

BUTTERFLIES OF CALIFORNIA

By JOHN A. COMSTOCK, M. A., M. D., F. E. S.

Continued from May-June Issue

The Whites and Allies

GENUS *PIERIS*

The *MUSTARD WHITE*, (*Pieris napi*, L.) is a remarkable species for the number of distinct geographic races and seasonal forms which it has developed during the course of its evolution. No less than sixteen of these are recorded for America, north of Mexico, of which five occur in California. To these we add a sixth, as noted at the end of this paper.

The species is of some economic importance in the fact that the larvae feed on turnip and cabbage. The favorite food-plants, however are the Mustards and Toothworts, and the species is never sufficiently abundant to be a menace. Two or more broods of each race usually occur,—the earliest to emerge from overwintering chrysalids showing heavier markings and lineations.

The *PALLID WHITE* (*Pieris napi pallida*, Scud.) is a race occurring in the northern coastal region, distinguished by its nearly immaculate superior wing surfaces in the male. The female shows a slight barring of the veins in the apical area, and usually a round spot below the third median vein and a bar along the inner margin of primary. The under surface in both sexes shows a slight powdering along the veins in the basal and discal areas. Figures 15 and 16 of Plate VIII show the upper and under surfaces of the male, and Figure 17 depicts the under side of the female. This form may be taken in the late spring and early summer.

The *MARGINED WHITE* (*Pieris napi marginalis*, Scud.) is a large northern form occurring on the Oregon border that shows a narrow distinct veining on the under surfaces, and a fine narrow, almost indistinguishable marginal line on the upper side, completely encircling the wings. The basal area on upper surface is more heavily marked than in the preceding species. It is an early spring butterfly. Plate IX, figures 1 and 2 will serve to identify the male. *Marginalis* is a rare form that is represented in few collections.

The *VEINED WHITE*, (*Pieris napi venosa*, Scud.) is the most boldly and clearly marked of all our California races of *napi*. The figures 3 to 5 on plate IX will serve to identify it. Unfortunately two of our labels were transposed in the plate. Figure 3 is the upper surface of the female, and figure 5 the under surface of the male. This form occurs from central California northward, and is never common. It is an early spring butterfly.

REAKIRT'S WHITE, (*Pieris napi castoria*, Reak.) is a large, lightly marked form, representing the second brood, emerging in the late spring and early summer. The immaculate under surfaces, and, in the male, the discrete points on the upper side of primaries will serve to distinguish this race, which is accurately depicted in figures 6, 7 and 8 of Plate IX. Reakirt's White occurs in the same territory as the preceding form.

HARRIS' WHITE, (*Pieris napi oleracea*, Harr.) has been rarely met with in the Sierras. Lightly marked specimens are difficult to separate from the Pallid White, but the typical examples are more

heavily shaded along the veins on the under side of secondaries, and are lightly penciled in the same areas of the upper surface. The female particularly is heavily shaded above, along the nervules, and has a heavy band on the posterior border of the primaries. This race is shown on Plate IX, figures 9, 10 and 12.

A new race, differing markedly from any thus far described occurs in a restricted area of Sonoma County. I have called this the *SMALL VEINED WHITE*. It may be technically described as follows:

PIERIS NAPI MICROSTRIATA, race nov.

MALE. Superior Surface.

Primaries: ground color white. Costae heavily powdered with black scales in the basal area and at the apex. Extremity of all nervules heavily shaded with black, expanding toward margins and thus creating conical points, which are largest at the apex and diminish to a mere point at the first median nervule. Base heavily shaded. A broken submarginal line is suggested, most heavily accented below the third median nervule where it is formed into a round black spot. A similar, though fainter spot occurs below the first median nervule.

Secondaries: ground color white. A minute black point at outer angle. Basal area heavily shaded. Minute black points at ends of nervules. A suggestion of grey shading follows the nervules, due to the heavy lineation of the under side showing through.

INFERIOR SURFACE.

Primaries: ground color white, shading to delicate yellow near apex and outer margin. Nervules clearly margined with brownish black scales, on which the nervule itself forms a fine yellow line causing the lineations to appear as double narrow bands heaviest at apex and posterior margin of cell.

