

- July 21—[Mosquito Pass], *callias*, p. 775.
 July 22—Mt. Lincoln (Edwards, 1868-97, vol. I, *Parnassius* II-IV).
 August [1-3]—Apex Gulch, *nephele*, p. 773.
 August 3—nr. Apex Gulch, *sæpium*, p. 779.
 August 3—Georgetown road, *melinus*, p. 778.
 August 3—Georgetown, *berenice*, p. 750.
 August 5—Gray's Peak, 12,000 ft., *chalcas*, p. 782; also en route to Middle Park (Edwards, 1868-97, vol. I, *Parnassius* II-IV).
 August 8-9—Blue River, Middle Park (Edwards, 1868-97, vol. I, *Parnassius* II-IV).
 August [6-13]—Middle Park, *myrina*, p. 756.
 August 14—Hot [Sulphur] Springs, *bellona*, p. 756.
 August 16—nr. Berthoud Pass, *hylas*, p. 768 (Edwards, 1868-97, vol. I, *Parnassius* II-IV).
 August 19—Idaho Springs, *manitoba*, p. 789.
 August 20—nr. Denver, *arachne*, p. 761.
 August 26—Bailey's Ranch, *meadi*, p. 774.
 August 28—20 miles from South Park on South Park Road, *hylas*, p. 768.
 August 30—South Park Road, *manitoba*, p. 789.
 September 10—South Park (Edwards, 1868-97, vol. II, *Colias* IV).
 September 20—nr. Canon City, *halcyone*, p. 754.
- Note 1: EDWARDS in vol. II, *Argynnis* 1 erroneously states Fairplay for this date.
 Note 2: EDWARDS in vol. II, *Anthocharis* 3 erroneously gives the dates July 10-12 for the *julia* collected at Beaver Creek, Fairplay.
 Note 3: EDWARDS in vol. II, *Argynnis* 2 erroneously gives the year as 1873.

References

- Brown, F. Martin, 1934. The Localities of T. L. Mead's Collection of Butterflies from Colorado in 1871. *Journ. N. Y. Ent. Soc.* vol. 42: pp. 155-162.
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SOME OBSERVATIONS ON THE HESPERIIDÆ OF THE ST. LOUIS AREA

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Within a radius of 100 miles from St. Louis, Missouri, an area which the newspapers are fond of calling "The Forty-Ninth State", occur at least 41 species of Hesperiidæ, and it is possible that more may be discovered in the future. As recently as 1954 a first-capture record was established for one species. Some of these species are principally northern Skippers, some primarily southern, so that one explanation which has been suggested for this large number of species is the fact that St. Louis is located on what the ornithologists

call the Mississippi Flyway. If this is a natural route of dispersion for birds, may it not be the same for insects? There are other species in our butterfly population besides Hesperiidæ which are truly southern in their range, such as *Eurema mexicana* Bdv. and *Phyciodes phaon* Edw., the former having been taken frequently in fresh condition within the city limits.

Of the forty-one species hereafter listed, 34 are definitely regular residents of this area and have been taken by collectors year after year, although far too little is known about their biology (food-plant, larval and pupal stages, etc.). We strongly suspect also that some species which we consider to be regular residents, such as *Hylephila phylæus*, do not winter here, but are regular immigrants, as *Danaus plexippus* Linné is known to be throughout the north. These points need to be determined by more intensive observation and study.

HAROLD I. O'BYRNE'S "Revised List of the Butterflies of St. Louis County" (Bulletin 3, 1941, of the Webster Groves Nature Study Society) has been useful in providing data regarding time of flight for many species. Dr. EDWIN P. MEINERS, dean of St. Louis collectors, has provided other useful data, and intensive collecting over a period of twenty years by the writer and his son, Dr. CHARLES L. REMINGTON, has given us the balance of our information.

