

DESCRIPTION OF THE PLATES.

The figures in Plates I.—XXIV. (with two acknowledged exceptions) are mainly photo-lithographs of drawings made with the camera lucida from the specimens by the Author. Being designed to illustrate the genera, a distinctive numeral is appropriated to each genus; and, when necessary, a special letter is affixed to the generical numeral, to indicate what species are concerned in the illustrations appertaining to that genus. Numerals written smaller than the generical numerals are used to designate particular legs and wing-nervures. The fore leg, intermediate leg and hind leg are numbered respectively 1, 2, and 3. The wing-nervures are numbered in accordance with the plan set forth in page 4 of this volume:—1, the Costa, 2, the Subcosta, 3, the Radius, 4, the Sector, 4', the hindermost of the adventitious branches of the Sector, 5, the Cubitus, 6 and 6', the Præbrachial and its hindermost branch, 7 and 7', the Pobrachial and its hindermost branch, 8, the Anal, 9¹, 9², and 9³, Axillary nervures. The natural lengths of the wings are shown by hair-lines.

Plates XXV.—LXII. and part of LXIII. (with a single acknowledged exception) are from drawings by Hollick, from the specimens, executed under the Author's supervision. The figures in each of these Plates are numbered consecutively, and certain letters are uniformly used to designate particular parts of the insects, viz.:—*a*, the antenna, *lbr*, the labrum, *r. md*, the right mandible, *l. md*, the left mandible, *mx*¹, the first maxilla, *mx*², the second maxilla, *lbm*, the labium, *t*, the tongue, *l*¹, the fore leg, *l*², the intermediate leg, *l*³, the hind leg, *tb*, tracheal branchiæ [those of the abdomen numbered pair by pair successively from the foremost], *c. s.* caudal setæ. In some of these Plates detached views of certain regions of the body are uniformly lettered as follows:—A, dorsal view of the insect, B, ventral view of the same, C, side view of the head, D, head from beneath, E, head from above, F, front view of head. The natural lengths of the insects are shown by hair-lines, and to the figure of each detail is annexed an indication in numerals of the scale of enlargement.

Plates LXIV., LXV. and part of LXIII. are from drawings by the Author from the specimens, lithographed by Hollick. They are essentially supplementary to earlier plates.

N.B.—The wings of dried specimens, in some of the genera, are apt to be completely shrivelled up (*e. g.* those figured in Plate III.). When such is the case, recourse may be had to the following method of preparing them for examination. The wing detached from the specimen is first of all floated upon scalding water, and induced to expand as fully as possible whilst it is floating. It is next taken up upon paper or a strip of glass and transferred to cold water, and then spread out to dry upon paper or glass. If upon paper, the wing can presently be separated therefrom by bending the paper away from it, and it can either be mounted permanently as an object for the microscope, or be placed temporarily for examination within a compress-cell, care being taken to flatten it out by only vertical and gentle pressure. If the result be then unsatisfactory, the whole process can be repeated.

PLATE I.

Neuration, limbs, external ♂ genitalia, and ♂ head of 1. *Palینگenia* (adult):—all enlarged.

Figs. 1 *a.* *P. longicauda*:—wings, legs (1–3) of ♂, fore leg of ♀ with a larger view of the fore tarsus and a much larger one of the unguis, a penis-lobe and forceps-limb (underside view), [the two dots on the 4th joint of the limb are due to a flaw in the stone], vertical view of the ♂ head, and side view of the same.

Fig. 1 *b.* *P. lata*:—fore wing.

Fig. 1 *c.* *P. ampla*:—fore wing.

Fig. 1 *d.* *P. javanica*:—underside view of ♂ genitalia.

PLATE II.

Neuration, limbs, external ♂ genitalia, and parts of caudal setæ of 1. *Palingenia* (adult) and 9. *Jolia* (reputed adult):—all enlarged.

- Figs. 1 *d.* *P. javanica*:—part of fore wing, legs (1–3) of ♂, with a larger view of the unguis of the fore tarsus, and two portions of a caudal seta, taken respectively from before the middle and towards the tip of the same, both highly magnified.
- Figs. 1 *e.* *P. tenera*:—fore wing and two portions of a caudal seta corresponding with the above.
- Figs. 1 *f.* *P. papuana*:—part of fore wing, and underside view of genitalia.
- Figs. 9. *J. Roeseli*:—parts of both wings, legs (1–3) of ♂, with enlarged views of the terminal joint of the fore tarsus, and likewise of the intermediate and the hind tarsi, and underside view of a forceps-limb and penis.

PLATE III.

Neuration, limbs, external ♂ genitalia of 2. *Oligoneuria*, 3. *Elassoneuria*, 4. *Spaniophlebia*, 5. *Lachlania*, 6. *Homæoneuria*, and head of adult ♂ *Oligoneuria*:—all enlarged.

- Figs. 2 *a.* *O. rhenana*:—wings of ♂ and of ♀, legs (1–3) of ♂, much enlarged; underside view of part of the extremity of ♂ abdomen, showing a 3-jointed forceps-limb, the penis, and (in stippled outline) the retracted stimuli; another underside view of the penis with sperm-ducts partly extruded and the stimuli retracted; extremity of a forceps-limb 4-jointed instead of 3-jointed; head of adult ♂ viewed from above; the same from in front; the same from the side.
- Figs. 2 *b.* *O. anomala*:—wings, legs (1 and 3) of ♂ much enlarged and (1–3) of ♀; side view of genitalia (dried) with separate figures of a forceps-limb, and of the penis-lobes subtended by the forceps-basis, or a laminar lobe of the 9th ventral segment.
- Fig. 3. *E. Trimeniana*:—wings of ♀.
- Figs. 4. *S. Trailia*:—wings, legs (1–3) of ♂, and underside view of genitalia.
- Figs. 5. *L. abnormis*:—wings of ♀. *L. lucida*:—partial underside view of genitalia.
- Fig. 6. *H. Salvinia*:—wings of ♀.

PLATE IV.

Neuration, limbs, and ♂ forceps of 7. *Euthyplocia*:—all enlarged.

- Fig. 7 *a.* *E. Hecuba*:—wings of ♀.
- Fig. 7 *b.* Another species:—hind wing of ♀.
- Figs. 7 *c.* *E. anceps*:—defective wings, legs (1–3), with enlarged views of the intermediate and posterior tarsi; dorsal view of the extremity of the abdomen and forceps-limbs (setæ omitted),—all of the ♂ and dried.
- Fig. 7 *d.* Another species:—underside view of forceps.

PLATE V.

Neuration, limbs, external ♂ genitalia, and head of adult ♂ of 8. *Campsurus*:—all enlarged.

- Figs. 8 *a.* *C. albifilum*:—fore wing, fore leg of the adult ♂; fore leg of ♂ subimago; underside view of ♂ genitalia, showing the penis-lobes in faint outline; vertical view of the head and part of the thorax.
- Fig. 8 *b.* Another species:—hind wing of ♀.
- Figs. 8 *c.* *C. latipennis*:—wings; a partial underside view of ♂ genitalia, showing on the right, at the base of the figure, part of a filiform forceps-limb, with an unciform prickle adjacent thereto, also a bifidly excised subgenital plate, the penis-lobes slightly opened out but incurved, and either stimuli or sperm-ducts protruded with divergent points; another partial underside view of the

same from a different specimen, showing a forceps-limb, both of the spinules or prickles adjacent to the forceps-limb, one half of the subgenital plate, and the penis-lobes closed together (dried).

Fig. 8 *d.* *C. cuspidatus* :—underside view of ♂ genitalia (dried).

Fig. 8 *e.* *C. quadridentatus* :—underside view of subgenital plate with the right forceps-limb entire ; penis-lobes viewed from behind, points upwards ; side view of a penis-lobe, point downwards, much more enlarged (dried).

Figs. 8 *f.* *C. curtus* :—partial underside view of ♂ genitalia, showing the right forceps-limb and the base of the left limb, and also the penis-lobes above the halves of the subgenital plate distorted in drying. Also two detached figures, much more enlarged, of penis-lobes (dried).

PLATE VI.

Neuration of 8², a nameless insect related to *Campsurus*. Also neuration, limbs, external ♂ genitalia, and head of adult ♂ of 10. *Polymitarcys* :—all enlarged.

Fig. 8 bis. Nameless Brazilian insect (M'Lach. Mus.) :—wings.

Figs. 10 *a.* *P. virgo* :—wings ; legs (1-3) of adult ♂, with enlarged views of the intermediate and posterior tarsi ; fore leg of ♂ subimago, on the same scale of enlargement as the adult fore leg ; ventral view of ♂ genitalia, showing the penis and a forceps-limb ; vertical view of the adult ♂ head with part of the pronotum.

Fig. 10 *b.* A S.-African species :—fore wing.

Fig. 10 *c.* A N.W.-Indian species :—hind wing.

PLATE VII.

Neuration, limbs, and external ♂ genitalia of 11. *Hexagenia* ; all enlarged.

Fig. 11 *a.* A N.W.-Indian species :—fore wing and part of hind wing.

Figs. 11 *b*, 11 *b'* and 11 *b''*?. *H. bilineata* :—hind wing and part of a fore wing ; three views of single forceps-limbs, each with another view, on rather a larger scale, of the extremity of the limb, illustrating variations in the number and relative size of the smaller joints [of these three, the two on the right side of the plate are from dried specimens ; the underside view of the ♂ genitalia, on the left side of the plate, is from an alcoholic specimen, and shows the penis-lobes—one shaded, the other in outline].

Figs. 11 *c.* *H. limbata* :—wings ; legs (1-3) of each sex ; ♂ genitalia, showing a forceps-limb and a penis-lobe (dried). The remarkable aberration displayed in the neuration of the fore wing here figured is described at the bottom of p. 4.

PLATE VIII.

Neuration, limbs, and external ♂ genitalia of 12. *Ephemera* and 13. *Pentagenia* ; also head of adult ♂ *Ephemera*.

Figs. 12 *a.* *E. danica* :—wings ; legs (1-3) of ♂ and (1) of ♀, with an enlarged view of the terminal joint and unguis of the ♂ fore tarsus ; forceps viewed from below.

