The large collection of Lepidoptera acquired by The American Museum of Natural History during the winter of 1936–1937 from Mr. J. D. Gunther of Pasadena, California, has been incorporated with the Museum's general collection and is available for further research. Mr. Gunther had made a careful study of *Euphydryas*, culminating in "The Genus Euphydryas Scudder of Boreal America" (1929), and had proposed fifty new names in that genus. At the time his collection was sold Mr. Gunther was accumulating specimens of *Argynnis* and had proposed twenty-six names. We have recently gone over this material. Our preliminary studies have resulted in a new arrangement of several names and in the description of two new subspecies.

*Argynnis utahensis* linda, new subspecies

As described below, we consider this to be an Idaho extension of *utahensis* Skinner (1919, p. 216), which in the Sawtooth Range is a fairly constant population. It is intermediate between specimens of *utahensis* from Salt Lake City, Utah, and of *macdunnoughi* Gunther (1932, p. 280) from Gallatin County, Montana. The latter would be best understood as a subspecies of *utahensis*.

Wing expanse of Sawtooth Range specimens averages 45 to 50 mm. (45 mm. in holotype) or about the size of *macdunnoughi* and somewhat smaller than *utahensis*. As seen in series, the Sawtooth material is much lighter above and not so suffused as other northern *utahensis* populations. The veins stand out prominently, as is common in the group, but in *linda* they are less pronounced due to the general lightness of the ground. The black pattern is also much less intense, and there is a general reduction of the dark suffusion which is shown by *macdunnoughi* basally, and often discally, above.

Below, both *utahensis* and *macdunnoughi* are usually patched with brown on the apices of primaries. In *linda* this brown scaling is nearly absent, and the apex is therefore much clearer. The slight edging of the lunules is dirty greenish. In the secondaries there is a striking difference; here *macdunnoughi* is typically some shade of brown, usually dark. In *linda* this discal area is a relatively light greenish tint, with a very light clear tan, almost straw colored band which contrasts sharply with the darker band of *macdunnoughi*. All the spots are well silvered in the forms under discussion, although unsilvered individuals and other extreme variants are to be expected when the plasticity of this genus is recalled. As exemplified by the type series, *linda* appears to be a homogeneous population distinguishable from the other named *Argynnis*.

**Type Material.**—Holotype, male, Heyburn Peak, Sawtooth-Boise, Idaho, 9500–10,000 feet, July 15, 1931 (C. W. Herr), Gunther collection, in The American Museum of Natural History. Allotype, female, same data as the holotype and in the same collection. Paratypes: three males, same data; two males, Deadwood, Payette National Forest, Idaho, July 18, 1931 (C. W. Herr); one male, Cape Horn, Challis Payette, Idaho, 7000 feet, July 16–17, 1931 (C. W. Herr); one male, Bear Valley, Challis Payette, Idaho, 7000 feet, July 16–17, 1931 (C. W. Herr); four males, Sawtooth-Lemhi, Idaho, 7500–8500 feet, July 5–17, 1931 (C. W. Herr); and one female, Sawtooth Mountains, Idaho, August 10, 1941 (Dr. and Mrs. R. C. Turner). The male paratypes are from the Gunther collection, and eleven are in the American Museum. Two male and one female paratypes are in the junior author's collection.

This new subspecies is well linked to *utahensis* by southern Idaho material of the sort which Gunther appears to have had in mind, erroneously, as *platina* Skinner (1897, p. 154). *A. pfoutsi* Gunther (1933, p. 171) from Payson Canyon, Utah, does not differ materially from Skinner's Ogden, Utah, holotype of *platina* in the
Academy of Natural Sciences of Philadelphia and seems best placed as a synonym under platina.

