Coleoptera are ventral, in Hymenoptera dorsal, and in Hemiptera both dorsal and ventral.

Not only has this method been found to answer every purpose (both as to utility, and beauty also — if neatly done) in connection with the preservation and study of material in Coleoptera, Hemiptera, and Hymenoptera, but it is a far more rapid method for the minute things than any other, and American workers have no time to waste. I would like to ask why this method cannot be used for Micro-diptera? I can see nothing to be gained by adhering to the old methods of pinning, that in which the cork and pith blocks are used requiring the expenditure of too great an amount of time. Up to a very recent date most dipterists have insisted that it was absolutely necessary to pin all Diptera, yet in no case at hand can I find a good reason given. On the contrary one of our best dipterists lately informed me that in future he wished the micros all mounted on slips.

I use the moderately thin shellac glue and have had no trouble with specimens falling off. On the other hand, specimens on the little pins in pith often come loose and swing about, standing at all angles and ruining the appearance of the collection. Not only is there a great saving of time in mounting on slips, but there is far less injury to the specimen than in pinning, and it is much more readily manipulated under the microscope. I have used this method in my own collection for some time and think myself justified in recommending it to American collectors, though it would undoubtedly horrify our patient and long-suffering European brethren. Many of us would be very glad to hear from the dipterists regarding this matter. However, before any definite opinion is rendered, specimens correctly mounted by this method should be carefully examined. I will gladly loan such specimens from my own collection to any one willing to pay postage on same.

NOTES ON NEW ENGLAND ACRIDIDAE.—III. OEDIPODINAE.—IV.

BY ALBERT P. MORSE, WELLESLEY, MASS.

12. CHORTOPHAGA Sauss.

Chortophaga Saussure 1884. Prodromus Oedipodiorum, 43, 72.

18. **Chortophaga viridifasciata** DeG. Figs. 18, 18a.

Acrydium viridifasciatum. DeGeer, Memoires d. Ins., iii, 498, pl. 42, fig. 6 (1773).

Locusta (*Tragocephala*) *viridifasciata*. Harris, 181.

Locusta (*Tragocephala*) *infuscata*. Harris, 182.

Locusta (*Tragocephala*) *radiata*. Harris, 183.

Tragocephala infuscata. Scudder, 461; Thomas, 102.

Tragocephala viridifasciata. Scud-

der, 461; Smith, — Me., 148, —Conn., 374; Thomas, 103.

Chortophaga viridifasciata. Saussure, 72; Fernald, 40; Comstock, 104; Morse, 105; Beutenmüller, 295.

Chimarocephala viridifasciata. Comstock, 98.

A very full bibliography of this species and interesting notes on variation are given by Scudder in Proc. Boston soc. nat. hist., xvii, 481, — also Entom. notes, iv, 80. In coloration, dichromatism, form of head and character of haunts it is intermediate between the present group and the Tryxalinae, with which it was formerly classed.

Antenna: ♂, 6–8; ♀, 6–8. H. fem.: ♂, 10.5–12.5; ♀, 13–15.5. Teg.: ♂, 16.8–20; ♀, 18.6–25. Body: ♂, 17–20; ♀, 22–32. Total length: ♂, 21.5–26; ♀, 26–33 mm.

This is our only species of the subfamily which is markedly dichromatic, presenting two distinct types of coloration, one entirely brown, the other largely green but with a small amount of brown upon the tegmina. These two forms are commonly distinguished by the names *virginiana* for the green and *infuscata* for the brown, applied to them by Fabricius and Harris respectively. Specimens are occasionally found which can scarcely be referred properly to either form, the color being a mixture. Rarely, the green is wholly or largely replaced on the head, pronotum and hind femora by pink or reddish purple.

