

2. Specimens of *Pityophthorus minutissimus* and its galleries, under bark of red oak branches, found at Washington the past month. The primary galleries closely resemble those of *P. querciperda*, exhibited at a former meeting (see p. 56), *i. e.*, they consist of a very short longitudinal gallery which is crossed at its upper end by an extremely long transverse gallery. It seems that the larvæ do not make any galleries of their own.

3. Specimens of *Otidoccephalus Poeyi*. This species, hitherto known only from Cuba, occurs also on Key West. The Floridian specimens are much smaller and darker colored than the Cuban specimens, but are specifically not distinct. Gyllonhal, in his description, briefly mentions a remarkable character in this species, *viz.*, the presence of a large fovea on the upper side of the beak; but Suffrian, in his list of the Rhynchophora of Cuba, entirely misinterprets this description and considers the fovea as an abnormality. The fact is that this spoon-shaped fovea is a secondary male character not recurring in any other described species of the genus.

4. Specimens of a new *Bonvouloiria* recently found at Biscayne Bay, Fla., the genus being hitherto known only from California and Texas. Larvæ, pupæ, and imago were found amongst a blackish mould growing under the bark of freshly-burned stumps. The species, when fully matured, has the thorax and one spot on each elytron covered with a snow-white, mould-like efflorescence. When just hatched the beetle is without this efflorescence and remains so for about two days. Then the efflorescence on the thorax rather suddenly makes its appearance and shortly afterwards the elytral spots.

5. Specimens of the Scolytids *Phlæotribus liminaris* and *Hylesinus opaculus*. Dr. Harris, in his description of the former species (*Ins. Inj. to Veg.*, 3d ed., p. 84), states that it occurs also under elm bark. Mr. Schwarz said that in his experience *Phlæotribus liminaris* does not occur under elm bark, but that *Hylesinus opaculus* is rather common under such conditions. Both species resemble each other closely, so that, without examination of the structural character in the antennæ, they can hardly be distinguished, and it appears probable, therefore, that Dr. Harris had confounded the two species.

Mr. Smith read the following paper :

SOME OBSERVATIONS ON MUSEUM PESTS.

BY JOHN B. SMITH.

One of the primary duties of a person in charge of a large collection of insects is keeping out Museum pests—as the various species that feed on the dried insects are generically termed. In a large collection, like that of the National Museum, no inconsiderable time is required for that purpose, as it takes at least two weeks to go through all of the boxes carefully.

It has been the fashion to recommend as a certain preventative tight boxes, and quarantining all specimens before putting into the collection, and undoubtedly this is an excellent precaution, saving much future labor.

It is however by no means the certain remedy which it has been claimed to be. The boxes and cabinets in use in the Museum are as perfect, so far as safety is concerned, as it is possible to get them at present, yet withal constant care is required. *Psocidiæ* will find their way into the tightest boxes, and though they do little damage ordinarily, yet in a collection of *Tineidæ*, or minute *Diptera*, they can do quite considerable damage. For these pests I have found naphthaline a perfect remedy. A single case of the size made by Mr. Akhurst is a perfect protection, and lasts about three months ordinarily.

Tineid larvæ are rather rarely found in the collections as the larger moths and are not always easily discovered, since they make no dust as do the *Anthreni*. On one occasion, I found that one pair of wings of a *C. regalis* suddenly collapsed without apparent cause. Close examination showed a Tineid larva that had been feeding on the dense long vestiture, making galleries in all directions, in such a way, that when I took hold of one end of the gallery the vestiture of the underside came off in large sheets, leaving the wings almost clean, the veins broken here and there, which produced the collapse. They rarely burrow into the specimen—never in my experience. *Ptinidæ* are sometimes found, but are exceedingly rare in our collection. One box, lined with corn pith, was riddled with them, and a very few specimens were attacked.

But by all odds the most dangerous enemies are the larvæ of the *Dermestidæ*, which are pests, pure and simple. The principal enemy in our collection is *Anthrenus varius*, though *Trogoderma* is not uncommon. My experience with these is, that in the uniformly high temperature preserved in the laboratory they breed all the year around, and have no definite broods—a few larvæ appear at all times, though during the summer, when the beetles come in from the grounds and other parts of the museum, exposed specimens are attacked at more regular intervals. The rule is to keep naphthaline in all boxes at all times, but like all rules it is not always possible to adhere strictly to it. The boxes not so protected are usually first attacked. In a cabinet not quite tight I coned a number of drawers and left the others unprotected. In the course of the summer the unprotected drawers nearly all became infested, while as a rule the others were free. The naphthaline seems to act as a repellent. I have found, however, that it does not annoy the larvæ to any very great extent, and Mr. Lugger has shown me a naphthaline cone in a hollow of which a larva had pupated! I have reason to believe, however, that it does retard the development of young larva. A large number of boxes—nearly a hundred—were received from North Carolina, containing a collection, principally Coleoptera. They were overhauled and found to be pretty generally infested with *Trogoderma*, this being the only species found. No *Anthrenus* larvæ were noticed. Bisulphide of carbon was freely used, and naphthaline cones were placed in all the boxes. For a while the boxes were frequently examined and no larvæ developed. Throughout the summer the boxes were examined at intervals and remained free. With the approach of cold weather

they were left for a longer period, and the cones pretty generally evaporated. In December this was noticed and the boxes were again overhauled, and it was found that a very general development of larvæ had begun—all of them *Trogoderma* and none of them more than 2-3 mm. in length—most of them apparently just hatched. The entire collection was then overhauled and an occasional *Anthrenus* larva was found, but no other *Trogoderma*, even in the most exposed boxes.

