

room during the day, except a few hours devoted to sleep, attending with the most assiduous care to all her wants, and assisted at every dressing; as well as with a coloured woman, who acted as assistant, and was almost always in the room through the day, and always assisted at the dressings. This is a forcible illustration of the fact which has often been noticed, that the human system by a constant exposure to any cause of disease, is able to resist its influence, while it yields to an occasional exposure of the same kind.

I do not feel disposed to add any thing by way of comment, to this statement. It ought, however, to be remarked, in connexion with it, that sore-throats, similar in most respects, to these have occurred in town with unusual frequency for several months past. I have met with them in several families, and in more than one instance almost every individual in the family has been affected in succession. But the disease has been of a mild character. The cases were generally less severe, particularly in the first attack, than those I have described in this paper.

Description of four native species of the Genus Cantharis. By
THADDEUS WILLIAM HARRIS, M.D.*

MODERN entomologists have restored the name of **CANTHARIS** to that genus of insects, the type of which is the *Cantharis* of commerce.

Of this genus there are several species, which are natives of the United States.† Three, of the four inhabiting New-

* This article was originally communicated for this Journal, but was first published in the Boston Journal of Science. Ed.

† Thomas Say, Esq. of Philadelphia, a diligent and profound entomologist, informs me that the number of species, already discovered within the United States, is sixteen, viz. : *C. segmenta*, *Nuttallii*, *albida*, *articularis*, *immaculata*, *sphaericollis*, *maculata*, *ferruginea*, *reticulata*, *vittata*, *marginata*, *atrata*, *ænea*, *polita*, *cinerea*, and *Afzeliana*. A description of the nine first has been communicated, by Mr Say, to the Academy of Natural Sciences, and will appear in the Journal of the Academy; a work which has advanced the cause of Natural History, both at home and abroad; and which is greatly indebted to the labours and contributions of this gentleman.

Of these sixteen species the names of but five occur in the *Systema Eleutheratorum* of Fabricius; they are the four described in this paper, and *Lytta Afzeliana*, a native of Carolina. The remaining eleven are, probably, newly discovered insects; one only of which, *C. ænea*, is a native of Pennsylvania.

Mr Say observes that perhaps most, if not all, of these species might be used with success for the purpose of vesication. Some of them are larger than *C. vesicatoria*; and, among these, the finest, *C. Nuttallii*, a most brilliant insect, was once discovered in great quantities near the Rocky mountains.

England, and occasionally employed in medicine, have been frequently confounded under the general appellation of *potato-flies*, and have been incorrectly designated by a scientific name peculiar to one species only. Specific distinctions, not practically, are scientifically important. A concise description of these four species will be given, by which they may be easily distinguished from each other, and a summary will be presented of such facts as have hitherto appeared respecting their history, and medical utility.

The insects of this genus deposit their eggs in the ground. The larvae hatched from them have six legs, are soft-bodied, generally of a yellowish colour, and live upon various vegetable substances. When fully grown they change into the pupa, and, after a certain time, emerge from the earth in the perfect state. It is in this state, only, that they are furnished with wings, and are capable of propagating their species. The males are usually smaller than the females.

The natural family CANTHARIDÆ contains eleven genera, including several insects in which epispastic properties have been detected. Among them are found the celebrated blistering fly of the ancients, *Mylabris cichorei*, which at this day holds a distinguished place in the materia medica of the Chinese, and another species of *Mylabris*, plentiful in India, and said to be quite as efficacious as the common Spanish fly. The existence of similar qualities in *Meloe proscarabæus* has been ascertained by some of our country physicians, and the fact is also noticed by Dr Bigelow, in his materia medica. Probably, many other insects in this family would be found useful in medicine; but those best known are *Cantharis vesicatoria*, and the species of the Fabrician genus *Lytta*, which are subjects of this paper.

The following is the systematic arrangement and definition of the genus *Cantharis* :

Order COLEOPTERA.

Section 2d. HETEROMERA. Four anterior tarsi five-jointed, hinder pair four-jointed.

Family CANTHARIDÆ. Latreille and Leach.

Head large, cordiform; neck distinct; mandibles not notched at their points: thorax almost quadrate, or cordiform: elytra flexible: tarsi generally with entire joints.

Stirps 3d. Antennæ longer than the thorax, composed of cylindric or obconic joints.

Genus CANTHARIS. Geoffroy, De Geer, Olivier, Lamarck, Latreille, and Leach. MELOE. Linné, LYTTA. Fabricius.