One of the most interesting discoveries in this area was that of *Problema byssus* Edw. at Elsah, Jersey County, Illinois, in 1942. The type locality of this species is Indian River, Florida, and the description was made from a lot containing 13 males and 7 females. KLOTS, in his *Field Guide to the Butterflies* gives the range as "Florida to Texas and north to Kansas and Iowa." I find this same phrase for the range used by most authors since HOLLAND. However, FIELD in his "Manual of Kansas Butterflies" disposed of the "Kansas" part of the range. He wrote: "It was recorded for Kansas by Dr. SNOW in 1875 under the name of *Atrytone kumskaka*, Scudder (a synonym of *Pamphila byssus* Edw.). The Kansas specimen determined by Dr. SNOW as representing this species is in the Snow collection at the University of Kansas and is a female of *Atrytone logan* Edwards. There is something rather peculiar about this record of *A. kumskaka* Scudder by Dr. SNOW in 1875. This date is actually twelve years prior to the year that *kumskaka* was first described by S. H. SCUDDER as a new species, so that this name as listed by Dr. SNOW was probably an earlier manuscript name of SCUDDER'S and may or may not have been the species eventually described by SCUDDER in 1887. Whatever the name *kumskaka* may have been intended to represent at the time of the first date, SNOW'S specimen is *A. logan*."

I was somewhat intrigued by this comment by FIELD and took occasion recently to hunt up the original description in the back files of the *Canadian Entomologist* in the Jones Library of Peabody Museum at Yale University. SCUDDER is altogether too vague in detail about this species. He does not tell how many specimens were in the type lot nor their exact locality. He mentions Iowa in one place and "Western states" in another, but no date of capture. He writes: "In connection herewith I have made two mistakes: First, in identifying in 1868 an Iowa species as *conspicua* and describing the proper male of *conspicua*; and second, the redescription, very briefly, of *pontiac* under the name

Hedone orono, being led astray by my supposition with regard to the Iowa butterfly. I have since given the Iowa butterfly, which belongs to *Atrytone*, the name *Kumskaka*, in naming it for others; but as this name has not been published, nor the species fully described, I append herewith a full description of the same."

One wonders, in considering the phrase "in naming it for others", used above, whether one of the "others" could have been Dr. SNOW. If so, SCUDDER had perhaps not yet made up his mind about the determination of his *kumskaka*. In the article containing the original description of *kumskaka*, SCUDDER gives a drawing of the male genitalia which agrees exactly with the figure of the male genitalia of *Problema byssus* given by LINDSEY, BELL, and WILLIAMS in "The Hesperioidea of North America". For this reason, present-day writers have thrown out *kumskaka* as a synonym of *byssus*.

In early July of 1942 I discovered *byssus* flying in fair quantity on the upland prairies along the bluffs of the Mississippi River on the campus of Principia College at Elsah, Illinois (about forty miles from St. Louis). It was found there again at the same point in the following year and later on June 18, 1949, in St. Louis County, so it is definitely a resident of this area. It was thought at first that perhaps we had re-discovered SCUDDER'S *kumskaka*, the true identity of which has puzzled students since its description in 1887. Dr. E. P. MEINERS made a genitalic study of our local *byssus* and reported that the genitalia agree exactly with the published figure of *byssus*. I now have a long series from Elsah and Florida and see no essential differences. The question arises, how did this species locate in the St. Louis area, where it is extremely local? Is this a product of the Mississippi Flyway or is it just another example of discontinuous distribution? Possibly collectors further south along the River may supply clues to the answer. In 1943 I confined a female *P. byssus* on the long grass which the species frequents, hoping that I might obtain eggs and raise a brood. She laid one egg which did not hatch.

An allied species which was first discovered by the writer in St. Louis County is *Atrytone dion* Edw., taken in the marshes around Creve Coeur Lake in June and July 1932. It has been found there year after year since 1932. One or two specimens were taken by Dr. C. L. REMINGTON within the city limits of St. Louis. Here again we have a thriving local colony with occasional strays.

