gen. Crust. et Insect. i. 158.

Leach, Edin. Encycl. vii. 414.

Inhabits France and England, attaching itself to the legs, abdomen, and elytra of *histeres*, *aphodii*, &c. by its pedunculated anus.

Family V. CHEYLETIDÆ. *Stirps* 1.

Gen. 57. CHEYLETUS. *Latreille, Leach*.

Palpi brachiiform, very thick, their points falcate.

Sp. 1. *Eruditus*. Body brownish.

Acarus eruditus.

Schr. Enum. Insect. Aust. 1058, tab. 2. fig. 1.

Cheyletus eruditus.

Latr. Gen. Crust. et Ins. i. 153.

Leach, Edin. Encycl. vii. 414.

Inhabits books and Musæa.

Gen. 58. SMARIS. *Latreille, Leach*.

Palpi small, filiform, strait, simple. *Eyes* two. *Anterior legs* longest.

Arachnides.

- Arachnides.** Sp. 1. *Sambuci*.
Acarus sambuci. *Schr. Enum. Ins. Austr.* 1085.
Smaris sambuci.
Latr. Gen. Crust. et Insect. i. 153.
Leach, Edinb. Encycl. vii. 414.
 Inhabits the trunks of trees, especially those of the Elder.
 Gen. 59. **BDELLA**. *Latreille, Lamarck*.
SCIRUS. *Hermann*.
Palpi small, filiform, long, geniculated, the apex setigerous. *Eyes* four. *Hinder legs* longest.
 Sp. 1. *Rubra*. Body coccineous, legs paler, rostrum longer than the thorax.
Bdelle rouge.
Latr. Hist. Nat. des Crust. et des Insect. viii. 53. pl. 67. fig. 7.
Bdella rubra.
Lam. Syst. des Anim. sans Vertéb. 179.
Latr. Gen. Crust. et Insect. i. 154.
Leach, Edinb. Encycl. vii. 414.
 Inhabits Europe, under stones. It is the *Pince rouge* of Geoffroy, and is probably the *Acarus longicornis* of Linné.
 Family V. *Stirps* 2.
 Gen. 60. **SARCOPTES**. *Latreille, Leach*.
 Sp. 1. *Scabiei*. Subrotundate; legs short, reddish; four hinder ones, with a very long seta, the plantæ of the four anterior ones terminated by a swelling.
 Mitte de la Gale.
De Geer, Mém. sur les Insect. ii. 622.
 Le Ciron de la Gale.
Geoff. Hist. des Insect. ii. 622.
Acarus Scabiei. *Fabr. Ent. Syst.* iv. 430.
Sarcopte de la Gale.
Latr. Hist. Nat. des Crust. et des Insect. viii. 55. et vii. pl. 66.
 • *Sarcoptes scabiei*.
Latr. Gen. Crust. et Insect. i. 152.
Leach, Edinb. Encycl. vii. 413.
 Inhabits the ulcers of the itch. *Acarus exulcerans* of Linné is probably this animal, or is at least referable to the same genus.

SECTION II.

Family I. **ELYAIDÆ**.

- Gen. 61. **ELYÄIS**. *Latreille, Lamarck, Leach*.
Mandibles depressed, armed at their joints with a claw. *Palpi* elongate-conic, arcuate. *Eyes* four.
 Sp. 1. *Extendens*. Body rounded, shining, smooth, red, immaculate; hinder legs strait.
Elys extendens.

Lam. Syst. des Anim. sans Vertéb. 177.

Latr. Gen. Crust. et des Insect. i. 158.

Leach, Edinb. Encycl. vii. 413.

Hydrachna extendens.

Müll. Hydr. 62. tab. 9. f. 4.

Trombidium extendens.

Fabr. Ent. Syst. ii. 406.

Inhabits stagnant waters.

Family II. **HYDRACHNIDÆ**.

- Gen. 62. **HYDRACHNA**. *Müll. Oliv. Latr. Leach*.
Palpi subcylindric, porrect, arcuate-inflexed, four-jointed, the last acute, unguiform. *Mouth* produced into a conic rostrum. *Body* globose. *Legs* fim-

briated with hairs, and situated at equal distances from one another.

Sp. 1. *Geographica*. Black, with coccineous spots and dots.

Hydrachna geographica.

Müll. Hydr. 59. tab. 8. fig. 3—5.

Latr. Gen. Crust. et Insect. i. 159.

Leach, Edinb. Encycl. vii. 413.

Inhabits waters that flow gently. It is a most beautiful animal, and is very common in some parts of Britain.

Gen. 63. **LIMNOCHARES**. *Latreille, Leach*.

Palpi incurved, the apex acute simple. *Mouth* with a very short rostrum. *Body* depressed. *Legs* short, the four hinder ones remote. *Eyes* two.

Sp. 1. *Holosericea*. Body ovate, red, rugose, soft; eyes black.

Acarus aquaticus.

Linn. Syst. Nat. i. 1025.

La tique rouge satinée aquatique.

Geoff. Hist. des Insect. ii. 625.

Mitte satinée aquatique.

De Geer, Mém. sur les Insect. i. 149. pl. 9.

15—17.

Trombidium aquaticum.

Fabr. Ent. Syst. ii. 399.

Limnochares holosericea.

Latr. Gen. Crust. et Insect. i. 160.

Leach, Edinb. Encycl. vii. 413.

Inhabits the waters of Europe. It is very common in most of our ponds during the summer months. It varies much in colour, but is generally found of a bright red or greyish-red colour, and of all the intermediate varieties of shade.

Fabricius says that it deposits its eggs on *Nepæ* (water-scorpions), and that they are of a red colour.

Arachnideous Genera of uncertain situation.

Gen. 64. **TROGULUS**. *Latreille*.

Body ovate-elliptic, depressed. *Eyes* two, placed on the back, but not on a common tubercle. *Legs* eight, elongate, filiform, the second pair longest, then the fourth, which is scarcely shorter; the third and fourth afterwards: *tarsi* with a horny claw. *Mandibles* cylindric, compressed, elongate, biarticulate, geniculated, the last joint didactyle, the fingers equal, towards their points unidentate. *Palpi* filiform, a little longer than the mandibles, geniculated, five-jointed, the last furnished at its point with a very minute corneous claw.

For a more detailed character of this genus, see *Latreille's Genera Crustaceorum et Insectorum*, Vol. I. p. 141. where it is placed next to *Phalangium*. In his last work, *Latreille* has grouped it with *Siro*, and has put it in the second division of his family *Phalangita*.

Sp. 1. *Nepæformis*. Obscure-cinereous or earth-coloured; middle of the back of the abdomen and the sides obsoletely subcarinated; external apex of the first joint of the *tarsi* produced.

Phalangium tricarinatum.

Linn. Syst. Nat. i. 1029.

Acarus nepæformis.

Scopol. Ent. Carniol. 1070.

Arachnidea. *Phalangium carinatum*.

Fabr. Ent. Syst. ii. 431.

Trogulus nepæformis.

Latr. Gen. Crust. et Insect. i. 142. tab. 6. f. 1.

Leach, Edinb. Encycl. vii. 416.

Inhabits France and Germany, lurking under stones.

Gen. 65. CELLULARIA. *Montagu.*

The singular animal, that forms the type of the genus *Cellularia*, was discovered by Montagu, and described by him in the first volume of the *Memoirs of the Wernerian Natural History of Edinburgh*, page 191, and, as we have never seen it, we must extract the description given by that ingenious zoologist.

"Ovate-oblong, smooth, glossy white, with eight short legs, furnished with several joints and terminated by bristles, two on each side approximating and near to the anterior end, the others similarly disposed, about one third of its length from the posterior end; of the posterior legs, the hindermost pair is furnished with a very long bristle, the other pair usually with two; the anterior legs possess several bristles each. No other appendages were discernible under the best constructed microscope, not even the mouth or eyes could be clearly ascertained; but beneath, at the anterior end, and from whence the fore legs arise, there are four light depressions, surrounded by dark lines, in the two hindermost of which is a dark spot, but had not the appearance of the eyes; behind this part is usually a fold in the skin, in which there is an independent motion; the feet were also observed to be in continual alternate motion, whilst under the microscope.

"Size of the cheese mite.

"As far as I have hitherto observed, this animal is peculiar to the gannet, and does not appear to inhabit any other part than the cellular membrane. In some subjects it is found in considerable numbers, together with its ova; and no instance has occurred in which it has not appeared more or less in every specimen dissected.

"To class this animal with any of the Linnean genera, is impossible; nor am I acquainted with any genus in the arrangement of any more modern systematic writers, in which it could with propriety be placed. Under these circumstances, I propose giving it a distinct place in the system of nature, under the title of *CELLULARIA Bassani*, with the following generic characters: head thorax and abdomen united; no eyes, antennæ, palpi nor proboscis; legs eight, the four posterior remote from the four anterior; feet unarmed, but furnished with bristles."

Gen. 66. CARIS. *Latreille, Leach.*

"Legs six. Palpi subconic, porrect, four-jointed, of the length of the rostrum. Rostrum conic, porrect. Body coriaceous, depressed, suborbiculate." *Latreille.*

Sp. 1. *Vespertilionis*. Body fuscous. La tique de la chauve-souris?

Geoff. Hist. des Insect. ii. 627.

Caris vespertilionis.

Latr. Gen. Crust. et Insect. i. 161.

Leach, Edinb. Encycl. vii. 413.

Inhabits bats (*vespertilionidea*).

Gen. 67. LEPTUS. *Latreille.*

"Legs six. Palpi short, subconic. Mouth with a porrected rostrum. Body soft, generally oval." *Latreille.*

Can this be synonymous with our genus *Ocypete*?

Sp. 1. *Phalangii*. Body oval, coccineous, anteriorly subcapitate, with two black eyes and a subconic rostrum; first joint of the palpi very much incrassated; legs subequal.

Pediculus coccineus. Scopol. Ent. Carn. 1055.

Mitte des Faucheurs.

De Geer, Mém. sur les Insect. vii. 117. pl. 7. f. 5.

Acarus Phalangii. Fabr. Ent. Syst. iv. 433.

Leptus Phalangii.

Latr. Gen. Crust. et Insect. i. 162.

Leach, Edin. Encycl. vii. 413.

