BULLETIN OF THE ALLYN MUSEUM

Published by
THE ALLYN MUSEUM OF ENTOMOLOGY
Sarasota, Florida

Number 37 28 May 1976

†OLIGODONTA FLORISSANTENSIS, gen. n., sp. nov.

(Lepidoptera: Pieridae)

F. Martin Brown

Research Associate, Allyn Museum of Entomology, and
6715 South Marksheffel Rd., Colorado Springs, CO 80911

Several years ago a very fine fossil butterfly was recovered from the trench on the Singer Ranch at Florissant, Teller County, Colorado. This raises the total number of such specimens to about twenty and of named fossils of Lepidoptera from the trenches to about a dozen. When the National Park Service established the Florissant Fossil Beds National Monument, they acquired the Singer property and with it a few fossils. These included the butterfly in question. Recently I have become a volunteer consultant to the Monument staff. Upon examining the fossil butterfly I became convinced that sufficient evidence was present to warrant naming the insect.

At first glance the fossil looks as though it may be a second specimen of †*Barbarothea florissanti* Scudder. As can be seen from Figure **1**. it lies in just about the same position as Scudder's insect but as a mirror image. The length of the costa of the forewing is 2.0 millimeters less than that of †*Barbarothea.* The palpus, although distorted, is proportionally smaller and not at all like the palpus of a libytheid. The venation of the apical area of the forewing is markedly different from †*Barbarothea* as can be seen in Figure **2**. It is this character alone that made me reject the idea that I had a second specimen of †*Barbarothea.* Unless Scudder's interpretation of the venation of the forewing is quite erroneous, which I doubt, the two butterflies belong to different families.

The shape of the wing outline suggested the Indo-Australian genus *Dercas* Boisduval. Comparison of the branching and position of the radius on the forewing immediately ruled that out. I next turned to *Leodonta* Butler. The crenulation of the wing outline for this genus is more extreme than in the fossil but the venation of it is at odds since the fossil shows clearly four branches of the radius. I can match the venation of the fossil with no modern pierid genus.

Several things militate against a clear-cut positive descision about relationship to modern genera. First, much of the cell area of both wings is undecipherable. This because the wings are folded and in the cell area there are four thickness and four

sets of veins. Second, the genitalia cannot be studied. Third the specimens represents a situation that is 38 million years old. It is my belief that the portion of Pieridae in which lies *Leodonta* is undergoing dynamic development at present. When R_2 was lost was long enough ago so the loss is shared with several other genera, including *Delias* Huebner of the Old World. Figure **1** shows the fossil with the best illumination to reveal the venation. Along the margin of the hind wing in the cubital area the preservation is so good that the rows of individual scales can be seen. The fringe is long and suggests a fresh specimen.

†*Oligodonta,* new genus

The squashed condition of the head, thorax and abdomen makes study somewhat difficult. Approximately 9.5 mm. of the basal portion of the shaft of one antenna is visible. It is a typical butterfly antennal shaft. What appears to be the club and a short piece of shaft of the second antenna lies a little before and above the palpus. Careful study proved this to be the wrong interpretation. What has happened is that the second antenna is fragmentary and not at all well-preserved except for a short stretch of a dozen or so segments which in flattened condition suggest a club. The palpus that can be seen seems to have a distal joint about half as long as the second. Both are heavily scaled and haired as is the basal curved segment. The position of the terminal joint lies between erect and porrect. I can make out nothing of the eye except its position. The proboscis is coiled just below the palpi.

The legs appear to be quite shaggy. I think that I can make out the first and third

Figure 1. The type of *Oligodonta florissantensis,* n.g., n. sp. The bar under the label is 1 cm. long. Brown negative no. 2

rather well but cannot see any tarsal joints, claws, paronychia, etc. The abdomen seems to be enveloped in the anal margin of the hind wings.

The venation of the fore wing, so far as I can decipher it after more than a week of study, is shown in figure **2**. The costal margin is about 26.5 mm long. R_4+_5 branches 5.1 mm. from the apex, M_1 does so 8.4 mm. from the apex. R_2 and R_1 originate close together, 12.8 and 15.7 mm respectively from the apex with R_2 rising just basad of the origin of *udc.* This is something like the branching in *Aporia* Huebner or *Neophasia* Behr but with a much straighter radial stalk. The drawing of M_2 and M_3 is a little erroneous. The outer half and inner quarter of each can be seen. The connecting of these parts is believed correct. The origins of the subcostal vein and of the radial stalk are lost at the base of the wing in squashed thorax.

