

SMITHSONIAN MISCELLANEOUS COLLECTIONS
VOLUME 107, NUMBER 5

THE DATES AND EDITIONS
OF CURTIS' BRITISH
ENTOMOLOGY

(WITH FOUR PLATES)

BY

RICHARD E. BLACKWELDER

Associate Curator, Division of Insects
U. S. National Museum



(PUBLICATION 3894)

CITY OF WASHINGTON
PUBLISHED BY THE SMITHSONIAN INSTITUTION
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PART I. NOMENCLATURE CHANGES

The discovery of the oldest genotype designation for each generic name is one of the important procedures in the stabilization of nomenclature. Accurate information on the status of the older works in which designations were made is therefore very desirable. The discovery of some pertinent facts about one of these source works in entomology has prompted the publication of this analysis.

On January 1, 1824, John Curtis commenced the publication in London of a major work entitled "British Entomology; being illustrations and descriptions of the genera of insects found in Great Britain and Ireland: containing coloured figures from nature of the most rare and beautiful species, and in many instances of the plants upon which they are found." In this work he proposed to illustrate by means of a colored plate and drawings of certain structures each of the genera of insects known from the British Isles. These illustrations were frequently, but by no means always, made from the species which Curtis listed as the type of that genus, but it is this designation of a type species for each genus which gives the work most of its interest today.

It was proposed to publish the plates in 16 volumes of 12 parts each, or 770 plates in 192 parts. One part of four (or at first five) plates was to be issued every month starting in January 1824. This plan was rigidly adhered to, and the publication schedule was apparently met without exception.

After 5 years of publication, Curtis apparently found his edition too small to supply the demand. He therefore began to reprint the previous parts, eventually covering parts 1 to 30. The existence of this second printing was noted in the *Zoological Journal*, volume 4, pages 494-496 (January-May 1829), by Percheron in 1837, and in the bibliographies of Hagen and of Horn and Schenkling, but no informa-

tion was given on the dates of publication or the accuracy of the re-setting. In 1911 Sherborn and Durrant published an analysis of the dates of publication of these reprinted parts. These authors comment on the contents of the reprints as follows: "Parts one to eight were rewritten and enlarged, some from two to ten pages, with alterations of nomenclature and additions; parts nine to thirty were reset and reprinted without alteration or addition; and parts 31 to 192 were all of the first edition, i.e., one setting and one printing." Three cases of changes of name, one case of additions to a plate itself, and one of increased text are cited in addition.

Messrs. Sherborn and Durrant either failed to notice or did not attach any importance to the facts that in three cases the genotype designation was changed and that major nomenclatural revisions occurred in five other cases. The realization of this makes the recognition of the reprinted plates of great importance, since nearly all sets of this work contain the reprints mixed in with the original edition.

The recognition of the edition of certain parts and certain plates can be made by means of "clues" listed by Sherborn and Durrant. I believe that if these writers had attached more importance to the identification of these editions they would have recorded more universal recognition characters.

The present writer is fortunate to have at his attention one set of the original edition bound in 16 volumes as published, in numerical order, and one set bound in 8 volumes in systematic order, containing all the reprinted pages.¹ The first of these is in the library of the United States Department of Agriculture, Washington, D. C.; the second is in the entomology section of the library of the United States National Museum, Washington, D. C.

Comparison of these two sets page by page reveals many interesting points. First, in every case except the text of plate 30 and those plates after 34, the second edition can be at once identified by the addition of an underscoring line beneath the plate number on the text and the plate. Plate 30 can be recognized by the addition of the systematic serial number 283 to the text and plate and the underscore on the plate.

The dates given on the original plates are believed to be entirely accurate, but the reprinted plates have the same dates as the originals, which is obviously erroneous. Any plate with the plate number (at top) underscored is a reprint and its actual date of publication is much later than shown.

¹ Three other sets have been examined in detail, as described in part II of this paper.

Sherborn and Durrant estimate the dates of publication of the first eight parts of the second edition. I have found nothing to change their conclusions except that part 1 may have appeared in 1828 (see Zoological Journal, vol. 4, pp. 494-496, January-May 1829, in which completion of volume IV (in 1827) is noted). It seems best to adopt January 1, 1829, as the date of this part. These parts may be dated as follows:

Part No.	Plates included	Date
1	1-5	1829 (January 1)
2	6-10	1830 (after July)
3	11-14	1834
4	15-18	1835
5	19-22	1835
6	23-26	1839
7	27-30	1840
8	31-34	1840

It does not seem to be worth while to list all the changes that have been found on each plate and page of text, but facsimiles have been prepared of all the pages wherein nomenclatural changes occur, and the other cases will be mentioned briefly in systematic rather than numerical order.

COLEOPTERA

Cicindelidae. Genus *Cicindela* Linn. Plate 1 (No. 1 of volume I of the systematic arrangement; reprinted in 1829). Text enlarged to four pages, with additional species mentioned.

Carabidae. Genus *Nebria* Latr. Plate 6 (No. 6 of volume I of the systematic arrangement; reprinted in 1830). Additions to plate; text rewritten, with additional species mentioned.

Carabidae. Genus *Omasus* Ziegler. Plate 15 (No. 22 of volume I of the systematic arrangement; reprinted in 1835). Additions to plate; text rewritten and enlarged to four pages, with changes in the generic synonymy, and additional species mentioned.

[Dytiscidae. *Acilius* Leach. In the Zoological Journal, volume 3, pages 139-140 (January 1827) appears the following in reference to volume II: "An additional leaf is given in the last number for the purpose of being substituted for that containing the description of *Acilius cinereus*, the insect previously figured under this name being in fact a new species, to which Mr. Curtis has found it necessary to assign the name *A. caliginosus*." The date of this new sheet (letter-

press only) is December 1825, although the date of plate 63 and the original sheet (*Acilius cinereus*) was April 1825.]

Staphylinidae. Genus *Siagomum* Kirby. Plate 23 (No. 117 of volume I of the systematic arrangement; reprinted in 1839). Slight changes to the plate; ² text rewritten with additions, and generic name emended. (See facsimiles, figs. 1, 2.)

Buprestidae. Genus *Buprestis* Linn. Plate 31 (No. 51 of volume II of the systematic arrangement; reprinted in 1840). Text rewritten and enlarged, with new synonymy and additional species mentioned.

Rhipiphoridae. Genus *Rhipiphorus* Fabr. Plate 19 (No. 22 of volume II of the systematic arrangement; reprinted in 1835). Additions to plate; text rewritten and enlarged, with the generic name emended.

Scarabaeidae. Genus *Aphodius* Illiger. Plate 27 (No. 70 of volume I of the systematic arrangement; reprinted in 1840). Text rewritten, with additional species mentioned.