Figs. 12 *b.* *E. vulgata* :—part of a fore wing ; underside view of penis-lobes.

Figs. 12 *c.* *E. supposita* :—underside view of ♂ genitalia, showing forceps and penis ; a slightly enlarged side view of a penis-lobe (dried).

Figs. 12 *d.* *E. glaucops* ; head of adult ♂, the upper figure being taken from in front of the specimen, and the lower from the side. The latter view includes part of the prothorax and of the fore leg.

Figs. 13. *P. vittigera* :—wings of both sexes ; legs (1-3) of both sexes ; underside view of penis and a forceps-limb (dried).

PLATE IX.

Neuration, limbs, external ♂ genitalia of 14. *Potamanthus* and 15. *Rhoënanthus* and head of adult ♂ *Potamanthus*:—all enlarged.

- Figs. 14. *P. luteus*:—wings; legs (1–3) of ♂ and fore leg of ♀; two underside views of forceps, one in outline (dried) and the other shaded (freshly killed); two underside views of the penis, the uppermost fresh, and the lower dried; a vertical view of the adult ♂ head, and a side view of the same with part of the thorax and of the fore leg.
- Figs. 15. *Rh. speciosus*:—both wings and part of a fore wing; underside view of forceps (dried); underside view of the penis (dried).

PLATE X.

Neuration, limbs, external ♂ genitalia, and adult ♂ head of 16. *Atalophlebia*:—all enlarged.

- Figs. 16 a. *A. annulata*:—wings; legs (1–3) of ♂ with a more enlarged view of the hind tarsus; forceps (dried); underside view of penis (dried).
- Fig. 16 b. *A. taprobanes*:—oblique side view of penis (dried).
- Figs. 16 c. *A. australasica*:—two fore wings and a hind wing; underside view of penis (dried).
- Fig. 16 d. *A. strigata*:—hind wing and part of a fore wing; fore leg of adult ♀.
- Figs. 16 e. *A. nodularis*:—fore wing; hind wing more enlarged; a side view and an underside view of penis [rather inferior to the older figures of the same] (dried).
- Figs. 16 f. *A. scita*:—forceps and underside view of penis (dried).
- Figs. 16 g. *A. chilensis*:—hind wing; legs (1–3) of ♂; a forceps-limb and two views of the penis (dried).
- Figs. 16 h. *A. tabularis*:—hind tarsus, intermediate tarsus, and the terminal joint of the fore tarsus of the adult ♂; underside view of the forceps-basis, and a forceps-limb; underside view of penis; vertical view of adult ♂ head; side view of the same, showing the ascalaphoid form of oculi (from a specimen preserved in spirits and glycerine).
- Figs. 16 i. A nameless species:—wings, and a more enlarged view of the hind wing.

PLATE XI.

Neuration and limbs of 17. *Leptophlebia* and 18. *Blasturus*, and external ♂ genitalia of *Leptophlebia*:—all enlarged.

- Figs. 17 a. *L. marginata*:—wings; legs (1–3) of ♂ and fore leg of ♀, with a more enlarged view of the intermediate ♂ tarsus; underside view of the forceps-basis and the right forceps-limb, illustrating the occasional 4-jointed condition of the limb; underside view of penis (freshly killed).
- Figs. 17 b. *L. mollis*:—wings; side view of forceps (dried).
- Figs. 17 c. *L. præpedita*:—(uppermost figure) side view of penis, subtended by an erect underside view of the same; (right and left figures at the bottom of the group) underside view of forceps, and side view of the same (dried).
- Fig. 17 d. *L. Meyeri*:—underside view of penis (dried).
- Figs. 18. *B. concinnus* [= *cupidus*]:—wings and legs.

PLATE XII.

Neuration, limbs, and external ♂ genitalia of 19. *Choroterpes*, and 20. *Thraulius*:—all enlarged.

- Figs. 19. *Ch. Picteti*:—wings, with a more enlarged view of the hind wing; legs (1–3) of ♂, with more enlarged views of the intermediate and hind tarsi, and one, on much larger scale, of the extremity of the fore tarsus; underside view of forceps, and of penis (from specimens in fluid).

Figs. 20. *Th. bellus*:—wings, with part of a fore wing, and a more enlarged view of the hind wing; legs (1-3) of ♂, with more enlarged views of the intermediate and hind tarsi; underside view of forceps, and of penis (from specimens in fluid).

PLATE XIII.

Neuration, limbs, and external ♂ genitalia of 20*. *Thraululus* (provisional) [including 23*. *Calliarcys* (provisional)], 21. *Adenophlebia*, and 22. *Habrophlebia*.—[For 23. *Calliarcys* (proper) see Plate XIV.]

Figs. 20*². *Th. exiguus*:—wings, with a more enlarged view of the hind wing; one of the hinder tarsi; underside partial view of ♂ genitalia, with another more enlarged view of the penis (dried).

Fig. 20*³. *Th. colombiæ*:—hind wing, much enlarged.

Figs. 21. *A. dislocans*:—wings; legs (1-3) of ♂, with a more enlarged view of the intermediate tarsus; a forceps-limb and an underside view of the penis (dried).

Figs. 22 a. *H. fusca*:—wings; legs (1-3) of ♂, with more enlarged views of the hinder tarsi; underside view of the forceps, and of the penis (freshly killed).

Figs. 22 b. *H. modesta*:—side view and underside view of penis (dried).

[Figs. 23*², 23*³, and 23*⁴, referred provisionally to *Calliarcys* in the writing on the Plate, are cited in the descriptive letterpress at pp. 109-110 under *Thraululus*.]

Figs. 23*². A nameless insect:—wings, with a more enlarged view of the hind wing.

Figs. 23*³. *Th. lætus*:—part of a fore wing; one of the hinder tarsi; partial underside view of the penis and a forceps-limb (dried).

Figs. 23*⁴. *Th. mexicanus*:—hind wing, much enlarged; underside view of the penis and a forceps-limb (dried).

PLATE XIV.

Neuration, limbs, and external ♂ genitalia of 23. *Calliarcys*, and 24. *Ephemerella*; also adult ♂ head of the latter:—all enlarged.

Figs. 23. *C. humilis*:—wings, with portions of two fore wings, illustrating differences in the intercalary nervures of the anal-axillar interspace, and a more enlarged view of the hind wing; legs (1-3) of ♂ and the fore leg of ♀, with more enlarged views of the ♀ fore tarsus and the hinder ♂ tarsi; underside view of forceps and penis (from a specimen in fluid).

Figs. 24 a. *E. ignita*:—legs (1-3) of ♂ and fore leg of ♀; underside view of forceps and penis; head of ♂ viewed from above, from the side, and from in front (freshly killed).

Figs. 24 b. *E. grandis*, a N.-American species:—wings, with part of a fore wing showing an unusual arrangement of the neuration, the longest of the adventitious nervures (7') included between the pobrachial (7) and the anal (8) nervures, meeting this last instead of the pobrachial nervure; a more enlarged view of the hind wing.

Fig. 24 c. *E. invaria*:—underside view of penis (dried).

PLATE XV.

Neuration of 21 bis. *Hagenulus*, 24 bis. *Teloganodes*, 25. *Tricorythus*, 25 bis. *Leptohyphes*, 26. *Cænis*, and (after Vayssière) 27. *Prosopistoma*, with limbs and genitalia of *Hagenulus* and *Cænis*, and head of adult ♂ of this last.

Figs. 21bis. *H. caligatus*:—wings, with a more enlarged view of the hind wing; legs (1-3) of ♀ and fore leg of ♂, with more enlarged views of the ♂ fore tarsus and ♀ hind tarsus; penis with a slightly enlarged view of one of its divisions in a different posture; one of the forceps-limbs (dried). [This ♂ im. should be ranked with the 4 ♀ imagines mentioned at p. 114, line 13 from top.]

Figs. 24 bis. *Tel. tristis*:—wings, with a more enlarged view of the hind wing.

Fig. 25. Wing of a nameless Malay species of *Tricorythus*, received from Mr. Ritsema. [The ciliation of the wing is rather too dense.]

Fig. 25 bis. *L. eximius*:—wing.

Figs. 26 a. *C. halterata*:—legs (1–3) of ♀ and fore legs of ♂, with a more enlarged view of the ♀ hind tarsus; underside view of genitalia; vertical view of adult ♂ head, shaded, with the pronotum in outline, showing the very great disproportion in size between the anterior ocellus [visible in front], and the hinder ocelli [protuberant above the orbits of the eyes] (freshly killed).

Figs. 26 b. *C. dimidiata*:—wing; underside view of genitalia (freshly killed).

Figs. 27. *P. punctifrons* [*foliaceum*]:—wings of the reputed adult (preserved in fluid) after Vayssière, but not facsimile.

PLATE XVI.

Neuration and ♂ forceps of 28. *Callibætis* and 29. *Baëtis*; also femoral markings of some species of the former genus, and head of adult ♂ *Baëtis*:—all enlarged.

Figs. 28 a. *C. Hageni*:—fore wing and a more enlarged view of the hind wing; part of a femur.

Figs. 28 b. *C. ferrugineus*:—fore wing, and a more enlarged view of the hind wing of ♀ im.

Figs. 28 c. *C. pictus*:—wings, with a more enlarged view of the hind wing; two femora.

Figs. 28 d. *C. montanus*:—wings, with a more enlarged view of the hind wing; a femur.

Figs. 29 a. *B. Salvini*:—wings, with a more enlarged view of the hind wing; underside view of forceps (dried).

Figs. 29 b. *B. binoculatus*:—wings, with a more enlarged view of the hind wing; underside view of forceps (freshly killed).

Figs. 29 c. *B. rhodani*:—hind wing, much enlarged; head of ♂ viewed obliquely from above in front, and the same viewed from the side, showing the form of the composite oculi, and the inequality of the ocelli, described at p. 153 (freshly killed).

Fig. 29 d. *B. vernus*:—underside view of forceps (freshly killed).

Fig. 29 e. *B. pumilus*:—hind wing, much enlarged (freshly killed).

Fig. 29 f. *B. niger*:—underside view of forceps (freshly killed).

PLATE XVII.