Hesperia metea Scud. was an unexpected prize first turned up in 1935 at Cedar Hill in Jefferson County, Missouri. The first few specimens, two males and a female, were sent to the late AUSTIN H. CLARK at the Smithsonian Institution for identification. He reported that they were *Hesperia metea* and commented that the female was so dark that it might agree with the figure published by HOLLAND of the only known specimen of *H. horus* Edw., which was first described from Dallas, Texas. A few years later I was kindly permitted by NATHAN BANKS, then curator of insects at the Museum of Comparative Zoology at Harvard University, to examine the type and only known specimen of *horus* in the museum and to compare it with mine. They were not identical. However perhaps the puzzle of *horus* has been solved, for in *Entomological News* for October 1948, H. A. FREEMAN described a new race

of *Hesperia metea* from Texas which he later considered to be *H. metea licinus* Edw. and stated that some of his females agreed closely with sketches of the type of *borus*. I have a long series of *H. metea* from Massachusetts, Georgia, and Missouri which show the species to be very variable. It flies here only in the early spring in wooded hilly areas. I took it again this year.

On September 6, 1954, Dr. C. L. REMINGTON collected in St. Louis County our latest addition to the local fauna—*Amblyscirtes belli* Freeman. While collecting at Kirkwood in a temperature about 115°F. he collected two females and a male of this species. In the field they were assumed to be a fall brood of *A. vialis*, which is common here, and little attention was paid to them. However, on being examined more closely later, it was seen to be *A. belli*, a new record for the area and the northernmost record known for the species. It evidently breeds in this densely wooded ravine along the Meramec River and either has escaped attention until now or is a new arrival. A single specimen was also found at this locality on September 3, 1955, by Dr. REMINGTON, this time on a thistle flower. It will be interesting to see whether it will be found there in future years.

Interesting cases of stray intrusions of southern species in this area may be cited. Perhaps the most extraordinary of these is *Timochares ruptifasciata* Ploetz, taken at Elsah, Illinois, on August 29, 1941, by CHARLES L. REMINGTON. A battered male was caught on an alfalfa flower. This is a Mexican species, considered merely a straggler into the United States except in southernmost Texas. Dr. A. W. LINDSEY checked the identification of the specimen. The surprising appearance of this exotic skipper here was preceded by several days of steady strong winds from the south. The Skipper must have been brought in on the winds.

Another southern visitor was a single specimen, quite fresh, of *Urbanus proteus* L. taken by Dr. E. P. MEINERS inside one of the buildings in Forest Park, St. Louis, on October 5, 1945. The insect had sought shelter there during the night. So far as we know, this is the only specimen ever taken here.

Calpodus ethlius Stoll was found in St. Louis by two of the old-time collectors, ERNST SCHWARTZ and AUGUST KNETZGER, in the fall of 1911. SCHWARTZ found several larvæ feeding on *Canna* on November 5; on being brought indoors, they pupated and emerged on November 20. A killing frost on November 6 probably exterminated any others in the vicinity, and we do not have any records of its capture since.

Another southern visitor, *Lerema accius* J. E. Smith, was taken at Cliff Cave, St. Louis County, on August 22, 1908 by C. L. HEINCK. No one has reported it since.

Autochton cellus Bdv. & Lec. has been taken by HERMAN SCHWARTZ in Perry County, Missouri, on July 20, 1919. This is less than 100 miles from St. Louis. I have seen this specimen which is now in Dr. MEINERS' collection. The species was again reported from the state by KILIAN ROEVER, who saw a single specimen at close range at Big Springs State Park in Carter County on June 14, 1952.

Brief notes on the other species of Hesperiidæ found in the St. Louis area follow.

Proteides clarus Cramer is one of our commonest Skippers, and its broods are not sharply definable. Fresh specimens are on the wing from the middle of April until the end of September, and larvæ in all stages of development are seen from mid-May to early November. Heaviest numbers have been observed in early May, early June, late August, and late September. Adults are attracted to the blossoms of Alfalfa, Privet, and Redbud. The foodplants are legumes.

Achalarus lyciades Geyer is common in sunny patches in the woods. The two broods observed are: (1) large numbers from the last week in May until the last week in June; (2) fewer in late August and early September.