Cerambycidae. Genus *Molorchus* Fabr. Plate 11 (No. 106 of volume II of the systematic arrangement; reprinted in 1834). Text rewritten and enlarged, with generic name changed and the synonymy reversed. (See facsimiles, figs. 3, 4.)

Chrysomelidae. Genus *Cryptocephalus* Geoff. Plate 36 (No. 120 of volume II of the systematic arrangement; reprinted in 1840). Reset without change.

HYMENOPTERA

Xiphidriadae. Genus *Xyela* Dalman. Plate 30 (No. 27 of volume III of the systematic arrangement; reprinted in 1840). Text revised slightly, with additional generic synonymy.

Tenthredinidae. Genus *Croesus* Leach. Plate 17 (No. 23 of volume III of the systematic arrangement; reprinted in 1835). Text rewritten and enlarged, with additional species mentioned.

Ichneumonidae. Genus *Peltastes* Illiger. Plate 4 (No. 45 of volume III of the systematic arrangement; reprinted in 1829). Some re-touching on the plate; text enlarged with the specific name of the type species replaced by a synonym. (See facsimiles, figs. 5, 6.)

Diplolepidae. Genus *Ibalia* Latr. Plate 22 (No. 63 of volume III of the systematic arrangement; reprinted in 1835). Slight changes to the plate; text changed slightly and with generic synonymy added.

Chrysididae. Genus *Chrysis* Linn. Plate 8 (No. 3 of volume IV of the systematic arrangement; reprinted in 1830). Text rewritten and enlarged to six pages, with additional synonymy and species.

² Reproductions of the plates are at the end of the paper. They may be identified by their original plate numbers.

Vespidæ. Genus *Eumenes* Fabr. Plate 13 (No. 27 of volume IV of the systematic arrangement; reprinted in 1834). Additions to the plate; text rewritten and enlarged.

Larridæ. Genus *Psen* Latr. Plate 25 (No. 23 of volume IV of the systematic arrangement; reprinted in 1839). Additions to the plate; text rewritten and enlarged, with change of genotype, addition of synonymy, and additional species mentioned. (See facsimiles, figs. 7, 8.)

LEPIDOPTERA

Papilionidæ. Genus *Lycaena* Fabr. Plate 12 (No. 15 of volume V of the systematic arrangement; reprinted in 1834). Slight changes to the plate; text enlarged to 10 pages, with additional synonymy.

Sphingidæ. Genus *Deilephila* Ochs. Plate 3 (No. 21 of volume V of the systematic arrangement; reprinted in 1829). Additions to the plate; text rewritten, with additional synonymy.

Arctiidæ. Genus *Eyprepia* Ochs. Plate 21 (No. 49 of volume V of the systematic arrangement; reprinted in 1835). Text rewritten, with additional synonymy and species.

Phalaenidæ. Genus *Bupalus* Curtis. Plate 33 (No. 6 of volume VI of the systematic arrangement; reprinted in 1840). Text rewritten, with additional synonymy and species.

Bombycidæ. Genus *Dendrolimus* Germar. Plate 7 (No. 41 of volume V of the systematic arrangement; reprinted in 1830). Additions to the plate;² text rewritten with the generic name emended and synonymy added. (This is the most complicated change in any of the genera; facsimiles are given of the first page of each edition and of the new genus. Figs. 9, 10, 11.)

Tortricidæ. Genus *Peronea* Curtis. Plate 16 (No. 50 of volume VI of the systematic arrangement; reprinted in 1835). Slight changes to the plate; text rewritten and enlarged to eight pages, with additional synonymy.

Tortricidæ. Genus *Sarrothripus* Curtis. Plate 29 (No. 51 of volume VI of the systematic arrangement; reprinted in 1840). Additions to the plate; text rewritten, with additional synonymy and species.

Tortricidæ. Genus *Gastropacha* Ochs. Plate 24 (No. 42 of volume V of the systematic arrangement; reprinted in 1839). Text slightly rewritten.

² Reproductions of the plates are at the end of the paper. They may be identified by their original plate numbers.

HEMIPTERA

Pentatomidae. Genus *Pentatoma* Olivier. Plate 20 (No. 51 of volume VII of the systematic arrangement; reprinted in 1835). Text rewritten and enlarged, with the British species arranged in Hahn's "new genera" (which are not adopted).

Pentatomidae. Genus *Acanthosoma* "nob." Plate 28 (No. 50 of volume VII of the systematic arrangement; reprinted in 1840). Text revised and enlarged, with additional synonymy and species.

Hydrometridae. Genus *Velia* Latr. Plate 2 (No. 26 of volume VII of the systematic arrangement; reprinted in 1829). Additions to the plate; text revised and enlarged, with additional species mentioned.

Hydrometridae. Genus *Hydrometra* Latr. Plate 32 (No. 28 of volume VII of the systematic arrangement; reprinted in 1840). Text revised and enlarged, with additional species mentioned.

Notonectidae. Genus *Notonecta* Linn. Plate 10 (No. 22 of volume VII of the systematic arrangement; reprinted in 1830). Text revised and enlarged, with additional species mentioned.

DIPTERA

Tipulidae. Genus *Ctenophora* Meigen. Plate 5 (No. 12 of volume VIII of the systematic arrangement; reprinted in 1829). Additions to the plate; text revised and enlarged, with additional synonymy and species.

Rhagionidae. Genus *Atherix* Meigen. Plate 26 (No. 31 of volume VIII of the systematic arrangement; reprinted in 1839). Text revised, with additional synonymy and species.

Anthracidae. Genus *Anthrax* Scopoli. Plate 9 (No. 32 of volume VIII of the systematic arrangement; reprinted in 1830). Text revised and enlarged to four pages, with additional species mentioned and the genotype changed. (See facsimiles, figs. 12, 13.)

Empididae. Genus *Empis* Linn. Plate 18 (No. 40 of volume VIII of the systematic arrangement; reprinted in 1835). Additions to the plate; text revised and enlarged, with additional species mentioned.

Syrphidae. Genus *Milesia* Fabr. Plate 34 (No. 57 of volume VIII of the systematic arrangement; reprinted in 1840). Text revised and enlarged with additional generic synonymy.

Hippoboscidae. Genus *Haemobora* "nob." Plate 14 (No. 105 of volume VIII of the systematic arrangement; reprinted in 1834). Text rewritten, with the new names now credited to Curtis. (See facsimiles, figs. 14, 15.)

FACSIMILES

23.

SIAGONUM QUADRICORNE.

ORDER Coleoptera. FAM. Staphylinidæ *Lat., Leach.*

Type of the Genus S. quadricorne K.

SIAGONUM *Kirby Introduction to Entomology.*

Antennæ half the length of the insect, pubescent and hirsute, straight, articulated; gradually increasing in size from the second joint (which is smaller than the first) to the extremity; terminal joint obovate. (f. 6.)

Labrum exerted, transverse, bilobed, ciliated. (1.)

