FURTHER NOTES ON THE OCCURRENCE OF *HEPIALUS* THULE, STRECKER, AT MONTREAL.*

[BY H. H. LYMAN, M.A., MONTREAL.]

In 1893 I read a paper on the occurrence of *Hepialus Thule*, Strecker, at Montreal, before the Entomological Club of the American Association for the Advancement of Science at Madison, Wis., which was afterwards published in the December number of the CANADIAN ENTOMOLOGIST of that year. That paper embraced everything that was known of this species up to that date, but since then various facts of interest in connection with it have come to light.

From the above date, I hunted for it in its then only known locality every year when at home in its season, but absolutely without success up to July, 1901, when, on the 11th of that month, after a hard bicycle ride out on the upper Lachine road, I arrived at the spot on the brow of the old sea terrace where others had seen it, in time to see one swinging back and forth in its peculiar oscillating flight. Hurriedly mounting my net I made a stroke at it, but the tall growth of grass and weeds masked the edge of the bank, and I missed my footing and came down sprawling, the coveted prize, as usual, dropping into the grass. I was up again at once, and when the moth again rose in flight, but this time straight away to escape, I made a more accurate stroke and secured it, but that ended the sport, and no other was seen either on that evening or subsequently.

In 1902 it occurred to me that there was no reason why the species should not be found at Montreal Junction, situated on the brow of the same old sea terrace, a few miles further to the south-west, at a point where it began to trend to the north-west, and as it was much easier to go out the ten minutes' run by railway than to ride out to the other point on a bicycle, I suggested to Mr. Winn our making a trip out there on the evening of July 16th. We reached that point a few minutes before 8 o'clock, and agreed to separate, as we could thereby cover more ground. Mr. Winn went to the south-east, while I went more to the north-west to a pasture on the brow of the terrace just beyond the house of a cousin. There was a steep gully, probably caused by a landslide many years ago, running down to the lower level covered by bushes and scrub of various kinds, and in this gully several large trees had grown up. I had only just got to the place when I saw a number, apparently half-a-dozen or more, swinging back and forth in the air, as though participating in a dance,

*Read before the Annual Meeting of the Entomological Society of Ontario, Nov. 1st, 1907.

December, 1907

above the further edge of the gully and quite out of reach of my net. Gradually one swung lower and lower, till by making an upward spring I was able to secure it. It was a male in perfect condition. After that the others mounted over the tops of the trees in the gully, where it would have needed a fifty-foot pole to reach them, and I could only stand and watch them till, as the dusk deepened, they gradually disappeared, but where I could not see. I could only see that gradually there were fewer in the group, till at last all had vanished. Mr. Winn saw none where he went. I went out again a night or two afterwards with a long bamboo fishing-pole, to the end of which I could attach a net, but, though the evening appeared favourable, not a single moth appeared. My cousin having kindly offered to look for these moths for me, I left the net and killing-bottle with him, and he went out every fine evening as long as there was any chance of finding them, but none were seen. The next year, 1903, I again went out on the 13th of July, and my cousin again hunted for me, but none were seen.

In this year Mr. Charles Stevenson's family spent some time at Montreal South, between Longueuil and St. Lambert, and Mrs. Stevenson discovered a locality for *Thule* not far from the house where she was staying, and ten specimens were taken. Learning the whereabouts of the locality, I went over on the evening of July 18th, in company with Mr. Winn, but none were flying. In 1904, I believe, I again tried to find them, but again without success, but this year my cousin's perseverance was rewarded by securing one specimen. In 1905 they were very plentiful at Montreal South, and many were taken on different evenings by the members of the Montreal Branch, the evenings on which I took them being the 8th, 12th and the 15th, on which latter date they were becoming ragged. The locality is a tract of land used as a pasture, but a large part of it is covered by a young growth of various trees and bushes, among which willow scrub is prominent. From the fact that many of the moths were taken among or near the willows, it seemed probable that the larvæ bored in the roots of that tree, but the credit for the actual discovery belongs jointly to Mr. Charles Stevenson and Mr. A. E. Norris, who went over by an early boat on a Saturday afternoon and searched carefully among the willows, and were each rewarded by finding a cast pupa-skin on the ground among the willow roots.

The same year Mr. Arthur Gibson discovered the species at Ottawa, as he has interestingly told in the *Ottawa Naturalist* (Vol. XIX, 117),

attention being drawn to the fact that the moths in life are of a much brighter yellow than in the cabinet, the colour changing soon after death. Mr. Denny has informed me that in 1905 Mrs. Denny discovered another locality for it at Amherst Park, on the northern outskirts of Montreal, and that a number were taken by his family and by Mr. Stevenson, and the latter has informed me that he also found it in a different locality.

