

Lepidoptera Collecting at the Homer.

With Descriptions of Two New Species.

By W. GEORGE HOWES.

[Read before the Otago Branch, October 13, 1942; received by the Editor, March 1, 1943; issued separately, September, 1943.]

EASE of access has lead to the mountain area of the centre of Otago receiving the greatest attention from entomologists. The south-west coastal region, of which the Homer forms a part, with its mountains under entirely different climatic conditions, has been but little searched and offers great possibilities of securing hitherto undiscovered forms of insect life—an *El Dorado* which I had for many years looked forward to investigating.

In January, 1941, Messrs. J. and D. Coombs passed through Homer and brought back to me a number of insects, including a few specimens of the mountain butterflies *Erebia pluto* and *E. butleri*. These were of great interest, being above normal size, while *pluto* had three dots at the apex of the forewing instead of the normal five—and one specimen of *butleri* was so dark it approached *pluto* in depth of colour.

I have since made two visits to the district, the first from the last week in December, 1941, to 12th January, 1942, and the second from 3rd to 6th January, 1943. It was of great interest to find that the large size noted in the mountain butterflies was also a feature of many of the moths secured.

From a week or two in one district, it is manifestly impossible to list all the insects in the area, as their appearance is governed by seasonal and weather conditions; but I was so far fortunate that on my first visit I returned with over 500 set specimens, mostly Lepidoptera, including many rare species and two new to science.

“Sugaring,” generally so attractive to moths, was spoiled by the weather. Practically every evening, even if the day had been fine, the mixture was washed off by rain which developed after sunset, and only a few of the common Noctuids were taken by this method. Collecting from blossoms also proved a failure. *Celmesia*, *Ranunculus*, *Dracophyllum*, *Bulbinella*, *Angelica* were in bloom, as well as many of the smaller flowers, but none of these proved attractive to moths. The Hebes were not yet in bloom. The flowering was so late that even the Maori onion, *Bulbinella*, showed only a few flowers, the majority being still in bud. The main collecting was thus confined to using the net at dusk, and during the rare sunshine periods, also to the moths which were attracted to light. Despite these disadvantages the material collected forms a most interesting list, which is worth placing on record. A day’s excursion to the fine Hollyford Valley proved disappointing, as heavy rain set in, making collecting impossible. Two trips to Milford Sound produced additions to the list, but as this area is at, or near, sea level, collecting was not so attractive as at Homer.

Homer is on the 3000 ft. level, with the bush-line a few hundred feet above it. Immediately above this is perpetual snow. The Homer Valley is walled in by steep cliffs and only at one or two places is it possible to get to the heights above. Collecting is thus confined to an unusually low level. This area is very rough, being mainly covered with large blocks of stone amongst which mountain shrubs grow with great luxuriance and it is necessary to use care in working over it. (Plate 19, Fig. 1.) The only places where rapid movement is at all possible are the slopes made by recent avalanche falls; and, as small falls are common each day, these spots are not to be recommended.

A number of the swift-flying *Declana glacialis* were seen, but owing to the roughness of the ground, only three were secured. During my first visit, rain fell on all but two nights, and these were cold and frosty with bright moonlight. On Christmas morning six inches of snow covered the ground, but soon disappeared.

ARCTIADAE.

Metacrias pupae, along with occasional larvae, were found under stones and rocks, and a few of the males of this moth were seen in swift flight. When caught they proved to be typical *Metacrias huttoni*, but very large in size. Pupae were collected, and from these 36 males and 20 apterous females emerged at intervals up to the middle of January. Some of these mated and I was able to send a batch of fertile eggs to Wellington. These were hatched by Mr. J. T. Salmon, Entomologist to the Dominion Museum, and three moths eventually emerged.

Examination of my large series reared from the pupae shows that the crimson line at the base of the forewing may, or may not, be present. The extent of the yellow, orange, and black markings varies very greatly and the distinctions relied on for separating into two species the forms known as *huttoni* and *erichrysa* cannot be relied on. My conclusion is that the form described as *M. erichrysa* by Meyrick (*Trans. Linn. Soc. N.S.W.*, 1886) is a local race of *huttoni*, but larger and brighter in colour—characters which are insufficient to establish a separate species. *M. huttoni* has priority of description, but as it is convenient to have a name for this special large form, I propose that it be referred to as *M. huttoni* sub sp. *erichrysa*. I would suggest as an explanation of the variance in size:—Mr. West reared *M. huttoni* and established the fact that it produced two broods in the one season. The form known as *M. erichrysa* occurs only where climatic conditions are so severe that it would allow time for only one brood in the season. This entails a longer feeding period for the larvae, resulting in larger and brighter coloured moths—a point which will be agreed on by entomologists who have reared stunted moths from half-starved caterpillars.