Mandibles of male much longer than the head, produced externally far beyond the apex, which has the appearance only of a strong tooth, ciliated internally (2.): of female, broad at their base, hooked, very slightly produced externally. (2. a.)

Maxillæ divided internally, ciliated; terminal process dilated, rounded, composed of parallel, transverse ribs, detached at the apex: *Palpi* 4-jointed, first joint small, last cylindrical-ovate, terminated by a globular gland. (3.)

Mentum transverse, broadest at the base, lobed in the centre behind, and obtusely pointed before: *Palpi* appearing 4-jointed, all the joints corneous only at the base, last joint the longest.

Lip dilated anteriorly, bilobed, ciliated. (4.)

Head not broader than thorax, with a horn on each side before the eyes in the males (*vide the coloured figure*): females without horns (*fig. 7.*).

Thorax narrowed behind. Elytra longer than broad. Abdomen linear, 6- and 7-jointed. Legs very short and small. Tibiæ ciliated internally, and serrated (*except in the last pair*) externally, spined. Tarsi 5-jointed, last joint equal in length to the other four (5. a fore-leg). Wings long, broad, transparent, with only 3 short nerves at the base.

QUADRICORNE *Pl. 1. f. 3. Kirby and Spence's Int. to Ent.*

Depressed, shining, punctured; antennæ and abdomen pilose. Head nearly black. Horns, mandibles, antennæ and legs reddish brown. Thorax deep chesnut, quadrate, narrow behind; anterior margin rather convex in the centre, angles slightly produced, rounded, with a smooth line of colour down the centre. Elytra chesnut colour, brightest towards the centre, with 2 branched and 2 simple-punctured striæ on each. Abdomen blackish, with the edges of the segments reddish brown.

In the Cabinets of Mr. Kirby, Dr. Stephenson, and the Author.

A FIGURE of *Siagonum quadricorne* was given in the 1st vol. of the Introduction to Entomology by Mr. Kirby, who took a

FIG. 1.—Facsimile of page from first edition.

23.

SIAGONIUM QUADRICORNE.

ORDER Coleoptera. FAM. Staphylinidæ Lat.

Type of the Genus, S. quadricorne Kirb.

SIAGONIUM Kirb., Curt.—Prognathus Lat.

Antennæ inserted in a cavity before the eyes, long, straight and hairy, 11-jointed, basal joint rather the longest, 2nd nearly as long as the 3rd, both pear-shaped, the remainder ovate-truncate; apical joint rather longer than the 10th, the apex conical (6).

Labrum exerted, transverse, deeply emarginate, bilobed, ciliated (1). *Mandibles* projecting beyond the head in the male, the apex forming a long curved claw, a short strong curved tooth on the inside at the centre, ciliated beneath (2): elongate-trigonal in the female, the apex hooked, with a shoulder outside towards the apex, ciliated internally (2 ♀).

Maxillæ with a long ciliated internal lobe; terminal one ovate, dilated, striated transversely, ciliated. *Palpi* longish, 4-jointed, basal joint small, 3rd short, 2nd and 4th the longest, the latter fusiform-truncate (3).

Mentum transverse, lobed at the base, obtusely trigonate before. *Lip* broad, cordiform, ciliated. *Palpi* shortish, apparently 4-jointed, joints subquadrate, 4th longer ovate (4).

Head as broad as the thorax, with a strong conical horn on each side in the males, before the eyes which are small and globose; orbicular and unarmed in the female (7). Thorax depressed, semiorbicular, narrowed at the base: scutell triangular. Elytra oblong, longer than the thorax. Wings very ample. Abdomen long linear and marginate. Legs very short and small: thighs stoutish: tibiæ spurred, 4 anterior, ciliated internally and serrated externally: tarsi longish, very slender and clavate, 5-jointed, first 4 joints very short, 5th equal in length to the others united: claws long and slender (5, a fore leg.).

Larva narrow, with distinct antennæ, 6 pectoral feet and 2 anal appendages. Zool. Journ. v. 3. pl. 2. f. 1.

QUADRICORNE Kirb.—Curt. Guide, Gen. 213. 1.—rufipennis Blond. Guer.

Depressed, shining, punctured; antennæ and abdomen pilose: head nearly black: horus, mandibles, antennæ and legs reddish-brown: thorax deep chestnut, with a smooth line of colour down the centre; anterior margin rather convex in the centre, angles slightly produced and rounded. Elytra chestnut-colour, brightest towards the centre, with 2 branched and 2 simple-punctured striæ on each: abdomen blackish, with the edges of the segments reddish brown.

In the Author's and other Cabinets.

FIFTEEN years have elapsed since this genus first appeared in the present work, when accidentally the generic name was incorrectly spelt,

11.

MOLORCHUS MINOR.

ORDER Coleoptera. FAM. Cerambycidae Lat.

Type of the Genus *Necydalis Umbellatarum* Linn.

MOLORCHUS Fab. *Necydalis* Linn., Lat.

Antennæ inserted in a notch in the eyes, somewhat setaceous, varying in length, first joint thick, second very small, third and following long, cylindric and rather clavate.

Labrum very minute, hairy and dilated very much in front, cordiform. (1.)

Mandibles short, triangular, slightly hooked. (2.)

Maxillæ crustaceous at the base, with 2 coriaceous lobes, the external one the largest, regularly ciliated. (3. a.) *Palpi* 2, the first 3 joints small, the last thick, ovoid, compressed and truncated. (3. b.)

Mentum broad, convex at the sides, emarginate before. (4. a.)

Lip coriaceous, 2-lobed. (4. b.) *Palpi* 2, inserted before the lip, short, 3-jointed, formed like the others. (4. c.)

Head sloped off before. Thorax without spines, nearly orbicular. Body elongate, narrow, subcylindric. Elytra abbreviated, gaping at the apex. Wings longer than abdomen, not concealed, but folded upon and covering the abdomen when at rest. Anterior legs shortest, posterior longest; thighs very much clavate. Tarsi 4-jointed, spongy beneath, the third joint deeply divided, the last rather long, terminated by 2 claws. (5. a fore-leg.)

M. MINOR Linn. *Syst. Nat.* 2. 641. 2.

M. *dimidiata* Fab. *Ent. Syst.* t. 1. pars 2. p. 357. 3.

Black, shining, pubescent. Head and thorax minutely punctured, the latter cylindric, oval-truncate, having 2 longitudinal shining lines near the centre. Elytra dark chesnut, with an oblique light spot upon each: the tips thicker and darker. Wings fuscous. Antennæ ferruginous. Legs bright chesnut, the thighs clavate towards the joint and black. Tibiæ hairy.

In the Cabinet of the Author.

THE genus *Necydalis* of Latreille ought probably to be divided: I have therefore adopted Fabricius's generic name for the

11.

NECYDALIS MINOR.

ORDER Coleoptera.