Limbs of 28. *Callibætis*, 29. *Baëtis*, 30. *Centroptilum*, and 31. *Cloëon*; wings and forceps of *Centroptilum* and *Cloëon*, and adult ♂ head of the former: all enlarged.

Figs. 28. *C. ferrugineus*:—legs (1–3) of ♂, fore leg of ♀ (dried).

Figs. 29. *B. rhodani*:—legs (1–3) of ♂ and fore leg of ♀, with the hinder tarsi of the ♀ on a corresponding scale of enlargement.

Figs. 30 a. *C. luteolum*:—wings, with a more enlarged view of the hind wing; underside view of the forceps; head of adult ♂ from in front, and also from the side, showing the composite form of the oculi and the disparity in size between the foremost and the hinder ocelli, described at p. 153 (freshly killed).

Figs. 30 b. *C. pennulatum*:—hind wing, much enlarged; legs (1–3) of ♂; underside view of forceps; side view of ♂ head (freshly killed).

Fig. 30 c. *C. tenellum*:—underside view of forceps (preserved in fluid).

Figs. 31 a. *C. dipterum*:—fore leg and hinder tarsi of ♀; underside view of forceps (freshly killed).

Figs. 31 b. *C. simile*:—wing; legs (1–3) of ♂; underside view of forceps (freshly killed).

Fig. 31 c. *C. rufulum*:—underside view of forceps (freshly killed).

Fig. 31 d. *C. bimaculatum*:—wing [in the pterostigmatic region, the front of the wing (through accident on the part of the author) is slightly displaced].

PLATE XVIII.

Neuration, limbs, and external ♂ genitalia of 32. *Coloburus* [= *Coloburiscus*]; also external ♂ genitalia of 33. *Chirotonetes*, and limbs of 34. "*Siphylurus?*" [= *Ameletus*]:—all enlarged.

Figs. 32 *a*. *C. humeralis*:—wings; legs (1–3) of ♂ and fore leg of ♀; partial underside view of forceps; underside of penis (dried).

Figs. 32 *b*. A nameless N.-American *Coloburiscus*:—hind wings and part of a fore wing; legs (1–3) of ♀ (dried).

Fig. 32 *c*. *C. haleuticus*:—underside view of penis (dried).

Fig. 33 *d*. *Ch. siccus*: underside view of the forceps-basis, with parts of the limbs, with parts of the penis-lobes in outline (dried).

Figs. 33 *e*. *Ch. aridus*:—underside view of the forceps-basis, with parts of the limbs and a portion of the 9th segment; also (above the number) underside view of the extremity of the penis in outline, with dried exudation coarsely stippled (dried).

Figs. ? 34 *a'*. "*S. ? femoratus*" [= *A. subnotatus*]:—legs (1–3) of ♂ and fore leg of ♀ (dried).

PLATE XIX.

Neuration, limbs, external ♂ genitalia, and ♂ head of 33. *Chirotonetes*, and a wing of 32. *Coloburiscus*:—all enlarged.

Fig. 32. *C. "haleuticus"* [for *haleuticus*]:—fore wing.

Figs. 33 *a*. *Ch. mancus*:—wings only [the legs are wrongly lettered].

Figs. 33 *b*. *Ch. ignotus*:—both wings and part of a fore wing; legs [wrongly lettered 33 *a* for 33 *b*] (1–3) of ♂ and fore leg of ♀; underside partial view of genitalia held aslant, showing a forceps-limb and part of the forceps-basis with one and a portion of the other of the penis-lobes (dried); vertical, front, and side views of adult ♂ head (freshly killed).

Figs. 33 ? *c*. *Ch. ? ornatus* (page 208):—underside view of forceps and of penis (dried).

PLATE XX.

Neuration and limbs of 34. *Siphylurus*, ? 34. *Metamonius*, and 35. *Dipteromimus*, with external ♂ genitalia of the first and the last genus and head of adult ♂ *Siphylurus*:—all enlarged.

Figs. ? 34 *b*. *S. [Metamonius] anceps*:—wings and legs (1–3) of ♂ (dried).

Figs. 34 *c*. *S. typicus*:—wings.

Figs. 34 *d*. *S. lacustris*:—legs (1–3) of ♂ and fore leg of ♀; underside of forceps; vertical and side views of adult ♂ head (freshly killed).

Fig. 34 *e*. *S. armatus*:—underside view of forceps and part of segment 9 (dried).

Figs. 35. *D. tipuliformis*:—fore wing and part of the hind wing; legs (1–2) of ♂, with a more enlarged view of the intermediate tarsus; side view and underside view of genitalia, showing the forceps and the penis (dried). A complete figure of the hind wing is shown in Pl. LXIV.

PLATE XXI.

Neuration, limbs, and external ♂ genitalia of 36. *Oniscigaster* and 37. *Bætisca*, with head of adult ♂ of the former:—all enlarged.

Figs. 36. *O. Wakefieldi*:—wings; legs (1–3) of ♀ and fore leg of ♂: underside view of the genitalia, with the 9th and part of the 8th segment, showing the right and part of the left forceps-limb, and the shrunken penis; head viewed obliquely from in front and also from the side (dried).

Figs. 37. *B. obesa*:—wings; legs (1–3) of ♀ and fore leg of ♂; underside view of the right forceps-limb and the penis (dried).

PLATE XXII.

Neuration, limbs, and external ♂ genitalia of 38. *Ametropus*, 39. *Atopopus*, and 40. *Thalerosphyrus*:—all enlarged.

- Figs. 38. *Am. fragilis*:—fore wing and most of the hind wing; fore leg of ♀ adult, and of ♂ adult and subimago, with a more enlarged view of ♂ intermediate leg; underside view of forceps, with a part of the left limb omitted; underside view of penis placed in juxtaposition with the preceding figure (dried).
- Figs. 39. *At. tarsalis*:—wings; legs (1-3) of ♂; underside view of forceps and penis (dried).
- Figs. 40. *Th. determinatus*:—wings, slightly defective; intermediate leg and hind leg of ♂; underside view of genitalia, showing the forceps-basis, the left forceps-limb, and the penis (dried).

PLATE XXIII.

Neuration of the *Ecdyurus* type, exhibiting differences, for the most part fortuitous, in the connections established between the adventitious nervures and the main nervures of wings, *which are of no generic significance*. The fore wings were selected chiefly for the purpose of demonstrating diverse common combinations of the adventitious or intercalary nervures of the anal-axillar interspace (defined at page 81); but fig. 43 has reference to those of the sectorial group, and (like fig. 42) shows how a spurious "apical fork" may be originated. The figures are all enlarged.

- Figs. 41. *Pægniodes cupulatus*:—hind wing and part of a fore wing.
- Fig. 42. *Compsoneuria spectabilis*:—wings. It may be doubted whether the remarkable paucity of cross-veinlets in the fore wing is a constant generic characteristic.
- Fig. 43. *Rhithrogena semicolorata*:—part of a fore wing, showing an occasional combination of sectorial intercalary nervures.
- Figs. 44. "*Epeorus*" [= *Iron*] *longimanus*:—wings and parts of fore wings of three different specimens.
- Fig. 45. *Heptagenia gallica*:—fore wing.
- Fig. 46. *Ecdyurus venosus*:—hind wing, showing a denser condition of the adventitious neuration of the terminal border than obtains in the other wings figured. This is not of generic import.

PLATE XXIV.

Limbs and genitalia of 41. *Pægniodes*, 42. *Compsoneuria*, 43. *Rhithrogena*, 44. *Iron*, 44 A. *Epeorus*, 45. *Heptagenia*, and 46. *Ecdyurus*:—all enlarged.—N.B. Pages 234-236 of the letterpress should be consulted on account of the possibility of some of the legs and tarsi represented in this Plate being deformed.

- Figs. 41. *P. cupulatus*:—legs (1-3) of ♀ [the intermediate is defective]; underside view of penis and the left forceps-limb (dried).
- Figs. 42. *C. spectabilis*:—fore and hind leg of ♀; underside partial view of genitalia (dried).
- Figs. 43. *Rh. semicolorata*:—legs (1-3) of ♂ and fore leg of ♀, with more enlarged views of the corresponding tarsi; underside views of penis (43¹ and 43²) freshly killed and (43³) dried.
- Fig. 43 a. *Rh. "semitincta"* [= *alpestris*]:—underside view of penis (freshly killed).
- Fig. 43 b. *Rh. germanica*:—underside view of penis (dried).
- Fig. 43 c. *Rh. Hageni*:—underside view of penis (dried).
- Fig. 43 d. *Rh. aurantiaca*:—fore tarsus of ♀ (alcoholic).
- Figs. 44. *I. longimanus*:—legs (1-3) of ♂ and fore leg of ♀, with more enlarged views of the corresponding tarsi (dried).

- Figs. 44 A. *Ep. torrentium* :—legs (1–3) of ♂ and fore leg of ♀, with more-enlarged views of the corresponding tarsi; underside view of penis (freshly killed).
- Figs. 45. *H. sulphurea* :—legs (1–3) of ♂ and fore leg of ♀, with more enlarged views of the corresponding tarsi; underside view of penis (freshly killed).
- Figs. 45 a. *H. gallica* :—fore tarsus and intermediate tarsus of ♀; underside view of penis (dried).
- Figs. 46. *Ec. venosus* :—legs (1–3) of ♂ and fore leg of ♀, with more enlarged views of the corresponding tarsi; underside view of penis, with the lobes held somewhat apart (freshly killed).
- Fig. 46 a. *Ec. helveticus* :—fore tarsus of ♂ (dried) for comparison with the corresponding figure of the same tarsus of *Ec. venosus*.
- Fig. 46 b. *Ec. "quesitor"* [= *venosus*, var.] :—underside view of penis (freshly killed) with the lobes rather close together.
- Fig. 46 c. *Ec. italicus* :—underside view of penis (freshly killed) with the lobes closed together.
- Fig. 46 d. *Ec. insignis* :—corresponding view of penis (freshly killed) suffused with seminal fluid.

PLATE XXV.