There are some new and interesting facts to place on record relative to the life history of this moth. The country around Homer is a mass of rocks with scanty earth covering. The larvae penetrate into spaces below the stones to spin their cocoons and pupate. An unusual, and, I think, a unique habit, is that many, but not all,

start by constructing a comparatively large "nest," formed from tiny fragments of snowgrass, moss or bark, etc., and inside this spin the usual cocoon of openly woven silk. (Plate 19, Fig. 2.) Cocoons are always attached to the under side of the protecting cover-stone—never on the ground or on rock below. These habits of using well anchored shelter and the extra protection of the nest are probably protections against melting snow. (*M. strategica*, which is common around Invercargill, uses logs, and even bark, as a cover.) Numbers of larvae pupate under the same stone, the moths emerging in late December and up till the middle of January. Caterpillars which are late in spinning up always prove to be parasitised by a *Dipteron*. The pupae of these flies are, an unusual bright mahogany colour. Not many of the caterpillars are parasitised.

NOCTUIDAE.

The genus *Ichneutica* comprises fine moths of fairly large size and seven species have so far been described. As they occur in the mountain districts early in the season, I hoped my Homer trip would enable me to secure some at least of these seven species. During the century of collecting that has now passed in New Zealand, the early years saw only one species, *Ichneutica ceraunias*, described; then in 1898 *I. dione* was added—the other five have been described in fairly recent years. So it was very interesting to find, in a few weeks, in this limited Homer district, five out of the seven described species and to have the good fortune to secure still another fine species, which, at Mr. Hudson's suggestion, I have described under the name of *I. homerica* (1943 *Trans. Roy. Soc. N.Z.*, vol. 72, pt. 4, p. 371).

One form of *Ichneutica* presents some unusual problems. Checking over the various species, I find that each is definite, with very little variation between individuals of the same species. In *I. lindsayi* alone we have wide variation ranging from forms resembling *ceraunias* and *dione* as well as the typical *lindsayi*, but all connected by intermediates. This is not simply a matter of variation of colour and pattern—some have narrow and some broad wings, in some the subterminal line occurs as in *dione*, some follow the pattern of *ceraunias* but with a darker ground colour, and some appear as the typical *lindsayi*, but throughout all these varieties there seems to be but one species. With all the other species of *Ichneutica* not showing variation it is interesting to find in the 30 specimens I took of this one species hardly two specimens alike. We have either to include a number of varied forms under *lindsayi* or to separate them into several species. The solution appears to be that this variable series is the offspring of a fertile cross between *ceraunias* and *dione* and that the species is not yet fixed. I treat the lot as *Ichneutica lindsayi*.*

* Since writing the above my attention has been drawn to *The Material Basis of Evolution*, by Dr. R. Goldschmidt, Professor of Biology, University of California. He considers the fertile crossing of two species can occur and result in the formation of a third species. I would suggest that variability would be extreme in the early stages of the new species.

Aletia nullifera were not only extra large but were all of a leaden-grey colour instead of the usual ochreous-grey. *A. obsecrata*, *panda*, and *empyreae* were welcome rarities.

Physetica caerulea were all deep slaty-blue, with none of the usual light-coloured varieties.

Melanchra asterope and *M. oliveri* were fairly plentiful and in excellent condition and several fine specimens of *M. petrograpta* were a great prize.

GEOMETRIDAE.

Unsuitable nights and an absence of attractive blossom resulted in a measure of disappointment. Four species of *Tatosoma*, eight of *Chloroclystis*, and eight of *Hydriomena* were not many, but the species taken were all welcome and specimens were in excellent order. I had hoped to secure novelties among the day-flying *Notoreas* and *Dasyuris*, but the weather was against this. The beautiful *D. callicrena* was the most common. A large series of what used to be referred to as *N. zopyra*, but which has been treated as a synonym of *N. brephos* by G. V. Hudson, was also secured. On the evidence of this material, I am convinced that *zopyra* is a distinct species. It can be readily distinguished from *brephos* by its smaller size, well defined blue-grey colour of forewing, the terminal black line of the hindwings is not crenulate on its inner margin and is much narrower. An extraordinary variety occurs with two light bars across the forewings, which may be red-brown, and in some specimens orange in colour, almost the same shade as the underwings. Examination of seven specimens of *H. praerupta* offers similar evidence that this species is distinct and should not be treated as a synonym of *H. callichlora*. See Philpott, 1918, *Trans. N.Z. Inst.*, Vol. 50, p. 125, for description of *H. praerupta*.

