

The first species to appear is usually *A. tritici*, or *L. testacea*, while a tremendous thump on the window caused by *A. Caja* may usually be taken as the signal to go to bed, as nothing more will appear for that night, at least I have found it to be so.

The greatest number of species for any one night is twenty-five, of which sixteen were Noctuæ, no great number certainly, but good as compared with the results of sugaring, besides being so easily obtained.

During the month of August, from the 5th to the 17th, there came to light the following species of moths:—*A. Caja*, *S. menthastri*, *B. perla* scarce, *L. pallens* and *L. impura* common, *L. conigera* scarce, *H. micacea* swarming and variable, *X. rurea*, *X. polyodon*, *L. testacea* in swarms, *M. brassicæ* scarce, *A. oculoæ* common, *M. fasciuncula*; *C. alsines*, or *C. blanda*, several specimens of one of these species came, but I am not certain which they belong to; *C. cubicularis*, *Agrotis valligera* common, *A. segetum*, *A. exclamationis*, both these species were scarce, though a month or two previously they were very numerous; *A. cursoria* common, *A. nigricans*, *A. tritici* in swarms, *A. præcox* twice, *A. pyrophila* once, *T. orbona*, *T. pronuba*, *N. augur* common, but rubbed, *N. festiva*, *N. baja*, *P. iota* scarcer, and *P. gamma*. Of Geometræ there came,—*C. elinguaris*, *H. wavaris*, *H. clutata*, *M. fluctuata*, *C. prunata*, and *C. pyrallata*.

In addition to the species enumerated above, I have previously taken at the same window, *N. fulva*, *A. basilinea*, *A. gemina*, *M. literosa*, *C. morpheus*, *T. ianthina*, *N. C-nigrum*, *N. brunnea*, *N. umbrosa*, *N. xanthographa*, *T. instabilis*, *T. gothica*, *T. rubricosa*, *A. litura*, *E. nigra*, *D. templi*, *Ph. meticulousa*, *H. adusta*, *H. dentina*, *H. oleracea*, and *A. urticæ*; as well as *R. crategata*, *O. bidentata*, *A. aversata*, *C. pusaria*, *E. vulgata*, *M. ocellate*, *M. subtristata*, *M. montanata*, *C. muvitata*, *C. populata*, *C. fulvata*, and *C. spartiata*,—making up the list of Noctuæ to forty-nine, and of Geometræ to eighteen species.

Of other moths but few species come, chiefly *Scoparia muralis* and *S. ambigua*, *Crambus pratellus* and *C. tristellus* in swarms, *Aphomia sociella*, and a few species of Tortrices and Tineina.

My success was greatest as a rule, of course, on dark warm cloudy, or even misty, evenings; but on various occasions I have found that moths swarmed to the light even when rain was falling in torrents, when the evening was warm and calm. Sometimes, also, a few moths have put in an appearance on moonlight nights, but this is very exceptional.—J. W. H. TRAILL, Aberdeen.

Note on the sound made by *Hylophila prasinana*.—In the "Entomologist's Annual" for 1871, Dr. Knaggs mentions (with evident incredulity) that it had been recorded during the past year (where, is not stated, but I imagine in "Newman's Entomologist,") that *Hylophila prasinana* had been observed "uttering a shrill and peculiar sound at quick intervals." Subsequently Mr. A. H. Swinton, in the "Ent. Monthly Mag." for March, 1871, states his belief that the moth in question produced a "strange twittering" noise, but the editors of the Magazine urge the advisability of further observations and dissections before the question could be set at rest. Another note from Mr. Swinton appears in the August (1871) number of the same periodical, in which he gives the result of his observations on *H. quercana*, the other British species of the genus. In this note he states that the moth produces a "membranous sound," which he thinks is caused by the inner margin of the fore-wing catching a little horny lateral thoracic plate when in the act of expanding.

The editors remark :—"It will be remembered that last year (see E. M. M. vol. vii. p. 231.) Mr. Swinton asserted his belief that *H. prasinana* produced an audible noise. This year he has followed up the enquiry and very kindly sent us living specimens of *H. prasinana* (as did also Mr. Hellins), which he believed to have heard produce a sound. We were not fortunate enough to detect it ourselves. There is much that is singular in the formation of the parts of the body intermediate between the thorax and abdomen in the genus *Halias* [*Hylophila*], and we are willing to accept Mr. Swinton's testimony that they are connected with sound-producing powers. In answer to our query as to whether the frenum or spur of the hind-wing might not be connected with the sound, Mr. Swinton informs us that, according to experiments he made, the spur has nothing to do with it."

On the evening of 28th May, when mothing in the oak-wood surrounding my house, I noticed what I thought was a beetle, flying round a small oak, and giving vent all the time to a sharp, quick sound, very similar to that produced by the Longicorn beetle *Astinomus* when held between the fingers. Though I failed to catch this individual, I was more successful with another which was behaving in the same manner. When in the net the sound ceased, and I saw to my astonishment that the insect was a moth. It then occurred to me that *Hylophila prasinana* was said to produce a sound, and on examining my captive I was therefore not surprised, though much pleased, to find that it belonged to this species.