Elytra soft, elongate, linear, with the sides somewhat inflexed, the back convex, rounded. Maxillæ with two membranaceous lacinæ, the external acute within, subuncinate. Antennæ with the first joint larger than the others; the second very short, transverse; the rest obconic; the last ovoid.

SPECIES 1.—*CANTHARIS VITTATA*. *Striped Cantharis*.

Elytra black, with a yellow fillet and margin.

Head light red, with two vertical spots and the antennæ black: thorax black, with three yellow lines; elytra (or wing case) black, with a central longitudinal fillet and the whole margin yellow: abdomen and legs black, and covered with a cinereous down. Length six lines.

Inhabits North America: upon the Potato (*Solanum tuberosum*) eating and destroying the leaves.

As early as the year 1781 this American insect was described in Europe by Fabricius. It was not, however, brought into notice here until the accidental discovery of its medicinal properties by Dr Isaac Chapman, of Buck's county Pennsylvania. In 1797 he first employed it for the purpose of producing vesication, and published a description of it, with the results of his experiments, in the New-York Medical Repository. From this account it appears that, in seven cases, he employed successively all parts of these insects with the same results; and he considers them more certain as vesicatories than the cantharides of the shops.

The medicinal reputation of this insect soon reached Europe. In Illiger's *Magazin*, printed at Brunswick, in 1801, is an account of this and the species to be next described; the substance of which is, that, in America, the Potato suffers much from two beetles, *Lytta cinerea* and *vittata* of Fabricius; that these extremely common and noxious insects have been substituted with great success for the costly *cantharides*, and are said to vesicate more speedily, and with less pain, at the same time that they cause no strangury. The latter part of this statement is incorrect; it having been satisfactorily ascertained that, when externally applied, they are capable of exciting strangury; and that the same effects follow from their internal exhibition.

Cantharis vittata is found in the southern and middle states, and in Connecticut; but is a rare insect in Massachusetts.

AUTHORITIES AND SYNONYMS.

Cantharis vittata, OLIVIER, *Entomol. Vol. III. (Paris. 1795.) No. 46. Pl. I. fig. 3.*—PALLAS, *Icon. Tab. E. fig. 53.*

Lytta vittata. FABRICIUS, *Spec. Insec. (Hamburg. 1781.) Vol. I. p. 329. n. 6 & Entomol. Systemat. Vol. I. Part 2. p. 86. n. 11. & Systema Eleuth. Vol. II. p. 79. n. 48.*—Gmelin, *Systema Naturæ, Vol. IV. p. 2014.*—Chapman, *New-York Med. Repos. Vol. II. Edit. 2d, p. 163.*—Illiger, *Magazin für Insektenkunde (Brunswieg. 1801.) I. 256.*—Kirby & Spence, *Introduc. Entomol. Vol. I. Edit. 3d. pp. 188 & 317.*—Gorham, *Med. Com. Mass. Med. Soc. 3d Series. pp. 56, 57, 58.*—Bigelow, *Treatise on Mat. Med. p. 112.*—Chapman, *N. Elements Therapeutics. Vol. II.*

SPECIES 2.—*CANTHARIS CINEREA. Ash-coloured Cantharis.*

Body black, covered with a cinereous down.

All parts of the body and elytra are entirely covered with an ashen-coloured down, extremely short and dense, concealing beneath it the black colour of the insect. The antennæ are black; the first and second joints, in the male, very large: male less than the female: resembles *C. vittata* in figure and magnitude.

Inhabits North America; feeds on the leaves of the Potato, English Bean, (*Vicia faba*) and Indigo weed (*Podalyria tinctoria*.)

This species of *Cantharis* is to us by far the most important, from its greater abundance and constancy of appearance; from the long experience the faculty have had of its efficacy; and from its having been the subject of a communication made to the Medical Society of Massachusetts by Dr John Gorham, in 1808. From this interesting communication we learn that, for several years previous, Dr Israel Allen of Sterling, Massachusetts, had successfully used as a vesicatory an insect found upon the Potato vine. Dr Gorham obtained a quantity of these insects and, by extensive experiments, established the characters which had been given them.

Dr Gorham's experiments prove, that the powder, externally applied, produces a more speedy and thorough vesication and a more abundant purulent secretion than the powder of *Cantharides*; and with the same specific action on the urinary organs; and that the internal exhibition of the powder and tincture is attended with the same effects as those which result from the administration of *Cantharides*.