Inhabits *Phalangium opilio*.

Gen. 68. ASTOMA. *Latreille.*

"Legs six. Mouth beneath, nearly obsolete; parts of the mouth not visible. Body soft, oval. Legs very short." *Latreille.*

Sp. 1. *Parasiticum*. Body coccineous, the middle slightly contracted.

Mitte parasite.

De Geer, Mém. sur les Insect. vii. 118. pl. 7. fig. 7.

Astoma parasiticum.

Latr. Gen. Crust. et Insect. i. 162.

Inhabits flies and other insects.

Latreille placed the three last mentioned genera in a family which he named *Microphira*; and, in the *Edinburgh Encyclopædia*, Dr *Leach* put them in a particular tribe, named *Hexapoda*, under which he arranged all the Arachnides that have six legs.

Subclass II. NOTOSTOMATA.

This subclass contains the genera *Nycteribia* of *Fabricius* and *Latreille*, *Phthiridium* of *Hermann*.

We shall simply give references to one species, and a definition of the genus containing it.

Genus 69. PHTHIRIDIUM. *Hermann.*

NYCTERIBIA. *Latreille.*

Abdomen of one sex two-jointed, terminated by two cylindric processes, bearing setæ; of the other sex six-jointed.

Sp. 1. *Hermanni*.

Plate XXIII. represents the sexes of this species, with a leg highly magnified.

Phthiridium biarticulatum.

Hermann, Mém. Apterol. 124. pl. 6. fig. 1.

Celeripes vespertilionis.

Montagu, Trans. Linn. Soc. ix. 166. note.

Nycteribia vespertilionis.

Montagu, Trans. Linn. Soc. xi. 11. tab. 3. fig. 5.

Inhabits the lesser and greater horse-shoe bats of England.

Obs. *Nycteribia vespertilionis* of *Latreille* most probably is referable to a distinct genus.

Arachnidea

CLASS IV.—INSECTA.

INSECTA, so named from *in into*, and *seco to cut*. This term was applied to these animals by the Latins; by the Greeks they were named *Entoma* (*ἔντομα*), from *iv, into*; and *τεμνω, to cut*. Insects were so named, because their bodies are composed of many joints or segments, on which account several of the ancient and older naturalists placed them with the classes *Crustacea*, *Myriapoda*, *Arachnides*, and *Vermes*.

Insects constitute the most considerable portion of animated nature, on which account they become interesting, and very worthy of philosophic investigation; and consequently, from the earliest period, of which any authentic records remain, the study of them has obtained a very great portion of attention.

The oldest records on this subject are to be found in the sacred writings, where mention is made of locusts, flies, and caterpillars; and it is probable that Moses had acquired some knowledge of insects from the Egyptian sages, as his writings abound with passages relating to insects.

Hippocrates, as we are told by Pliny, wrote on insects, and the writings of the earlier Greek and Latin philosophers quoted by Pliny, afford extracts of his labours.

Aristotle, in his *History of Animals*, has devoted a very considerable portion of his attention to insects, which he called *ἔντομα*, and has described their general external structure with great accuracy; but we cannot enter into a detail of what was done by this great man, who has laid the foundation of the modern systems; and we must also pass over in silence, the little that has been observed by Ælian, Democritus, Aristamachus, and others of less note, and state generally that Pliny, in the eleventh book of his *Historia Naturalis*, treats of insects; but his observations are copies chiefly from the works of Aristotle. From the time of this author, until the overthrow of the Roman empire, the study seems to have been totally disregarded.

Sorry as we feel at being under the necessity of omitting to trace the rise of this interesting science, yet we shall give a sketch of the systems of every writer, that the rise of the *systematic* part may be rendered clear to everyone interested with that branch of the science, which is the foundation on which the natural history is built.

Aldrovandus in 1602, published a very voluminous work, *De Animalibus Insectis*, in which he divides insects into *Terrestrial* and *Aquatic*.

In 1612, Woolfang Frenzius published *Historia Animalium Sacra*, which contains some new observations, and a distribution of insects into *Aërial*, *Aquatic*, and *Terrestrial*.

Swammerdam, who published his *Historia Insectorum Generalis* in 1669, divided genuine insects into, 1st, Those which, after leaving the egg, appear under the form of the perfect insect, but have no wings, which parts are afterwards produced; 2dly, Those insects which appear, when hatched from the

egg, under the form of a larva (caterpillar), which, when full grown, changes into a chrysalis, where it remains until its parts are fit to be developed; 3dly, Those who, having attained the pupa (chrysalis or nymph) state, do not divest themselves of their skin. His other division refers to animals of the classes *Arachnides*, *Crustacea*, and *Myriapoda*, and the whole of his work contains much valuable observation on the structure and economy of these animals.

In 1735, Linné published the first edition of his *Systema Naturæ, sive Regna tria Naturæ Systematice proposita per classes, ordines, genera, et species*, in which work insects are distributed into four orders, according to the number and form of their wings.

1. Coleoptera.
2. Angioptera.
3. Hemiptera.
4. Aptera.

With the last order he included *Crustacea*, *Arachnides*, *Myriapoda*, *Vermes*, and certain *Zoophytes*; but in subsequent editions of this work, he separated the *Vermes*, as Aristotle had done before him, and established them as a class distinct from insects.

Schæffer in 1741 published a valuable work, under the title *Icones Insectorum circa Ratisbonam Indigenorum*. The classification proposed by this author differs entirely from that of Linné, and approaches in some respects that proposed by Geoffroy; yet it is so far distinct, that, being a system of considerable repute, it may not be amiss to give an outline of it in this place. He divides insects into seven Orders, which he terms Classes.

I. COLEOPTERO-MACROPTERA. Insects with long crustaceous elytra.

II. COLEOPTERO-MICROPTERA. Insects with short crustaceous elytra.

III. COLEOPTERO-HYMENOPTERA. Insects with half crustaceous elytra.

IV. HYMENO-LEPIDOPTERA. Insects with transparent wings.

V. HYMENO-GYMNOPTEA. Insects with naked membranaceous wings.

VI. DIPTERA. Insects with two wings.

VII. APTERA. Insects without wings, amongst which spiders, &c. were comprehended.

In 1764, Geoffroy published his most valuable system of insects, under the title, *Histoire Abrégée des Insectes*, &c. in which these animals are arranged into six sections:

I. COLEOPTERA. Wings covered with elytra; mouth with jaws.

II. HEMIPTERA. Upper wings resembling elytra; mouth bent under the thorax.

III. TETRAPTEA alis farinaceis. Wings four, covered by little scales.

IV. TETRAPTEA alis nudis. Wings four, naked, membranaceous.

V. DIPTERA. Wings two. Haltares or balancers, under the origin of the wings.

Insecta.

VI. APTERA. Wings none.

Like his predecessors, Geoffroy included Crustacea, &c. under the title Aptaera.

In 1780, Linné produced the twelfth edition of his *Systema Naturæ*; and, as this was the last systematic work of that illustrious naturalist, we shall state his entomological arrangement. He divides insects into seven orders, deducing the characters from the wings, but he still retained the *Crustacea*, *Myriapoda*, and *Arachnides*, amongst the apterous insects.

Order I. COLEOPTERA (from *κόλιος*, a sheath, and *πτερόν*, a wing), including those insects having crustaceous shells or elytra, which shut together and form a longitudinal suture down the back. In many, the abdomen is wholly covered by these elytra; in others partially.

Order II. HEMIPTERA (from *ἡμισὺν*, half, and *πτερόν*). These animals have their elytra half crustaceous, and half membranaceous, or of a matter intermediate between leather and membrane.

Order III. LEPIDOPTERA (from *λεπίς*, a scale, and *πτερόν*). Insects with four wings imbricated with scales.

Order IV. NEUROPTERA (from *νεῦρον*, a nerve, and *πτερόν*). Insects with four transparent wings, reticulated with nerves.

Order V. HYMENOPTERA (from *ὑμῆν*, a membrane, and *πτερόν*). Insects with four naked membranaceous wings.

Order VI. DIPTERA (from *δύο*, two, and *πτερόν*). Insects with two wings.

Order VII. APTERA (from *ἀ*, without, and *πτερόν*). Insects destitute of wings.

In 1776, J. C. Fabricius, a pupil of Linné, published a new system of entomology, under the title *Systema Entomologicæ*, in which the principles of a new mode of classification, founded on the organs of deglutition and mastication, is for the first time developed. This system, which has undergone several modifications, is named the *Cibarian System*, of which we shall say more, when speaking of the most improved form in which it has been given to the world.

Scopoli, in 1777, published his *Introductio ad Historiam Naturalem*, in which work he divides insects into five tribes, under the singular appellations of, 1. *Swammerdami-lucifuga*, 2. *Geoffroy-gymnoptera*, 3. *Roeselii-lepidoptera*, 4. *Reatmuri-proboscida*, 5. *Frischii-Coleoptera*; identifying each tribe by the name of that author who has, in his opinion, been most successful in the explanation of that to which his name is attached.

The *Lucifuga* includes the lice; *Gymnoptera*, his *halterata*, *aculeata* and *caudata*; *Lepidoptera*, the moths and butterflies; *Proboscida*, he has divided into terrestrial and aquatic, and the *Coleoptera* he divides into those inhabiting water, and those the land.

In 1793, P. A. Latreille published his *Precis des Caractères des Genres*, in which he divided insects into, 1. *Coleoptera*, 2. *Orthoptera*, 3. *Hemiptera*, 4. *Neuroptera*, 5. *Lepidoptera*, 6. *Sactoria*, 7. *Thasynoura*, 8. *Parasita*; and under the further terms, *Acephala*, *Entomostraca*, *Crustacea*, and *Myriopoda*,

he has comprehended the *Crustacea*, *Myriapoda*, and *Arachnides*.

Insecta.

In 1798, J. C. Fabricius produced his last general systematic work, his *Supplementum Entomologicæ Systematicæ*, which presents an outline of his system in its latest state; and which, being the result of much knowledge, demands a considerable portion of attention. In this work he divides genuine insects into the following Orders, which he named Classes. The omitted classes are referable to Crustacea, Myriapoda, and Insecta, as already shown.

Class I. ELEUTERATA. Maxillæ naked, free, bearing palpi.