Secondaries: ground color lemon yellow. All nervules heavily bordered with brownish-grey, and, as on primaries, appearing as double lines. A bright orange dash appears on the basal portion of costa.

FEMALE.

Marked much as in the male, but with heavier shading in the basal area of primaries, and a broad band following the posterior margin to a point of juncture with the spot below first median nervule.

Head, black. Eyes, reddish brown. Antennae, black, tipped with yellow. Thorax, black with delicate grey pile. Abdomen, grey above, white below.

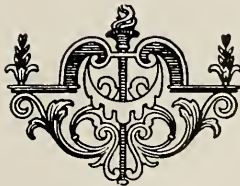
Holotype; expanse 39 mm. Taken at Eldredge, Sonoma County, California, March 13, 1911, by J. August Kusche.

Allotype; expanse 40 mm. Taken at same locality and on the same date by Mr. Kusche.

Paratypes; one male—same locality and date.

In collection of Southwest Museum.

The types and cotype No. 1 are accurately pictured on Plate IX, figures 12, 13 and 14, to be subsequently published in the Bulletin.



✓ *Calochortus lanternus* n. sp.

Stem somewhat flexuous, branching, glaucous; basal leaves lanceolate, acuminate, 3-5 dm. long, 10-30 mm. wide; bracts foliaceous, acuminate, 5-15 mm. long; flowers subglobose, nodding on slender pedicels; sepals 25 mm. long, more or less acuminate, greenish-white; petals white (occasionally rosy) ovate-lanceolate, 3-5 cm. long, 20 mm. wide, incurved and strongly arched, clothed above the gland with white hairs; gland crescent shaped with 4 transverse upwardly imbricate scales; anthers oblong 5 mm. long; capsule 25 mm. long, short beaked; seeds white. Type No. 3596. Fish Canyon, San Gabriel Mts. were noted. The northern species from which the original description of *C. albus* was drawn has a much smaller flower, has a fringe of pink hairs above the gland and the latter is shaped like the segment of an oval. In *C. lanternus* the gland is shaped like a Turkish crescent; the capsule too is longer and has not the somewhat quadrate shape of *C. albus*. This plant is known locally as the Fairy lantern.

✓ *Allium grandisceptrum* n. sp.

over
same
Bulb round about 1.5 cm. long with a very thin outer coat without definite reticulation; scapes 2.5-3 dm. high, sometimes in pairs, terete or occasionally slightly 2-edged; leaves 3 or 4, flat, 6-8 mm. wide and form from Placerville and cultivated them other points of difference that species in having white seeds. Mr. F. Burlew called my attention to this and when Mr. R. Kessler secured specimens of the northern about 2 dm. long; umbel open, 15-20 flowered; pedicels 20 mm. long; perianth pink or light rose colored, the outer segments 12 mm. long, 6 mm. wide, lanceolate, acute, the inner about half as wide; stamens $2/3$ the length of the perianth; filaments all slightly dilated at base, the alternate ones less so; pistil 4 mm. long, stigma single; ovary smooth with rounded lobes.

Type No. 3595. Garberville, Humboldt County. Bulbs collected at this locality by Mrs. W. W. Hutchinson and cultivated here. This same species has been cultivated by Mr. R. Kessler, the bulbs having been collected in the Tehachapi Mts.

In general appearance this plant resembles *A. bisceptrum*. It differs in showing larger perianth segments, bulbs without reticulation and fruits without crests. It likewise shows the first leaf as a brown sheathing structure about 25 mm. long without any blade. Whether this is a characteristic of this plant or is common and usually overlooked on account of its withering early I have not observed sufficiently

This has hitherto passed as *C. albus* Dougl. but it differs from to render an opinion.

ADDITIONS TO THE LOCAL FLORA

Clarkia xantiana Gray. This plant hitherto unknown south of the Tehachapi has been collected by R. J. Dobbs near the Colby Ranch in the Tuhunga, May 1924.

Mimulus Breweri (Greene) Coville. Bear Valley.

DR. A. DAVIDSON.