It was sufficiently apparent, from Dr Gorham's description, that the insect in question could not be the striped potato-fly, *Cantharis vittata*.* Having applied to Dr Luther Allen of

* *Vittata*, striped, from *villa* a fillet or stripe.

Sterling, the brother of the late Dr Israel Allen, for information on the subject, I was politely furnished by him with both recent and old specimens of the insect; from an examination of which I was enabled to ascertain the species, which proved to be *Lytta cinerea*, of Fabricius, whose epispastic properties, as before mentioned, had been described by Illiger, in 1801. I also procured, from a respected physician and friend in Worcester, a parcel containing blistering cantharides of the same species, which were collected for medical use in that place. The ash-coloured substance, which clothes the insect, like the down of the plum, is easily removed by attrition; and, in those which have been kept sometime, is scarcely visible, especially on the elytra.

Cantharis cinerea is common enough every year, in July and August, upon the English (Windsor) bean and the potato-vine. Its epispastic virtues have been known some years to an eminent physician in this vicinity, and, while with him, I had an opportunity of testing them by experiment, before I had ascertained its identity with the fly described by Dr Gorham.

About the first of August the perfect insect buried itself in the ground, and there deposited its eggs: these were hatched by the first of September. The head of the young larva is reddish; the body yellow, with three transverse black bands. I have not, as yet, been able to trace the progress of the larva to its metamorphosis into the pupa, and perfect insect.

Dr L. Allen furnished the following facts.—These insects are not constant in their appearance; but few having been seen since 1806.

They prevail only in dry seasons, on the Potato-vine, English bean, and Indigo-weed.

They retire for shelter to the ground during the night; are taken in the morning from 8 to 10 o'clock, by shaking them into a pan of vinegar. Vinegar thus impregnated, vesicated the hide of a horse.

If suffered to remain on the skin any considerable time after vesication they produce a deep eschar, destroying not only the cuticle but the cutis vera.

AUTHORITIES AND SYNONYMS.

Cantharis Sericea, OLIVIER. *Entomol. Vol. III. No. 46. Pl. 1. fig. 8.*

Lytta cinerea, FABRICIUS. *Entomol. System. Supplement p. 119. n. 13.*—& *Syst. Eleuth. Vol. II. p. 80. n. 20.*—ILLIGER, *Magazin. I. 256.*—KIRBY & SPENCE, *Introduc. to Entomol. Vol. I. p. 188 & 317.*

Potato Fly, GORHAM, *Med. Com. Mass. Med. Soc. 3d. Series.*
p. 59.

SPECIES III.—*CANTHARIS MARGINATA.* *Bordered Cantharis.*

Black, with the margins of the elytra ash coloured.

Head, thorax, and abdomen black, but nearly covered with an ash-coloured down: Elytra black, with the margin and suture ash-coloured: upper part of the abdomen, under the wings, marked with two longitudinal streaks of a bright clay colour. Nearly double the size of *C. vittata*, and unlike it in figure. Male less than the female.

Inhabits North America upon the *Clematis*; and is also found in Africa, at the Cape of Good Hope.

In 1799 Prof. Woodhouse, of Philadelphia, discovered this and the fourth species; and, having ascertained that they possessed vesicating powers, he made known this discovery to Dr Mitchell, by a letter, which was published in the third volume of the New York Medical Repository. The insect under consideration he proposed to call *Meloë clematidis*,* from its being particularly fond of several species of this plant. Fabricius, however, had previously described it, as a native of the Cape of Good-Hope, by the name of *Lytta Marginata*. Dr Barton says that this insect is one of the most active species of American blistering flies; and that it feeds upon the leaves of *Clematis crispa*, and *C. viorna*. This observation led me to look for it upon *C. virginiana*, which grows in profusion on the banks of the Neponset; nor was I disappointed in the search; for, about the first of August, when the vine was in flower, I procured enough of these insects to enable me to make trial of their powers, which proved to be fully equal to those of any species of cantharis, hitherto employed for vesication.

A few were found feeding upon the leaves of *Ranunculus bulbosus*, and not in the vicinity of the *Clematis*; they therefore are not confined exclusively to the latter plant.

They resort mostly to such branches of the *Clematis* as trail upon the ground; seldom frequent the superior parts of the vine; are very shy, and, when disturbed, fall immediately from the leaves, and attempt to conceal themselves in the grass. Other species of this genus manifest the same timidity.

* Pallas gave this name to another insect found by him in Siberia.

AUTHORITIES AND SYNONYMS.