FAM. Cerambycidæ.

Type of the Genus, Necydalis Umbellatarum Linn:

NECYDALIS Linn., Oliv., Mars., Lat.—Molorchus Fab., Gyl., Curt.—Gymnopteron Schr.?

Antennæ inserted in a notch in the eyes on each side the crown of the head, slightly setaceous, pubescent and having a few hairs beneath except towards the apex, 12-jointed and much longer than the insect in the male, basal joint short and stout, 2nd globose, 3rd and 4th not longer than the 1st, 5th and following long and clavate, the apical joint short and curved: 11-jointed and much shorter in the female.

Labrum very minute, hairy and dilated very much in front and somewhat cordiform (1).

Mandibles short, trigonate, slightly hooked and pointed at the apex (2).

Maxillæ small, terminated by 2 lobes regularly ciliated at the apex, external one the largest (3 a).

Palpi short subfiliform and 4-jointed, 3 first joints short, 4th thicker ovate, compressed and truncated at the apex (b).

Mentum broad, convex at the sides, emarginate before (4 a). *Labium* coriaceous cordate, forming two divaricating pubescent lobes (b). *Palpi* nearly as long as the maxillary and of the same form, triarticulate, attached to scapes at the base of the labium (c).

Head suborbicular, sloped off in front: eyes lateral with a deep notch for the antenna. Thorax orbicular quadrate with the anterior angles and margin a little reflected, and the base suddenly narrowed: scutellum elongate-triangular. Elytra quadrate or oblong, not half the length of the body, flat above, gaping behind, the apex of each being rounded. Wings very ample, folded on the back when at rest, and extending nearly to the apex of the Abdomen which is linear, concave above, convex beneath. Legs, anterior short, posterior long. Thighs very slender, terminated by an ovate club: tibiæ simple with small spurs at the apex: tarsi 4-jointed, basal joint considerably the longest, except in the anterior pair, 3rd bilobed, 4th clavate: claws curved and acute (5, a fore leg).

MINOR Linn.—Curt. Guide, Gen. 412. 1.

In the Author's and other Cabinets.

My lamented friend Latreille is the only naturalist of late who has done Linnæus the justice to retain the appellation he gave to the present group. In the first edition of this Work, I observed that the genus *Necydalis* of Latreille ought probably to form two genera: I had therefore adopted Fabricius's generic name for the species with short elytra, and those with longer and subulated elytra (*N. rufa* Linn. &c., forming Latreille's second division,) might retain the appellation of *Necydalis*; but since finding that this

4.

PELTASTES PINI.

ORDER Hymenoptera. FAM. Ichneumonidæ Lat.

Type of the Genus Ichneumon necatorius Fab.

PELTASTES Ill. Ichneumon Fab., Lat. Metopius Pz.

Antennæ filiform, composed of 60 joints and upwards, inserted near the crown of the head, and equidistant from the eyes and each other. (1.)*

Clypeus formed like an escutcheon, pointed in the centre. (1.)

Labrum triangular, rounded in front. (2.)

Mandibles slightly arcuated, strong, acute, bifid near their extremities. (3. 3.)

Maxillæ short, corneous, rounded, ciliated, irregular at their outer edge. (4. a.): *Maxillary palpi* very long, hairy, 5-jointed, first joint straight cylindrical; second very large, thick, clavate; third thicker than the first and nearly as long, fourth very small, fifth length of the first, cylindrical. (4. b.)

Mentum oblong (5. a.): *palpi* short, hairy, 4-jointed, nearly equal, inserted near the apex of the mentum (5. b.) *Lip* membranaceous, striated, sides conniving externally. (5. c.)

Superior wings with the first submarginal cell very large, the 2 discoidal cells situated longitudinally one above the other.

Abdomen cylindrical, almost sessile, composed of 7 joints in the male and 6 joints in the female: (7) Under side of abdomen of male.

Oviduct concealed: (6) Underside of abdomen of female.

Tarsi with 5 joints: (8) Part of hinder leg.

P. PINI nob.

Black, deeply and closely punctured; clypeus yellow; thorax with 8 yellow spots before the insertion of the wings: 2 at the base of the scutellum, which is square, bidentate, and margined with yellow behind; first and second segments of abdomen with two yellow spots, the remainder margined with yellow; wings obscure with ferruginous nervures. Antennæ black above, ferruginous beneath; legs yellow; first pair palest: hinder thighs striped black inside.

In the Cabinet of Mr. Bentley.

THE insects of this genus, like those of the whole family, are parasitic, depositing their eggs in the larvæ of Lepidoptera, which as soon as they hatch begin to feed upon the muscles

* The dissections of the mouth are taken from the type of the genus, but the other figures are drawn from the species figured in the plate.

4.

PELTASTES DENTATUS.

ORDER Hymenoptera. FAM. Ichneumonidæ *Lat., Leach.*

Type of the Genus Ichneumon necatorius Fab.

PELTASTES *Ill.*—*Metopius Panz., Lat.*—*Ichneumon Forst., Fab., Marsh., Panz., Jur.*

Antennæ inserted above the middle of the face, in 2 cavities between the eyes, long, robust, straight, setaceous and attenuated towards the base, composed of 60 joints and upwards (fig. 1* a).

Labrum triangular rounded and ciliated in front (2).

Mandibles strong, slightly arcuated, acute, bifid near the apex (3, 3).

Maxillæ terminated by 2 lobes nearly of equal size, the internal one almost naked, the external very pilose and dilated (4 a). *Palpi* very long and hairy, 5-jointed, basal and 3rd joints nearly of equal size, 2nd very large, subobovate, 4th the smallest, 5th long and slender (4 b).

Mentum oblong (5 a). *Palpi* short, hairy, composed of 4 nearly equal joints (b). *Lip* large, membranous, striated, sides recurved (c).

Head rather small, transverse; face scutiform sometimes acuminate between the antennæ (1*). Eyes oblong. Ocelli 3 in a depressed triangle. Thorax short globose. Scutellum quadrate, the sides reflexed and produced at the angles. Abdomen almost sessile, the basal joint being scarcely narrowed at its attachment, long, somewhat olate and depressed, concave beneath; composed of 8 joints in the male (7 the underside of apex); and 7 in the female (6 the underside). Ovipositor nearly concealed. Wings shorter than the body; superior with one long marginal and 3 submarginal cells, the middle one small rhomboidal. Legs; 4 first short and small, posterior longer and robust. Tibiæ spurred, the posterior pair with 2 spines at the apex. Tarsi 5-jointed. Claws strong. Pulvilli large (8†, tarsus, &c. of a hind leg).

Larvæ parasitic feeding upon the caterpillars of various *Bombycidæ*.

Obs. the *Trophæ* and fig. 6 are drawn from the type, and the other parts are taken from *P. dentatus*.