Class II. ULONATA. Maxillæ covered by an obtuse galea, or mouth-piece.

Class III. SYNISTATA. Maxillæ elbowed at their base, and connected with the labium.

Class IV. PIEZATA. Maxillæ corneous, compressed, often elongate.

Class V. ODONATA. Maxillæ corneous, dentated. Palpi two.

Class XI. GLOSSATA. Mouth with a spiral tongue reflexed between the palpi.

Class XII. RYNGOTA. Mouth with a rostrum and articulated sheath.

Class XIII. ANTLIATA. Mouth with an inarticulate haustellum.

In the "*Entomologie Helvétique*," a work published in 1798, Clairville, its author, has arranged insects in the following manner:

* PTEROPHORA; MANDIBULATA. With wings and jaws.

Section 1. ELYTROPTERA. Wings crustaceous.

2. DERATOPTERA. Wings coriaceous.

3. DICTYOPTERA. Wings reticulated.

4. PHLEBOPTERA. Wings veined.

** PTEROPHORA; HAUSTELLATA. With wings and an haustellum.

5. HALTERIPTERA. Wings with poisons.

6. LEPIDOPTERA. Wings with powder.

7. HEMIMEROPTERA. Wings partly obscure, partly diaphanous.

*** APTERA; HAUSTELLATA. Without wings; with a sucker.

8. ROPHOPTERA. Sucker sharp.

**** APTERA; MANDIBULATA. Without wings; with jaws.

9. PODOPONERA. Legs formed for running.

In 1800, Cuvier, with the assistance of Dumeril, published his *Anatomie Comparée*, in which the organization of insects is treated of at great length.

In 1801, J. B. Lamarck produced his *Système des Animaux sans Vertèbres*, in which work he has separated the Crustacea from Insecta, and proposed the Arachnides as a separate and distinct class. Some of the animals which we conceive to be genuine insects, he has placed with the Arachnides, the rest he distributes into the following Orders:

* With mandibles and jaws.

Order I. COLEOPTERA. Two wings, folded transversely, and covered by coriaceous elytra.

Order II. ORTHOPTERA. Two strait wings, folded longitudinally, and covered by submembranaceous cases, or elytra.

Insecta.

Order III. NEUROPTERA. Four naked, reticulated, membranaceous wings.

** With mandibles and with a kind of proboscis.

Order IV. HYMENOPTERA.

*** No mandibles. A trunk or sucker.

Order V. LEPIDOPTERA. Four membranaceous wings covered with fine powder-like scales; tongue spiral.

Order VI. HEMIPTERA. Two wings, covered by semimembranaceous elytra.

Order VII. DIPTERA. Two naked wings, with balancers at their base.

Order VIII. APTERA. No wings. Mouth with an articulated trunk.

In the same year, in 1806, P. A. Latreille published his *Genera Crustaceorum et Insectorum*, in which he has denominated the true insects *Insecta Pterodictica*; and has arranged them in the following manner:

Century I. ELYTHROPTERA.

Elytra two, covering the wings entirely.

Cohors I. ODONTOTA.

Mouth with mandibles, maxillæ, and lip. Wings folded.

Order I. COLEOPTERA. Wings transversely folded. Elytra crustaceous.

Order II. ORTHOPTERA. Wings longitudinally folded. Elytra coriaceous.

Cohors II. SIPHONOSTOMA.

Order III. HEMIPTERA. Mouth with an articulated beak, sheathing the haustellum, formed of three setæ. Wings extended; elytra generally semicoriaceous or semimembranaceous, one decussating the other.

Century II. GYMNOPTERA.

Wings naked.

Cohors I. ODONTOTA.

Mouth with mandibles, maxillæ, and lip. Wings four.

Order IV. NEUROPTERA. Wings reticulated, most generally equal. Maxillæ not sheathing the sides of the lip.

Order V. HYMENOPTERA. Wings veined, hinder ones smallest. Maxillæ sheathing the sides of the lip.

Cohors II. SIPHONOSTOMA.

Mouth tubular, formed for sucking.

Order VI. LEPIDOPTERA. Wings four, imbricated with scales. Mouth with a spiral tongue, formed of two lacinix; haustellum none.

Order VII. DIPTERA. Wings two, with halteres or balancers at their base. Mouth with a proboscis, including an haustellum that is composed of one part, or at least only geniculated at its base.

Order VIII. SUCTORIA. Wings and balancers none. Body formed of a series of rings. Thorax not distinct from the base of the abdomen. Mouth with a rostrum articulated from its origin, with two external valves at the base.

Latreille has retained the same general arrangement in his last work, *Considerations Générales sur l'Ordre Naturelle, &c.* but he has rejected the divisions into legions, centuries, and cohortes.

Duméril, in his *Zoologie Analytique*, arranges in-

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sects into eight orders, the last of which also comprehends the classes Arachnides and Myriapoda.

In 1812, De Lamarck published a little work, entitled *Extrait de Cours de Zoologie du Muséum d'Histoire Naturelle*, in which he has continued the general arrangement published by him in 1801.

In 1815, Vol. IX. of the *Edinburgh Encyclopædia* was published, in which Dr Leach has given the following arrangement of insects into orders, and has added to them the *Parasita* and *Thysanoura*, which Latreille placed with the Arachnides.

Insecta.

INSECTA.

Subclass I. AMETABOLIA.

Insects undergoing no metamorphosis.

Order I. THYSANURA. Tail armed with setæ.

Order II. ANOPHURA. Tail without setæ.

Subclass II. METABOLIA.

Insects undergoing metamorphosis.

Century I. ELYTHROPTERA.

Insects with elytra.

Cohors I. ODONTOSTOMATA.

Mouth with mandibles.

* *Metamorphosis incomplete.*

Order III. COLEOPTERA. Wings transversely folded. Elytra crustaceous, covering the wings, their suture strait.

** *Metamorphosis nearly coarctate.*

Order IV. STREPSIPTERA. Wings longitudinally folded. Elytra coriaceous, not covering the wings.

*** *Metamorphosis semi-complete.*

Order V. DERMAPTERA. Wings longitudinally and transversely folded. Elytra somewhat crustaceous, abbreviated, with the suture strait.

Order VI. ORTHOPTERA. Wings longitudinally folded. Elytra coriaceous, the internal margin of one elytron covering the same part of the other.

Order VII. DICTYOPTERA. Wings longitudinally folded twice or more. Elytra coriaceous, nervose, one decussating the other obliquely.

Cohors II. SIPHONOSTOMATA.

Mouth with an articulated rostrum.

Order VIII. HEMIPTERA. Elytra somewhat crustaceous, or very coriaceous; towards the apex generally membranaceous, horizontal, one decussating the other obliquely. (*Metamorphosis semi-complete.*)

Order IX. OMOPTERA. Elytra entirely coriaceous, or membranaceous, and meeting obliquely, with a strait suture. (*Metamorphosis semi-complete, or incomplete.*)

Century II. MEDAMOPTERA.

Insects without wings or elytra.

Order X. APTERA. Mouth with a tubular sucking rostrum. (*Metamorphosis incomplete.*)

Century III. GYMNOPTERA.

Insects with wings, but with no elytra.

Cohors I. GLOSSOSTOMATA.

Mouth with a spiral tongue.

Order XI. LEPIDOPTERA. Wings four, imbricated with scales.

Cohors II. GNATHOSTOMATA.

Mouth with maxillæ and lip.

Insecta.

Order XII. TRICHOPTERA. Wings four, membranaceous, the pterigostia hairy.

Cohors III. ODONTOSTOMATA.

Mouth with mandibles, maxillæ, and lip.

Order XIII. NEUROPTERA. Four highly-reticulated wings, generally of an equal size. (Anus of the female without a sting, or compound oviduct.)

Order XIV. HYMENOPTERA. Four venose wings, hinder ones smallest. (Anus of the female with a sting, or compound oviduct.)

Cohors IV. SIPHONOSTOMATA.

Mouth tubular, formed for sucking.

Order XV. DIPTERA. Wings two, with balancers at their base.

The above arrangement is liable to various objections. We shall endeavour to define the orders in a more intelligible and simple manner.

Classification.

All genuine insects have six legs; a head distinct from their body, and furnished with two antennæ; they all are produced from eggs. Some undergo no metamorphosis, others but a partial change, whilst the remainder pass through three stages of existence, after having been hatched from the egg.

The peculiarities of every order will be mentioned under its proper head, in the article INSECTA; but we shall here proceed with the systematic arrangement into orders.

Subclass I. AMETABOLIA.

Insects undergoing no metamorphosis.

Order I. THYSANOURA. Tail armed with setæ.

Order II. ANOPLURA. Tail without setæ.

Subclass II. METABOLIA.

Insects undergoing metamorphosis.

Order III. COLEOPTERA. Wings two, transversely folded, covered by two crustaceous or hard coriaceous elytra, meeting (generally) with a strait suture. Mouth with mandibles. (Metamorphosis incomplete.) Plate XXIV.

Order IV. DERMAPTERA. Wings two, longitudinally and transversely folded. Elytra subcrustaceous, abbreviated, with the suture strait. Mouth with mandibles. (Metamorphosis semi-complete.) Plate XXIV.

Order V. ORTHOPTERA. Wings two, longitudinally folded, covered by two coriaceous elytra, the

margin of one elytron covering the same part of the other. Mouth with mandibles. (Metamorphosis semi-complete.) Plate XXIV.

Order VI. DICTYOPTERA. Wings two, longitudinally folded, twice or more, covered by two coriaceous elytra, one elytron decussating the other obliquely. Mouth with mandibles. (Metamorphosis semi-complete.) Plate XXIV.

Order VII. HEMIPTERA. Wings two, covered by two crustaceous or coriaceous elytra (the tips of which are generally membranaceous), horizontal, one decussating the other obliquely. Mouth with an articulated rostrum. (Metamorphosis semi-complete.) Plate XXIV.

Order VIII. OMOPTERA. Wings two, covered by two elytra, which are entirely coriaceous or membranaceous; meeting obliquely with a strait suture. Mouth with an articulated rostrum. (Metamorphosis semi-complete, or incomplete.) Plate XXIV.

Order IX. APTERA. No wings, or elytra. Mouth with a tubular, jointed, sucking rostrum. (Metamorphosis incomplete.)