- Cantharis marginata*, OLIVIER. *Entomol.* Vol. III. n. 46. pl. 1. fig. 2.
- Meloë cinereus*, antennis elytris que atris, margine cinereis, FORSTER. *Nov. Spec. Centuria.* p. 62. n. 62.
- Lytta marginata*, FARRICIUS. *Spec. Insect.* Vol. 1. p. 329. n. 5.—& *Ent. Syst.* Vol. 1. part 2. p. 85. n. 10.—& *Systema Eleuth.* Vol. II. p. 79. n. 16.—GMELIN. *Syst. Naturæ.* Vol. IV. p. 2014.—BARTON. *Elements Botany.* Part 3. p. 70. (1803.)
- Meloë clematidis*, WOODHOUSE. *N. York Med. Repos.* Vol. III. p. 203.

SPECIES IV.—*CANTHARIS ATRATA.* *Black Cantharis.*

Entirely black, immaculate.

In general contour this species resembles *C. marginata*, but is not more than one-third as large; the female also, as in that species, much exceeds the male in size.

Inhabits Barbary; and, in North America, on the *Solidago*.

This, as before observed, was one of the native blistering flies described by Prof. Woodhouse in 1799. Melsheimer appears to be unacquainted with its vesicating properties, but alludes to those of the three former species of this genus.

This insect has received various names from different authors, and is described three several times, with as many distinct appellations, by Gmelin, in his edition of the *Systema Naturæ*. In Boston it is kept and sold for *Cantharis vittata*.

It is common every year on the golden-rod, *Solidago altissima*, sometimes on *Solidago lanceolata*; and, according to Prof. Woodhouse, on the Self-heal, *Prunella vulgaris*, and the stick-weed, *Ambrosia trifida*. Dr. Thatcher informs me that it is found on the Potato-vine, in Plymouth country; from whence, I believe, the Boston apothecaries have been supplied. I have myself seen them, occasionally feeding on the Potato-vine.

This insect is the subject of a paper, in the *New-England Journal of Medicine and Surgery*, by Dr George Osgood, who employed it, both in tincture and substance, in more than forty cases, without failing to produce vesication in any instance. I have been satisfied with its efficacy as an epispastic, from experiments made with it. If further evidence be wanted in its favour, we have the strongest in its being substituted, from ig-

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norance of the species, for *C. vittata*, without having either its virtues or identity questioned.

It makes its appearance about the middle of August, when the *Solidago altissima* puts forth its blossoms, which are the favourite food of this species.

AUTHORITIES AND SYNONYMS.

Cantharis atrata, OLIVIER. *Entomol. Vol. III. No. 46. Pl. 2. fig. 19.*

Lytta atrata, FABRICIUS. *Entomol., Systemat. Vol. I. part 2. p. 86. n. 12.*—& *System. Eleuth. Vol. II. p. 79 n. 19.*—GMELIN, *System, Naturæ Vol. IV. p. 2014.*—MELSHEIMER, *Catalogue (1806) n. 1250.*—OSGOOD, *New-Eng. Journal Med. & Surg. Vol. X. p. 338.*

Lytta pennsylvanica, GMELIN. *Syst. Naturæ. Vol. IV. p. 2016.*

Meloe pennsylvanica, DE GEER. *Memoires. Vol. V. p. 16. n. 1 Pl. 13. fig. 1.*—GMELIN, *Syst. Nat. Vol. IV. p. 2020.*

Meloe nigra, WOODHOUSE. *New-York Med. Repos. Vol. III. p. 203.*—CHAPMAN, *Elements of Therapeutics. Vol. II.*

Before concluding this paper, I would remark, that the white grain, which has been observed in the abdomen of these species of *Cantharides*, appears from an examination of the recent insect, to be composed of the abdominal viscera, spermatic vessels, and the ovaries. The eggs are very numerous, and nearly fill the body of the female. The fœcal matter is of the same colour as the food; yellow, from the blossoms of the golden-rod; and green, from the leaves of the potato, &c.

The blistering quality of these *Cantharides* probably depends upon a principle peculiar to themselves, the result of their organization, and not to be detected in the plants from which they draw their nourishment. The leaves of the potato, English bean, and Indigo weed, and the flowers of the golden-rod may be rubbed, and worn on the skin, any length of time, without producing the least inflammation: And, although the leaves of *Clematis crispa* and *viorna*, and of *Ranunculus bulbosus* are extremely acrid and irritating, *Cantharis marginata*, which feeds upon them, is equally fond of those of *Clematis virginiana*, which are quite inert.

Milton, Jan. 1, 1824.