- Figs. 1–19. *Palingenia (Anagenesia)*, sp.—Nymph. Figures all enlarged.—1. Dorsal view of insect about $\frac{2}{3}$ grown. 2. Ventral view of the thorax and abdomen of the same. 3. Side view of the head and prothorax, $\times 11$ diam. 4. Underside view of head, $\times 11$ diam. 5. Antennæ and frons, $\times 13$ diam. 6. Antenna, $\times 45$ diam. 7. Labrum, upper surface. 8. Left mandible, viewed from below, $\times 25$ diam. 9. The same, viewed from above, $\times 25$ diam. 10. Right 1st maxilla and palpus, $\times 25$ diam. 11. Right 2nd maxilla and palpus, $\times 20$ diam. 12. Dorsal view of the tongue and its lateral lobes or paraglossæ, $\times 25$ diam. 13. Left fore leg, viewed from behind. 14. Front view of the same. 15. Tarsal claw of the same, more enlarged. 16. Intermediate leg. 17. Hind leg. 18. Right tracheal branchia of the 1st pair, or of the 2nd abdominal segment, spread out to show the arrangement of the fringes, $\times 10$ diam. 19. Right tracheal branchia of the 2nd pair, $\times 13$ diam. (From Ceylon, in alcohol.)
- Figs. 20–24. *Palingenia*, sp.—Nymph. Figures all enlarged. 20. Dorsal view of the insect in an advanced stage of growth, with the head and prothorax slightly dislocated. 21. Ventral view of the head and body of the same. 22 and 23. Right tracheal branchia of the 3rd pair or 4th abdominal segment, with the divisions spread to show the fringes in 22, and closed together in 23, $\times 13$ diam. 24. Dorsal view of two of the caudal setæ, $\times 12$ diam. (From Brazil, in alcohol.)

PLATE XXVI.

Oligoneuria rhenana. Nymph.

- Figs. 1–20 all enlarged.—1. Dorsal view of insect, nearly approaching the last moult, in the attitude of repose. 2. Ventral view of the head and body of a rather younger, but also nearly adult specimen, $\times 3.5$ diam. 3. Side view of the head, showing the tuft of fibrils of the tracheal branchia annexed to the 1st maxilla, $\times 8$ diam. 4. Vertical view of the head of the same ♀, of advanced age (A). 5. Vertical view of the thorax and a few of the anterior segments of the abdomen of the younger specimen B, showing the hood formed by membrane uniting the terminal margins of the fore wings. 6. Diagrammatic side view of the thorax and anterior abdominal segments of specimen A, showing the position and relative sizes of the 1st and 2nd abdominal tracheal branchiæ. 7. Antenna, $\times 30$ diam. 8. Labrum, $\times 30$ diam. 9 and 10. Left and right mandibles, $\times 30$ diam. 11. Left 1st maxilla and palpus, with the annexed fascicle of branchial fibrils, $\times 30$ diam. 12. The same, reversed, without the fibrils. 13. Interior view of labium, lower maxillæ, and palpi, $\times 15$ diam. 14. Tongue and paraglossæ, from above, $\times 30$ diam.

15. Fore leg, 16. Intermediate leg, and 17. Hind leg, all $\times 8$ diam. 18. Ventral view of the right tracheal branchia of the foremost abdominal pair, with the lamina placed edgewise, so as to display the fibrils, $\times 30$ diam. 19. Vertical view of the right tracheal branchia of the 2nd abdominal pair, with the lamina slightly depressed, so as to show the place of its insertion, $\times 30$ diam. 20. Right and median caudal setæ, $\times 8$ diam. (From France, in fluid.)

PLATE XXVII.

Jolia Ræselii. Nymph.

Figs. 1-24, all enlarged.—1. Dorsal view of insect shortly before the last moult, in the posture of repose [the legs not quite in perspective]. 2. Ventral view of headless body of the same, showing (*t. b.*) fibrillose tracheal branchiæ in the region of the neck beside the prosternum. 3. Side view of head and part of the thorax, with fore leg and antenna cut off, $\times 12$ diam. 4. Underside view of the same, showing (*t. b.*) branchial fibrils as before, $\times 12$ diam. 5. Antenna, $\times 20$ diam. 6. Exterior view of labrum, $\times 20$ diam. 7 and 8. Right and left mandibles, $\times 40$ diam. 9. Left 1st maxilla and palpus, with a tuft of (*t. b.*) branchial fibrils, and part of a tendon annexed to the stipes, $\times 40$ diam. 10. Underside, and 11. Upperside views of the labium, 2nd maxillæ, and palpi, $\times 20$ diam. 12. Tongue and paraglossæ from above, $\times 20$ diam. 13. Fore leg, and 14. Interior view of the tibial armature, $\times 12$ diam. 15. Intermediate, and 16. Hind legs, $\times 12$ diam. 17-23. Right tracheal branchiæ of the seven abdominal pairs numbered successively from the foremost, all $\times 30$ diam. 24. Left tracheal branchia of the third abdominal pair, $\times 40$ diam. (From Toulouse, in fluid.)

PLATE XXVIII.

Polymitarcys virgo. Nymph.

Figs. 1-21, all enlarged.—1. Dorsal view of ♀ insect in the attitude of repose, shortly before the last moult. 2. Ventral view of the headless body of another specimen. 3. Side view of ♀ head and part of prothorax, $\times 8$ diam. [The " $\times 30$ " belongs to fig. 15.] 4. Underside view and 5. Vertical view of the same, $\times 8$ diam. 6. Antenna, $\times 20$ diam. 7. Labrum $\times 35$ diam. 8. Underside of right mandible, $\times 20$ diam.; some of the longer hairs were partially erased to make room for fig. 15. 9. Upperside of the same, $\times 20$ diam. 10. Part of the left mandible, and 11. corresponding part of the right mandible, placed for the display of the fangs and the molar surfaces, $\times 30$ diam. 12. First maxilla and palpus, $\times 30$ diam. 13. Labium, 2nd maxillæ, and palpi viewed from above [the lacinia of the maxillæ out of focus], $\times 30$ diam. 14. Side view of right 2nd maxilla and palpus, $\times 30$ diam. 15. Dorsal view of tongue and paraglossæ, $\times 30$ diam. 16. Left fore leg, $\times 12$ diam. 17. The same, reversed. 18. Intermediate leg, and 19. Hind leg, $\times 12$ diam. 20. Tracheal branchia of the 1st abdominal pair, $\times 30$ diam. 21. One of the sixth pair, spread out for display of the fringes, $\times 30$ diam.—This Plate underwent considerable alterations at a late period before publication. Most of the figures were drawn from Toulouse specimens; but after these were lithographed, better examples were obtained from Brive.

PLATE XXIX.

Figs. 1-5. *Hexagenia*, sp.—Nymph. All enlarged.—1. Dorsal view of insect about half-grown. 2. Ventral view of head and body of the same. 3. Outside of a tracheal branchia of the 3rd abdominal pair, $\times 13$ diam. 4. The same, reversed; the divisions of the lamina in both the figures are spread out a little to display the fringes. 5. Right outer and median caudal setæ, $\times 12$ diam. (From Mus. Comp. Zool. Cambridge, Mass., in alcohol.) For other details of the nymph of *Hexagenia* see Pl. LXIII.

Figs. 6-17. *Euthyplocia*, sp.—Nymph-skin. All enlarged.—6. Dorsal view of the slough of the insect, shed perhaps at the last nymphal moult; scalded and posed in the attitude of *Ephemera*, Pl. XXX. 7. Underside of head of the same, $\times 4$ diam. 8. Antenna and part of the right mandible, $\times 7$ diam. 9. Exterior of labrum, $\times 20$ diam. 10. Right mandible, from beneath, $\times 17$ diam. [The lacinia is doubtless out of shape in this as well as in the other figure.] 11. Corresponding view of part of left mandible, $\times 17$ diam. 12. First maxilla and palpus, $\times 25$ diam. 13. Underside of labium, 2nd maxillæ, and palpi, $\times 15$ diam. 14. Dorsal view of tongue and paraglossæ, $\times 25$ diam. 15. Fore leg, $\times 4$ diam. 16. Intermediate leg, and 17. Hind leg, $\times 4$ diam. After the figures were drawn, the skin was dried and re-carded (Mus. Roy. de Bruxelles). Pictet's figures of nymphs of this genus (cited in the text) are inaccurate in several particulars.

PLATE XXX.

Ephemera vulgata. Nymph.

Figs. 1-19, all enlarged.—1. Dorsal view of ♀ insect of advanced grade in an attitude of repose. 2. Ventral view of the headless body of another specimen. 3. Side view (partly diagrammatic) of the fore part of the body and head, with legs and antenna cut off, showing the arrangement of the first three abdominal tracheal branchiæ, and one of the two conical projections in front of the head in profile, $\times 7$ diam. 4. Underside of head, with antennæ cut off, showing the mandibles closed, and the tusks interlocked at their tips, $\times 7$ diam. 5. Antenna, $\times 15$ diam. 6. Exterior of labrum, $\times 25$ diam. 7. Right mandible, viewed with the fangs pointing upwards, $\times 25$ diam. 8. Left mandible, viewed with the fangs in profile, $\times 25$ diam. 9. Part of the right mandible with the fangs in profile, $\times 25$ diam. 10. Exterior of left mandible, $\times 25$ diam. 11. First maxilla and palpus, $\times 25$ diam. 12. Labium and 2nd maxillæ, with parts of palpi, viewed from above, $\times 25$ diam. 13. Exterior of the same, with palpi. 14. Dorsum of tongue and paraglossæ, $\times 25$ diam. 15. Fore leg, 16. Intermediate leg, and 17. Hind leg, all $\times 10$ diam. 18. Tracheal branchia of the 1st abdominal pair, $\times 30$ diam. 19. One of the 4th abdominal pair, spread to display the fringes, $\times 15$ diam. (In fluid.)

PLATE XXXI.

Potamanthus luteus. Nymph.

