

and ventrally, white. Head (usually) and entire body densely white pollinose, but that of the head sometimes yellow; the pile white. Antennæ having the first joint once and a-half as long as broad, slightly shorter than the third joint, the latter nearly as broad as long. Wings whitish hyaline, stigma yellow; faint clouds are perceptible on the cross-veins; fourth posterior cell closed and petiolate.

Length, 8 mm. Los Angeles and San Diego Counties, California. Two specimens.

*Psilocephala obscura*, n. sp.—♀ Black, the palpi, proboscis, tibiæ, base of tarsi, knob of halteres, posterior margins of the second, third and fourth abdominal segments, and the greater portion of the three following segments, yellow. Front and face brownish-gray pollinose, short pile of front, bristles of antennæ and of upper part of the occiput, black, pile of lower part of occiput and of the mouth parts white; first and third antennal joints subequal in length, style one-third as long as the third joint, the latter nearly twice as wide as the second joint. Thorax grayish-brown pollinose and with two widely separated light-gray pollinose vittæ; pile of thorax mixed yellow and black, the bristles black; pile and pollen of pleura white, scutellum grayish-brown pollinose, that around the margin light-gray, the four bristles black. Abdomen shining, the first segment lightly pollinose, posterior margins of the second, third and fourth segments, and greater portion of the fifth and sixth, white pollinose; pile of first two segments yellowish, that on the remaining segments and on the venter largely black. Wings hyaline, stigma yellow, fourth posterior cell closed in the margin.

Length, 7 mm. Kingston, Jamaica (Johnson). A single specimen.

#### ON SOME LEPIDOPTEROUS LARVÆ ON ALFALFA.

BY C. H. TYLER TOWNSEND, KINGSTON, JAMAICA, W. I.

During the last two years a considerable number of rather small lepidopterous larvæ have been found on alfalfa (*Medicago sativa*) in Southern New Mexico. In the material collected there are nine distinct species represented. None of them have been bred. These larvæ are of considerable economic importance, as they occasion a certain amount of injury to the alfalfa crop, which is the surest and most paying crop of the Mesilla valley. They are of some scientific interest also, since hardly anything is recorded of alfalfa insects. It is therefore thought advisable to publish the following descriptions of these larvæ, which were made

some time ago, and which will serve to identify them on the alfalfa plant hereafter, besides giving an idea of the forms which occur on alfalfa in this locality. They were all collected in Las Cruces. The figures in parentheses refer to the alcoholic specimens of the species in the entomological collection of the New Mexico Agricultural Experiment Station.

(a).—SMALL, BROWNISH AND BRISTLY LARVA.

Stage 2.—Length, 2 to 2½ mm. Brownish or blackish. Five pairs of prolegs on segments 7 to 10 and 13. Head distinct, chitinous, shining polished black; dorsum of prothorax also chitinous, emarginate behind, blackish. Rest of larva brownish, each segment with twelve circular dot-like raised blackish papillæ in an irregular transverse row, each papilla bearing a black hair. Rows on thoracic segments straighter. Head and prothorax also hairy. It is barely to be perceived that the whole integument is covered with microscopically short, bristly pubescence. Ten specimens.

Stage 3.—Length, 3 to 4 mm. Head black, variegated with brownish, or wholly very light, even pale-yellowish. Proscutum black. Ground colour of larva about same as in preceding stage; tubercles a little more conical in form, black. The spiracles must not be mistaken for tubercles, the former being smaller and showing on most of the segments in all the stages. Microscopic bristly pubescence of integument slightly more evident. Seventeen specimens.

Stage 4.—Length, 5 to 5½ mm. Head usually very light, with four faintly mottled areas of brownish; prothorax rather light, but oftener of the brown colour of rest of body. Tubercles more strikingly conical. The integument shows very plainly the short, stubby, whitish and brownish bristles, usually in longitudinal whitish and brownish rows. Nine specimens.

Stage 5.—Length, 5½ to 7 mm. Head large, very pale-yellowish, only three of the mottled faint brownish areas, the one near oral margin being more or less obsolete. Black tubercles or papillæ very conical; hairs longer and stouter, the larva therefore appearing somewhat more bristly. The stubby, bristly growth of integument is very apparent in its narrow, longitudinal, alternating white and brown rows. Eight specimens.

Stage 6.—Length, 7½ to 9 mm. Head about same as preceding stage. Prothorax darker. The white longitudinal rows of stubby bristles showing most plainly in the median region, and on each side. Five specimens.

