HYMENOPTERA.

Orasema minutissima Howard.

Mina Carlota, Trinidad Mts.

Several pupæ and adults were found in a hollow twig, with a colony of *Wasmannia auropunctata* Roger.

Acanthopria crassicornis Ashm.

Santiago de Cuba.

A single specimen taken in a nest of *Cyphomyrmex rimosus* Spin. var. *minutus* Mayr. agrees closely with the type from Grenada.

DISTRIBUTIONAL NOTES ON NEW ENGLAND
ODONATA.

PART II.¹

BY R. HEBER HOWE, JR.,
Thoreau Museum, Concord, Massachusetts.

The following additional records for Vermont are based on another small collection sent me by Mr. D. Lewis Dutton from Brandon. The specimens were captured in July, 1916.

Lestes unguiculatus Hagen; new to Vermont.

Lestes uncatus Kirby; new to Vermont.

Argia violacea (Hagen); new to Vermont.

Nehalennia irene (Hagen); new to Vermont.

Amphiagrion saucium (Burm.); new to Vermont.

Enallagma hageni (Walsh); new to Vermont.

Æshna verticalis (Hagen); new to Vermont.

Libellula pulchella Drury; new to Vermont.

The following record is new to Concord, Mass., bringing the known species from this township to sixty-eight.

Argia mæsta Hagen. Female taken August 15, 1916, and previously overlooked.

¹The figures in the chart of the Zygoptera published with this paper originally appeared in the author's manual of Odonata of New England, Parts I-II (Memoir of the Thoreau Museum of Natural History, II; 1-23, 1917. They are republished dichotomously here, because of numerous requests that they be available in the present form, and where they will reach more students of Odonata through the larger circulation of Psyche.

The following records were found represented by specimens in the collection of the Museum of Comparative Zoölogy, Cambridge, Mass., and are here recorded with the permission of Dr. Samuel Henshaw.

Lestes unguiculatus, White Mountains; new to New Hampshire.

Enallagma aspersum (Hagen), Norway, Me.; new to Maine.

Ischnura posita (Hagen), White Mountains; new to New Hampshire.

Ischnura ramburii Selys, Canton (Mass.?); new to Massachusetts.

The following records I am permitted to record by Dr. R. P. Currie based on material in the U. S. National Museum.

Lestes eurinus Say, Burchard's pond, Fairfield Co., Conn.; new to the State.

Lestes congener Hagen, Franconia, N. H.; new to State.

Enallagma aspersum Devil's Garden, Fairfield Co., Conn.; new to State.

154. *Boyeria grafiana* Will., Cummington, Mass., July 5, 1889, collected by F. Knab.; new to New England.

155. *Tetragoneuria costalis* Selys, Manchester, Me., June 9, 1898, collected by Wadsworth; new to New England.

Tramea carolina (Linn.), Fairfield Co., Conn.; new to State (see *ibid.*, Part I).

Sympetrum costiferum (Hagen), Franconia, N. H.; new to State.

Celithemis eponina (Drury), Litchfield Co., Conn.; new to State.

Perithemis domitia tenera (Say), Fairfield Co., Conn.; new to State.

Erythemis simplicicollis (Say), Fairfield Co., Conn.; new to State.

Pachydiplax longipennis (Burm.), Fairfield Co., Conn.; new to State (see *ibid.*, Part I).

On January 3, 1917, through the kindness of Dr. Frank E. Lutz of the American Museum of Natural History, New York City, I was able to examine the collection of Odonata for New England material. I was also introduced by Dr. Lutz to Mr. Lewis B. Woodruff who had collected all but four of the New England dragon-flies found in the Museum's collection. Later I visited Mr. Woodruff who kindly permits me to publish the following records which were gleaned in an examination of his private col-

lection. Mr. Woodruff's collecting in New England has practically all been done at Litchfield, Conn., and he adds fifty species to the State list as given by Dr. Calvert, and one new species to New England.

Agrion amatum (Hagen) Litchfield, June 29, to July 14. The capture of this very rare species, new to Connecticut, was recorded by Mr. Woodruff in the Jour. N. Y. Ent. Soc., 22: 155, 1914.

Agrion æquabile (Say) Litchfield; new to the State (recorded *ibid.* 155).

Agrion maculatum Litchfield, with the above records from the Boston Society of Natural History; new to the State.

Lestes congener Litchfield; new to the State.

Lestes disjunctus Litchfield; new to the State.

Lestes rectangularis Litchfield; new to the State.

Lestes vigilax Litchfield; new to the State.

Argia mæsta Litchfield; new to the State (recorded *ibid.* 157).

Chromagrion conditum (Hagen) Need., as *putrida* (Hagen) Litchfield; new to the State (recorded *ibid.* 157).

Nehalennia irene Litchfield; new to the State.

Enallagma ebrium Litchfield; new to the State (recorded *ibid.* 157).

Enallagma civile Litchfield; new to the State.

Enallagma exsulans Litchfield and West Hartford; new to the State (recorded *ibid.* 157).

Enallagma signatum West Hartford and Block Island, R. I.; new to both States.

156. *Enallagma carunculatum* Morse Litchfield; new to New England.

Ischnura posita Litchfield; new to the State.

Hagenius brevistylus Litchfield; new to the State.

Gomphus johannus Need. Litchfield; new to the State. This was recorded by Mr. Woodruff in the Jour. N. Y. Ent. Soc., 22: 61-63, 157, 1914).

Gomphus albistylus (Hagen) Need. Litchfield; new to the State (recorded *ibid.* 22:157).

