

G. C. Whipple -

AMERICAN
ENTOMOLOGY,

OR

DESCRIPTIONS

*with ray
Aug. 30, 1940*

OF THE

INSECTS OF NORTH AMERICA.

ILLUSTRATED BY

COLOURED FIGURES

FROM

DRAWINGS EXECUTED FROM NATURE.

BY THOMAS SAY,

Member of the Academy of Natural Sciences of Philadelphia, &c.

“Each moss,
Each shell, each crawling insect, holds a rank
Important in the plan of Him, who fram'd
This scale of beings.”

STILLINGFLEET.

PHILADELPHIA :

PUBLISHED BY MITCHELL & AMES.

W. Brown, Printer, Prune Street.

1817.



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PREFACE.

THE present number is intended as the integral portion of a publication of no inconsiderable magnitude on the insects of North America.

But little, I might almost say nothing, has yet been done in the United States, in relation to the very interesting and important science upon which this work is intended to treat; while, in other departments of natural history, we have publications honourable to the republic, there is not, as far as I know, in the archives of American science, the record of an indigenous work on this subject.

In Europe, a celebrated writer informs us, the insects, so numerous, so diversified in their characters, in their colouring so elegant and varied, and so singular in their manners, have so much interest under these different relations, that of all the ani-

mals, they have been the most observed, the most studied, and are those upon which the labours of naturalists have been the most exercised. But in the United States, entomology, of all the sciences, has been regarded with the least attention by the learned. The attractive charms of natural history have, indeed, with us, allured many votaries; but these, in general, choose those departments for their study of which the knowledge is more readily acquired, and where the labour of initiation is not arduous or protracted. Hence the higher departments of zoology, botany, &c. are more frequently selected, offering as they do more prominent and obvious characters, easily detected by the investigator. Entomology, on the other hand, although at a distance captivating to the beholder, yet, when arrived at its threshold, he is opposed by so many difficulties, that he is deterred from prosecuting further his researches. The variety of systems, the obscurity of the distinctive characteristics, and often the great requisite nicety of discrimination upon which some of those systems are founded, the want of a guide such as would be afforded by good books or plates,—all conspire to retard the progress of the student. To these obstacles we may

also add, the difficulty of procuring the many splendid and costly works of European authors—our booksellers being unwilling to incur the risk of importing them unless expressly ordered. Attributable to these causes is the absence of knowledge of this science and of taste for its cultivation. Indeed there are not wanting among the uninformed, individuals who harbour the almost impious opinion that insects are despicable because they are minute, and that the study of them is little better than contemptible trifling, and prodigality of time. This opinion is too unphilosophical to deserve notice, or serious reply; it is impious, inasmuch as it assumes that a portion of the labours of the Creator, which we are informed he contemplated with pleasure, and in his wisdom pronounced good, are altogether futile and of a nature too trifling for the serious attention of man.

Much might be said in opposition to this absurd notion, the offspring of ignorance, and enough has been said by numerous authors of the first authority, to establish the claims of these minute, but most formidable of all animals to an exalted rank in our respect and consideration.

Hitherto the American insects have been collected and sent to England, France, and Germany, by intelligent foreigners resident amongst us. These were described by their entomologists, figured and published in their various works, and through that medium were familiarised to the knowledge of the scientific in those countries. In short, they are infinitely better acquainted with them than we are.

Having, for a considerable length of time, attached myself particularly to this department of zoology, I saw with regret that no one arose among us to investigate and describe such of the individuals belonging to it as were unknown.

I was anxious in vain that some one of my countrymen, whose talents and scientific acquirements were greater than my own, and more adequate to the task, would make known to the world this Protean people.

At length, urged exclusively by a love for the pursuit, and not, as my friends will unhesitatingly admit, by any expectation or desire of mere pecu-

niary acquisition, I have, though not without considerable hesitation, undertaken this work.

That it will be attended with extraordinary difficulties on the part of the author must be evident. Acting the part of a pioneer in an untried path—destitute of a colleague with whom to consult in case of doubt—without the proximity of extensive and well arranged cabinets, and, more particularly, with but few books for reference, I am constrained to rely solely on my own exertions, with the resolution that nothing on my part shall be wanting that zeal can supply or industry accomplish.