Order X. LEPIDOPTERA. Wings four, membranaceous, covered with meal-like scales. Mouth with a spiral tongue. (Metamorphosis incomplete.) Plate XXV.

Order XI. TRICHOPTERA. Wings four, membranaceous; the pterigostia or wing-bones hairy. Mouth with maxillæ and lip. (Metamorphosis incomplete.) Plate XXV.

Order XII. NEUROPTERA. Wings four, membranaceous, generally of equal size; with numerous decussating pterigostia, resembling a net-work. Mouth with mandibles, maxillæ, and lip. (Metamorphosis incomplete or semi-complete.) Plate XXV.

Order XIII. HYMENOPTERA. Wings four, membranaceous, the hinder ones always smallest; the pterigostia not decussating each other, so as to resemble a net-work. Mouth with mandibles, maxillæ, and lip. (Metamorphosis incomplete.) Plate XXV.

Order XIV. STREPSIPTERA. Wings two, longitudinally folded. Mouth with mandibles. (Metamorphosis subcoarctate.) Plate XXIV.

Order XV. DIPTERA. Wings two, with balancers or balancers at their base. Mouth tubular, formed for sucking. (Metamorphosis incomplete or subcoarctate.) Plate XXV.

The generic characters of insects, and their distribution into families and stirpes, will be given under the article INSECTA, which see.

CLASS V.—VERMES.

Vermes.

The VERMES comprehend all those annulose animals which have no distinct head, no antennæ, and no legs. Many of them inhabit the sea, others fresh water, and some few damp places, or even under the earth. Their classification is not understood; an extensive field is therefore open to any naturalist, who may hereafter have time, inclination, and opportunity to study them.

Lamarck and others have arranged them, from the position of their respiratory organs, into two orders,

which we have adopted; but the arrangement of the genera appears to be very artificial, although well calculated to assist the views of the student.

Order I. CRYPTOBRANCHIA. Organs of respiration concealed, or internal.

Order II. GYMOBRANCHIA. Organs of respiration naked, or external.

Order I. CRYPTOBRANCHIA.

A. Body rounded, furnished with little spines.

Genus 1. LUMBRICUS, 2. THALASSEMA.

Vermes.

Vermes. B. *Body* rounded or flattened; each extremity furnished with a sucker.

Genus 3. PONTODELLA; 4. HIRUDO.

C. *Body* flattened, naked, smooth; extremities without suckers.

Genus 5. PLANARIA.

D. *Body* flattened; sides with setæ.

Genus 6. NAIS.

A.

Gen. 1. LUMBRICUS of authors.

Body naked, long, cylindric, articulated; rings fleshy, contractile; with short fasciculæ of spines; anterior extremity conic; posterior extremity somewhat flattened, obtuse.

One species only has been accurately determined by naturalists. This species is hermaphrodite, and deposits its eggs. There is an excellent paper on its structure, by De Montegre, published in the first volume of the *Mémoires du Muséum d'Histoire Naturelle*.

Sp. 1. *Terrestris* of authors. Plate XXVI.

This is the common earth-worm, whose use, in the economy of nature, seems to be, that of rendering the earth more porous, by its innumerable holes, and thus facilitating the growth of vegetables, which it manures by the leaves, &c. that it draws into its haunts.

Gen. 2. THALESSEMA. Cuvier, &c.

Body with its hinder extremity much thicker than the anterior, which resembles a conic funnel; neck with two hooks below.

The *Thalassema* inhabit the shores of the sea.

Sp. 1. *Aquatia*.

B.

The animals of this section are denominated *Leeches* or *Blood-suckers*. One of the genera inhabits the sea, the other fresh-water.

Gen. 3. PONTODELLA. Leach. (SEA-LEECH.)

Body oblong, round, slightly contractile; both extremities (especially the anterior extremity) attenuated; skin subcoriaceous.

Sp. 1. *Spinulosa*. Body Spinulose.

Plate XXVI.

This species is common in the North British seas, adhering to skates, whence it is commonly called *skate-sucker*: When bruised it emits a dark liquor, which stains of a beautiful purple colour.

Gen. 4. HIRUDO of authors. (LEECH.)

Body oblong, more or less flattened, very contractile; anterior extremity very gradually attenuated; skin tough.

Sp. 1. *Medicinalis*. (Common leech.)

Plate XXVI.

This species inhabits rivers and lakes. It is the common leech used by medical people.

C.

Gen. 5. PLANARIA. Müll. &c.

Body horizontally depressed, subgelatinous; *mouth* terminal; *belly* with two openings beneath; one for generation; the other for the passage of the excrement.

The species are numerous, and of various shapes: They inhabit fresh waters; some have one, two, three, four, or even no eyes; some have tentacles,

others none. On this account, as Cuvier observes, they should be distributed under several generic heads.

D.

Gen. 6. NAIS. Müller, &c.

Body naked, long, slender, somewhat depressed, articulated; *sides* with long setæ, disposed in bundles.

Sp. 1. *Proboscidea*. Reddish, mouth produced, filiform.

Inhabits fresh waters. Its mode of generation is curious. The last joint of the body by degrees separates and forms an entire animal.

Obs. The other *Naises* of authors (at least those whose economy is known) deposit eggs. This genus may therefore be divided hereafter, when the exact structure of each species shall have been accurately determined.

Order II. GYMNOBRANCHIA.

A. *Body* free.

a. *Mouth* with jaws.

Genus 7. NEREIS.

b. *Mouth* without jaws; *labial palpi* distinct.

Genus 8. AMPHINOME, 9. APHRODITA, 10. LEPIDONOTUS.

c. *Mouth* without jaws; *labial palpi* none.

Genus 11. ARENICOLA.

B. *Body* inclosed within a tube.

a. *Tube* composed of fragments of shell or sand; *head* with tentacles.

Genus 12. TERREBELLA, 13. AMPHITRITE.

b. *Tube* composed of fragments of shell or sand; *head* without tentacles.

Genus 14. CISTENA.

c. *Tube* testaceous, open at each end.

Genus 15. DENTALIUM.

d. *Tube* testaceous, open at its anterior end only.

Genus 16. SERPULA, 17. SPIROBIS.

A. a.

Gen. 7. NEREIS of authors.

Body composed of rings; rings on each side with processes of various forms in the different species. *Mouth* with tentacles.

The Nereides are often called *Sea-centipeds*, from their general resemblance to the Scolopendridea. They require to be investigated. Their tentacles vary in number, in proportion, and in situation. The characters for division are therefore very obvious. Their mouth varies very much in the structure of its parts, in the size of its jaws, in the form of the lateral processes, &c.

Sp. 1. *Margaritacea*. *Body* pearly; terminated by two long setæ; tentacles eight; head trilobate; exterior lobes, with their points attenuated and very slightly knobbed; middle lobe with two little incurved processes.

Plate XXVI.

This species is common at the Bell-Rock, and is subject to great variation in colour; being sometimes greenish-bronze, at other times with a purple line running down the middle of its back.

A. b.

The three genera of this division form a natural group.

Vermes.

Gen. 8. AMPHINOME. *Bruguière, &c.*
Organs of respiration long, plumose.

Sp. 1. *Tetraedra*.

Aphrodita rostrata. Pallas.

Gen. 9. APHRODITA of authors.

Organs of respiration short, covered. Back membranaceous, naked; sides very bristly; bristles intermingled with silky down.

Sp. 1. *Aculeata* of authors.

Inhabits the European Ocean. It is often named the sea-mouse by our fishermen.

Gen. 10. LEPIDONOTUS, new genus.

Organs of respiration short, covered. Back covered by a double series of scales.

This genus contains many species: We possess about eleven kinds found on our coasts.

Sp. 1. *Clavatus*.

Aphrodita clava.

Montagu, *Trans. Linn. Soc.* ix. tab. 7.

Inhabits the British Seas.

A. c.

Gen. 11. ARENICOLA. *Lamarck, &c.*

Body round, each extremity rounded, obtuse; posterior extremity narrowest; anterior extremity with tubercles on each side terminated by setæ; organs of respiration placed externally behind the tubercles of the middle of the body.

Sp. 1. *Carbonaria*. Body coal-black.

Inhabits the Firth of Forth at the Black Rocks, near Leith, under stones. Plate XXVI.

Sp. 2. *Tinctoria*. Body yellowish inclining to cinereous, beautifully banded with blue; organs of respiration blood-red; tail greenish.

Inhabits the sand of the sea, in which it burrows, and is extracted by the fishermen, who use it as a bait for fish. When living the tail secretes a fluid which stains the fingers of a fine yellow colour.

Lumbricus marinus of Linné belongs to this genus, of which we possess two other indigenous species.

B. a.

Gen. 12. TERESELLA. *Linné, &c.*

Body cylindric. Tentacles capillary, numerous. This genus has been confused with Amphitrite, by several authors. The Linnæan character "tentacula capillaria" will however apply to this alone.

Sp. 1. *Lapidaria*. Linné.

Inhabits the Mediterranean.

Gen. 13. AMPHITRITE. *Müller, &c.*

Body annulated. Tentacles acuminatè, plumose, numerous.

Sp. 1. *Voluacornis*. Tentacles convoluted; stem with long ciliated fibres on one side, spirally turned two or three times.

Amphitrite voluacornis.

Montagu, *Trans. Linn. Soc.* xi. §1. tab. 7. fig. 10.

Inhabits the southern coast of Devon, where it was first discovered by Montagu. Plate XXVI.

B. b.

Gen. 14. CISTENA, new genus.

Mouth with two pectinated scales, of a brilliant golden colour. Plate XXVI.

Sp. 1. *Pallasii*.

Nereis cylindrica.

Pall. Miscel. Zool. 181. tab. ix. fig. 3.

Sabella tubiformis.

Penn. Brit. Zool. iv. 148. tab. 92. fig. 163.

Nereis conchilega.

Penn. Brit. Zool. iv. 47.

Inhabits the sandy shores of Britain.

B. c.

Gen. 15. DENTALIUM of authors.

Head with tentacles. Tubes slightly bent.

The species of this genus are distinguished by the sculpture of their shelly tubes.

Sp. 1. *Entalis* of authors.

Inhabits the European Ocean.