DENTATUS *Fab. Ent. Syst.* 2. 180. 192.—*Micratorius, Fab. Syst., Piez.* 62. 41.—*Pini Curtis Brit. Ent. ed. 1. fol.* 4.

Black, deeply and thickly punctured: antennæ ochraceous beneath: nasus yellow. Thorax with 8 yellow spots before the insertion of the wings, and 2 at the base of the scutellum, which is margined with yellow behind. Abdomen with 4 yellow spots on the 1st and 2nd segments, the remainder margined with yellow. Wings obscure ferruginous, stigma and nervures brighter. Legs yellow, 1st pair the palest: the posterior thighs striped black inside.

In the Author's and other Cabinets.

PELTASTES receives its generic name from the face forming an escutcheon or shield: like the rest of the family these insects are parasitic in the larva state, the females depositing their eggs in the

25.

PSEN EQUESTRIS.

ORDER Hymenoptera. FAM. Larradæ *Lat., Leach.*

Type of the Genus Trypoxylon atratum Fab.

PSEN *Lat., Jur., Panz.* Trypoxylon, Pelopæus *Fab.*

Antennæ inserted near the centre of the face, clavate, curved, smooth, 12-jointed in the female, 13-jointed in the male; first joint large, second small, terminal joint ovate. (1.)

Labrum exerted, transverse, subrotundate before, entire, ciliated. (2.)

Mandibles slender, scarcely arcuated, unidentate internally. (3.)

Maxillæ coriaceous, divided transversely, terminal process nearly membranaceous, rounded and ciliated: *Palpi* elongated, unequal, 6-jointed; first joint very small, third largest, sixth slender. (4.)

Mentum large, dilated in the centre, hairy (5. a.), (the point to which the maxilla is attached is shown at e.): *Palpi* long, 4-jointed, first joint long, second and third short, last robust, ovate. (b.)

Lip short, with the edges conniving internally. (c.)

Clypeus subrotundate, anterior margin elevated. Head transverse, as broad as thorax, with a tubercle between the antennæ. Eyes oval, entire, remote. Ocelli 3, inserted on crown of head in a triangle. Thorax short, nearly ovate. Scutellum narrow, small. Abdomen ovate-conic, with an elongated, abrupt peduncle. Superior wings with one marginal cell, not extending to the apex, and three perfect submarginal cells, the middle one nearly trigonate, either receiving one or two recurrent nerves. Inferior wings with two complete basal cells. Legs rather small. Tibiæ spined. Tarsi 5-jointed, first joint nearly as long as the three following, last terminated by simple claws and pulvilli. (8. a fore leg.)

EQUESTRIS *Fab. Syst. Piezatorum, p. 182. n. 6.*

Black: clypeus and face silvery with hair, shining; first segment of abdomen rufous, with a black spot at its base; second entirely, and third partly, rufous. Wings hyaline, iridescent. Antennæ rufous beneath. Thighs and coxæ black. Tibiæ and tarsi pale ferruginous, the former annulated with black.

In the Cabinets of Mr. Haworth and the Author.

THIS pretty little species I took flying near Lyndhurst in the New Forest the end of August 1822. Mr. Haworth has also taken it in the neighbourhood of London. My specimens per-

FIG. 7.—Facsimile of page from first edition.

25.

PSEN EQUESTRIS.

ORDER Hymenoptera. FAM. Larridæ Lat.

Type of the Genus, Pelopæus compressicornis Fab.

PSEN Lat., Jur., Panz., Van. Lind., Shuck., Curt.—Trypoxylon, Pelopæus Fab.—Mimesa Shuck.

Antennæ inserted near the centre of the face, clavate, curved, and 12-jointed in the female (1): 13-jointed and more filiform in the male; basal joint large, second small, terminal joint ovate. (1 ♂.)*Labrum* transverse, subrotundate before, entire and ciliated. (2.)*Mandibles* slender, scarcely arcuated, bidentate, the teeth obtuse. (3.)*Maxillæ* divided transversely, terminal lobe rounded and ciliated: *Palpi* longish, 6-jointed; first joint very small, third the largest, fourth as long, fifth the longest, sixth long and slender. (4.)*Mentum* large, dilated in the centre, hairy (5. a. the point to which the maxilla is attached is shown at c.): *Palpi* long, 4-jointed, first joint very long, second and third short, fourth robust, elongate-ovate. (b.) *Lip* short and broad, the edges conniving internally. (c.)*Clypeus convex and rounded, anterior margin elevated. Head transverse, as broad as the thorax, with a tubercle between the antennæ. Eyes oval, entire, remote. Ocelli 3, inserted on the crown in a triangle. Thorax short, nearly ovate. Scutellum small and subquadrate. Abdomen ovate-conic, with an elongated linear petiole. Superior wings with a lanceolate marginal cell, not extending to the apex, and three perfect submarginal cells, the middle one trigonate, receiving either one or two recurrent nervures. Legs rather small. Tibiæ spurred. Tarsi 5-jointed, basal joint nearly as long as the three following, last terminated by simple claws and pulvilli. (8. a fore leg.)*

EQUESTRIS Fab.—Curt. Guide, Gen. 691. 3.

Black: clypeus and face silvery with hair, shining; first segment of abdomen rufous, with a black spot at its base; second entirely, and third partly, rufous in the female, with the 2nd segment only rufous in the male: wings hyaline, iridescent: antennæ rufous beneath: thighs and coxæ black: tibiæ and tarsi pale ferruginous, the hinder tibiæ subochreous at the base.

*In the Author's and other Cabinets.*THE three lobes of the lip mentioned by Latreille in his observations upon the *Larridæ*, I could not discover in the species dissected; and he does not mention that organ in his generic description. The females from which the characters and figures are taken, are armed with sharp stings, that are not entirely concealed.In my illustration of the genus *Pemphredon*, fol. 632, I have al-

7.

ODENESIS PINI. Pine Lappet.

ORDER Lepidoptera. FAM. Bombycidae Lat.

Type of the Genus Bombyx potatoria L.

ODENESIS *Germar.* Gastropacha *Ochs., Germ., Leach.* Bombyx *Lin., Fab., Lat., Haw.*

Antennæ nearly straight, setaceous, strongly bipectinated in the male (1. a.); slightly bipectinated in the female (2.)

Maxillæ none? *Mandibles* none?

Palpi 2, not very long, porrected, 3-jointed, hairy like a brush in the female (3.): more compact and acute in the male. Middle joint twice the length of either of the others (4): with hair removed to show the joints.

Thorax not crested. *Abdomen* of male divided at the apex, and bent upwards when viewed sideways. *Wings* entire, superior ones when at rest deflexed, and the inferior projecting beyond them.

Larva with 16 feet: its hinder ones formed for walking, flat and smooth beneath, rounded above, somewhat hairy with a slight tuberculated whart upon the penultimate joint, and fasciculi of hairs disposed along the sides. *Ochs.*

Pupa with its segments simple, inclosed in an oblong soft cocoon.