Figs. 1-16, all enlarged.—1. Dorsal view of ♀ insect of advanced grade, in a posture of repose. 2. Ventral view of the head and body of the same. 3. Side view of the head and part of the prothorax. 4. Underside of head. 5. Antenna, $\times 25$ diam. 6. Exterior of labrum, $\times 35$ diam. 7. Right mandible, with tendon attached, $\times 35$ diam. 8. Left mandible, with tendon, $\times 35$ diam. 9. First maxilla and palpus, $\times 35$ diam. 10. Exterior of labium, 2nd maxillæ, and palpi, $\times 35$ diam. 11. The same, reversed. 12. Dorsal view of tongue and paraglossæ, $\times 35$ diam. 13. Fore leg, 14. Intermediate leg, 15. Hind leg, all $\times 12$ diam. 16. Tracheal branchia of the 3rd abdominal pair. (From Brive, in fluid.)

PLATE XXXII.

Leptophlebia cincta [fig. 2, *L. submarginata*]. Nymph.

Figs. 1-13, all enlarged.—1. Dorsal view of insect about $\frac{1}{2}$ grown, at rest, but with the legs disposed somewhat conventionally. 2. Ventral view of the head and body of a specimen approaching the last moult. 3. Antenna, $\times 70$ diam. 4. Exterior of labrum, $\times 70$ diam. 5. Right mandible, with tendon attached, $\times 100$ diam. 6. Left mandible, with tendon, $\times 100$ diam. 7. First

maxilla and palpus, with torn muscular tissue attached to the stipes, $\times 70$ diam. 8. Labium, 2nd maxillæ, and palpi, $\times 50$ diam. 9. Dorsal view of tongue and paraglossæ, $\times 50$ diam. 10. Fore leg, 11. Intermediate leg, 12. Hind leg, each $\times 50$ diam. 13. Tracheal branchia of the 3rd abdominal pair, $\times 50$ diam. (In fluid.)

PLATE XXXIII.

Blasturus, sp.—Nymph.

Figs. 1-19, all enlarged.—1. Dorsal view of insect with defective setæ, of advanced grade, in a conventional attitude. 2. Ventral view of head and body of the same. 3. Antenna, $\times 25$ diam. 4. Exterior of labrum, $\times 30$ diam. 5. Right mandible, $\times 45$ diam. 6. Left mandible, $\times 45$ diam. 7. First maxilla and palpus, $\times 45$ diam. 8. Underside of labium, 2nd maxillæ, and palpi, $\times 40$ diam. 9. Dorsal view of tongue and paraglossæ, $\times 40$ diam. 10. Fore leg, 11. Intermediate leg, 12. Hind leg, each $\times 13$ diam. 13-19. Tracheal branchiæ of the abdomen (one of every pair) numbered successively from the foremost, all $\times 15$ diam. (In alcohol.)

PLATE XXXIV.

Choroterpes Picteti. Nymph.

Figs. 1-20, all enlarged.—1. Dorsal view of insect of advanced grade. 2. Ventral view of head and body of the same. 3. Antennæ, $\times 25$ diam. 4. Exterior of labrum, $\times 20$ diam. 5. Right mandible, with tendon attached, $\times 30$ diam. 6. Left ditto. 7. First maxilla and palpus, $\times 20$ diam. 8. Point of the lacinia of the same maxilla reversed, $\times 60$ diam. 9. Underside of labium, 2nd maxillæ, and palpi, $\times 20$ diam. 10. Dorsal view of tongue and paraglossæ, $\times 20$ diam. 11. Fore leg, 12. Intermediate leg, 13. Hind leg, all $\times 20$ diam. 14-20. Tracheal branchiæ of the abdomen (one of every pair) numbered consecutively from the foremost, all $\times 20$ diam. (In fluid, from Portugal.)

PLATE XXXV.

Thraulius bellus. Nymph.

Figs. 1-22, all enlarged.—1. Dorsal view of insect of very advanced grade, with the legs in a conventional pose, but otherwise in a quiescent posture. 2. Ventral view of the head and body of the same. 3. Antennæ, $\times 30$ diam. 4. Exterior of labrum, $\times 30$ diam. 5. Right mandible, with tendon attached, $\times 60$ diam. 6. Left ditto. 7. First maxilla and palpus, $\times 30$ diam. 8. Point of the lacinia of the same maxilla reversed, $\times 60$ diam. 9. One of the pectinate spinules or bristles of the preceding, more enlarged. 10. Underside view of labium, 2nd maxillæ, and palpi, $\times 30$ diam. 11. Dorsal view of tongue and paraglossæ, $\times 30$ diam. 12. Fore leg, 13. Intermediate leg, 14. Hind leg, all $\times 20$ diam. 15-21. Tracheal branchiæ of the abdomen (one of every pair) numbered consecutively from the foremost, all $\times 20$ diam. 22. The foremost of these $\times 45$ diam. (From Cintra, in fluid.)

PLATE XXXVI.

Habrophlebia fusca. Nymph.

Figs. 1-24, all enlarged.—1. Dorsal view of insect of advanced grade in repose. 2. Ventral view of head and body of another specimen. 3. Antenna, $\times 25$ diam. 4. Exterior of labrum, $\times 50$ diam. 5 and 6. Right and left mandibles with tendon attached, $\times 65$ diam. 7. First

maxilla and palpus, $\times 65$ diam. 8. Part of the lacinia of the same maxilla reversed, $\times 65$ diam. 9. One of the pectinate spinules at the extreme point of the same, more enlarged. 10. Underside of hypopharynx, labium, 2nd maxillæ, and palpi, $\times 65$ diam. 11. Part of the same reversed, $\times 65$ diam. 12. Dorsal view of tongue and paraglossæ [no record of enlargement]. 13–15. Fore, intermediate, and hind legs numbered consecutively, $\times 20$ diam. 16–22. Tracheal branchiæ of the abdomen (the right one of every pair) numbered consecutively from the foremost, all $\times 20$ diam. 23. The foremost of the same, $\times 35$ diam. 24. The outer and median caudal setæ, $\times 20$ diam. (In fluid.)

PLATE XXXVII.

Ephemerella ignita. Nymph.

Figs. 1–20, all enlarged.—1. Dorsal view of ♀ insect, with legs in a conventional posture; a light-coloured specimen captured in the Holybrook above Reading, Berks, similar to that figured by Pictet, *op. cit.* pl. xxix. 1, and of very advanced grade. 2. Ventral view of a dark ♂ specimen captured in a trout-stream, similar to that figured by Pictet, *op. cit.* pl. xxxiii. 1, and of very advanced grade. 3. Head of ♂, from in front. 4. Antenna, $\times 50$ diam. 5. Exterior of labrum, $\times 50$ diam. 6 and 7. Right and left mandibles, with tendon attached, $\times 80$ diam. 8. First maxilla and palpus, $\times 80$ diam. 9. Underside view of labium, 2nd maxillæ, and palpi, $\times 85$ diam. 10. Dorsal view of tongue and paraglossæ, $\times 50$ diam. 11–13. Legs numbered consecutively, $\times 40$ diam. 14–18. Tracheal branchiæ of the abdomen (the left one of every pair) numbered consecutively from the foremost, $\times 45$ diam. 19. The third of the same reversed to display the lamelligerous appendage, $\times 70$ diam. 20. Outer and median caudal setæ of ♂, $\times 25$ diam. (In fluid.) This Plate underwent considerable revision upon the stone before publication.

PLATE XXXVIII.

Figs. 1–10. Nymph No. I., allied to *Ephemerella*, described at p. 131. Figures all enlarged.—1. Dorsal view of insect of advanced grade, with the legs disposed conventionally. 2. Ventral view of head and body of the same. 3. Front view of head, $\times 12$ diam. 4. First maxilla and palpus, $\times 70$ diam. 5. The same reversed. 6–8. Legs of the left side numbered in succession, $\times 15$ diam. 9. Spinules of the lower edge of the fore femur, $\times 60$ diam. 10. A hair from the upper edge of the hind femur, $\times 95$ diam. (In alcohol.)

Figs. 11–15. Nymph No. II. (p. 131). Figures all enlarged.—11. Dorsal view of insect of advanced grade, in repose. 12. Ventral view of head and body of the same. 13. Side view of the same. 14. Front view of head. 15. First maxilla and palpus, $\times 40$ diam. (In alcohol.)

PLATE XXXIX.

Nymph No. III., allied to *Ephemerella*, described at p. 132.

Figs. 1–22, all enlarged.—1. Dorsal view of insect of very advanced grade. 2. Dorsal view of the headless body of a younger specimen, with the tracheal branchiæ removed from the right side of the abdomen and depressed on the left side of the same. 3. Ventral view of head and body of the same. 4. Front view of head, $\times 12$ diam. 5. Antenna, $\times 30$ diam. 6. Exterior of labrum, $\times 40$ diam. 7. Right mandible, $\times 65$ diam. 8. Left mandible, with part of the stipes omitted, $\times 65$ diam. 9. Molar surface of the same, $\times 170$ diam. 10. First maxilla and palpus, $\times 65$ diam. 11. Underside of labium, 2nd maxillæ, and palpi, $\times 40$ diam.

12. Upperside of labium and 2nd maxillæ, $\times 40$ diam. 13. Dorsal view of tongue and paraglossæ, $\times 40$ diam. 14–16. Legs numbered in succession, $\times 13$ diam. 17–22. Tracheal branchiæ of the right side of the abdomen, one of every pair, together with a second figure of the third of them; figures 17, 18, and 20–22 represent the complete series numbered consecutively from the foremost; figure 19 is the reverse of the third in the series. (In alcohol.)

PLATE XL.

Figs. 1–17. Nymph No. IV., allied to *Ephemerella*, described at p. 133. Figures all enlarged.—

1. Dorsal view of a nymph-skin out of which the subimago had emerged. 2. Ventral view of head and body of the same. 3. Vertical view of head, $\times 10$ diam. 4. Exterior of labrum, $\times 25$ diam. 5 and 6. Right and left mandibles, $\times 40$ diam. 7. First maxilla and palpus, $\times 40$ diam. 8. Underside of labium, 2nd maxillæ, and palpi, $\times 40$ diam. 9. Dorsal view of tongue and paraglossæ, $\times 40$ diam. 10–12. Legs, numbered successively from the foremost, $\times 12$ diam. 13–16. Tracheal branchiæ of the abdomen, one of every pair, numbered consecutively from the foremost, $\times 25$ diam. 17. The third of them reversed, $\times 25$ diam. (In alcohol.)