Nevertheless, I cordially invite the co-operation of those friends of science who have attended to this subject; their discoveries will be scrupulously acknowledged and registered, and of the specimens they think proper to communicate, such as are new to me will be gratefully placed to the credit of the discoverer.

As to the plan upon which this work will be conducted, it may not be improper to remark, in this place, that the celebrated publication of Mr

Donovan, entitled "Natural History of British Insects," will, with some exceptions, furnish the model. The corrections and improvements of the Linnæan method of classification, by Mr Latreille and other illustrious observers, will for the most part be adopted. The best artists are engaged to execute the plates—these will be engraved with the utmost care, from accurate drawings taken from the subjects themselves, and not in any instance will they be copied from books.

I am particularly desirous that the plates may be well done, and faithfully coloured, so as to present accurate and characteristic representations of the originals.

In the descriptions and biography of the insects I shall use as few words as perspicuity will admit, and as my object is truth, any errors, which from the circumstances of the case must inevitably occur, will be promptly rectified as soon as they are indicated to me by others or detected by myself.

In addition to the aid which the plates of this publication will afford to those who are desirous of

acquiring a knowledge of the science, a complete view of the systematic arrangement, agreeably to the best authors, will be subjoined to future numbers, by the help of which, when the work is completed, it may be bound up with the correct succession of genera.

A glossary also will be given, in which the nomenclature will be defined as concisely as possible, and with reference to figures.

Much confusion has resulted to natural history from the injudicious multiplication of species by many naturalists too solicitous of distinction, and from the unwarrantable and highly reprehensible substitution of new specific designations for those already adopted, by those naturalists who pursue the science not for its own sake only. 'This I shall studiously avoid. In no case whatever, in this work, will a specific name be changed, unless such name has been applied to a different insect of the same genus, or unless it be through a want of better information on the subject.

With these prefatory observations I take leave

of the first number of the *American Entomology*, yet not without solicitude for its fate. But a full ray of hope enlivens the future, by a retrospect of the many barriers that opposed the progress of the undertaking, that appeared at divers times almost insurmountable, and which by perseverance have been removed; at this period warranting an honest exultation at the success with which a series of unremitting efforts have been productive.



PLATE I.



PAPILIO PHILENOR.

LEPIDOPTERA.

Wings four, covered with imbricate scales: tongue (maxillæ) filiform, spiral: body hairy.

GENERIC CHARACTER.

Wings longer from the posterior angle to the tip than to the base, inferior branch of nerves very short, terminating abruptly at the inner margin: antennæ clavate: palpi very short, hardly reaching the clypeus; the two first joints equal, the terminal one minute or obsolete: all the feet formed for walking.

SPECIFIC CHARACTER

AND

SYNONYMS.

Wings tailed green black; posterior ones green, polished, with seven fulvous subocellar spots beneath.

PLATE I.

PAPILIO ASTINOUS. *Drury, vol. 1, tab. 11, fig. 1. 4.*

P. ASTINOUS. *Cramer, Ins. tab. 208, fig. A. B.*

P. PHILENOR of *Fabricius, and of Smith and Abbot's Insects of Georgia.*

Head black; eyes red-brown, posterior orbits yellow; palpi yellowish before, a white dot behind the base of each of the antennæ; neck with two dots before, and a band of four dots behind.

Thorax black, immaculate: breast dotted with yellow: feet black, anterior trochanters with an oblong yellow dot: superior wings dark green, sometimes blackish, with whitish crenæ; four or five white spots near the margin, more conspicuous beneath, often obsolete above: inferior wings highly polished, green; six pearl white spots before the margin; crenæ white: beneath with a yellow spot at base, brownish, with a very broad polished green border, upon which are seven large fulvous spots, each surrounded by a black ring, and marked by a lateral white spot; on the inner edge of the border about six small white dots.

Abdomen green, a little brassy above; a lateral double row of whitish dots, first segment with a single larger spot conspicuous above.