This dichromatism is largely, but not entirely, characteristic of sex; most of the females being green, of the males brown. Thus of 300 specimens in my collection only about 18 per cent. of the females are brown and 10 per cent. of the males green. This proportion is smaller than that given by Scudder (Proc. B. S. N. H., loc. cit.) but I have no doubt that it is much higher than exists in nature, the common practice of the collector being, naturally, to preserve more examples of the scarcer form. Brown specimens vary much in intensity of hue according to age, those taken in late July and August being notably dark colored.

The hind tibiae differ much in color in different specimens, being variously tinted with brown, blue, pink or purple, without regard to sex.

Harris' name, *radiata,* proposed for examples with infuscated wing-veins and a slight difference in general coloration, does not seem worthy of retention.

This is the most abundant of our springtime locusts. It is widely spread over the country but is found most plentifully in old, grassy, mowing fields and pastures, where it occurs both in the drier and moister portions and is seemingly equally at home in each.

It is readily secured by sweeping. While taking wing readily its flight is short, seldom over a rod or two, and it is not difficult to capture. The male flies in a circling course, and usually stridulates, producing a fine, sharp crepitation; the female flies farther and more directly.

The season in which this species may be found is the most protracted of any locust of the present group. It makes its appearance in April,— I have taken

it on the 24th, but it can probably be found earlier — is abundant in May and June, common in July, scarce in August, and has been taken in Sept., Oct., and Nov. in the adult state. Beutenmüller reports it as double-brooded at New York. The three specimens which I have taken at Wellesley on Nov. 8 and 17 are females in good condition and probably had gained their wings within a short time. The young may be readily found in the latter part of August and during the remainder of the season in the haunts of the adult. On mild sunny days in winter when the ground is bare they may be met with along the edges of woodlands on southward-facing slopes and in sheltered nooks. Here, in company with the young of *H. tuberculatus* and *A. sulphurea*, they may be found hopping gaily about on the approach of a stranger, pattering like hailstones on the dry leaves underfoot.

This locust is doubtless found throughout New England. Smith reports it from Norway, Me. I have specimens from various points in Vt., N. H., Mass., Conn., and from Martha's Vineyard and Penikese Ids. Among these are two worn males from Tuckerman's Ravine on Sept. 6.

13. ENCOPTOLOPHUS Scudd.

Encoptolophus Scudder 1875. Proc. Boston soc. nat. hist., xvii, 478. (Also in Ent. notes, iv, 77.)

10. **Encoptolophus sordidus** Burm.

Fig. 19.

Oedipoda sordida. Burmeister, Handbuch der Entomologie, ii, 643, (1838). Scudder, 473; Smith,—Me., 151,— Conn., 373; Thomas, 116.

Locusta nebulosa. Harris, 181.

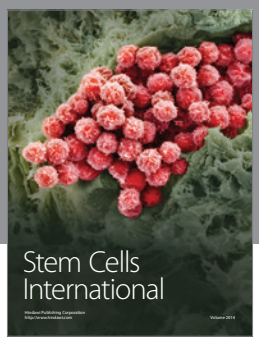
Encoptolophus sordidus. Saussure, 77; Fernald, 41; Comstock, 103; Morse, 105; Beutenmüller, 296.

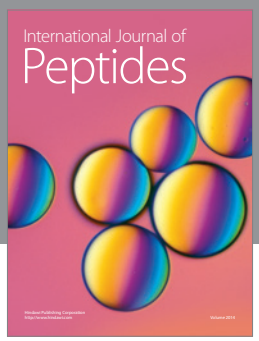
Antenna: ♂, 8–9; ♀, 8–9. H. fem.: ♂, 11–12; ♀, 14–15.5. Teg.: ♂, 16–19.5; ♀, 20.5–24. Body: ♂, 19–21.5; ♀, 24–35. Total length: ♂, 21–28.5; ♀, 28–32.5 mm.