Figs. 18–20. Nymph No. V., allied to *Ephemerella*, described at p. 133 [Supplemented by Pl. LXIV. figs. 3–8]. Figures all enlarged.—18. Dorsal view of insect of advanced grade. 19. Ventral view of head and body of the same. 20. Tracheal branchia of the 3rd abdominal pair, reversed. (In alcohol.)

PLATE XLI.

Reputed Nymph of *Tricorythus*.

Figs. 1–20, all enlarged.—1. Dorsal view of insect of very advanced grade. 2. Ventral view of head and body of the same. 3. Antenna, $\times 35$ diam. 4. Exterior of labrum, $\times 35$ diam. 5. Right mandible with tendon attached, $\times 65$ diam. 6. Left ditto, $\times 65$ diam. 7. First maxilla and palpus, $\times 65$ diam. 8. Tongue and paraglossæ, $\times 35$ diam. 9–11. Legs numbered consecutively from the foremost, $\times 20$ diam. 12. Foremost right abdominal tracheal branchia [after Vayssière]. 13–17. Left tracheal branchiæ of the remaining pairs numbered consecutively, $\times 30$ diam. 18. Left tracheal branchia of the 2nd abdominal pair reversed, showing the marginal flange along the inner border, $\times 30$ diam. 19. Part of the exterior of the right tracheal branchia of the same pair, showing the row of hairs along the inner border which hitch under the flange of the opposite one, $\times 30$ diam. 20. Outer and part of the median caudal setæ, $\times 15$ diam. 21. Underside of labium, 2nd maxillæ, and palpi, $\times 65$ diam. (In alcohol, from Dr. E. Joly; captured at Toulouse.)

PLATE XLII.

Cænis halterata, figs. 1, 2, 7–17, and 22–25; a species from Portugal figs. 3, 4; and *C. luctuosa*, = *Harrisella*, figs. 5, 6, 18–21, and 27–28. Nymphs. Figures all enlarged.—1. Dorsal view of insect of advanced grade, at rest, but with the intermediate legs disposed somewhat conventionally. 2. Vertical view of head, showing the large rounded hinder ocelli prominent above the oculi, $\times 30$ diam. 3. Dorsal view of insect of very advanced grade, and of another species, remarkable for the dilated lateral borders of the notum. 4. Ventral view of head and body of the same. 5. Vertical view of head of *C. Harrisella*, remarkable for the conical tubercles upon the sites of the ocelli, $\times 20$ diam. 6. Antenna, $\times 50$ diam. 7. Exterior of labrum, $\times 65$ diam. 8. Right mandible with tendon, $\times 100$ diam. 9. Left ditto. 10. Part of right mandible of another specimen placed to display the fangs, $\times 50$ diam. 11. The same

placed to display the molar surface, $\times 50$ diam. 12. First maxilla and palpus, $\times 100$ diam. 13. Underside of labium, 2nd maxillæ, and palpi, $\times 100$ diam. 14. Dorsal view of tongue and paraglossæ, $\times 50$ diam. 15-17. Legs numbered successively from in front, $\times 35$ diam. 18-20. Legs of *C. Harrisella* correspondingly numbered, $\times 20$ diam. 21. Foremost right tracheal branchia of the abdomen of the same, $\times 30$ diam. 22-26. Left tracheal branchiæ of the remaining abdominal pairs of *C. halterata* numbered consecutively from the foremost (the first of them, fig. 22, reversed), $\times 35$ diam. 27. Exterior of the right tracheal branchia of the 2nd abdominal pair of *C. Harrisella*, $\times 30$ diam. 28. Caudal setæ of the same, $\times 20$ diam. [The terminal segment in this figure appears to be of questionable form.] (The named nymphs were English specimens preserved in the glycerine water-and-spirits solution; the Portuguese nymph was in an alcoholic solution.)

PLATE XLIII.

Prosopistoma foliaceum. Nymph.

Figs. 1-12, all enlarged.—1. Dorsal view of ♀ insect at rest, with setæ partially retracted. 2. Ventral view of the same, with the right legs cut off and the left legs slightly displaced to show the depressions in which the femora are laid. 3. Antenna, $\times 100$ diam. 4. Labrum and clypeus, $\times 45$ diam. 5. Right mandible, furnished with an unusually long endopodite, $\times 90$ diam. 6. First maxilla and palpus, $\times 90$ diam. 7. Underside of labium and mentum, $\times 25$ diam. 8. Underside of labium and 2nd maxillary palpi, $\times 65$ diam. 9. Fore leg, $\times 40$ diam. 10. Spinules of fore tibia, $\times 210$ diam. 11. Intermediate leg, $\times 40$ diam. 12. Hind leg, $\times 40$ diam. (From Dr. E. Joly, captured at Toulouse; in alcohol.)

PLATE XLIV.

Baëtis rhodani. Nymph.

Figs. 1-20, all enlarged.—1. Dorsal view of ♀ insect of very advanced grade in repose (the legs not quite in perspective). 2. Side view of head of the same. 3. Oblique under front view of the same, $\times 35$ diam. 4. Antenna, $\times 35$ diam. 5. Exterior of labrum, $\times 35$ diam. 6. First maxilla and palpus, $\times 70$ diam. 7. Right mandible and tendon, $\times 70$ diam. 8. Left ditto. 9. Underside of labium, 2nd maxillæ, and palpi, $\times 35$ diam. 10. Dorsal view of tongue and paraglossæ, $\times 35$ diam. 11-13. Legs numbered consecutively from the foremost, $\times 25$ diam. 14-20. Right tracheal branchiæ of every abdominal pair numbered consecutively from the foremost, $\times 35$ diam. (In alcohol.)

PLATE XLV.

Nymph allied to *Centroptilum*, from Peru.

Figs. 1-19, all enlarged.—1. Dorsal view of insect of advanced grade. 2. Ventral view of the same. 3. Part of antenna, $\times 40$ diam. 4. Labrum, $\times 50$ diam. 5. Right mandible and tendon, $\times 75$ diam. 6. Left ditto. 7. First maxilla and palpus, $\times 50$ diam. 8. Underside of labium, 2nd maxillæ, and palpi, $\times 40$ diam. 9. Dorsal view of tongue and paraglossæ, $\times 50$ diam. 10-12. Left legs numbered consecutively, $\times 25$ diam. 13-18. Right tracheal branchiæ, one of every abdominal pair, numbered consecutively from the foremost, $\times 40$ diam. (In alcohol.)

PLATE XLVI.

Centroptilum luteolum. Nymph.

Figs. 1-19, all enlarged.—1. Dorsal view of insect of advanced grade, in repose. 2. Ventral view of head and body of the same. 3. Antenna, $\times 25$ diam. 4. Exterior of labrum, $\times 65$ diam. 5. Right mandible with tendon attached, $\times 100$ diam. 6. Left ditto. 7. First maxilla and palpus, $\times 100$ diam. [The palpus is only 3-jointed. The artist has mistaken the prop upon which the palpus is inserted for a 4th joint, and focussed the underlying edge of the stipes. Compare the corresponding figures in Pls. XLVII. & L.] 8. Underside of labium, 2nd maxillæ, and palpi, $\times 65$ diam. 9. Dorsal view of tongue and paraglossæ, $\times 65$ diam. 10-12. Legs numbered consecutively from the foremost, $\times 30$ diam. 13-19. Tracheal branchiæ of the abdomen, one of every pair, numbered consecutively from the foremost, $\times 60$ diam. (In fluid.)

PLATE XLVII.

Cloëon rufulum, figs. 1 & 4, c. *simile*, figs. 2, 3, 5-21, and c. *dipterum*, fig. 22. Nymphs. Figures all enlarged.—1. Dorsal view of ♀ insect of advanced grade, in repose [the legs not in perspective]. 2. Side view of prothorax and head, with the fore leg and antenna cut off, $\times 25$ diam. 3. Front view of head, $\times 25$ diam. 4. Antenna, $\times 18$ diam. [The antennæ of the other species are much shorter and have fewer joints.] 5. Exterior of labrum, $\times 35$ diam. 6. Right mandible, $\times 70$ diam. 7. Left ditto with part of the stipes omitted. 8. Lacinia and palpus of the right 1st maxilla, $\times 70$ diam. 9. Left 1st maxilla and palpus, $\times 70$ diam. 10. Underside view of labium, 2nd maxillæ, and palpi, $\times 35$ diam. 11. Dorsal view of tongue and paraglossæ, $\times 35$ diam. 12-14. Legs numbered successively from the foremost, $\times 18$ diam. 15-21. Right tracheal branchiæ of the abdomen reversed, one of every pair, $\times 25$ diam. 22. Right and median caudal setæ, $\times 10$ diam. [The tail-points of most of the species are short like these.] (In fluid.)

PLATE XLVIII.

Callibætis, sp. Nymph.

Figs. 1-19, all enlarged.—1. Dorsal view of ♀ insect of very advanced grade. 2. Ventral view of head and body of the same. 3. Antenna, $\times 23$ diam. 4. Exterior of labrum, $\times 45$ diam. 5. Right mandible with tendon attached, $\times 65$ diam. 6. Left mandible, $\times 65$ diam. 7. First maxilla and palpus, $\times 65$ diam. 8. Underside of labium, 2nd maxillæ, and palpi, $\times 35$ diam. 9. Dorsal view of tongue and paraglossæ [enlargement unrecorded]. 10-12. Legs numbered successively from the foremost, $\times 20$ diam. 13-19. Right tracheal branchiæ (in reverse) of the abdomen, one of every pair, numbered consecutively from the foremost, $\times 30$ diam. (In alcohol, from Dr. Hagen.)

PLATE XLIX.

Chirotonetes, sp. Nymph.

Figs. 1-19, all enlarged.—1. Dorsal view of insect of very advanced grade, in a conventional posture. 2. Ventral view of head and body of the same. 3. Antenna, $\times 30$ diam. 4. Labrum, $\times 30$ diam. 5. Right mandible, with tendon attached and muscular tissue within the hollow of the stipes, $\times 50$ diam. 6. Left ditto. 7. First maxilla and palpus, $\times 50$ diam. 8. Underside of labium, 2nd maxillæ, and palpi, $\times 50$ diam. 9. Dorsal view of tongue and paraglossæ, $\times 30$ diam. 10-12. Legs numbered successively from the foremost, $\times 15$ diam. 13-19. Right tracheal branchiæ (in reverse) of the abdomen, one of every pair, $\times 50$ diam. (In alcohol, from Dr. Hagen.)