PLATE II.

In some parts of the state of Maryland, and further to the southward, they are more commonly found. My friend, Mr J. Gilliams, presented me with several specimens in high perfection, collected by himself in that state, and from these the drawings for the annexed plate were made.

But, notwithstanding the extreme rarity of the *Tityus* in Pennsylvania, an instance has occurred in which their formidable appearance occasioned no little surprise in the neighbourhood where they were discovered. About four years ago, I was informed by a gentleman in whose veracity every confidence may be placed, that in and about the hollow of an old cherry tree, blown down by the violence of the wind, near the river Delaware, a mile or two southward of Philadelphia, he saw the remains of a considerable number of them; and, that there might be no mistake as to the species, he exhibited the thorax of a male he had chosen from the mutilated fragments.

The length, exclusive of the horns, is two inches, and greatest breadth one inch. A resemblance has been observed, by some authors, between this insect and the *G. Hercules*: the colour is nearly the same, glaucous with brown spots, or brown with glaucous spots.

The spots are sometimes confluent, exhibiting a clouded appearance, and always vary in size, posi-

PLATE II.

tion and number. In some, the elytra are entirely chesnut brown, immaculate ; and the thoracic horn, in many specimens, is simple, and pointed at tip.

The anterior part of the thorax, the head, horns and scutel are black ; body beneath dark brown, hairy.

Female generally a little less, and unarmed, excepting a small tubercle on the head, and is more common than the other sex.

Tityus, in the heathen mythology, was a gigantic son of Jupiter and Elara, whom Apollo killed for offering violence to his mother Latona.

Plate 2. Upper figure represents the male, and the lower one the female.

NOTOXUS BICOLOR.

SPECIFIC CHARACTER.

Blackish, thorax and feet testaceous, immaculate.

Inhabits Pennsylvania and New Jersey.

Head very dark testaceous, front and vertex covered by short incumbent hair of a silky lustre; eyes black.

Thorax testaceous, immaculate; horn obtusely dentate each side, somewhat bicarinate each side above; scutel black, small.

Elytra purplish black; breast and abdomen testaceous black, silky.

Body with short incumbent hair, feet naked.



Size the same as the preceding, and resembling it in form. In the forests of New Jersey I have found this little insect in the month of June, on the leaves of the hickory, (*Juglans tomentosa*, Michaux,) and of some other plants. The Rev. John

PLATE IV.

F. Melsheimer, an ingenious entomologist, informed me, that he found some specimens on the garden carrot. It is, I believe, a new species.

Plate 4. Upper figures; of which the smaller one indicates the natural size.

PLATE I.

Female larger, colour of the wings brown, with cupreous reflections.



The *P. Philenor* is one of the most beautiful of our butterflies, and at the same time very common.

Its larva and pupa will be exhibited in a future number. The name *Astinous* of *Drury*, *Cramer*, and other authors of the most distinguished celebrity, has, it appears, been rejected in favour of that of *Philenor*; the reason for this change is doubtless legitimate; it ought certainly to be very cogent; I do not know of any that will justify it, but the previous application of the same name to another *Papilio*; supposing this to be the case, I concur in the substitution of the name here adopted.

Plate 1, represents the male in two positions.



PLATE II.

GEOTRUPES TITYUS.

SCARABÆUS. *Linn.*

COLEOPTERA.

Wings folded simply across, defended by two thick crustaceous or coriaceous cases (elytra.)

GENERIC CHARACTER.

Antennæ ten-jointed, clavate; the club formed of oblong oval lamellæ with an almost common insertion: mandibles with their external edge crenated: maxillæ corneous, dentated: clypeus approaching towards a point before: labrum concealed: palpi filiform.

SPECIFIC CHARACTER

AND

SYNONYMS.

Thorax three-horned, the lateral ones short, sulcate, middle one bearded with yellow hair be-

PLATE II.

neath, projected forwards, and bifid at the tip; horn of the head recurved, sub-emarginate on the back near the tip.