O. PINI *Linn. Faun. Suec.* 1104. *Haw. Lep. Brit.* p. 80. 4. *Roes. Ins.* vol. i. p. 59.

Head, thorax and abdomen (of the male) pale fuscous. Upper wings cinereous, chesnut-brown at the base extending one fourth of the wing, surrounding a white lunular spot: an ochraceous fascia strongly marked in its outline running across parallel with the ciliated margin, very much sinuated behind, crenated before. Under wings pale chesnut. Female one-third larger than the male, similar in its markings, but throughout much paler.

In the Cabinet of the British Museum.

THE Lepidoptera is by far the most difficult of all the Orders to divide into genera, in consequence of the parts of the mouth being exceedingly minute and closely covered with scales or

7.

DENDROLIMUS PINI.

The Pine Lappet Moth.

ORDER Lepidoptera. FAM. Bombycidae.

Type of the Genus, Bombyx Pini Linn.

DENDROLIMUS Germ.—Eutricha Hüb.—Odenesis and Odonestis Curt.—

Gastropacha Och.—Lasiocampa Schr.—Bombyx Linn., Haw., &c.

Antennæ inserted towards the hind part of the head, close above the eyes, rather short and setaceous, composed of numerous joints, beautifully bipectinated in the male, each branch ciliated (1), the rays very short in the female (2).

Maxillæ short, slender and spiral.

Labial Palpi forming a short acute beak in the male, obtuse in the female; much more densely clothed with scales in the male than female, basal joint nearly as long as the 2nd which is subovate, 3rd as long as the first and cylindric.

Male nearly as large as the female. Head clothed with a dense bunch of scales projecting over the forehead and meeting the palpi (7). Eyes rather small and orbicular, nearly of the same size in the sexes. Thorax suborbicular and not crested. Abdomen somewhat linear obtuse and tufted at the apex, which is slightly curved upward in the male, more robust and conical in the female. Wings deflexed when at rest, the inferior said to project beyond the anterior margin of the superior which are entire; somewhat obtuse in the male, more lanceolated in the female. Cilia thick and slightly indented. Legs densely clothed with scales, anterior shorter in the male than female. Tibiæ; anterior very short and densely clothed with longish hair in the male, with a broad and long internal horny lobe inserted near the base, small in the female; the other tibiæ densely clothed also and spurred. Tarsi shorter in the male than female, 5-jointed, basal joint of the anterior pair densely fringed with scales in the male. Claws strong curved and hooked. Pulvilli distinct.

Larvæ with 6 pectoral, 8 abdominal and 2 anal feet: flat and smooth beneath, rounded above, somewhat hairy, with a slight tuberculated wart upon the penultimate joint, and bundles of hairs disposed along the sides.—Och.

Pupa with its segments simple, inclosed in an oblong soft cocoon.

PINI Linn. Faun. Suec. 292. 1104.—Hüb. tab. 42. f. 184 & 185.—Röesel, v. 1. tab. 59.—Curtis's Guide, Gen. 810^a.

Male reddish ochre, more or less gray: superior wings chestnut at the base and extending to the disc; before the middle is a sinuated striga with a lunular white spot upon it, and beyond the middle an oblique ochraceous fascia, the inner margin crenate with a brown line, the outer one very much sinuated and marked with strong brown spots: inferior wings pale castaneous. Female paler.

In the Cabinets of the British Museum, Mr. Vigors, and the Author.

ODONESTIS POTATORIA.

The Drinker Moth.

ORDER Lepidoptera. FAM. Bombycidae.

Type of the Genus, Bombyx Potatoria Linn.

ODONESTIS Germ., Curt.—Odenesis Lea., Sam., Curt.—Eutricha Hüb.—
Gastropacha Och.—Lasiocampa Schr.—Bombyx Linn., Haw., &c.

Antennæ inserted towards the hind part of the head, close above the eyes, long setaceous, composed of numerous joints, beautifully bipeccinated in the male, the branches long, ciliated compressed and clavate at the apex, each furnished with a strong bristle: the rays short but distinct in the female.

Maxillæ none.

Labial Palpi forming a porrected beak, contiguous at the base, compressed towards the apex and closely applied, acute and densely clothed with compact scales in the male (pl. 7, f. 4 ♂), more obtuse, loose and hairy in the female (4 ♀), triarticulate, basal joint short and curved, 2nd long and stout, 3rd considerably longer than the 1st, sub-elliptical (4 a).

Male smaller than the female. Head clothed with a dense bunch of scales projecting over the forehead and meeting the palpi. Eyes rather small and orbicular, larger in the male than female. Thorax suborbicular not crested. Abdomen linear obtuse, tufted at the apex and slightly cleft in the male; robust and ovate-conic in the female. Wings deflexed when at rest, the inferior projecting beyond the anterior margin of the superior ones, which are entire, obtuse in the male, sublanceolate in the female. Cilia thick and slightly crenated. Legs very hairy, anterior shorter in the male. Tibiæ, anterior very short and densely clothed with long hairs in the male, with a long and broad internal horny lobe inserted near the base, which is small in the female; the other tibiæ spurred. Tarsi shorter in the male than female, 5-jointed, the basal joint of the anterior pair in the male densely fringed with scales. Claws strong curved and hooked. Pulvilli distinct.

Larvæ with 6 pectoral, 8 abdominal, and 2 anal feet, somewhat hairy, with 2 rows of fasciculi down the back, a larger one behind the head and another near the apex.

Pupa inclosed in an oblong cocoon of close texture.

POTATORIA Linn. S. N. 2. 813. 23.—Don. Brit. Ins. 5. pl. 148.—Curt. Guide, Gen. 810. 1.

Male ochraceous variegated with tawny, superior wings rather obtuse, with a curved brown striga at the base, and an oblique one stretching from the middle of the interior margin to the apex, between this and the posterior margin is a crenated curved line of the same colour, a whitish spot near the disc and a smaller one above it: inferior wings tawny. Females seldom so dark as the males.

9.

ANTHRAX ORNATA.

ORDER Diptera. FAM. Anthracidæ *Lat.**Type of the Genus Anthrax flava Hgg.*ANTHRAX *Scop., Fab., Lat. Musca Linn.*

Antennæ porrected, remote, 3-jointed, the first article cylindrical, clavate, twice the length of the second; with long and thick tufts of hair; second nearly globular and hairy; third nearly naked, somewhat pear-shaped, with a long style terminated by a tuft of hair, or ovate with a 1- or 2-jointed style. (3.)

Head subglobose, with 3 stemmata placed upon a little tubercle: eyes reniform, converging behind, green when alive. (2.)

Trophi either entirely concealed, or projecting a little beyond the head. (1. a. part of the head which receives the trophi, and which came away with them upon dissection.)