B. d.

Gen. 16. SERPULA of authors.

Tentacles forming two bundles.

The species of this genus are very numerous, and are but little known; they are to be distinguished by their shelly tubes.

Gen. 17. SPIRORBIS. *Daudin, &c.*

Tentacles six in number, resembling palpes.

The *Spirorbis* form an extensive genus, the species of which are distinguished by their shells.

The classification of the Vermes, as we have before observed, is so very imperfectly understood, that the above enumeration of the genera can be of use only to the student.

The other genera formed by Montagu and Fleming, will be given in the article ZOOLOGY, their situation in the system not having been determined by an examination of the animals. (v.)

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Anquetil. ANQUETIL (LEWIS PÉTRR), a French historian, was born at Paris, on the 21st of January 1723. At the age of seventeen, he entered the congregation of St Genevieve, where he taught theology and literature with ability and success. He afterwards became Director of the academy at Rheims; and, in 1759, he was appointed Prior of the abbey de la Rœe, in Anjou. Soon after this, he was sent, in the capacity of Director, to the college of Senlis. In 1766, he obtained the Curacy or Priory of Chateau-Renard, near Montargis, which he exchanged, at the commencement of the Revolution, for the Curacy of La Villette, in the neighbourhood of Paris. During the reign of terror, he was imprisoned at St Lazare. On the establishment of the National Institute, he was elected a member of the second class, and was soon afterwards employed in the office of the minister for foreign affairs. Endowed with a robust constitution, which was preserved by a natural equality of temper, and general moderation in diet, Anquetil was capable of very laborious exertions, and is said to have passed ten hours every day, regularly, in study. When upwards of eighty, he still meditated extensive literary undertakings; but he was carried off by death, in the midst of his projects and researches, on the 6th of September 1808, in the eighty-fourth year of his age. On the evening previous to this event, he is reported to have said to one of his friends, "Come and see a man who is dying full of life."

As an author, M. Anquetil does not stand very high in the ranks of literature. He possessed more industry in research, than ability or judgment in execution. His style is censurable in many respects, and he appears to have been almost entirely destitute of the critical discernment and philosophical sagacity, which are requisite to form the character of a good historian. The following is a list of his principal works.

1. *Histoire Civile et Politique de la ville de Reims, 1756-57, 3 vols. 12mo.* The history is brought no farther down than 1657; a fourth volume should have been added, but it never appeared. Anquetil is said to have written this work in concert with one Felix de la Salle, and it is, perhaps, the best of all his productions. 2. *Almanach de Reims, 1754, in 24mo.* 3. *L'Esprit de la Ligue, ou Histoire Politique des Troubles de France, pendant les 16 et 17 siècles, 1767, 3 vols. 12mo.* This work has been frequently reprinted. 4. *Intrigue du Cabinet sous Henri IV. et sous Louis XIII. terminée par la Fronde, 1780, 4 vols. 12mo.* 5. *Louis XIV. sa Cour et le Regent, 1789, 3 vols. 12mo; reprinted in 1794, 5 vols. 12mo.* 6. *Vie du Marechal Villars, écrit par lui-même, suivie de Journal du la Cour de 1724 à 1784, Paris, 1787, 4 vols. 12mo; reprinted in 1792.* 7. *Precis de l'Histoire Universelle, 1797, 9 vols. 12mo; reprinted in 1801 and 1807, in 12 vols. 12mo.* This work has been translated into English, Spanish, and Italian. 8. *Motifs des Guerres et des Traités de Paix de la France, pendant les regnes de Louis XIV. Louis XV. et Louis XVI. 1798, 8vo.* 9. *Histoire de France, depuis les Gaules jusqu'à la fin de la Monarchie, 1803 et seqq. 14 vols. 12mo.* This work was composed in haste, and is of no great value. 10. *Notice sur la vie de M. Anquetil du Perron.* M. Anquetil likewise

wrote several papers in the *Memoirs of the Institute.* See *Biographie Universelle.*

ANQUÉTIL DU PERRON (ABRAHAM HYACINTH), brother of the subject of the preceding article, was born at Paris, on the 7th of December 1731. Having distinguished himself as a student at the university of that city, and acquired a considerable knowledge of the Hebrew language, he was invited to Auxerre by M. de Caylus, then the Bishop of that diocese. This prelate made him study theology, first at the academy of his diocese, and afterwards at that of Amersfort, near Utrecht; but Anquetil had no desire to embrace the ecclesiastical vocation, and devoted himself with ardour to the study of the different dialects of the Hebrew, and of the Arabic and Persian. Neither the solicitations of M. de Caylus, nor the hopes of rapid preferment, had the power to detain him at Amersfort, after he thought he had acquired every thing that was to be learnt there. He returned to Paris, where his diligent attendance at the Royal Library, and his ardour in the prosecution of his favourite studies, attracted the attention of the Abbé Sallier, keeper of the manuscripts, who introduced him to the acquaintance of his associates and friends, whose united exertions procured for him a small salary, as student of the oriental languages. He had scarcely received this appointment, when, having accidentally laid his hands on some manuscripts in the *Zenab*, he formed the project of a voyage to India, with the view of discovering the works of Zoroaster. At this period, an expedition was preparing at the port of L'Orient, which was destined for India. M. du Perron, however, applied in vain, through his protectors, for a passage; and seeing no other means of accomplishing his plan, he enlisted as a common soldier, and set out from Paris, with a knapsack on his back, on the 7th of November 1754. His friends procured his discharge; and the minister, affected by this romantic zeal for science, granted him a free passage, a seat at the captain's table, and a salary, the amount of which was to be fixed by the governor of the French settlements in India. After a passage of nine months, Anquetil landed, on the 10th of August 1755, at Pondicherry. Here he remained no longer than was necessary to make himself master of the modern Persian, and then hastened to Chandernagore, where he thought to acquire the Sanscrit. But in this he was deceived; and he was on the point of returning, when a serious complaint threatened his life. He had scarcely escaped from this danger, when war was declared between France and England; Chandernagore was taken; and Anquetil resolved to return to Pondicherry by land. After a journey of one hundred days, in the course of which, he encountered many adventures, and suffered many hardships, he arrived at Pondicherry. Here he found one of his brothers who had arrived from France, and embarked with him for Surat; but, with the view of exploring the country, he landed at Mahe, and proceeded on foot. It was at Surat that he succeeded, by perseverance and address in his intercourse with the native Priests, in acquiring a sufficient knowledge of the languages, to enable him to translate the Dictionary,

Anquetil called the *Vedihad-Sass*, and some other works. From thence he proposed going to Benares, to study the languages, antiquities, and sacred laws of the Hindoos; but the capture of Pondicherry obliged him to return to France. He accordingly embarked on board an English vessel, and landed at Portsmouth, in the month of November 1761. After spending some time in London, and visiting Oxford, he set out for Paris, where he arrived on the 4th of May 1762, without fortune, or the desire of acquiring any; but esteeming himself rich in the possession of an hundred and eighty oriental manuscripts, besides other curiosities. The Abbé Barthelemy, and his other friends, procured for him a pension, with the title and appointments of Interpreter for the oriental languages at the royal library. In 1763, the Academy of the *Belles Lettres* received him among the number of its associates; and from that period, he devoted himself to the arrangement and publication of the materials he had collected during his eastern travels. In 1771, he published a work in three volumes 4to, under the title of *Zend-Avesta*, containing collections from the sacred writings of the Persians, among which are fragments of works ascribed to Zoroaster; and he accompanied this work with an account of the life of that sage. This publication must be considered as constituting a very important accession to our stores of oriental literature. A recent historian, and very competent judge, refers to the *Zend-Avesta*, as certainly the most authentic source from which we can derive information regarding the religion and institutions of the great Persian legislator. (Sir John Malcolm's *Hist. of Persia*, Vol. I. p. 198, Note.) To the *Zend-Avesta* M. Du Perron prefixed a discourse, in which he treated the University of Oxford, and some of its learned members, with ridicule and disrespect. Mr (afterwards Sir William) Jones replied to these invectives in an anonymous letter, addressed to the author, written in French, with uncommon force and correctness of style, but at the same time, with a degree of asperity which could only be justified by the petulance of M. Du Perron. In 1778, he published his *Legislation Orientale*, in 4to; a work in which he controverts the system of Montesquieu, and endeavours to prove, that the nature of oriental despotism has been misrepresented by most authors; that in the empires of Turkey, Persia, and Hindostan, there are codes of written law, which equally bind the prince and subject; and that, in these three empires, the inhabitants possess both moveable and immovable property, which they enjoy with perfect security. His *Recherches Historiques et Geographiques sur l'Inde*, appeared in 1786, and formed part of Thiersenthaler's *Geography of India*. They were followed, in 1789, by his treatise *De la Dignité du Commerce et de l'état du Commerçant*. The Revolution seems to have greatly affected him. During that period, he abandoned society, shut himself up in his study, and devoted himself entirely to literary seclusion. In 1798, he published *L'Inde en Rapport avec l'Europe*, &c. in 2 vols. 8vo; a work which is more remarkable for its virulent invectives against the English, and for its numerous misrepresentations, than for the information which it contains, or the sound-

ness of the reflections which it conveys. The spirit of the work, indeed, may be ascertained from the summary of its contents, stated in the title-page, in which the author professes to give a detailed, accurate, and terrific picture of the English Machiavelism in India; and he addresses his work, in a ranting, bombastic dedication, to the *Mans* of Dupleix and Labourdonnais. In 1804, he published a Latin translation from the Persian of the *Oupnek'hat*, or *Upanishada*, i. e. "Secrets which must not be revealed," in 2 vols. 4to. On the re-organization of the Institute, M. Anquetil was elected a member, but soon afterwards gave in his resignation. He died at Paris on the 17th of January 1805.

Besides the works we have already enumerated, M. Anquetil read to the Academy several memoirs on subjects connected with the history and antiquities of the East. At the time of his death, he was engaged in revising a translation of the *Travels of Father Paulin de St Barthelemy in India*; which work was continued by M. Silvestre de Sacy, and published in 1808, in 3 vols. 8vo. He also left behind him a great number of manuscripts, among which, his biographers particularly notice the translation of a Latin treatise on the Church, by Doctor Legros, in 4 vols. 4to.