Gomphus brevis Hagen Litchfield; new to the State (recorded *ibid.* 22:157).

Gomphus sordidus Hagen Litchfield; new to the State.

Gomphus spicatus Litchfield; new to the State.

Dromogomphus spinosus Litchfield and West Hartford; new to the State.

Cordulegaster diastatops Litchfield; new to the State (recorded *ibid.* 22:156).

Anax junius Litchfield; new to the State.

Æshna clepsydra Litchfield; new to the State.

Æshna canadensis Litchfield; new to the State.

Æshna umbrosa Litchfield; new to the State.

Æshna verticalis Litchfield; new to the State.

Æshna tuberculifera Litchfield; new to the State, also in the Museum, collected at Provincetown, Mass., by J. L. Sabriskie.

Basiaeshna janata Litchfield; new to the State.

Boyeria vinosa Litchfield; new to the State.

Didymops transversa Litchfield; new to the State.

Tetragoneuria cynosura Litchfield; new to the State.

Tetragoneuria cynosura var *simulans* Litchfield; new to the State.

Tetragoneuria spinigera Litchfield; new to the State.

Helocordulia uhleri Litchfield; new to the State.

Somatochlora tenebrosa (Say) Selys Litchfield; new to the State.

Cordulia shurtleffi Litchfield; new to the State.

Dorocordulia libera Litchfield; new to the State.

Libellula pulchella Litchfield; new to the State.

Libellula luctuosa Litchfield; new to the State.

Sympetrum rubicundulum Litchfield; new to the State.

Sympetrum vicinum Litchfield; new to the State.

Sympetrum costiferum Litchfield; new to the State.

Leucorrhinia frigida Litchfield; new to the State (recorded *ibid.* 22:158).

Leucorrhinia intacta Litchfield; new to the State.

Celithemis elisa Litchfield and New Hartford; new to the State.

Celithemis eponina, Block Island, R. I.; new to the State.

Perithemis tenera Litchfield; new to the State (see above).

Prof. A. P. Morse of Wellesley College, Wellesley, Mass., has kindly sent me the following records with permission to publish the same in this paper:

Lestes inæqualis, Sherborn, Mass.; new to the State (see *ibid.*, Part I).

Enallagma exsulans, Sherborn, Dover, and Medfield, Mass.; new to the State with the above records.

Enallagma ebrium, Brattleboro, Vt.; new to the State.

Amphiagrion saucium, Montgomery, Vt.; new to the State (see above).

Cordulegaster diastatops, Jay and Troy, Conn.; new to the State with Mr. Woodruff's records.

Boyeria vinosa, Wolcott, Vt., July 23; new to the State.

Libellula auripennis, Niantic, Conn., August 8; new to the State.

Sympetrum rubicundulum, Newport, Vt.; new to the State (see *ibid.*, Part I).

Sympetrum semicinctum, North Haven, Conn.; new to the State.

Erythrodiplax berenice, Niantic and Stamford, Conn.; new to the State (see *ibid.*, Part I).

The following record is represented by a specimen in the Boston Society of Natural History:

Erythrodiplax berenice (Drury), Barrington, L. I., June; new to the State.

Species known to Maine = 99.

Species known to New Hampshire = 97.

Species known to Vermont = 26.

Species known to Massachusetts = 123.

Species known to Rhode Island = 27.

Species known to Connecticut = 72.

SOME VARIATIONS IN THE GENUS VANESSA (PYRAMEIS.)

BY FORDYCE GRINNELL, JR.

The following notes on some very significant variations of the species of *Vanessa* (*Pyrameis*), originated from a series found in the collection of Mr. James E. Cottle of San Francisco. Other specimens, also representing the same variations, are in the collections of Mr. J. D. Graves of Oakland, Mr. J. C. Huguenin of San Francisco, and a few from the writer's collection have been deposited with the series in Mr. Cottle's collection. The illustration represents those in Mr. Cottle's collection and captured by him.

Pictorial Key of Genera of Zygoptera

ODONATA

Zygoptera: Damsel Flies

Wings closed when alighted.

Anisoptera: Dragon Flies

Wings open when alighted.

Eyes widely separated, by more than the full width of an eye.

Eyes approximate, separated by less than half the width of an eye.
(See later key to Anisoptera: Dragon Flies.)

Agrionidae

Coenagrionidae

Five or more antecubitals. Wings not stalked.

Two (rarely three) antecubitals. Wings stalked.

Agrioninae

Lestinae

Coenagrioninae

Agrion

Hetaerina

Lestes

Arcus bent.

Arcus straight.

Subnodal and median veins joining nearer the arcus than the nodus.

Subnodal and median veins joining nearer the nodus than the arcus.

Argia

Hairs on tibia twice as long as the spaces between the hairs.

Hairs on tibia never twice as long as the spaces between the hairs.

Pale spots (rarely connected by pale narrow line) on top of head.

No pale spots on top of head.

Enallagma

Nodal vein of fore-wing arising near or beyond 5th postcubital.

Nodal vein of fore-wing arising not beyond 4th postcubital.

Ischnura

Anomalagrion

Pterostigma of male touching the costa on fore wings.
♀'s with more than 7 postcubitals.

Pterostigma of male not touching the costa of fore wings.
♀'s with less than 7 postcubitals.

Nehalennia

Amphiagrion

Chromagrion

♂ and ♀ bronze green above, abdomen slender.

♂ and ♀ red and black above, abdomen stout.

♂ and ♀ blue and black above.

Color pattern of thorax and base of abdomen of ♂'s as seen from above, also 3rd segment of ♀'s abdomen showing relative diameter drawn to scale.