Stage 7.—Length,  $9\frac{1}{2}$  to 10 mm. Larger, brownish in general colour, broadly whitish laterally on sides, and the stubby bristles of integument showing very plainly, the white rows mostly on median region. Three specimens.

The above stages have been separated solely by examination, but are probably approximately correct. Described from alcoholic specimens, swept from alfalfa May 28, 1891. Specimens of the same larva, from 3 to 7 mm. long, had been previously swept from alfalfa, May 9 to 12. General colour noted in life. (Nos. 18, 30.)

(b).—YELLOWISH LARVA, WITH BLACK WARTS OR TUBERCLES.

Length, nearly 7 mm. Five pairs of prolegs, on usual segments. Hardly any hairs above, rather long hairs on sides and below, all these hairs directed downward. Head black, with a yellow triangular area in middle, and with yellowish oral region and antennæ. Prothorax with six black spiniferous tubercles in a transverse row, and two blackish markings on posterior border. Other thoracic segments with the same six black tubercles, and also with two similar but somewhat smaller yellowish tubercles, one on each side of the median pair of black ones. All the abdominal segments, except the anal, with the same tubercles as last two thoracic segments, but each in addition with a median anterior pair of small blackish tubercles situated between and slightly anterior to the median large pair.

One specimen, swept from alfalfa May 12, 1891. Colour noted in life. (No. 79.)

(c).—PALE GREENISH, NEARLY BARE LARVA.

Length, 8 mm. Light-greenish, inclining to brownish posteriorly, with a whitish stripe on each side of the body. Five usual pairs of prolegs. Integument bare and without hairs, except on venter. Head and feet light coloured, pale-yellowish. Methorax with a pair of black spots on dorsum, each spot just inside the lateral white stripe. Fifth (first abdominal) segment with a pair of larger black spots, one on each side just outside or below the lateral whitish stripe. Each of the lateral whitish stripes with two narrow brown lines running its whole length and more approximated to lower border. The greenish median portion has three lighter narrow longitudinal lines, one being median, and the outer ones very closely approximated to the lateral whitish stripes.

One specimen, swept May 9, 1891. Colour noted after a few days' immersion in alcohol. (No. 29.)

(d).—PALE-YELLOWISH, RATHER STOUT AND QUITE HAIRY LARVA, WITH BROWNISH STRIPES.

Length, 10 mm. Ground colour very pale-yellowish or whitish. Five usual pairs of prolegs. Head, prothorax, anal segment and whole ventral surface especially pale. A lateral rather wide stripe on each side encloses the spiracles; each section of it, corresponding to an abdominal segment (except on anal), marked by the spiracle in the centre, and extended into a sharp prolongation dorsad, ventrad and caudad (especially the first two), bearing a small dark papilla from which springs a long hair; a similar papilla below the sections bears a similar hair. Dorsum of larva with three pairs of brownish longitudinal lines, a median and two lateral ones. Between these are whitish and pale-brownish lines, the dorsal integument being covered with short, stubby bristles of these colours; and each segment with two pairs of light, smooth and naked tubercles, each bearing a rather long hair, the anterior pair of tubercles more approximated to each other than the hind pair. The head and prothorax also bear hairs.

One specimen, swept May 28th, 1891. (No. 228)

(e).—GREEN LARVA, WITH A WHITISH LINE ALONG EACH SIDE OF BODY.

Length, 14 mm. Venter light. Usual five pairs of prolegs. Whole surface of body, both above and below, evenly and quite thickly clothed with fine, short hairs. Head concolorous, similarly clothed with hairs. Hairs arising each from a small, black, dot-like tubercle, which occupies the centre of a circular naked areole, the rest of the epidermis being covered with microscopic black spines which appear only as closely approximated minute specks under a high power lens. These areoles are particularly distinct on dorsal regions, somewhat less so on sides of venter, the median ventral region and head not showing the microscopic epidermal specks. The dots from which the hairs arise are also absent on median ventral region. The principal segments show five transverse wrinkles or folds above, dividing the dorsum of the segment into six transverse sections; each section usually bears a row of areoles, though some have additional ones irregularly interspersed, which are usually smaller. These transverse wrinkles stop at the whitish lateral line on each side, which defines the lateral edge of dorsum.

One specimen, swept May 12, 1891. Colour noted in life. (No. 78.)