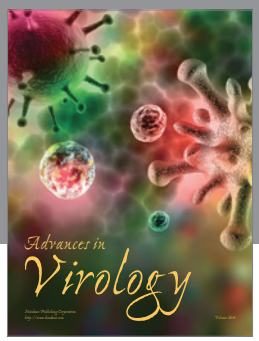
This species is easily recognized, not only from the venation of the tegmina, but from its superficial appearance. Though very plentiful in numbers its range of variation is relatively small even in color, the ground tint being either dull rusty, yellowish, or smoky brown.

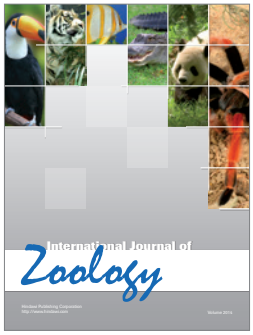
It is a very common and widely distributed locust and is found most plentifully in the drier portions of old fields and pastures in late summer and fall, at which season the dull rattling of the countless numbers which rise before the feet of the stroller on a sunny day is almost continual. Its flight is but short, seldom more than a rod or two in length. Owing to its abundance it can readily be obtained in numbers by sweeping.

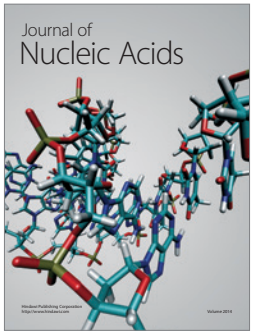
I have taken it on various dates from Aug. 9 to Nov. 17. It is doubtless found throughout New England; I have examples from Fryeburg and Deering, Me.; Hanover, (Weed), and Kingston, (S. W. Denton), N. H.; Brattleboro, Vt. (Mrs. J. B. Powers); Belmont (Maynard), Adams, Wellesley and vicinity, Mass.; Canaan, Greenwich, So. Kent, New Haven, Stamford, and Thompson, Ct.











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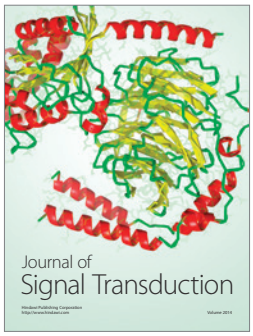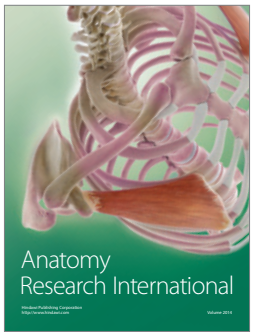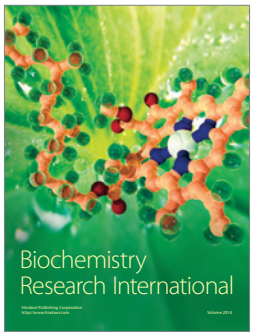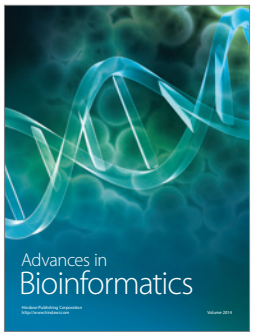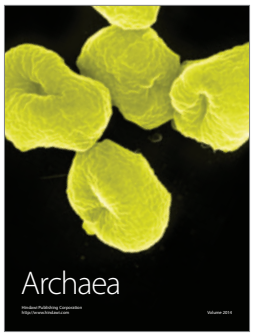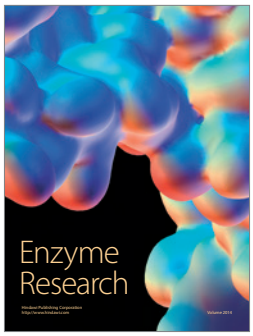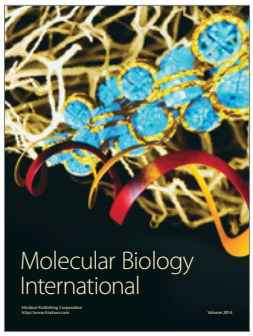
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