From the preceding narrative, our readers will be enabled to form some notion of the character of Anquetil Du Perron. Among his countrymen, he is regarded as one of the most learned men of the eighteenth century. He certainly distinguished himself by a very ardent and disinterested zeal in the prosecution of those studies to which he dedicated the labours of a long life; but the lustre of his literary character was obscured by a very absurd vanity, and the most inveterate prejudices. In a Discourse addressed to the Asiatic Society at Calcutta, in 1789, Sir William Jones speaks of him, as "having had the merit of undertaking a voyage to India, in his earliest youth, with no other view than to recover the writings of Zeratust (Zoroaster), and who would have acquired a brilliant reputation in France, if he had not sullied it by his immoderate vanity and virulence of temper, which alienated the good-will even of his own countrymen." In the same Discourse, he affirms, that M. Anquetil most certainly had no knowledge of the Sanscrit.—See *Biographie Universelle*. *Monthly Rev.* Vol. LXL. Lord Teignmouth's *Life of Sir William Jones*. (H.)

ANT. The history of a tribe of insects so long celebrated for their industry and frugality, and for the display of that sagacity which characterizes some of the higher orders of animals, is peculiarly calculated to occupy the attention of modern naturalists. The ancients, indeed, had often noticed the habits and economy of the ant; but their accounts, at all times deficient in accuracy from the want of precise definitions and logical arrangement of the objects they describe, are, in this instance, so mixed up with fanciful notions, and chimerical doctrines, and so coloured by the vivid imagination and credulity of the narrators, as to have retarded rather than advanced the progress of real knowledge. Aristotle and Pliny report, for instance, that the labours of ants are in a great measure regulated by the phases

Anquetil
Du Perron
Ant.

Progress of
this branch
of Entomology.

Ant.

of the moon; and the latter mentions a species found in the northern parts of India, whose size was said to equal that of the wolves of Egypt, whose colour was the same as that of a cat, and whose occupation in winter consisted in digging up gold from the bowels of the earth; while the inhabitants in the summer, robbed them of their treasures, after having decoyed them, by stratagem, from their nests. Great mistakes have prevailed, even in later times, from the circumstance of the larvæ of ants bearing a resemblance to grains of corn, which it was supposed these insects hoarded up as a provision for winter consumption. The form of the eggs and of the larvæ, and the attention paid to them by the ants, were described by Dr King in the 23d Number of the *Philosophical Transactions*; but Leuwenhoeck was the first who distinguished, with precision, the different forms, which the insect assumes in the several stages of its growth. He traced the successive changes from the egg to the larva, the nymph, and the perfect insect. Swammerdam pursued his scrutiny into these successive developments with greater minuteness; and, unrivalled in the act of microscopic dissection, discovered the wonderful encasement of all the parts of the future ant, at every preceding stage; and showed that it appears under such different forms only from the nature of its envelopes, each of which, at the proper period, is in its turn cast off. Linnæus (*Memoirs of the Royal Academy of Sciences at Stockholm*, Vol. II.) ascertained some of the leading facts with regard to the distinction between the sexes, and determined that the ants which are furnished with wings, are the only individuals that exercise the sexual functions. Several particulars, with regard to the economy of ants, were published by Mr Gould, in a book entitled "An account of English Ants," of which an abstract is given in the *Philosophical Transactions* for 1747, by the Rev. Dr Miles. The facts are there stated with tolerable correctness; but some errors have been committed by following too closely the analogy with bees. Geoffroy (*Histoire des Insectes qui se trouvent aux environs de Paris*), though a good naturalist on other topics, is a bad authority on the subject of ants. The most complete series of observations on the natural history of these insects, is that for which we are indebted to the celebrated Swedish entomologist De Geer (*Mémoires pour servir à l'histoire des Insectes*), an observer on whose fidelity the most implicit reliance may be placed.

In the *Encyclopédie Méthodique*, under the article *Fourmi*, Olivier has drawn up an able statement of all the material facts that had been established by preceding naturalists, without, however, adding any original observations of his own, excepting the description of five or six undescribed species. A full account of the habits of those ants, which for a long period infested the Island of Martinique, is contained in some of the earlier numbers of the *Journal de Physique*, (Vols. IX. and X.) The author of these memoirs, M. Barbotteau, has given many curious details on this subject, and has cited a number of facts on various authorities; and the account might now be swelled by the reports of subsequent travellers in different parts of the world; but these state-

Ant.

ments are often made upon slender authority, and are too much tinged with the marvellous to admit of much credit being attached to them. The narrative given to us by Bonnet, in the second volume of his *Observations sur les Insectes*, of the proceedings of a colony of ants, which had established itself in the head of a large thistle, and which he transported into his house, is highly interesting; but it elucidates only a few points of their economy, and leaves us to regret that so patient and indefatigable an observer had not bestowed more of his attention to the study of this tribe of insects. In the *Philosophical Transactions* for 1790, we find an interesting memoir on the Sugar Ant, a species which, for a period of ten years, committed dreadful ravages in the sugar plantations throughout the whole Island of Grenada. The most methodical account of this tribe of insects that has yet appeared, is that of Latreille, in his *Histoire Naturelle des Fourmis*, published at Paris in 1802; a work which alone would have secured the reputation of the author as an able and scientific naturalist. His merit is particularly conspicuous in the clearness and accuracy of his descriptions of each species, and the luminous method of arrangement which he has adopted in their classification. He gives an account of one hundred species, which he had himself observed, and of twenty-four which he has described from the reports of others; these he distributes into nine natural families, according to the situation and structure of the antennæ, and the form of the abdominal scales. But the work which contains the most copious collection of facts relative to the habits and economy of ants, is that of Mr P. Huber, of Geneva, entitled *Traité des moeurs des Fourmis Indigènes*, published in 1810. By means of an apparatus, which he contrived so as to admit of his obtaining a view, whenever he pleased, of the inmost recesses of their habitation, he was enabled to observe what was going on in the interior of the nest, and to investigate, with success, some of the most important and interesting features of their history. The results of his researches, as they are reported in his work, are highly curious and instructive, and open a wide field of speculation and inquiry to the philosophical entomologist. They have not only elucidated many obscure points with regard to one tribe of insects, but have disclosed some general views of the instincts and faculties of this order of the creation, which are totally new, and must tend, in a considerable degree, to exalt our conceptions of the inexhaustible powers and resources of nature.

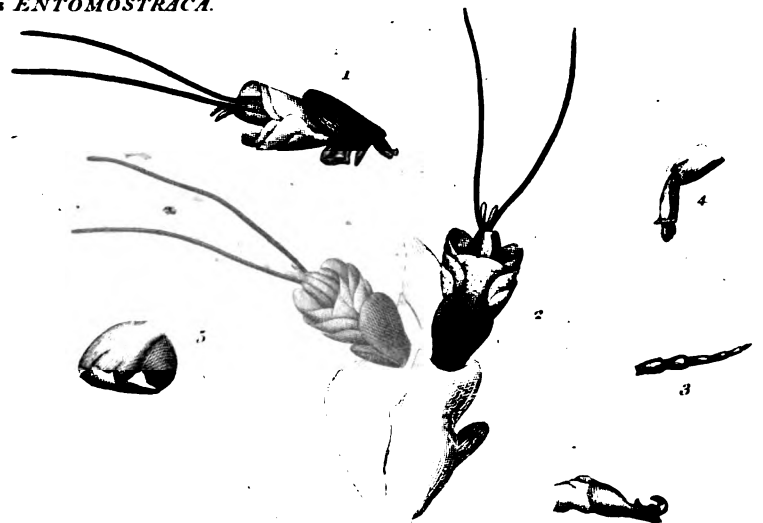
Having thus pointed out the principal sources of Economy information in this department of entomology; we shall proceed to give an outline of the leading facts of Ants that have been ascertained relative to the economy and domestic policy of these remarkable insects.

In common with many tribes of hymenopterous insects, ants present the remarkable peculiarity of a threefold distinction of sex among the individuals of the same species; a circumstance which is met with in no other order of the animal kingdom, and which appears, as far as observation has extended, to be totally excluded from the plan of the vegetable

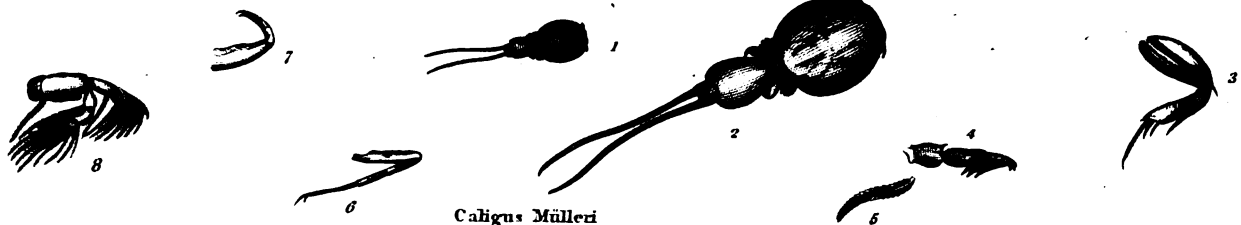
ANNULOSA.
 Class CRUSTACEA.
 Sub Class ENTOMOSTRACA.