SCARABÆUS TITYUS : thorace tricorni : intermedio maximo simplicissimo, capitis cornu recurvato simplicissimo. *Amœn. Acad. vol. 6, p. 391.*

This noble insect has been figured and described by various authors, whose works I have not yet had the good fortune to meet with. Gmelin, in his edition of the *Syst. Nat.*, refers to Jablonsky, Gronovius, Aubenton, Voet and Degeer for figures, and quotes also Fabricius' *Sp. Ins.*, his *Mant. Ins.*, and the *Amœn. Acad.*—the last of which only I have an opportunity to consult.

The author of the "*Centuria Insectorum*," published in that work, observes that it inhabits Pennsylvania.

It is, however, extremely rare in Pennsylvania. The late Rev. F. V. Melsheimer, the parent of entomology in this country, and a very industrious collector, found but two individuals in eighteen years.



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PLATE III.

NEMOGNATHA IMMACULATA.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ with the first and third joints nearly equal, the second a little shorter, terminal one fusiform, abruptly terminated by a short point: palpi filiform: elytra flexible, covering the abdomen.

SPECIFIC CHARACTER.

Lemon yellow, immaculate; elytra pale yellowish, with scattered punctures; maxillæ not longer than the thorax, and, with the antennæ and feelers, black.

Inhabits the plains of the Missouri.

Antennæ black, basal joint pale testaceous; eyes, maxillæ, palpi, tips of the tarsi black; elytra irregularly punctured, naked, polished.

PLATE III.

Captured by Mr Nuttall on the thistle (Cardui.)
Common.

It comes near the description of *Zonitis Pallida* of Fabricius, *Syst. Eleut. t. 2, p. 23*; but that insect is said to be large. This genus was separated by Mr Illiger from the Fabrician *Zonitis*, and contains all those of that genus whose jaws are elongated; these maxillæ, so much produced, bear the closest analogy with the spiral trunk of the Lepidoptera, and every point of comparison induces the supposition that they are applied to the same uses.

Plate 3. The smaller figure denotes the natural size: the lowest figures exhibit representations of some of the oral organs, &c. magnified.

Fig. 1. Antenna.

3. Tongue and labium supporting the labial palpi.

4. One of the labial palpi.

2. Mandibula.

5. Maxilla, with its palpus; verticillate, with short hairs.

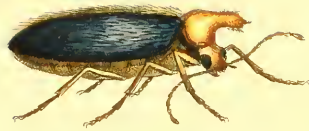


PLATE IV.

NOTOXUS MONODON.

MELOE. *Linn. Donovan.*

LYTTA. *Marsham.*

ANTHICUS. *Fabr.*

NOTOXUS. *Geoff. Illig.*

COLEOPTERA.

GENERIC CHARACTER.

Antennæ with conic joints; the second and third nearly equal; terminal one ovate elongate: labial palpi terminated by a small truncate joint: thorax somewhat cordate, produced into a porrected horn in front: penultimate tarsal joints bilobate.

SPECIFIC CHARACTER.

AND

SYNONYMS.

Testaceous, elytra with a black band and spots.

ANTHICUS MONODON. *Fab. Syst. Eleut. 4, p.*
289.

PLATE IV.

Body above hairy; *head* with the vertex silky; eyes fuscous; *thorax* with a lateral obscure spot, horn obtusely dentate each side; scutel small; *elytra* with a black band on the middle; each marked by two black spots at the base, of which one is near the scutel and the other on the shoulder, a black obsolete one near the tip; abdomen silky; length three-twentieths of an inch.



Not uncommon. I have found it in June, on the oak and other forest trees: very much resembles *N. Monoceros*, of which Mr Marsham observes, “Thorax recta antrorsum exiens in cornu nigricans ultra caput extensum, unde verè monstrosa et insectis insolita facies.” This remark, of course, except as to colour, applies to each individual of the genus as it now stands. *N. Monodon* was first described by Fabricius, but has not been hertofore figured.

Plate 4. Lower figures, of which the smaller one indicates the natural size.



PLATE V.



BERYTUS SPINOSUS.

