

process bearing tubercles iib and iv+v. A rounded process bearing tubercle ii of joint 8. Dorsal tubercles all slightly elevated; anal prongs short, projecting. Slaty black dorsally, a little bronzy, shading to sordid ochreous ventrally, mottled and streaked with black. Collar of joint 3 flesh colored before; processes orange spotted; orange dots on tubercles ii, iv and v and a larger one outside the finger process of joint 8. Foot of joint 10 brightly shaded outwardly. A black blotch on joint 8 subventrally. Thoracic and anal feet dark. Setae small except on the anal plate and with the hair tubercles black. The larva bends the head and joint 2 downward, forming an angle at joint 3, the feet of 4 crossing the others, making the anterior end look thick and club-shaped.

Stage V. Head shaped as before, but the back of the occiput covered by joint 2; labrum quadrate, emarginate, epistoma broad, clypeus triangular; purplish gray, thickly mottled on a white ground, somewhat spirally over the faces of the lobes; eyes black; last joint of antennae long and reddish; width 3.2 mm. Body as before, a little intensified in the characters. Joints 2 and 3 anteriorly abruptly rising to a high collared elevation on joint 3, angled subdorsally by the double finger processes. Dorsum descending to joint 5, then cylindrical and smooth (except for the small, produced tubercles, tubercle ii most produced) to joint 12, but tubercle ii of joint 8 very large, forming a high, club-shaped papilla; tubercle ii of joint 12 also prominent, but to a less degree. Anal plate rounded behind, the leg shield not produced posteriorly, the prongs thick, moderate. Purplish brown like bark, densely mottled, shields paler, the outside of the foot of joint 10 especially so; collar black, an orange patch before it, mottled; finger processes tipped with red; tubercles i to v form bright orange cushions bearing the black hair tubercle; tubercles vi and vii black all a little elevated. Spiracles white, black rimmed. Setae short, black, distinct.

The half of the larva below the spiracles is lighter, more grayish than the dorsum; the base of the foot of joint 4 and venter of joint 8 are darkly shaded, also subdorsally on joint 12 and the papilla of joint 8. Later the ground color becomes alike all over, slightly ochreous gray, like bark, the marks the same, the dark patches more contrasted.

Spun among leaves on the ground. The eggs were found April 30th, on a chestnut twig, having apparently passed the winter in this state. The larvae began spinning about June 1st and the first moth appeared July 1st. The species therefore seems to be double brooded with hibernation in the egg state. The larvae were fed on oak till the developing leaves became too hard for their weak mandibles, after which they ate pear leaves. They seem to be general feeders for any leaves not too hard. Larvae from Washington, D. C.

SUPPLEMENTARY NOTES ON ORGYIA.

In *PSYCHE* vii, 340 (1896) I published some "final notes on *Orgyia*," giving a list of the American species of *Notolophus*. Since then some additional facts have come to light.

Notolophus oslari Barnes, Can. ent., xxxii, 45 (Feb., 1900); *libera* Strecker, Suppl. 3, Lep. Rhop. & Het., 29 (Mar., 1900).

This newly discovered form from the Rocky Mountain region is still unknown in the larva. It will prove of much interest, as the moth lies between *antiqua* and *vetusta*, two species hitherto not considered allied.

Notolophus inornata Beut., *PSYCHE*, v, 300 (1890).

I shall have to allow this form specific standing. Mr. Beutenmüller not long since collected additional material in Florida which shows a moth nearly allied to *definita* and possessing, like it, wool-covered eggs. He kindly directed me to the exact spot where his collections were made and I found there

old egg-masses of the species, but nothing living. However, on Long Island, N. Y., I met with larvae like *leucostigma* but without the yellow subdorsal band. On breeding them I obtained a moth exactly like Mr. Beutenmüller's recent examples of *inornata*.

Harrison G. Dyar.

JORDAN AND KELLOGG'S ANIMAL LIFE (N. Y., Appleton, 1900, 8°) is an introduction to zoology of the most rational kind, abundantly and excellently illustrated. It is the only text-book of zoology we have ever seen which was readable almost from cover to cover. Generous space is given to insects. The authors point out "that the whole life of animals, . . . all the variety of animal form and habit is an expression of the fitness of animals to the varied circumstances and conditions of their living . . . [and that this adaptation has] come about inevitably and naturally, and that it can be readily studied and largely understood." The whole book makes this clear.

STANFORD UNIVERSITY'S COLLECTION OF JAPANESE SCALE INSECTS.—Mr. S. I. Kuwana, assistant in entomology in Stanford University, spent all of last summer in Japan

collecting and studying in the field the scale insects of that country, this being the first attempt to make a systematic investigation of Japanese Coccidae. Mr. Kuwana visited and traveled over all of the larger islands of the Empire, and by reason of his knowledge of the language and geography of Japan was able to do very effective work. He gave special attention to the San José scale, in an attempt to solve, or at least to contribute to the solution of, the problem of the native habitat of this insect. This scale was found to be distributed over the whole empire, and in certain regions to be a serious pest. Mr. Kuwana is now engaged in working over his notes and material relating to the San José scale and finds much evidence to uphold the belief that the insect is native to Japan. He hopes to publish his notes about Christmas time. The collections made by Mr. Kuwana on this expedition, which are large, belong to the entomological laboratory of Stanford University. As far as the duplicate material will allow I shall be glad to make exchanges with students of the Coccidae, or to present specimens to them. Until the material is worked over, however, the collection will be kept intact.

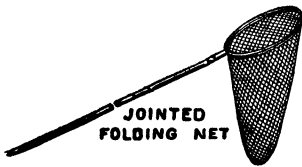
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