Cecrops Latreillii



Anthosoma Smithii

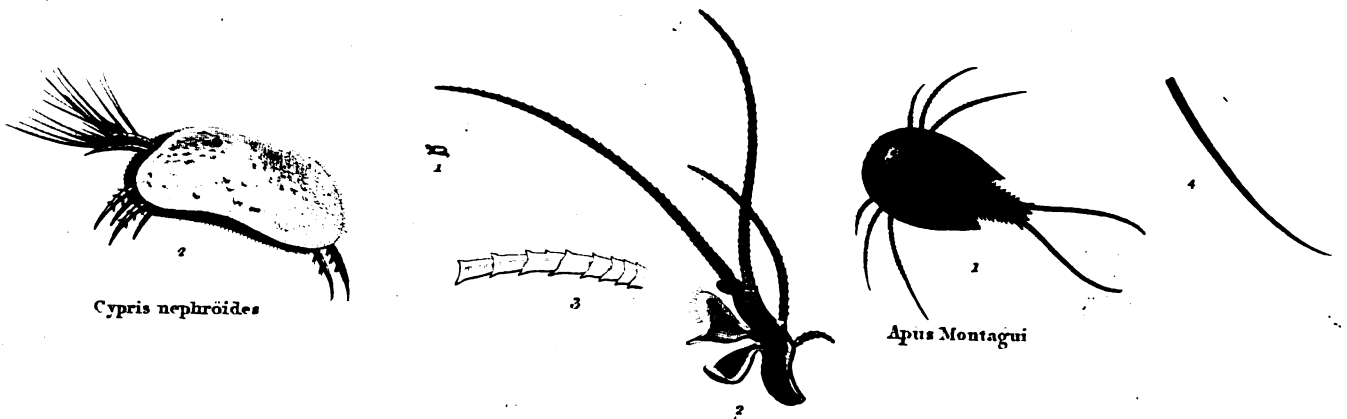


Caligus Mülleri



Pandarus bicolor

Pandarus Boscii



Cypris nephroides

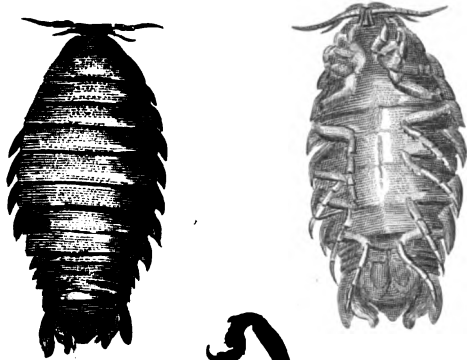
Apus Montaguï

ANNULOSA.

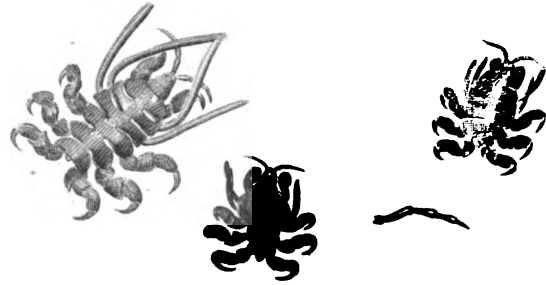
PLATE XVII.

Class CRUSTACEA. Sub-class MALACOSTRACA.

Legion EDRIOPHTHALMA.



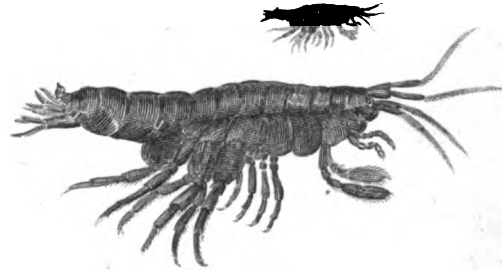
Ega emarginata.



Larunda ceti



Melita palmata



Euryusa fucicola

Legion PODOPHTHALMA.



Galathea Fabricii



Atya scabra



Pinnotheres Cranchii

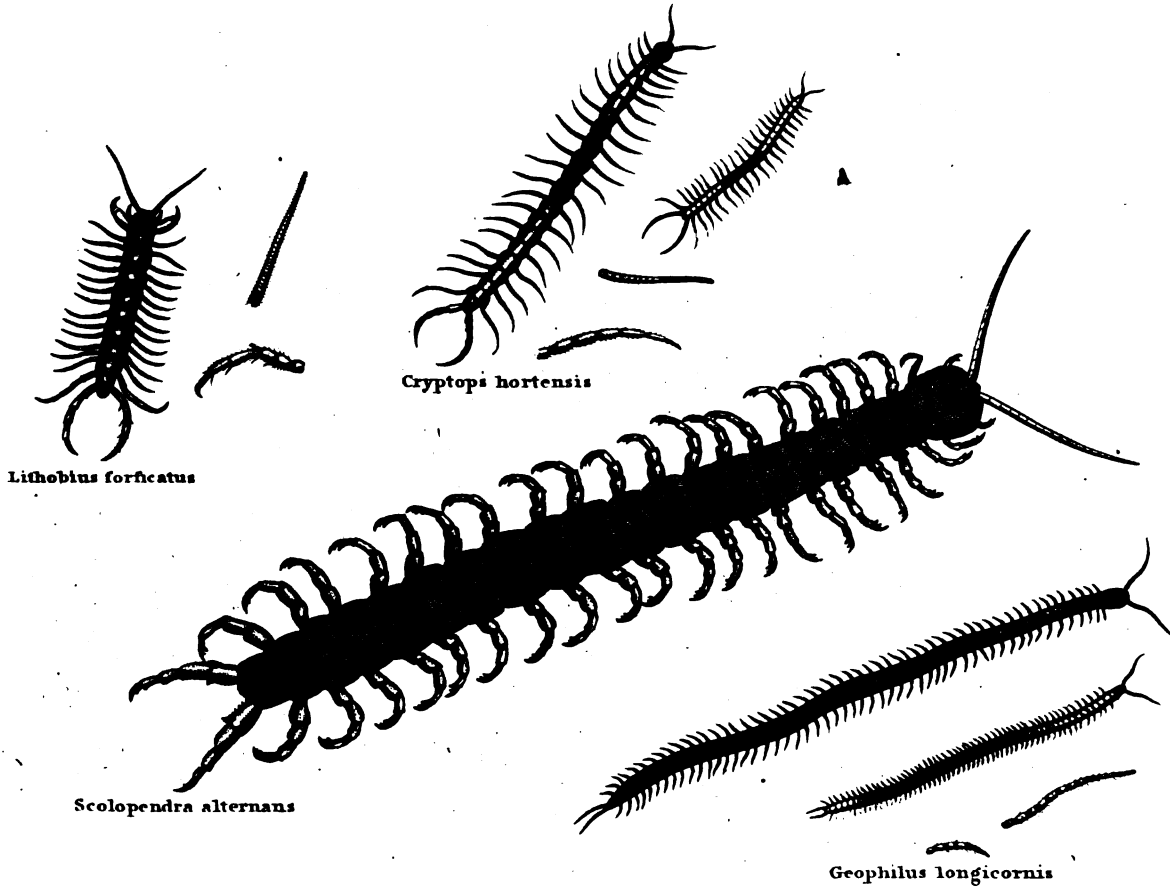


Lupa forceps

ANNULOSA.
 Class MYRIAPODA.
 Order CHILOGNATHA.



Order SYNGNATHA



J. Searby del.

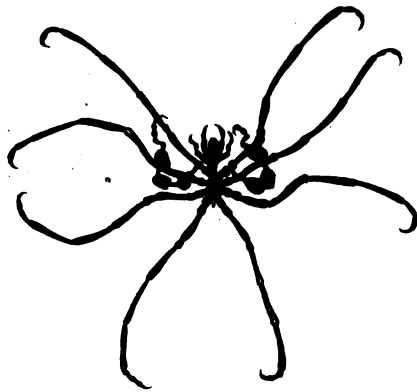
Published by A. Constable & Co. 1886.

Z. 37. 44. 1886.

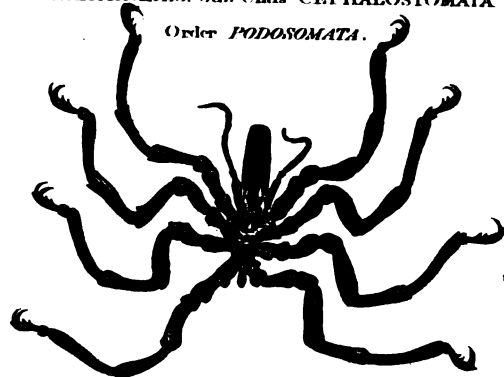
ANNULOSA.

Class ARACHNIDES. Sub-Class CEPHALOSTOMATA.

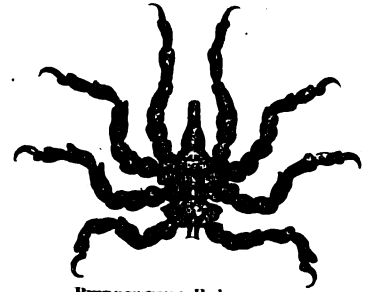
Order PODO SOMATA.



Nymphum Gracile.

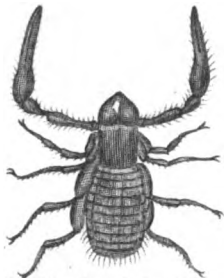


Aranothea Carolinensis.



Pycnogonum Balanarium.

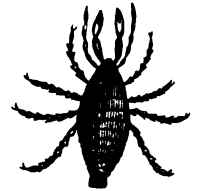
Order POLYMEROSOMATA.



Obisium Trombidioides.

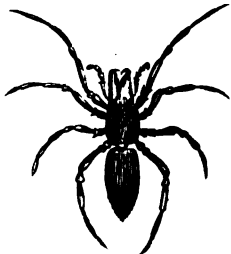


Chelifer fasciatus.

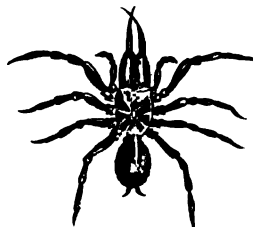


Siro Rybens.

Order DEMEROSOMATA.

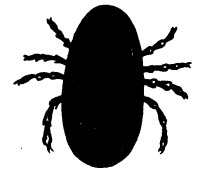


Dysdera cythrina.



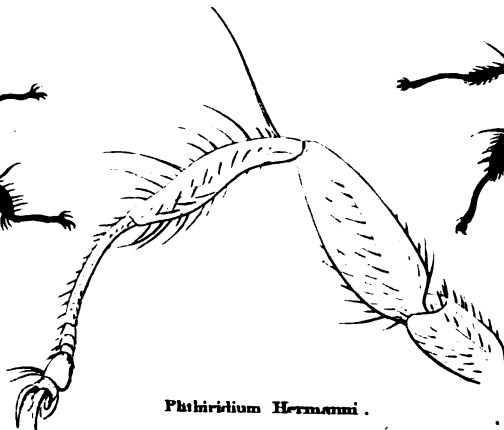
Atypus Sulzeri.

Order MONUMEROSOMATA.



Argas reflexus.

Sub-Class NOTOSTOMATA.



Phidippus Hermanni.