Labrum (1. b.) horny, acute, convex above, concave beneath, inclosing the tongue.

Tongue considerably longer than the labrum, corneous, acuminate. (1. c.)

Mandibles none.

Maxillæ (1. e.) horny, linear, acute, nearly as long as the labrum.

Palpi 2, received into the cavity of the mouth, simple, cylindrical, hairy, attached to the side of the maxillæ near the base, half their length. (1. f.)

Mentum? cylindrical, hollow above to receive the tongue and labrum. (1. h.)

Lip fleshy, oblong, bipartite, ribbed, extending as far as the tongue. (1. g.)

Head level with the thorax. Body 7-jointed, short, nearly quadrate, abruptly acuminated behind. Wings divaricating, long, lanceolate. (9.) Halteres often concealed in the hair of the body. Posterior legs the longest. Tarsi 5, sometimes terminated by 3 claws: pulvilli obsolete. (8.)

A. ORNATA *Hoffmansegg.*

Black shining: Head covered with black hair between the eyes, silvery behind, clypeus and under side of head with golden hair. Thorax covered with ochraceous hair before, nearly naked in the centre. Scutellum brownish. Abdomen covered with short golden hair, the sides surrounded with alternate fasciculi of fine white and black hair, 3rd and 4th segments with white fasciæ interrupted in the middle, sixth with a white spot in the centre, last joint very white with hair. Wings transparent, many-nerved, with a brunneous cloud extending two thirds the length, sinuated at the posterior margin, with a transverse transparent spot near the base, a larger one in the centre, and 2 others near the margin at the union of the nerves. Legs black, femurs and tibiæ covered with close yellow hairs. Halteres yellow.

In the Cabinets of Mr. Dale, Mr. Bentley, and the Author.

9.

ANTHRAX ORNATA.

ORDER Diptera. FAM. Anthracidæ.

Type of the Genus, Anthrax hottentotta Linn.

ANTHRAX Scop., *Fab.*, *Lat.*, *Meig.*, *Curt.*—*Musca Linn.*, *Geof.*

Antennæ porrected, remote, 4-jointed, basal joint twice as long as the 2nd, cylindric subclavate, producing long and thick bundles of hair, 2nd nearly globose, hairy, 3rd with a few hairs only, very long, the base stout, subconic, the apex forming a long beak, 4th joint minute ovate (3); sometimes there is a 5th joint like a short bristle, at others the 3rd joint is terminated by a coronet of short bristles.

Trophi either entirely concealed, or projecting a little beyond the head.

Labrum horny, acute, concavo-convex, inclosing the tongue (1 b).

Tongue considerably longer than the labrum, corneous, acuminate (c).

Mandibles none.

Maxillæ horny, linear, acute, nearly as long as the labrum (e). *Palpi* received into the cavity of the mouth, attached to the sides of the maxillæ near the base, half their length, slender, cylindric and pilose (f).

Mentum cylindric, hollow above (h), receiving the tongue and labrum.

Lip fleshy, oblong, bilobed at the apex, ribbed, extending as far as the tongue (g).

Head globose. Eyes alike in both sexes, reniform, covering nearly the whole head, approximating behind (2). Ocelli elevated, placed in a compact triangle at the back of the head. Thorax large orbicular-quadrate. Scutellum broad and subtrigonate. Abdomen oblong, truncated, composed of 7 joints, terminal one small and triangular. Wings expanded when at rest, long and lanceolate, with numerous nervures, the costa dilated at the base and generally bristly. Halteres small and capitate, often concealed. Legs slender, simple, posterior the longest. Tarsi attenuated to the apex, 5-jointed, basal joint the longest, terminated by 2 bent claws. Pulvilli minute (8† hind leg).

ORNATA Hoff.?—Curtis's Guide, Gen. 1193. 4.

In the Cabinets of Mr. Dale, the Author, &c.

MEIGEN having very judiciously separated *A. Belzebul* from Anthrax, and given it the generic name of *Stygia* (since superseded by *Lomatia*), the family now contains four genera, two of which are British. It is probable that the sombre aspect of some of the exotic species may have induced authors to apply the name of Anthrax to this genus; and the association being carried further, has led to the

14.

HÆMOBORA PALLIPES.

ORDER Omaloptera *Leach*. FAM. Hippoboscidae *Leach*.

Type of the Genus H. pallipes nob.

HÆMOBORA *nob.*

Antennæ inserted close to the anterior angles of the clypeus, globular, hairy, and sunk into the head. (2. a.)

Labrum horny, elongate, hollow, slightly arcuated, inclosing the tongue.

Tongue nearly as long as labrum, slender.

Lip horny, arched, hollow, inclosing the labrum and tongue. (1. g.)

Maxillæ? rigid, obtuse, ciliated with strong hairs, united at their internal edges, bent downwards, inclosing the proboscis, and extending beyond the head like a beak. (1. and 2. e.)

Mentum large, coriaceous, membranaceous, covering and concealing the base of proboscis. (1. h.)

Ocelli 3, in a triangle, sunk in foveolæ.

Wings very long, rounded, first marginal or mediastinal cell extending one-third the length of the wing; second marginal cell very long, rounded at the end, discoidal cells united, 6 obscure, imperfect nerves extending to posterior margin.

Tarsi 5-jointed, last the longest; *Claws*, lengthened at their base on each side the pulvillus. (8.)

Head broader than long, somewhat triangular, divided from the thorax.

Eyes very remote, small. Thorax a little broader than head, nearly quadrate, dilated near the base of wings, notched anteriorly. Scutellum broad and short. Halteres very distinct. Abdomen small, nearly conical, peduncled, coriaceous towards its base, the remainder spongy. Feet extended, thick, first pair remote from the wings, inserted almost under the head.

Larva nourished in the abdomen of the mother, and excluded before transformation. Lat.

Pupa inclosed in the indurated skin of the larva, sub-orbicularly impressed at one end. Lat.

H. pallipes nob.

Shining, with strong hairs scattered over the limbs and body; pale and dull; greenish-yellow clouded with brown. Eyes and claws black. Thorax beneath punctured and covered with short, strong erect hairs. Wings nearly transparent, nerves yellow, the costa slightly ciliated.

In the Cabinet of Mr. Samouelle.

THE curious tribe to which this Insect belongs forms a 2nd division of Latreille's Diptera, and is called *Eproboscidea*.

14.

HÆMOBORA PALLIPES.

ORDER Omaloptera. FAM. Hippoboscidæ.

Type of the Genus, H. pallipes Curt.

HÆMOBORA Curt.

Antennæ inserted close to the anterior angles of the clypeus, globular, hairy, and sunk into the head (2 a).

Labrum horny, elongated, hollow, slightly arcuated, inclosing the tongue.

Tongue nearly as long as the labrum, slender.

Lip horny, arched, hollow, inclosing the labrum and tongue (1 g).