We feel that utahensis has not hitherto been given due consideration as a species from which widespread variations may be traced to make a large group distinct from other stocks in the genus. Earlier authors were wont to compare it to coronis Edwards (1864B, p. 435), but this relationship does not appear to be substantiated either by distributions or by resemblances. Many probably heretofore unrecognized races of utahensis occur, as, for example, a population in British Columbia (Jaffrey, several in Gunder collection), a minor race in northern Nevada associated with and tending to resemble the platina from the same area, and other Rocky Mountain and Great Basin variants which are found wherever suitable conditions prevail. A Sierran extension seems likely for such an ubiquitous stock, and in this connection special attention should be paid to northern specimens of montivaga Behr (1863, p. 84) which probably intergrade with utahensis. If such intergradation could be well authenticated, montivaga would replace utahensis as the specific name.

Argynnis albrighti Gunder (1932, p. 281) appears to be an intensified form under macdunnoughi. It is a rarity of extremely narrow range, and but few specimens are available. Pending further study we would place it in the utahensis group.

Some northern extensions of utahensis stock, especially in the female sex, are easily confused with semirvida McDunnough (1924, p. 42). The latter is correctly placed with newadensis Edwards (1870, p. 14), which is a species distinct from utahensis.

At the time of describing macdunnoughi, Gunder suggested an unfortunate comparison to chitone Edwards (1879, p. 82), but in a later paper (1933, p. 172), he gave a more nearly correct classification of chitone which should be listed as the Great Basin subspecies of hesperis Edwards (1864A, p. 502).

William Hovanitz (1937) has proposed a tentative arrangement of the Argynnis coronis subspecies and has offered a lucid exposition of typical coronis, to which students should refer for a discussion of this name. After describing a new subspecies of coronis, we shall venture some further notes regarding this group.

Argynnis coronis carolae, new subspecies

Male.—Average wing expanse, 56 mm. Above, more ruddy than semiramis Edwards (1886, p. 61) and nearly as red as adiaste Edwards1 (1864B, p. 436). Both semiramis and carolae lack the blacker and more suffused appearance of coronis coronis; the wings thus present a more open and more contrasting pattern; also, the basal suffusion of coronis is only faintly suggested in the more southern stocks. In size, carolae averages slightly larger than the usual examples of semiramis. The wing shape is the same, or even more falcate, in carolae.

Below, the new subspecies is dark. The semiramis affiliation is evident after studying series of both, but the contrast between the light shades of semiramis and the reddish brown of carolae is marked. Primaries with the discal flush covering nearly three-quarters of the wing, semiramis usually having this confined to the inner third. Apical area dark, heavily marked, all pattern markings much heavier. On the secondaries semiramis has the discal area widely varied in color but usually of some light tan shade and with the spots standing out in brilliant silver, whereas the spots in carolae are often but partly silvered and usually encroached upon by an overlay of some darker scales of the reddish brown ground. The pale band is much the same in both insects, only slightly darker in carolae.

1 This name has usually been ascribed to Behr with the references 1862, Proc. Calif. Acad. Nat. Sci., II, p. 275; 1863, Proc. Calif. Acad. Nat. Sci., III, p. 84. In neither place is the name adiaste proposed or even mentioned by Behr. In the first paper Behr described nine Argynnis from California but proposed a name for only one of them. The others were referred to by numbers. In the second paper Behr proposed names for three more of the nine Argynnis but left number seven, the eventual adiaste, unnamed. The first use of the name adiaste appears to be by Edwards (1864, Proc. Ent. Soc. Phila., III, p. 436), who ascribed it not to Behr but to Boisduval "in lit." Edwards probably received specimens bearing some such name in manuscript from Boisduval or even from Behr, since there is a specimen in the Edwards' collection at the Carnegie Museum bearing a label "adiante Bdv." in Boisduval's handwriting, a name published by him in 1869 (Lep. de la Calif., p. 61, from Ann. Soc. Ent. Belg., XII). In 1877 (Cat. Lep. of Amer. N. of Mex., p. 23) Edwards ascribed the name adiaste to Boisduval and sank his name adiaste, of which he then claimed authorship, as a synonym. This, of course, he could not do as his name adiaste, as used by Boisduval in 1864, had priority. But his action shows that Edwards considered that the insects were one and the same, and very likely adiaste Edwards was originally a misspelling of adiaste Boisduval ms. Definitely lapsi calami are adiaste Kirby (1870, Syn. Cat. Diur. Lep. I, p. 160) and adiaste Barnes and McDunnough (1917, Lep. of N. Amer., p. 8).
but in the bordering of the submarginal lunules and in the marginal line, the accentuated heaviness and darkness are extreme. Often the lunules extend well into the band area and are much larger and more conspicuous than in *semiramis*.