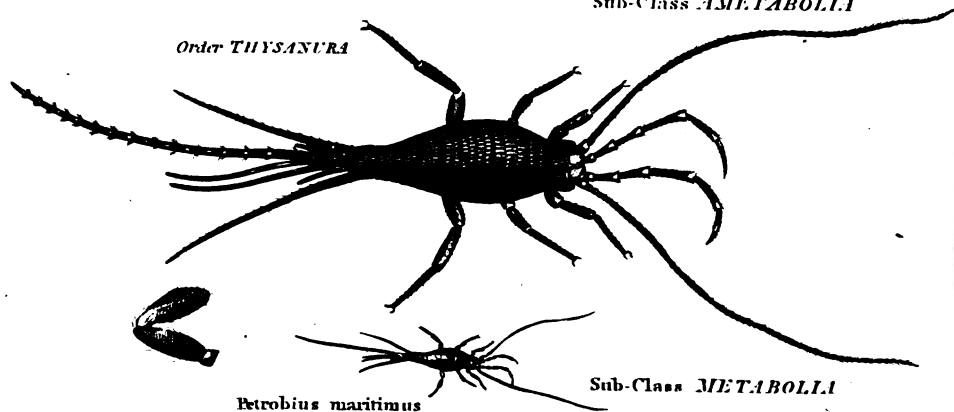


H. Webb, Sculp.

ANNULOSA.

Class INSECTA

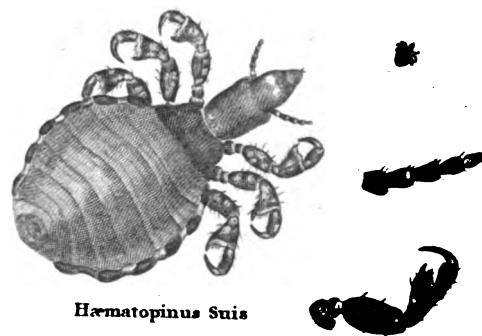
Sub-Class AMETABOLII



Order THYSANURA

Petrobius maritimus

Sub-Class METABOLII



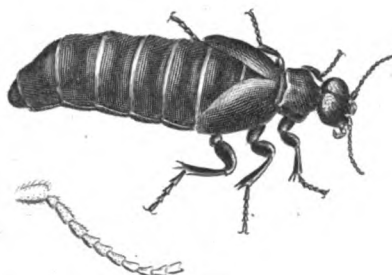
Order ANOPLURA

Hematopinus suis

Order STREPSIPTERA



Anoplognathus viriditarsis



Meloe majalis



Stylops kirbii

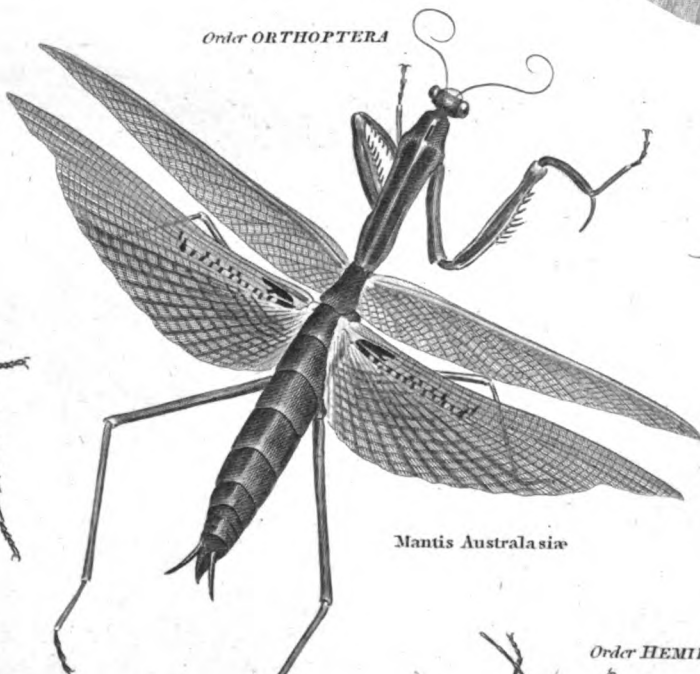
Order COLEOPTERA

Order DICTYOPTERA

Order ORTHOPTERA



Blatta



Mantis Australasia



Labidura gigantea

Order DERMAPTERA

Order HOMOPTERA

Order HEMIPTERA



Tettigonia Harrisii



Myctis crucifera



Nema cinerea

ANNULOSA.

Class **INSECTA**. Sub-Class **METABOLIA**.

Order **LEPIDOPTERA**.



Papilio Mac-Leayanus



Agarista picta



Hesperia picta

Order **TRICHOPTERA**.



Phryganea grandis



Limnephilus striola

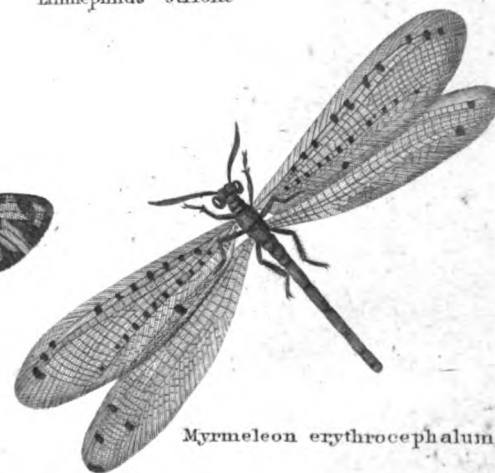
Order **NEUROPTERA**.



Nymphes Myrmelionoides



Nemopteryx Lusitanica



Myrmeleon erythrocephalum

Order **DIPTERA**.

Order **HYMENOPTERA**.



Nematus Septentrionalis



Vespa Crabro



Asilus Crabroniformis



Oxypterus Kirbyanus

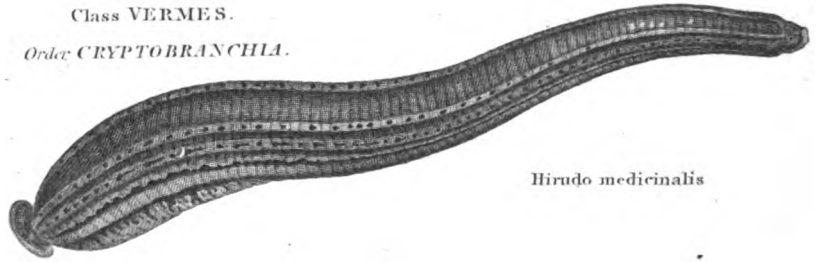
ANNULOSA.

Class VERMES.

Order CRYPTOBRANCHIA.



Pontobdella spinulosa

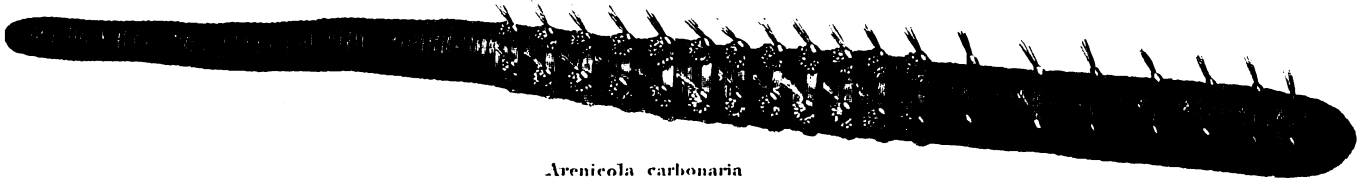


Hirudo medicinalis

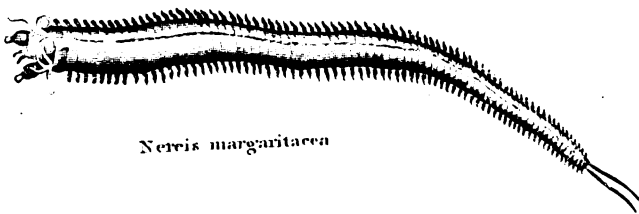


Lumbricus terrestris

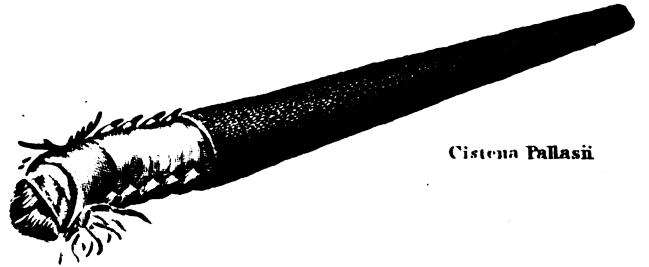
Order GYMNORINCHIA.



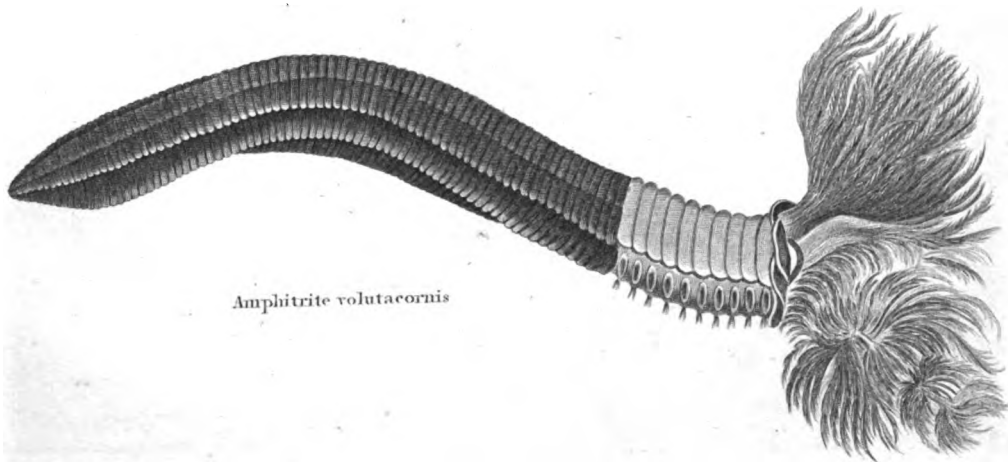
Arenicola carbonaria



Nereis margaritacea



Cistenia Pallasii



Amphitrite voluticornis