I conclude from this that the collection when received was pretty generally infested, and that there were eggs everywhere, ready to develop; some had begun to develop, and these were destroyed by the use of the Bisulphide of Carbon, which also served to check development of the eggs. The boxes were quite large, and two large cones were put in each; they were also quite secure, and the atmosphere in them was fully impregnated with the odor of naphthaline. Throughout the summer, when under ordinary circumstances they would have developed, the eggs remained dormant, but after the naphthaline had evaporated completely, development began. I might add here that *Trogoderma* is an exceedingly rare pest in New York, and not common in Washington,—further south it seems to replace *Anthrenus*. For all these pests, when out of the egg, Bisulphide of Carbon is a sovereign remedy, except where they are burrowing in large Coleoptera and Lepidoptera. I have repeatedly soaked large Bombycids with chloroform or bisulphide, and a week later found them still infested. I worked for a month over some large Lucanids (*Proculajus*) and finally separated the parts so that I could fill the body cavity with chloroform. In one case, which was somewhat exposed and contained odd material of little value, I found a specimen destroyed by *Microgaster*—a rare parasite for *Anthrenus*. How they got at this box it is rather difficult to explain, since it was tight enough to prevent the entrance of the insect.

As a rule *Anthrenus* can hardly be considered fastidious, but occasionally they manifest color preferences. In one specimen of *Grafta interrogationis* the black spots bordering on the costa were neatly cut out, no other portion of the wing being touched. Its career was suddenly cut short before it had quite finished one wing, and I now regret that I did not allow it to continue its work to note whether it would have attacked the other wing in the same manner.

I have noticed also that boxes on the lower tier of shelves are very much more liable to attack than those on upper tiers, and this leads me to believe that the parent beetle will deposit eggs outside of the boxes or on the floor of the cases, and the young larvæ will work their way into the smallest crevices. It seems difficult otherwise to account for isolated larvæ in boxes containing only old insects.

Finally I find the danger of infection comparatively greater at Washington than in New York—principally because the warm season begins earlier and lasts longer, increasing the chances of infection. I find, too, that the only real chance of safety consists in constant examination, tight boxes and a free use of chloroform or Bisulphide of Carbon.

As to naphthaline, I consider that it is a good general preventative. I know it to keep out *Psocids* and Ants. It enhances the tendency to grease and to verdigris, and in tight boxes it seems to exercise a relaxing tendency, causing the wings to droop.

Dr. Marx presented for publication the following description of a new spider of the family *Theraphosoidæ*:

*EURYPELMA RILEYI*, MARX N. SP.—Cephalothorax with a dense, fine, and somewhat curly pubescence of a pale, brownish yellow color. Mandibles, abdomen, and legs with a similar, but slightly darker, pubescence, which is sparsely interspersed with long hairs. These appear to be set in rows on the legs, and are at their base of a blackish brown color, getting gradually lighter toward the tip, which is nearly white. On the mandibles these long hairs have a reddish color. The eye eminence with a bunch of such long hair over the vertex. Tarsi and scopula somewhat darker. Underside of cepha'x, trophi, sternum and coxæ, deep purplish red; maxillæ fringed with brick red long hair. Abdomen unicolorous without any markings, underside somewhat darker.

Cepha'x only very little longer than broad. Clypeus truncate, posterior border deeply emarginate. Pars cephalica high, rounded, and more than half as long as cepha'x; dorsal depression deep, broad, and slightly procurved. Eye eminence rather high. Eyes amber-colored and oval except the anterior middle eyes, which are placed further apart than their diameter; anterior lateral eyes longer than the diameter of the A. M. E. and placed as far from them as their width; the posterior lateral eyes as long as the diameter of the A. M. E.; the posterior middle eyes not half as large as the A. M. E. The four lateral eyes form a rectangle with parallel sides and nearly twice as broad as its length. Sternum slightly narrower than long.

Mandibles very strong, porrect, as long as pars cephalica, and half as broad as their length; mandibular claws powerful, half as long as the length of cepha'x.

Abdomen slightly longer than cepha'x; external spinnerets comparatively short and stout, 4-jointed, last joint only slightly longer than penultimate.

Legs short and rather stout, 4, 1, 2, 3, fourth leg not quite 3 times as long as cepha'x; the pubescence parted in longitudinal stripes; Scopula very broad and dense on all four pairs. Fourth pair exceeds the length of the first pair, by the length of its tarsus. Tarsal claws with 3 minute teeth, which are very far apart.

Spine armature:

Leg I. Femur dorsal innerside near apex 1; Patella none; Tibia, innerside 1, i; underside, near apex i. Metatarsus and tarsus none.

Leg II. As in leg I.

Leg III. Femur none; Patella none; Tibia, innerside 1, i; outside 1, underside, near apex i; Metatarsus, outside 1.

Leg IV. Femur none; Patella none; Tibia, innerside 1; underside, near apex 2. Metatarsus, underside, near base 2; dorsal innerside 1, i.