Maxillæ? rigid, obtuse, ciliated with strong hairs, united at their internal edges, bent downwards, inclosing the proboscis, and extending beyond the head like a beak (1 and 2 e).

Mentum large, coriaceous, membranaceous, covering and concealing the base of the proboscis (1 h).

Head broader than long, somewhat transverse-ovate, closely adhering to the thorax: eyes large very remote: ocelli 3 in triangle. Thorax a little broader than the head, nearly quadrate, dilated near the base of the wings, notched anteriorly: scutellum broad and short. Wings very long and rounded, first marginal or mediastinal cell extending one-third the length of the wing; 2nd marginal cell very long, rounded at the end, discoidal cells united, 6 obscure and imperfect nervures extending to the posterior margin: Halteres very distinct and capitate. Abdomen small, nearly conical, peduncled spongy, coriaceous towards its base. Legs thick, first pair remote from the others, and inserted almost under the head: tarsi 5-jointed, terminal joint the longest: claws lengthened at their base on each side the pulvillus (8).

PALLIPES Curt. *Guide, Gen.* 1355. 1.

Shining, pale and dull greenish-yellow, clouded with brown, with strong hairs scattered over the body and legs: eyes and claws black: thorax beneath punctured and covered with short strong erect hairs: wings nearly transparent, nervures yellow, the costa slightly ciliated.

In the Cabinet of Mr. Sanouelle.

The curious tribe to which this insect belongs forms a 2nd division of Latreille's Diptera, and is called Eproboscidea. Dr. Leach, who investigated the species with great attention, and published his observations in the second volume of the "Wernerian Transactions," subsequently constituted them into an Order, the propriety of which cannot be doubted when we consider that these insects are very different to the Diptera both in structure and œonomy.

The genus that I have proposed appears to connect Hippobosca (Pl. 421) and Ornithomyia. It will be seen that my ideas regarding the mouth differ from those of other authors; but as an universal

PART II. REPRINTS AND REVISIONS

In 1911 Sherborn and Durrant stated that the publication of the parts proceeded "with great regularity, commencing January 1824, and finishing December 1839, so the dates of the plates may be accepted with certainty." The implication here and elsewhere that after plate 10 (parts 1 and 2) four plates were issued each month and dated accordingly, is susceptible to checking only in part by any means at my disposal. However, it did seem worth while to examine all the plates in the first edition to see if the dates on the plates bore out this assumption. This examination revealed no case where the dates do not agree with the monthly schedule.

This examination of dates was made in the copy in the United States Department of Agriculture library, which is in numerical order. In the course of this examination it was discovered that commencing with plate 386 many of the plates had no date line at the bottom. These plates were on somewhat different paper from the others and had a different appearance. In all, 89 of these undated plates occurred.

No explanation being obvious, additional sets were obtained for comparison. The only other set examined which is arranged in numerical order³ also contains many of these undated plates, but they number 103, with only 36 of these on plates corresponding to those in the first set. The remainder of the undated plates are of lower number, starting with 83. It was further noted in this second set that many other plates were obviously redrawn and of poorer workmanship.

These discoveries led to the examination of two more sets, these both in systematic order.⁴ In neither of these were any of the undated plates found, but numerous other inconsistencies added to the puzzle. A tabulation of the five sets in parallel columns in numerical order failed to throw much light on the problem, but certain facts have been made clear.

1. Unquestionable original examples of all 770 plates have been seen, engraved in high quality by Curtis himself (at least at first) and showing no deviation in style.

2. Curtis' reprints of plates 1-50 are equally recognizable, the plate number always being underscored (the text was reset and number underscored on 1-34 only).

³ Through the courtesy of the Rutgers University Library, New Brunswick, N. J.

⁴ Through the courtesy of the library of the American Museum of Natural History, New York City, and of the Peabody Institute Library, Baltimore, Md.

3. The reprints had an additional number at the bottom to indicate the position of the plate in the systematic arrangement. But 10 plates are known without this number.

4. Although it was not feasible to compare all the 770 plates of all five sets, it was noticed that some plates in some sets had been redrawn. Redrawn copies (of a poorer workmanship) are known of five plates, each in only one set.

5. In addition to engravings and reengravings, many plates exist in a poorer type of reproduction that is obviously lithography. These plates do not have the impression lines of the copper engraving plates and are much coarser. These are known for 267 plates but are of several minor types. Straight copies of engravings by lithograph occur for 119 plates. These have the date lines, but seven of them exist also with the additional number at the bottom (apparently also redrawn in each case).

6. Many lithographs occur without the date line at the bottom (155 plates), in some obviously deleted because remnants are still visible.

7. A lithograph of one of the second-edition plates has been seen. It has both the date and the extra number. This plate (No. 34) is known also as an original engraving of the second edition and as both engraving and lithograph of the first edition.

It appears obvious from the above that in addition to the two known editions, there are plate alterations, later engravings, lithographs, stone alterations, and later lithographs. No definite clue has been uncovered as to the age of any of these (except the two definite editions) or the order in which they appeared. The lithographs might be assumed to be later than 1840 and produced by someone other than Curtis, but they occur in four of the five sets before me, including both of the ones in numerical order, one of them in all other respects a complete first edition.

The condition of the five sets may be summarized as follows:

U.S.N.M. All original first-edition engravings except for second-edition plates 1-50 (plate 17 first edition, text second).

U.S.D.A. All original first-edition engravings up to No. 385, with many of the others being lithographs.

A.M.N.H. Second-edition engravings complete; first edition with occasional lithographs.

Rutgers. Engravings of both editions intermixed with occasional lithographs.

Peabody. Engravings of both editions intermixed with occasional

lithographs; with one lithograph of a second-edition plate, and several other peculiarities.

Although it is impossible to publish the entire tabulation of these plates, the actual state of certain plates in each set is shown in the following table. Symbols are used to save space.

- 1—First edition (plates 1-769 and 205*).
 2—Second edition (plates 1-50).
 E—Engraved.
 L—Lithographed.
 n—With serial number added at bottom.
 r—Redrawn (on a new copper plate).
 u—Undated.

Plate	U.S.D.A.	Rutgers	U.S.N.M.	Peabody	A.M.N.H.
1	1E	2E	2E	2E	2E
5	1E	1Ln	2E	1Ln	2E
7	1E	2E	2Eu	2E	2E
11	1E	1Ln	2Eu	2E	2E
15	1E	1L	2Eu	1L	2E
34	1E	1Ln	2E	2L	2E
69	1E	1E	1E	1Er	1E
117	1E	1Lu	1E	1E	1Er
169	1E	1E	1E	1E	1E
378	1E	1L	1E	1E	1E
386	1Lu	1Lu	1E	1L	1E
387	1Lu	1Lu	1E	1E	1E
403	1Lu	1E	1E	1E	1E
768	1E	1E	1En	1En	1E

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