**Female.**—The above remarks apply in general to this sex. Among *semiramis* females there is an especially wide range of variation, so that it is hard to choose a "typical" example. Broadly speaking, *carolae* is darker above, and the red shade and heaviness of pattern are distinctive; also it tends to an increase in wing spread. Below, the primary discal flush is extensive, as in the males. The secondaries have an even darker disk, with darker and heavier banding and lunulation. The spots vary from brilliantly to obscurely silvered and are in pattern and size as in *semiramis*. Fluctuation in size, shape and disposition of these spots, as well as the other pattern markings above and below, is so great as to make descriptions of individual specimens of little value for comparative purposes. As seen in series, *carolae* is separable from its Californian relatives.

**Type Material.**—Holotype, male, Charleston Park, Clark County, Nevada July 8-9, 1928 (Eugene Schiffel), Gunder collection, in The American Museum of Natural History. Allotype, female, same data as holotype and in the same collection. Paratypes, twenty-four males and eight females: six, Charleston Park, Clark County, Nevada, 8000 feet, July 8-9, 1928; nine, Charleston Range, Clark County, Nevada, 10,000-11,000 feet, July 10-15, 1928; four, Charleston Range, Clark County, Nevada, 6000-8000 feet, July...
15–28, 1928; eleven, Charleston Park, Lincoln County, Nevada, 8000 feet, July 9–24, 1928; and two, Charleston Park, Lincoln County, Nevada, 10,000 feet, July 13–15, 1928. Since the Charleston Mountains are almost entirely in Clark County, the last thirteen paratypes recorded are undoubtedly wrongly labeled "Lincoln Co." All are from the Gunder collection and, except for three male and two female paratypes in the junior author's collection, all are in The American Museum of Natural History.

In the revisional paper by Hovanitz, previously alluded to, snyderi Skinner (1897, p. 154), hennei Gunder (1934, p. 126) and gunderi J. A. Comstock (1925, p. 67) are given as subspecies of coronis.

We feel that snyderi should be held apart from coronis pending improvement of our knowledge. Undoubtedly it will list near that species, but present proof of any intergradation seems lacking. A. snyderi does appear to intergrade with halcyone Edwards (1869, p. 83), the latter being the Rocky Mountain equivalent. A. snyderi is best placed as a subspecies of this older name pending further investigation. It is even likely that halcyone can be regarded as forming a stock wholly distinct from the coronis equivalents, since garretti Gunder (1932, p. 282) and platina Skinner are probable Rocky Mountain and Great Basin extensions of the coronis group which exist independently of the halcyone modifications. We do not propose definite classifications for the northern coronis stocks because the regions are so extensive, and collecting and study to date have been so limited as to permit little but speculation regarding the relationships involved. There is some basis for believing that garretti is a northern extension of coronis, from which platina is derived as a Great Basin replacement, and we recommend this view to students for consideration.

We also feel that gunderi should be given further attention. As figured by Comstock in his "Butterflies of California" (1927, Plate xxvii, figs. 4, 5 and 6) and as understood by us from specimens from Buck Creek, Modoc County, California, it appears to be true snyderi, just as Comstock considered it in his description. It is very light above and below, probably representing the extreme of a local form from an arid environment. Thus interpreted, gunderi is absent from nearly all collections. Great confusion has arisen by reason of calling much Nevada material gunderi. All of these Nevada specimens that we have seen have been light extremes of the Great Basin platina. A. snyderi flies with and is totally distinct from platina both in Utah and in Nevada. Since extensions of platina into California are unknown to us, we assume gunderi to be an extreme of the snyderi found along the eastern slopes of the California Sierra Nevada. This view would prevent inclusion of gunderi in the coronis group.