Thorybes bathyllus J. E. Smith is not uncommon from late April through September. It is also found in woods. Dr. A. W. LINDSEY examined a specimen of this species in which the fringes were so white that *T. drusus*, a southwestern species, was indicated. A check of the genitalia, however, proved it to be *T. bathyllus*.

Thorybes pylades Scud. is less common than *T. bathyllus* and is found from April through July. It is often confused with the former species.

Pyrgus communis Grote is plentiful from April through November. It may be that a few specimens hibernate as adults, since worn specimens appear early in April. The first fresh specimens appear soon afterward, and this brood ends in mid-May. The summer brood is common throughout July. The heaviest period of flight for the year is from the middle of August until the middle of November, and at this time *P. communis* vies with *Colias eurytheme* Bdv. and *Phyciodes tharos* Drury for possession of the large clumps of Asters.

Pholisora catullus Fabr. is one of our commonest Skippers and flies from May through September.

Pholisora bayhurstii Edw., a usually uncommon species, has been found here in considerable numbers where open patches of bushes and trees have thick grass and weeds growing between the shrubs. Two broods are found here. The greater numbers fly from the middle of May until the middle of June, and a smaller brood appears late in August.

Seven species of *Erynnis* have been found in this area and their identity established by genitalic study.

Erynnis brizo Bdv. & Lec. is one of our earliest spring butterflies found on wooded hilltops from late March to early May. Some years it is quite plentiful.

Erynnis baptisæ Forbes seems to be still very rare in this area, perhaps because few collectors can distinguish it. Four specimens were reported in April by O'BYRNE from St. Louis and three by the writer on August 12, 1942, near Grafton, Illinois.

Erynnis horatius Scud. & Burgess is limited to one brood apparently flying from May to September and is not uncommon in clover fields. One late record is for a fresh female taken on September 28, 1940.

Erynnis lucilius Scud. & Burgess is perhaps our rarest *Erynnis*. I have two specimens taken in early September at Glencoe, St. Louis County.

Erynnis juvenalis Fabr. is another strictly spring species found exactly sympatrically with *E. brizo*, but more common. It is easy to distinguish them.

Erynnis martialis Scud. may be taken not too uncommonly from late April to early August, generally in wooded areas.

Erynnis persius Scud. is found sparingly from late April to early July.

Ancyloxypha numitor Fabr. is common in moist meadows from May through September.

Hesperia leonardus Harris is a fall species here, regularly found in September in wooded areas. Missouri specimens seem to be larger and darker than eastern and northern specimens.

Hylephyla phylæus Drury is common from July through October and is often found in gardens in the city.

Atalopedes campestris Bdv. is easily found July through October, often in the city in company with the preceding species.

Polites peckius Kirby is not uncommon in fields from May through September.

Polites verna Edw. is not rare in fields near woods, from May through July.

Polites themistocles Latr. is one of our commonest Skippers from May through September, on lawns and grassy fields.

Polites manataaquæ Scud. appears to be rare but probably is confused often with the last species. It flies June through September. A female sent to Dr. J. McDUNNOUGH was identified as this, and Dr. A. W. LINDSEY concurred on this identification.

Wallengrenia otho egeremet Scud. is a mid-summer Skipper here and can be found commonly on Ironweed (*Vernonia*) blossom June to September.

Poanes hobomok Harris is quite rare and very local. Females are never dark here. I have a nice series taken in May and June at Kirkwood, St. Louis County.

Poanes zabulon Bdv. & Lec. is very common May through September.

Atrytonopsis bianna Scud. has been taken at Cedar Hill, Jefferson County Missouri, and at Sullivan, Missouri, in April and May; it is not common.

Atrytone ruricola Bdv. is common here May to September.

Atrytone logan Edw. is not uncommon May through September.

Amblyscirtes vialis Edw. is quite common in wooded areas from April through August.

Amblyscirtes begon Scud. is much less common than *A. vialis* and may be found in woods from April through September.

Lerodea l'herminieri Latr. is rather rare. We have specimens taken from late May through September.

Lerodea eufala Edw. is also uncommon and flies later, from August through November. My best catch was on Asters in Oak openings.