Selidosema species were not numerous, but *S. terrena* was common, and I was interested to note that it showed hardly any variation. Specimens of *S. rudiata* were exceedingly large.

Thanks to the kindness of Mrs. J. Sutherland, who was resident at Homer, I have received, since my return, several lots of moths, including one new species which I have described (1943, *Trans. Roy. Soc. N.Z.*, vol. 72, pt. 4, p. 72) under the name of *S. berylia* in compliment to Mrs. Sutherland.

Although five species of *Declana* were taken, the only common one was the usually rare *D. egregia*. The tunnel lights burned continuously and moths which were attracted by them did not fly away. Birds had become aware of this and the tunnel entrance was littered with moth wings—particularly those of *D. egregia*. Besides the imported chaffinches, sparrows and starlings, I noted that wekas, tomtits and pipits were all busy collecting moths—and the remains of their feasts were a lamentable sight for an entomologist. Keas, which are very common in the district, were noted picking up insects at night from under the township lights.

Micro-lepidoptera, Coleoptera, Diptera, and a few Hymenoptera were also secured, but as it may be possible to make another visit at some later date in a better season, these can be dealt with at some future time.

The Lepidoptera taken were of interest, not only because of the securing of rare species, but also because many of them were of outstanding size and intensity of colouring. Species usually common in other areas were often either absent or only a few appeared.

RHOPALOCERA.

Erebia pluto and *E. butleri*. Both were reported as occurring in the vicinity of Homer in 1941. I did not see them in January, 1942, but in the first week of January, 1943, *E. pluto* of large size and intense colouring were fairly plentiful at the tunnel entrance and of these I secured seven specimens. *E. butleri* was not seen.

Chrysophanus salustius. A good series of a small local form was secured at Marion, a pupa was found at Homer, and the butterflies were common at Milford.

Chrysophanus boldenarum. While fairly common on the Eglington and Hollyford River flats, only a few undersized specimens were seen at Homer.

ARCTIADAE.

Metacrias huttoni. Pupae common under stones at about 3000 ft. level. Males seen flying at the end of December and early January when apterous females were found in the cocoons. All males with large wing expanse (about 40 mm.).

Nyctemera annulata. A few seen flying on the lower levels.

NOCTUIDAE.

Agrotis ypsilon. Two or three typical specimens only.

Ichneutica marmorata. Not common and from the number of specimens in poor condition apparently an early species.

I. dione. Also not common. Wing expanse from 40 mm. to 46 mm.

I. cana. One specimen agreeing with type in colour and marking.

I. ceraunias. No males of the normal type were taken, but 2 females with abbreviated wings showed the normal *ceraunias* colour.

I. homerica (Howes, 1943). This species was quite common at the end of December—a few in early January, when several were noted flying in hot sunshine.

I. lindsayi. A few specimens of the typical form, but fairly large numbers showed striking variation.

Leucania purdii. This fine moth was fairly common at light.

Aletia nullifera. 7 specimens, wing expanse 75 mm.

A. moderata. A few only. Usually one of the commonest moths.

A. griseipennis. About 12 taken in good condition.

A. panda. 1 specimen only of this fine rare moth.

A. empyraea. Both male and female secured in excellent condition.

A. longstaffi. 6 specimens.

A. obsecrata. 5 specimens, females 39 mm., males 36 mm. expanse.

Physetica caerulea. A fair number seen, all of a deep slatey-blue colouring.

Persectania disjungens. Common, all specimens dark.