CIMEX. *Linnaeus.*

NEIDES. *Latreille.*

BERYTUS. *Fabricius.*

HEMIPTERA.

GENERIC CHARACTER.

Antennæ of four joints, filiform, geniculated in the middle ; first joint very long, clavate at tip ; second and third intimately connected, so as to appear as one ; the last joint is short and oval ; inserted above a line drawn from the eyes to the base of the labrum : body filiform : neck not apparent : antennæ and feet elongate : thighs clavate.

SPECIFIC CHARACTER.

Obscure reddish brown ; terminal joint of the antennæ fuscous ; thorax punctured ; a strong spine before the posterior feet.

Inhabits Pennsylvania, Virginia, &c.

PLATE V.

Antennæ longer than the body, terminal joint fuscous, yellowish at base and tip; eyes black; stemmata sanguineous, distant, placed very far back, almost lateral; clypeus produced, conic; rostrum as long as the thorax, reflected, and placed in a groove beneath.

Thorax gibbous behind, punctures large and crowded; scutel with an elevated spine; elytra nervous, with a black costal spot near the tip; posterior feet longest; a spine each side as thick as the thighs, originating before the posterior coxæ, curving upward above the elytra, and abruptly attenuated near the tip.

Abdomen depressed, fusiform, margined; margin paler.



Of this genus Fabricius has described two species, of which the *Tipularius* appears to be very like this insect—at least as far as I can judge from description, having no opportunity to consult a figure of either insect of the genus. One specimen in my cabinet has the antennæ rather shorter, and on the thorax are three lines a little elevated, one of which is dorsal and two marginal, with a two lobed raised transverse spot before: this may be a sexual variety, or possibly a distinct species; but, for want of sufficient knowledge of them. 1

PLATE V.

will not, at present, incur the responsibility of separating them.

Plate 5. The smaller figure denotes the natural size.



PLATE VI.



CINCINDELA FORMOSA.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ filiform : palpi six, filiform, the intermediate and posterior ones nearly equal, penultimate joint of the latter hairy : mentum horny, trifid : tarsi five-jointed, long : thorax short.

SPECIFIC CHARACTER.

Red cupreous, brilliant ; elytra with a three branched, broad white margin.

Inhabits the sandy alluvions of the Missouri, above the confluence of the river Platte.

Front hairy ; labrum large, pale, three-toothed ; elytra with a broad white border, anterior and posterior branches short, intermediate one flexuous, nearly reaching the suture ; edge of the elytra

PLATE VI.

green; body beneath green or purple blue, very hairy; thighs blue, tibia green.

Length seven-tenths, breadth one-fourth of an inch.

A beautiful species; it was captured by Mr T. Nuttall, and appears to be new.



The *C. Trifasciata*, *6-Guttatu*, and *Punctulata* are familiar to the observation of every one who delights in rural scenes; they are very common in Pennsylvania. The *Formosa* is rare; in its manners and habits it resembles the others of this genus; it is very active and sprightly, preferring a sandy denuded soil for its hunting ground, springs up suddenly from the path before the traveller, flies swiftly to a short distance, and alights again as suddenly as it arose: feeds on smaller insects.

Plate 6. Lower figure.

PLATE VI.

CICINDELA DECEMNOTATA.

SPECIFIC CHARACTER.

Green, above tinged with cupreous; elytra margined with bright green or bluish; four white spots and an intermediate refracted band.

Inhabits the sandy alluvions of the Missouri, above the confluence of the river Platte.

Labrum three-toothed, white; mandibles black, base white; elytra with a white spot on the shoulder, another equidistant from the first and the band; band broad, arising from the middle of the margin, is refracted at the centre of the elytron and terminated near the suture in a line with the tip of the third spot; this last is large, orbicular, and placed near the external tip of the terminal one, which is transverse and triangular; body beneath green; trochanters and tail purple.

The specimen from which this description and the annexed representation were taken was a fe-

PLATE VI.

male, the only one I have seen : it was caught by Mr Nuttall, and is, as far as I know, a new species.

Plate 6. Upper figure.

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Those with asterisks prefixed are supposed to be new.