PLATE L.

Siphylurus lacustris, figs. 1, 4-6, & 9-19; and a nameless Portuguese species, figs. 2, 3, 7, 8, & 20-26. Nymphs. Figures all enlarged.—1. Dorsal view of ♂ insect of very advanced grade at rest, with tracheal branchiæ spread; the legs not in perspective. 2. The same view of a ♀ of rather younger grade of another species, with the tracheal branchiæ depressed. 3. Ventral view of head and body of the same. 4. Side view of head and part of thorax, × 8 diam. 5. Antenna, × 30 diam. 6. Exterior of labrum, × 35 diam. 7. Right mandible with tendon attached, × 35 diam. 8. Left mandible, × 35 diam. 9. The same, with the tendon, placed to display the fangs, × 30 diam. 10. First maxilla and palpus, × 45 diam. [The joining above the prop of the palpus is distended with fluid accidentally.] 11. Underside or exterior view of labium, 2nd maxillæ, and palpi. 12. Partial view of the same reversed. 13. Dorsal view of tongue and paraglossæ, × 35 diam. 14-16. Legs numbered successively from the foremost, × 16 diam. 17-19. Right tracheal branchiæ of the 1st, 3rd, and 7th abdominal pairs of *S. lacustris*, × 25 diam. 20-26. Right tracheal branchiæ of the abdomen, one of every pair, of the other species, × 15 diam. (*S. lacustris* in fluid; the other species in alcohol.)

PLATE LI.

Oniscigaster Wakefieldi. Nymph.

Figs. 1-23, all enlarged.—1. Dorsal view of ♂ insect about $\frac{2}{3}$ grown, placed in a conventional attitude. 2. Ventral view of head and body of the same. 3. Side view of head and part of thorax, × 8 diam. 4. Front view of the head from above, × 8 diam. 5. The same from below, × 8 diam. 6. Antenna, × 30 diam. 7. Exterior of labrum, × 30 diam. 8. Right mandible with tendon attached, × 30 diam. 9. Left ditto. 10. First maxilla and palpus, × 30 diam. 11. Underside of labium, 2nd maxillæ, and palpi, × 30 diam. 12. Dorsal view of tongue and paraglossæ, × 30 diam. 13-15. Legs numbered successively from the foremost, × 11 diam. 16-21. Right tracheal branchiæ of the abdomen, one of every pair, numbered consecutively from the foremost, × 11 diam., in outline. 22 & 23. Finished drawings of the 1st and 2nd of the same, × 20 diam., with the adjoining pleura. (In alcohol.)

PLATE LII.

Batisca obesa. Last slough cast by ♂ nymph.

Figs. 1-14, all enlarged.—1. Dorsal view of slough. [The antennæ were originally represented in this figure; but as they are out of sight when the insect is alive, they were erased in the proving, and only a very faint indication of the left antenna was allowed to remain.] 2. Ventral view of head and body of the same. 3. Side view of head and part of thorax, with the antenna partly removed. 4. Antenna, × 75 diam. 5. Exterior of labrum, × 35 diam. 6. Right mandible with part of tendon, × 60 diam. 7. Left ditto. 8. First maxilla and palpus, with membrane attached to the stipes, × 60 diam. 9. Underside of labium, 2nd maxillæ and palpi, mentum, and hypopharynx, × 35 diam. 10. Dorsal view of tongue and paraglossæ, × 35 diam. 11-13. Right legs numbered successively from the foremost, × 19 diam. 14. Underside of the right and median caudal setæ, with part of the extremity of the abdomen, × 25 diam. (Slough scalded.)

PLATE LIII.

Last slough cast by the nymph of a nameless insect, described at pp. 229-230.

Figs. 1-14, all enlarged.—1. Dorsal view of slough, defective in the setæ and in the five hinder pairs of abdominal tracheal branchiæ. 2. Antenna, $\times 35$ diam. 3. Exterior of labrum [attached to the frons, with antennæ partly removed], $\times 10$ diam. 4 & 5. Left mandible in two positions, $\times 20$ diam. 6. First maxilla and palpus, with a portion of the tongue (paraglossa) adhering, $\times 12$ diam. 7. The same palpus, $\times 65$ diam. 8. Underside of labium, 2nd maxillæ, palpi, &c., $\times 12$ diam. 9. One of the same palpi, $\times 25$ diam. 10-12. Legs numbered successively from the foremost, $\times 10$ diam. 13. One of the tracheal branchiæ of the foremost abdominal pair, $\times 12$ diam. 14. Right tracheal branchia of the 2nd abdominal pair, in reverse, $\times 12$ diam. (Slough dried; scalded.)

PLATE LIV.

Rhithrogena aurantiaca and [figs. 3 & 4] *Rh. semicolorata*. Nymphs.

Figs. 1-24, all enlarged.—1 Dorsal view of insect of very advanced grade, in repose, with tracheal branchiæ spread. 2. Ventral view of head and body of the same. 3. Dorsal view of another, with the laminæ of the tracheal branchiæ deflected. 4. Side view of the same. 5. Face, upside down, with antennæ partly removed, $\times 12$ diam. 6. Antenna, $\times 35$ diam. 7. Labrum, $\times 35$ diam. 8. Right mandible, $\times 60$ diam. 9. Left ditto, $\times 60$ diam. [Point of mandible more enlarged, Pl. LXV. 6.] 10. First maxilla and palpus, $\times 35$ diam. 11. Underside of labium, 2nd maxillæ, and palpi, $\times 35$ diam. 12. Ditto, reversed. 13. Dorsal view of tongue and paraglossæ, $\times 35$ diam. 14-16. Left legs, numbered successively from the foremost, $\times 15$ diam. 17-23. Tracheal branchiæ of the abdomen, one of every pair, numbered consecutively from the foremost, $\times 25$ diam. 24. Left and median caudal setæ, $\times 15$ diam. (*Rh. aurantiaca*, in fluid, from Tarascon, Ariège; *Rh. semicolorata*, in alcohol, from Dorset.)

PLATE LV.

Iron, sp. Nymph.

Figs. 1-19, all enlarged.—1. Dorsal view of insect of very advanced grade. 2. Ventral view of head and body of the same. 3. Face with antennæ partly removed. 4. Antenna, $\times 30$ diam. 5. Exterior of labrum, $\times 80$ diam. 6. Right mandible, $\times 50$ diam. 7. Left ditto. 8. First maxilla and palpus, $\times 65$ diam. 9. Underside or exterior of labium, 2nd maxillæ, and palpi, $\times 30$ diam. 10-12. Right legs [with the hairs of the tibiæ accidentally thrown backwards, and those of the tarsi out of sight] numbered successively from in front, $\times 15$ diam. 13-19. Tracheal branchiæ of the abdomen, one of every pair, numbered consecutively from the foremost, $\times 30$ diam. [In alcohol, from Dr. Hagen.]

PLATE LVI.

Epeorus torrentium. Nymph.

Figs. 1-22, all enlarged.—1. Dorsal view of ♀ insect of very advanced grade, in repose. 2. Ventral view of head and body of the same. 3. Face, $\times 9$ diam. 4. Antenna, $\times 30$ diam. 5. Exterior of labrum, $\times 30$ diam. 6. Right mandible, $\times 50$ diam. 7. Left, ditto. 8. First maxilla and palpus, $\times 30$ diam. 9. Underside or exterior of labium, 2nd maxillæ, and palpi, $\times 25$ diam. 10. Upperside or interior of ditto. 11. Tongue and paraglossæ, $\times 30$ diam. 12-14. Left legs, numbered successively from the foremost, $\times 10$ diam. 15-21. Tracheal branchiæ of the abdomen, one of every pair, numbered consecutively from in front, $\times 20$ diam. 22. One caudal seta and part of the other, $\times 12$ diam. [In alcohol, from Tarascon, Ariège.]

PLATE LVII.

Nymph No. I., allied to *Ecdyurus*, described at p. 262.

Figs. 1-21, all enlarged.—1. Dorsal view of insect of very advanced grade. 2. Ventral view of head and body of the same. 3. Face, $\times 12$ diam. 4. Part of antenna, $\times 40$ diam. 5. Labrum, $\times 35$ diam. 6. Right mandible, $\times 60$ diam. 7. Left ditto. 8. First maxilla and palpus, $\times 40$ diam. 9. Underside or exterior of labium, 2nd maxillæ, and palpi, $\times 20$ diam. 10. Dorsal view of tongue and paraglossæ, $\times 35$ diam. 11-13. Right legs, numbered successively from the foremost. 14-20. Tracheal branchiæ of the abdomen, one of every pair, numbered consecutively from the foremost, the 2nd reversed to display the arrangements of the fibrils, $\times 35$ diam. 21. Median and part of the left caudal setæ, $\times 12$ diam. (In alcohol.)

PLATE LVIII.

Nymph No. II., allied to *Ecdyurus*, described at p. 263.

Figs. 1-21, all enlarged.—1. Dorsal view of insect of advanced grade. 2. Ventral view of head and body of the same. 3. Face, $\times 12$ diam. 4. Antenna, $\times 40$ diam. 5. Interior surface of labrum, $\times 20$ diam. 6. Part of the right mandible, $\times 35$ diam. 7. Left mandible, $\times 35$ diam. 8. First maxilla and palpus, $\times 35$ diam. 9. Underside of labium, 2nd maxillæ, and palpi, $\times 15$ diam. 10. Dorsal view of tongue and paraglossæ, $\times 15$ diam. 11. Right fore leg, $\times 20$ diam. 12 & 13. Left legs of the other pairs, numbered successively, $\times 20$ diam. 14-20. Tracheal branchiæ of the abdomen, one of every pair, numbered consecutively from in front, $\times 30$ diam. 21. The 3rd of them reversed to display the explanate webbed fibrils, $\times 40$ diam. (In alcohol.)

PLATE LIX.

Nymph No. III., allied to *Ecdyurus*, described at p. 264.