P. atristriga. 2 or 3 only seen.

P. propria. 1 only seen.

P. arotis. Several specimens taken.

- Melanchra insignis*. A few only, not quite the usual form and apparently a local variety.
- M. plena*. In addition to the usual form about 6 specimens were secured, all very pale green with a bright red flush over the reniform. These specimens were all narrow-winged. Perhaps with more material future collectors may decide to treat this as a separate species.
- M. praesignis*. Fairly common.
- M. mutans*. Only 1 or 2 seen of this common moth.
- M. furtiva*. A few taken.
- M. petrograpta*. A fine male of this rare moth with a wing expanse of 44 mm. was taken, also 3 others slightly smaller. Superficially like *M. mutans*, but, where the males of that species are reddish-brown, those of *petrograpta* are grey-brown.
- M. lithias*. 1 only taken.
- M. maya*. 1 only from Marion at light.
- M. oliveri*. 6 specimens, including 1 female—all in perfect order.
- M. phricias*. A few only.
- M. decorata*. A few seen.
- M. chryseerythra*. Out of a large number seen only 8 were in good condition.
- M. asterope*. Appeared quite commonly and a good series was taken. Other *Melanchra* occurring sparingly were *omoplaca*, *pascoei*, *stipatadotata*, *ochthistis*, and *agorastis*.
- Ariathisa comma*. A few only were seen.
- Dasypodia selenophora*. A single specimen taken exuded bright blue drops—apparently the result of feeding on fuchsia flowers.

GEOMETRIDAE.

- Tatosoma letevata*. 5 specimens, all in perfect condition.
- T. apicipallida*. 6 taken of this fine high-mountain form.
- T. agrionata*, *T. topea*, *T. timora*. 2 of each of these species taken.
- Chloroclystis*. These small, beautiful moths were numerous and in good condition, providing good series of *C. lunata*, *magnimaculata*, *halianthes*, *furva*, and the lovely green *melochlora*, and also one or two each of *C. rubella* and *C. clarkei*.
- Eucymatoge gobiata*. Only a few worn specimens were seen.
- Hydriomena similata* and *H. callichlora*. Fairly common.
- H. praerupta*. 7 specimens, 5 of which were in perfect condition.
- H. arida*. 6 specimens showing extra dark colouring. Males 26 mm., females 31 mm.-expanse.
- H. purpurifera*. A large series in perfect order. All with whitish lower wings as against the ochreous underwings of Dunedin specimens.
- H. rixata*. Common around Marion.
- H. hemizona*. 5 of this rare species was a welcome addition.
- H. deltoidata*. A few only at Homer, common elsewhere.
- Asthena pulchraria*. A number taken, all of large size.
- Venusia undosata*. 8 at Homer—common at Marion—32 mm. wing expanse.
- V. charidema*. 5 specimens came to light at Homer.

- Orthoclydon praelectata*. A few at Homer, but large numbers were attracted to light at the western end of the tunnel, where flax is common on the adjacent hillside.
- O. chlorias*. 2 only of these beautiful moths.
- Xanthorhoe umbrosa*. Plentiful at light. When newly emerged this moth is dull olive-green, but soon fades. Wing expanse 42 mm.
- X. dissimilis*. Quite common, wing expanse 43 mm.
- X. occulta*. A number seen, some with abbreviated wings, usual expanse 32 mm.
- X. beata* and *X. benedicta*. Both fairly common and good specimens.
- X. adonis*. Only a few taken.
- X. cinerearia* and *X. semisignata*. Very few seen in any of the Homer localities.
- X. semifissata*. Rare at Homer but common at Marion. Specimens large and well coloured.
- X. cataphracta*, *X. declarata* and *X. stricta*. These appeared as occasional captures amongst tussock country.
- X. cedrinodes*. 6 specimens, males 35 mm., females 39 mm. wing expanse.
- X. stricta*. 2 worn specimens were in a parcel of moths subsequently sent by Mrs. Sutherland from Homer.
- Notoreas brephos*. Fairly common in all localities.
- N. zopyra*. A few at Homer, most common at Marion and from there up to the Divide.
- N. anthracias*. Beautiful dark specimens were plentiful above Divide.
- N. mechanitis*. The few taken were all very dark and above normal in size.
- N. paradelpha*. 4 specimens larger and darker than normal.
- Dasyuris callicrena*. The only day-flying moth that was really plentiful, and a good number were taken in perfect order.
- D. leucobathra*. 4 specimens.
- D. micropolis*. 12 specimens.
- Epirrhanthis veronicae*. Plentiful, attracted to light—a number were beautiful red-marked specimens.
- E. alectoraria* and *E. ustaria*. Also common at light.
- Selidosema terrena*. Quite common and showed practically no variation in the 15 specimens I collected.
- S. rudiata*. 4 specimens, all of exceptionally large size—48 mm. wing expanse—and showing slight difference in general colour and some of the markings make me inclined to think that this mountain form should be treated as a distinct species.
- S. ombrodes*. 2 specimens from Homer. Previously only recorded from Chatham Islands.
- S. berylia* (Howes, 1943).
- S. productata*. 3 only.
- Declana leptomera*. Plentiful.
- D. junctilinea*. 6 specimens all of the dark mountain form.
- D. floccosa*, *D. hermione*. 2 only of each.
- D. glacialis*. A number seen but only 3 secured.
- D. egregia*. A large number attracted to the tunnel lights, but only a small proportion in perfect condition.