In 1906 I was absent in England, but am informed by Mr. Winn that he visited the locality at Montreal South three times, and took twelve specimens in all, and Mr. Denny also took it at Amherst Park. This year I again visited the locality at Montreal South, but with very poor results. The first time was the evening of the 13th of July, but, though conditions seemed favourable, none were flying. I supposed that owing to the lateness of the season I was too early. I intended going over a week later, viz., Saturday, the 20th, but the weather was rainy. On the 24th I went again, and while hurrying along the railway track on my way to the locality I sighted a single specimen indulging in the usual gambol back and forth, but this time not more than five feet above the ground. I hastened to mount my net, but while doing so had to back away from the moth, which in its oscillating flight was gradually approaching me, as though attracted by the white waistcoat which I was wearing; as soon as possible I made a stroke with my net and thought I had secured it, but on careful examination found my net was empty and the moth had disappeared. While waiting to see if it would again appear it rose from the grass into which it had dropped, and, as usual, started off in a straight line of flight, but a second stroke netted it, and it proved to be a male in perfect condition, while in 1905 many specimens were ragged by the 15th. I hastened on to the old locality, expecting to find them flying there in numbers, but no more were seen. I went again on the 26th, though the evening was unfavourable, as it seemed to be the last likely opportunity, but none were seen.

In contradistinction to my lack of success at Montreal South, Mr. E. Denny and his son Arthur had great success in collecting the species at the Amherst Park locality, taking about seventy-five specimens, and also made the independent discovery of cast pupa-cases among the young willows. Mr. D. S. Kellicott was led from his observations to believe that *Hepialus Argenteomaculatus* which he found boring in *Alnus Incana* required three years to complete its transformations (Ent. Amer. I, 173, IV, 153, Insect Life I, 250). If these observations were correct, it would seem to be probable that *Thule* may also take three years to complete its

cycle, in which case another large flight of the species might not be due at the locality in Montreal South until 1908. As mentioned in a paper on specimens in the British Museum (CAN. ENT., XXXVII, 31), I found a specimen of *Thule* which had been in that collection since 1844, and which had been taken in the Hudson's Bay territory by George Barnston, proving that the species has a much wider distribution than had formerly been supposed.

Mr. Denny was led to seek the species this year by finding a specimen attracted to light, and there are a number of similar instances. The original type specimen must have been so attracted, as it was found, as mentioned in my former paper, in Phillips Square, the centre of the up-town retail business district, and several miles from its nearest possible breeding locality. The specimen secured by Mr. Bowles had also, evidently, been attracted to light, and Mr. Brainerd obtained one similarly attracted to Sherbrooke Street, in the fashionable residential district, and Mr. Gibson's specimen had also come to light, and I believe that attraction to light is the only thing which will cause them to fly after their usual time. Very few specimens, however, seem to be so attracted, as the above instances are all of which I have learned, and the places to look for the moth are where there is a good growth of willow scrub, and between 8 and 8.30 p.m. during the second and third weeks of July.

ENTOMOLOGICAL SOCIETY OF ONTARIO.

The forty-fourth annual meeting of the Society was held in the Biological Building of the Ontario Agricultural College, Guelph, on Thursday, October 31st, and Friday, November 1st. The chair was taken by the President, Dr. James Fletcher, Entomologist and Botanist of the Dominion Experimental Farms. Among those present were Rev. Dr. Fyles, Levis, P. Q.; Mr. Henry H. Lyman, Montreal; Mr. Arthur Gibson, Central Experimental Farm, and Mr. C. H. Young, Ottawa; Dr. Brodie, Dr. E. M. Walker, Mr. J. B. Williams and Mr. C. W. Nash, Toronto; Mr. J. F. Calvert, Orangeville; Professors Hutt, McCready and Bethune, Messrs. Jarvis, Eastham, Howitt, Zavitz, Crow, Klinck, and a number of students of the Ontario Agricultural College; Mr. Howse, Principal of the Consolidated School, Mr. Graesser and others, Guelph.

The proceedings began on Thursday afternoon with a conference on Fruit-tree Insects. Mr. L. Caesar gave an account of the Bark-beetle (*Scolytus rugulosus*) attacking cherry-trees in the Niagara district; the