A. hennei, judging from topotypical examples and from the long series, including the types, in the Gunder collection at the American Museum, appears to be an insect which geographically and in appearance is intermediate between coronis and semiramis. Typical coronis from the Coast Range, San Francisco Bay region, California, is analogous to callippe Boisduval (1852, p. 302), which is also topotypically from this region where it exists as a large, dark and somewhat aberrant colony. A. californica Skinner (1917, p. 328) is a direct synonym of coronis, as was pointed out by Gunder when describing hennei and by Hovanitz in his paper on coronis. A. semiramis, long associated with the adiaste group, is incongruous there except for superficialities of color, and the similarity does not include any definite intergradation as a basis for such a classification. From Mount Pinos, where hennei occurs, the intergradation toward the north with coronis seems well shown. The southern extension and linkage with semiramis are somewhat discontinuous, but considering the semiramis-like aspect of hennei at its type locality, as well as the variability in the Tehachapi region, it seems safe to assume that any gap left, after diligent collecting, would be insignificant. Variations of semiramis in the "Bad Lands" area of eastern San Bernardino County, California, and possible extensions northward toward the Sierran
region are as yet poorly known, since but little collecting has been done with these problems in mind. The isolated colony named carolae in this paper is the easternmost known representative of the stock. An interesting subject for further explorations would be to reveal its intergradations.

Some students may hold that the coronis complex is related to zerene Boisduval (1852, p. 303) or, indeed, maintain that carolae and possibly semiramis should be placed with zerene. The Tehachapi extensions of hennei fringe upon zerene, which is a Sierran insect, and in Tulare County both insects occur in the same locality but show no sign of influence upon one another. The crux of matters seems to be the hennei relationship to semiramis. If we are correct in this, the other classifications follow. A. zerene does appear to be related closely to the coronis group; future collecting may prove some definite linkage, but for the time it seems better to keep them separate. Perhaps we should say that we use the term zerene following the recognizable figures by Oberthur (1913, Pl. clxviii, figs. 2168 and 2169) and the current usage of Comstock and of McDunnough. Actually, we may never know just how Boisduval worked over his original mixed series when proposing a second name. Perhaps we rob Behr of a name to which he is entitled (monticola Behr, 1863, p. 84). Pending better knowledge than we now have, it seems safest to treat monticola as a synonym.

Since we have spoken briefly of zerene and of montivaga, it might be well to point out that malcolmii J. A. Comstock (1920, p. 4) should be removed from montivaga, under which it is now listed, and associated with zerene as a race from the eastern slopes of the Sierra Nevada. Intergradations between malcolmii and zerene are found in the Lake Tahoe region. A. montivaga can be better understood with the removal of this subspecies, which by wing shape, pattern and intergradation seems much better placed with zerene. Aside from the removal of malcolmii, the synonyms and subspecies of montivaga are well arranged by McDunnough (1938, p. 15).

A. conchyliaius J. A. Comstock (1925, p. 63) is relatively constant in many northern Sierran localities and might be listed as a subspecies of zerene rather than as a form. A. shastaensis (1925, p. 65) is a black aberration, a common mutation in Argynnis. With all due acknowledgment of the debatability of the question, we prefer to treat such names as synonyms.

We append a summarizing list with the caution that it is incomplete and intended merely as a convenient résumé of the classification proposed in this paper insofar as the two new subspecies are concerned.

Argynnis hesperis W. H. Edwards
   a. chitone W. H. Edwards

Argynnis utahensis Skinner
   a. linda dos Passos and Grey
   b. maedunnoughi Gunder
      f. loc. albrighti Gunder

Argynnis platina Skinner
   a. garretti Gunder

Argynnis coronis W. H. Edwards
   california Skinner
   a. hennei Gunder
   b. semiramis W. H. Edwards
   c. carolae dos Passos and Grey

Argynnis halcyone W. H. Edwards
   a. snyderi Skinner
      f. loc. gunderi J. A. Comstock

Argynnis zerene Boisduval
   monticola Behr
   a. malcolmii J. A. Comstock
   b. conchyliaius J. A. Comstock
      shastaensis J. A. Comstock

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