The arrangment of the veins of the hind wings is rather well preserved. Figure **3** shows those parts that I was able to find. The missing sections are present but lost in a tangle of superimposed veins and edges of the fore wings. I could detect

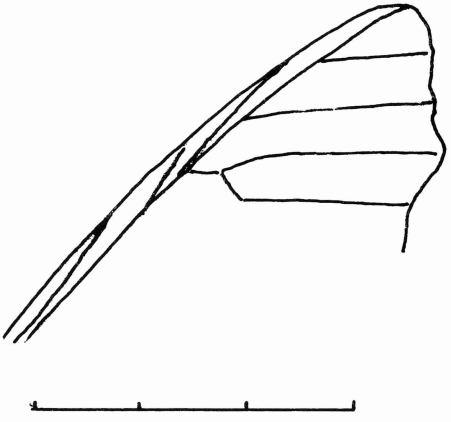

Figure 2. The venation of the forewing of *O. florissantensis* as far as can be deciphered. The total length of the scale bar is 1.5 cm. Drawn from the fossil.

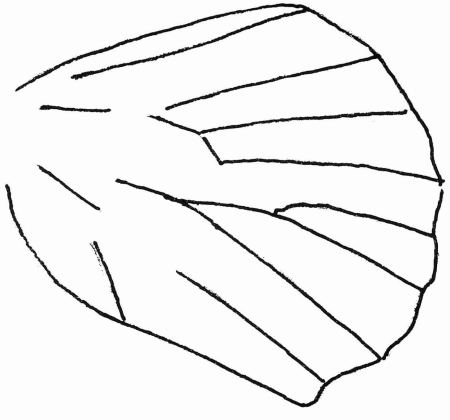

Figure 3. The venation of the hind wing of *O. florissantensis* as far as it can be deciphered. Drawn from the fossil. The scale is the same as for Figure 1.

no evidence of *ldc* and thus thought for a long time that I was dealing with a nymphalid. I could find no trace of the humeral vein, lost in the same confusion as the base of the fore wing.

Since I could find no evidence of basally swollen veins and there is a clear-cut 3A I have eliminated Satyridae and Papilionidae from consideration. The size of the insect I believe eliminates Lycaenidae, Riodinidae and Libytheidae. Its habitus is quite unlike Hesperioidea. This leaves me only Pieridae and Nymphalidae, both in a broad sense, to consider. The presence of only four branches of the radius on the fore wing points strongly to Pieridae. The possibly open cell on the hind wing suggests Nymphalidae but there are pierids with a weak *ldc* that would be totally lost in the confusion of four superimposed wings.

The name *Oligodonta* alludes to the age of the specimen, late Oligocene, and to the blunt tooth on the margin of the forewing.

†*Oligodonta florissantensis,* new species

This is the genus-type of *Oligodonta* and has all of the structural features described for the genus. Unlike the two well-known Florissant butterflies, *Hypanartia* (†*Prodryas*) *persephone* (Scudder) and *Chlorippe* †*willmetae* Cockerell, this specimen shows no pattern features that can be recognized. It is quite possible that if it had been preserved expanded as the two noted are, it would have. There is a dark mottling over much of the fossil that could be the result of superimposing the patterns of four wings. Figure **1** does not show this will since the lighting used reflected from the rather rough surface of the shale in which the fossil is imbedded.

Holotype: a well preserved folded specimen with the radius of the fore wing about 26.5 mm., and of the hind wing about 22 mm. Found in the late Oligocene volcanic lake shales of Florissant, Teller Co., Colorado. Excavated from the Singer trench, now a part of the Florissant Fossil Beds National Monument.

Repository of the type: The type of *Oligodonta florissantensis* Brown is held in the collection of the National Park Service at the Monument. The photographic negatives are on deposit at the Allyn Museum of Entomology, Sarasota, Florida. Numbers 2, 7 and 9 are the better ones.

Reference

Scudder, S. H., 1892, U. S. Geological Survey, Bulletin 93, pp. 21-24, Pl. III; original description and figures of †*Barbarothea florissanti.*