(f).—GREEN LARVA SIMILAR TO PRECEDING.

Length, about 23 mm. This exactly resembles the preceding (e), except in one or two details, which may indicate its distinctness, or may

indicate only a greater number of moults. If it is not the same, it is a very closely allied species. Colour is green, with two lateral longitudinal narrow whitish stripes, one marking the lateral edge of dorsum on each side and enclosing the spiracles, and in addition a median dorsal pair of similar stripes. Head is lighter than dorsum, approaching more nearly the colour of the stripes; venter light. The same microscopic black epidermal specks or spines are present, and the same naked areoles with dot-like tubercles in the centre, but the portion of the integument covered by the dorsal stripes has lost both apparently. These are shown, however, to be lost only in colour, the microscopic spines being apparent in the stripes where the integument is transversely folded, but they are concolorous instead of black. Their colour is also nearly lost on anal segment. Dot-like hair tubercles of head brown.

One specimen, swept Oct. 24, 1892. General colour noted in life. (No. 365.)

(g).—VERY SLENDER AND ELONGATED BROWNISH SPAN-WORM.

Length, 9 mm. Two pairs of proportionally large prolegs, on segments 12 and 13. Colour brownish, with a somewhat lighter ventral line, and a pale lateral stripe or line on each side. Head, prothoracic segment and anal extremity light. Abdominal segments very elongated, almost bare, with some sparse minute tubercles giving rise to hairs. The main abdominal segments are more noticeable for being divided by minute transverse constrictions or wrinkles extending completely around the body into something like thirty or more transverse sections to the segment.

One specimen, swept May 28, 1891. Colour from alcoholic specimen. (No. 229.)

(h).—PALE COLOURED FALSE SPAN-WORM.

Length, 4 mm. Three pairs of prolegs, on segments 9, 10 and 13. Light or pale coloured, with small brownish warts and hairs. Somewhat elongate, and rather slender. Segments not elongate. Head nearly concolorous, slightly more yellowish and polished. About twelve small, flattened-conical tubercles to each abdominal segment, each tubercle bearing a hair, and some smaller ones on ventral surface below. Tubercles in an irregular transverse row. Except the tubercles, the integument is apparently naked under the lens.

One specimen, swept May 28, 1891. Colour noted in life. (No. 230.)

---

(i).—LIGHT GREEN FALSE SPAN-WORM.

Length, 7 to 8 mm. Three pairs of prolegs, on segments 9, 10 and 13. Elongate and rather slim, light green in colour. Segments not longer than wide; with but very few short hairs, each arising from a minute pale brownish dot in centre of a rather indistinct tubercle, a dozen or so to each principal segment. Head likewise with hairs, which arise from less plain dots. In addition to these, there is on each side of segments 5 to 11 a conspicuous black tubercle bearing a hair, these tubercles being of same form as the others, but appearing much more conspicuous and larger because of the black pigment they possess.

Two specimens, swept May 12, 1891. (No. 80.)

NOTE.—The measurements given above were made from the alcoholic specimens, and are somewhat (usually a millimeter or so) less than what the same specimens measured in life.

---

CORRESPONDENCE.

---

## REARING SPHINX CHRYSALIDS.

Sir: On the 30th of July, 1892, I saw a *Sphinx* larva digging into the ground at the foot of an ash tree, evidently with the intention of burying itself preparatory to transforming. I put it into a box I had in my satchel, and forgot it until three days after. When I opened the box there was a perfectly formed chrysalid instead. I placed it on the same bed that the *Quinquemaculata* of my former record had matured upon (CAN. ENT., Vol. 24, p. 237), and paid no further attention to it. On the 20th of June, 1893, that chrysalid gave forth a *Sphinx chersis*, Hub., large in size, perfect in form and rich in colouring. This surely proves that moisture is not an absolute necessity for the maturing of *Sphinx* pupæ, of these kinds at least.

In my earlier efforts to obtain moths from *Sphinx* pupæ I had no success. Being under the impression that moist soil was necessary for their maturing, all the careful attention I could give them was unavailing; they invariably died. Observing that soil getting between the segments of the abdomen irritated them greatly, and kept them constantly wriggling, I got some growing moss, put it on a plate, placed the chrysalids on it, moistening it slightly, when all my troubles with them disappeared,—no more moulding or drying up, they matured without fail, and the moths emerged in perfect condition. This simple method was to me a most gratifying success. I could now obtain the moths with no special attention required for the chrysalids.