The following morning I tried some experiments with my captive, moving his wings and making him fly, but was not able to elicit any sound from him. I conclude, therefore, that the noise is not produced by the mere mechanical action of the wings, but is dependent on the will of the animal. I then killed the creature, which was a male, and dissected him. On removing the patagia and hairs from the thorax, several small projecting horny plates, both frontal and lateral, were apparent, but I could not discover that the wings produced any sound in connection with them.

I then directed my attention to the structures between the thorax and hind-body and from them I believe the sound proceeds. On examining the under-side of the animal, a large semi-lunar opening immediately behind the metasternum will be perceived. On dissection this opening will be found to communicate with a large membranous plate, not flat, but folded at its posterior and inferior edge, and elevated and depressed in other parts, and somewhat semi-lunar in outline. To this plate numerous strong muscles are attached, and by action of these muscles on the plate, I think the insect produces the noise in question. This sound-producing structure (if such indeed be its function) is analogous to the "drum" of the male *Cicada*, and occupies a similar position.

The same evening I again went out to the wood and captured another specimen of the *Hylophila* in the act of "squeaking." The sound was quite distinct at a distance of ten feet or more. Next morning I treated him (it was a male) in the same manner as I had the first specimen, and with a similar result. I found that a good imitation of the sound may be made by rubbing the point of a knitting-needle on the closed blade of a clasp-knife. I have since taken another specimen (also a male) flying round an oak, but *not* producing any noise.

Several other moths are known to produce sounds, but apparently the noise is caused in a different manner in each of the sound-producing genera. The most celebrated of these sound-producing moths is, of course, *Acherontia atropos*, but the *modus operandi* in this species seems still not to be clearly under-

stood. Both sexes of *Acherontia* can produce the sound, I believe. In the genus *Setina*, "two large tympaniform vesicles, situated in the pectoral region," have been noticed by A. Guenée (*vide* the translation—in the Ent. Mon. Mag., i. 223,—of a paper by this author in the *Annales de la Société Entomologique de France*, 4me série, 4me tome, 1864, 3me trimestre). These are much more developed in the male than in the female, and give rise to a sound like the ticking of a watch. M. Guenée having shown that there are no external organs that can act upon the vesicles, proceeds to say, "it is evidently in the interior of the drum that the bow, or rather the clapper, which produces the sound must work; for, if we may judge from its nature, it will be produced by percussion, rather than by friction. If we open the vesicle, we see that it is separated into two parts by a membranous division; the right cavity is absolutely empty; the left, deeper, it is true, and more difficult to explore, appears to me, however, to contain no particular organ, and, in any case, no body that is able to be used as a hammer. One must then renounce the supposition of a percussive body. There remains the action of the air; and for my part, without asserting anything, this is the mechanism which appears to me the most probable. The membrane which covers the apparatus is thin and flexible, and at the same time, of the consistence of talc or parchment; one is able to bend it at pleasure, and as soon as the pressure placed upon it ceases, it resumes its original position with elasticity. It is then, I think, by rumpling (*froissement*) that the sound is produced. It may be that the insect, contracting its pectoral organs, bends and unbends the membrane alternately; it may be, which appears to me the most probable, that it is endowed with the means of causing momentary emptiness—at any rate, partially—in the cavity of the apparatus, by inhaling a portion of the air that it contains, which being made to re-enter the membrane, has the effect of inflating it anew by a sudden expiration. Every one is able, as we know, to cause with the mouth these two opposite movements in a dry bladder, and to produce, by this means, a dry and piercing noise, quite analogous to that of the *Setina*. I leave these suppositions to the reflection of entomologists."

I may note that the green colour of *Hylophila* appears to be soluble in alcohol.—F. BUCHANAN WHITE. May, 1872.

A second Scottish locality for *Anticlea sinuata*.—I captured last year, in this neighbourhood, a specimen of *Anticlea sinuata*. This, I suppose, is the second Scottish specimen that has been taken of this pretty little moth, the first having been found (*Sc. Nat.* i. 42) in Forfarshire.—T. MARSHALL, Stanley. May, 1872.

Capture of *Ophiodes lunaris*.—On the 16th of May I had sent me a specimen of *Ophiodes lunaris*, which was taken at rest on the shop window of Miss Oswald, fruiterer, St. John Street. It appeared to have newly emerged from the pupa, and, with the exception of being slightly crippled in one of the hind-wings, was otherwise in pretty fair condition. There is a probability of its having been brought into this country along with some fruits or vegetables, as at this season of the year a great many young vegetables are imported. As far as I am aware, this is the first time this species has been taken in Perthshire; so I thought it worth recording in your journal.—JOHN STEWART, St. John Street, Perth. [We fear that Mr. Stewart's suggestion of the importation of this specimen is rendered too probable by the place where it was found. Though common in central and southern Europe, but very few British specimens are known—one taken in Hampshire, and one or two at Killarney. It has not been reported from Scotland before.—EDITOR.]