Figs. 1-19, all enlarged.—1. Dorsal view of ♀ insect of very advanced grade, lacking setæ. 2. Ventral view of head and body of the same. 3. Part of antenna, $\times 50$ diam. 4. Inner side of labrum, $\times 50$ diam. 5. Right mandible, $\times 70$ diam. 6. Left ditto. 7. First maxilla and palpus, $\times 70$ diam. 8. Underside or exterior of labium, 2nd maxillæ, and palpi, $\times 25$ diam. 9. Dorsal view of tongue and paraglossæ, $\times 50$ diam. 10-12. Right legs of every pair, numbered successively from the foremost. 13-19. Tracheal branchiæ of the abdomen, one of every pair, numbered consecutively from in front, $\times 50$ diam. (In alcohol.)

PLATE LX.

Heptagenia [cærulans] gallica. Nymph.

Figs. 1-23, all enlarged.—1. Dorsal view of ♀ insect of very advanced grade, at rest. 2. Ventral view of thorax and abdomen of another ♀ specimen. 3. Face. 4. Underside of head. 5. Antenna, $\times 35$ diam. 6. Exterior of labrum, $\times 25$ diam. 7. Right mandible, $\times 40$ diam. 8. Left ditto. 9. First maxilla and palpus, $\times 40$ diam. 10. Underside of labium, 2nd maxillæ, and palpi, $\times 25$ diam. 11. Dorsal view of tongue and paraglossæ, $\times 30$ diam. 12. Left fore leg, $\times 12$ diam. 13 & 14. Right legs of the other pairs, numbered successively from the foremost, $\times 12$ diam. 15-21. Tracheal branchiæ of the abdomen, one of every pair, numbered consecutively from in front, $\times 30$ diam. 22. The 1st of them reversed, to display the fibrils $\times 30$ diam. 23. Right and median caudal setæ, $\times 12$ diam. (In alcohol, from Toulouse.)

PLATE LXI.

Nymph of junior grade, perhaps of an *Ecdyurus* allied to *E. venosus*, but possibly of one related more nearly to *E. lateralis*: see p. 277.

Figs. 1-17, all enlarged.—1. Dorsal view of insect about $\frac{2}{3}$ grown. 2. Ventral view of head and body of the same. 3. Part of antenna, $\times 30$ diam. 4. Labrum, $\times 35$ diam. 5. Right mandible, $\times 70$ diam. 6. Left ditto. 7. First maxilla and palpus, $\times 35$ diam. 8. Underside of labium, 2nd maxillæ, and palpi, $\times 17$ diam. 9. Dorsal view of tongue and paraglossæ, $\times 30$ diam. 10. Right intermediate leg, $\times 13$ diam. 11-17. Tracheal branchiæ of the abdomen, one of every pair, numbered consecutively from in front, $\times 35$ diam. (In alcohol.)

PLATE LXII.

Ecdyurus fluminum [—*angustipennis*, figs. 1 & 4-23], *E. venosus* [figs. 2 & 3], and another [perhaps a junior grade of *E. venosus*, or perhaps of *E. lateralis*, figs. 24 & 25]. Nymphs.

Figs. 1-25, all enlarged.—1. Dorsal view of insect of moderately advanced grade. 2. Ventral view of head and body of another of very advanced grade. 3. Face of the same. 4. Antenna, $\times 30$ diam. 5. Labrum, $\times 20$ diam. 6. Right mandible, $\times 50$ diam. 7. Part of the left ditto. 8. First maxilla and palpus, $\times 20$ diam. 9. Point of the lacinia of the same, $\times 170$ diam. 10. Underside of labium, 2nd maxillæ, and palpi, $\times 20$ diam. 11. The same reversed, $\times 20$ diam. 12. Dorsal view of tongue and paraglossæ, $\times 20$ diam. 13-15. Right legs, one of each pair, numbered successively from the foremost, $\times 10$ diam. [In the original drawings the markings were not shown in any of these figures, the specimens being faded; but subsequently the markings of a newly killed specimen of *E. venosus* were introduced into fig. 13.] 16-22. Tracheal branchiæ of the abdomen, one of every pair, numbered consecutively from in front, $\times 20$ diam. 23. Median and right caudal setæ, $\times 7$ diam. 24. Dorsal view of insect of junior grade. 25. Right tracheal branchiæ of the 3rd pair of the same, $\times 40$ diam. (*E. fluminum* in fluid; the others in alcohol.)

PLATE LXIII.

Figs. 1-13. *Hexagenia*, sp. Nymph. Supplementary to Pl. XXIX. Figures all enlarged.—

1. Antenna, $\times 20$ diam. 2. Exterior of labrum, $\times 25$ diam. 3. Right mandible, $\times 20$ diam. 4. Left ditto. 5. First maxilla and palpus, $\times 25$ diam. 6. Underside of labium, 2nd maxillæ, and palpi, $\times 25$ diam. 7. The same reversed [showing only the bases of the palpi]. 8. Dorsal view of tongue and paraglossæ, $\times 20$ diam. 9. Right fore leg, $\times 9$ diam. 10. Ditto in reverse. 11 & 12. The other right legs, numbered consecutively, $\times 9$ diam. 13. Tracheal branchiæ of the 1st abdominal pair, $\times 25$ diam. (In alcohol.)

Figs. 14-17. *Ephemera*; forceps of adult ♂ of four species. Supplementary to Pl. VIII. Figures all enlarged.—14. *E. compar* (dried). 15. *E. guttulata* (dried). 16. *E. simulans*, with the penis-lobes (in alcohol). 17. *E. varia*, with the penis-lobes (dried).

PLATE LXIV.

Supplementary to earlier Plates. Figures 3-8 drawn by A. T. Hollick; the other figures by the Author. All enlarged.

Figs. 1, 1 a. *Atalophlebia fasciata* [Supplemental to Pl. X.].—1. Penis of adult ♂ in profile; 1 a. Ditto, supine.

- Figs. 2, 2*a*. *Habrophlebia fusca* [Suppl. to Pl. XIII. 22*a*].—2. Fore leg of adult ♀. 2*a*. Tarsus of ditto, more enlarged.
- Figs. 3–8. Abdominal tracheal branchiæ of a nameless N.-American nymph, allied to *Ephemerella* [Suppl. to Pl. XL. 18–20].—3–7. One of every pair, numbered consecutively from the foremost, viewed prone. 8. One of the 2nd pair, supine. All enlarged 30 diam.
- Figs. 9–20. Genitalia of adult ♂ *Baëtis* [Suppl. to Pl. XVI. 29].—9. *B. scambus*, forceps-limb. 10. *B. venustulus*, ditto. 11. Penis of the same. 12. *B. rhodani*, forceps-limb. 13. *B. Bocagii*, ditto. 14. *B. gemellus*, ditto. 15. *B. Atrebatinus*, ditto. 16. *B. tenax*, ditto. 17. *B. melanonyx*, ditto. 18. *B. alpinus*, ditto. 19. *B. buceratus*, ditto. 20. *B. pumilus*, ditto.
- Fig. 21. *Centroptilum luteolum*, fore leg of ♀ adult [Suppl. to Pl. XVII. 30].
- Figs. 22–24. *Ameletus*, tarsus and forceps-basis [Suppl. to Pl. XVIII. ? 34].—22. *A. dissitus*, forceps-basis. 22*a*. Hind tarsus. 23. *A. subnotatus*, forceps-basis. 24. *A. exquisitus*, ditto.
- Fig. 25. *Dipteromimus tipuliformis*, hind wing [Suppl. to and corrective of Pl. XX. 35].
- Fig. 26. *Siphurus occidentalis*, forceps-basis [Suppl. to Pl. XX. 34].

PLATE LXV.

Supplementary to earlier Plates. Figures of details, all enlarged, drawn by the Author.

- Fig. 1. *Bleptus fasciatus*:—limbs, hinder tarsi, and hind wing of adult ♂ [Suppl. to Pl. XXIV.].
- Figs. 2 & 3. *Iron*:—ventral views of adult ♂ genitalia, dried [Suppl. to Pl. XXIV. 44].—2. *I. longimanus*. 3. *I. nitidus*.
- Figs. 4 & 5. *Cinygma*:—ventral views of adult ♂ genitalia, dried [Suppl. to Pl. XXIV.].—4. *C. integrum*. 5. *C. par*.
- Fig. 6. *Rhithrogena aurantiaca*, nymph [Suppl. to Pl. LIV. 8]. Fangs of the right mandible, viewed from above, under pressure, enlarged 173 diameters.
- Fig. 7. *Epeorus psi*:—ventral view of adult ♂ genitalia, in alcohol [Suppl. to Pl. XXIV. 44*A*].
- Fig. 8. [Suppl. to Pls. XII. & XIII.].—Hind wing of a nameless N.-American insect in Mus. Comp. Zool., Cambridge, Mass., ticketed No. 78, Kentucky, 7. iii. 1882.
- Fig. 9. *Ephemerella notata*:—ventral view of adult ♂ genitalia (living) [Suppl. to Pl. XIV.].
- Figs. 10 & 11. *Baëtis*:—hind wings [Suppl. to Pl. XVI.].—10. *B. consuetus*. 11. *B. solidus*. Enlarged 106 diameters.
- Fig. 12. *Centroptilum Poeyi*:—hind wing [Suppl. to Pl. XVII. 30]. Enlarged 137 diameters.
- Fig. 13. *Ameletus inopinatus*:—ventral view of adult ♂ forceps, dried [Suppl. to Pls. XVIII. ? 34 and LXIV. 22–24].

ADDITIONS AND CORRECTIONS (continued from p. 325).

- P. 282, l. 18 from bottom, for *venosus* read *venosa*.
- P. 302, l. 12 from top, before *fuscus* insert ||.
- P. 315, l. 20, for *Coloburus* [preoccupied in Entomology] read *Coloburiscus*.
- P. 320, before l. 7 from bottom insert:—P. 142, after l. 19 from top read
Synonymy. *Brachycercus*, Curtis (1834), applicable only to ♀ and subimago specimens. *Macrocerus*, Westwood, Partington's Brit. Cycloped. ii. 439 (1836), appropriate only to the ♂ im.