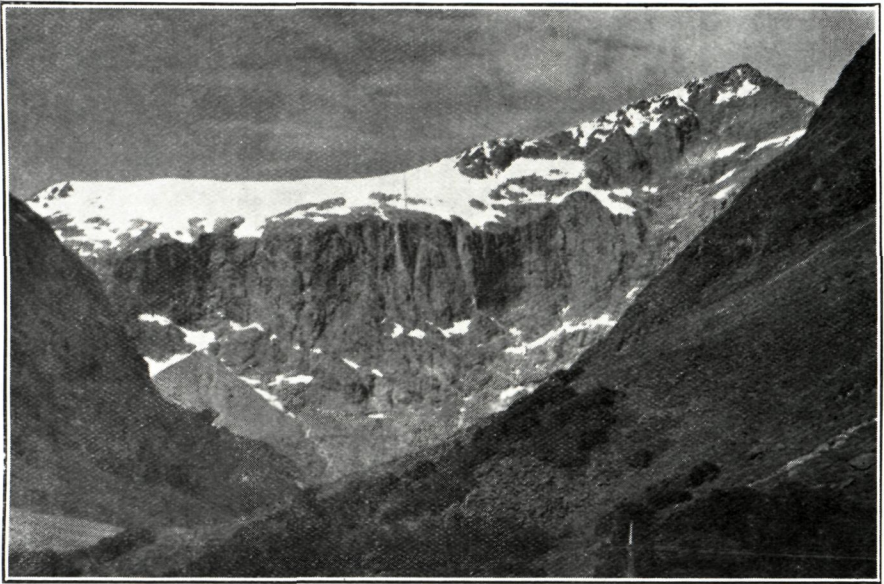


FIG. 1. Below Homer, showing Gertrude Saddle and the rough nature of the collecting ground.

J. T. Salmon, photo.

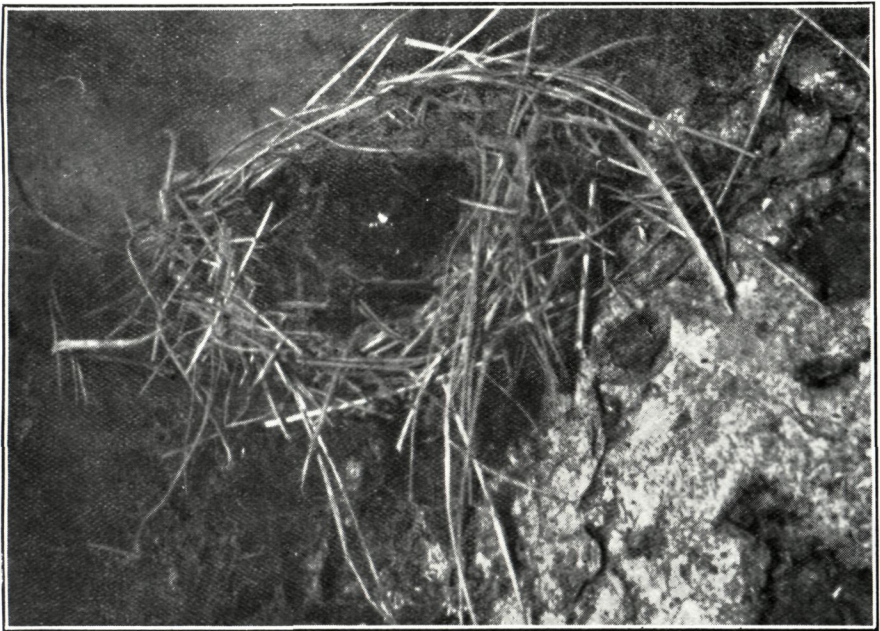
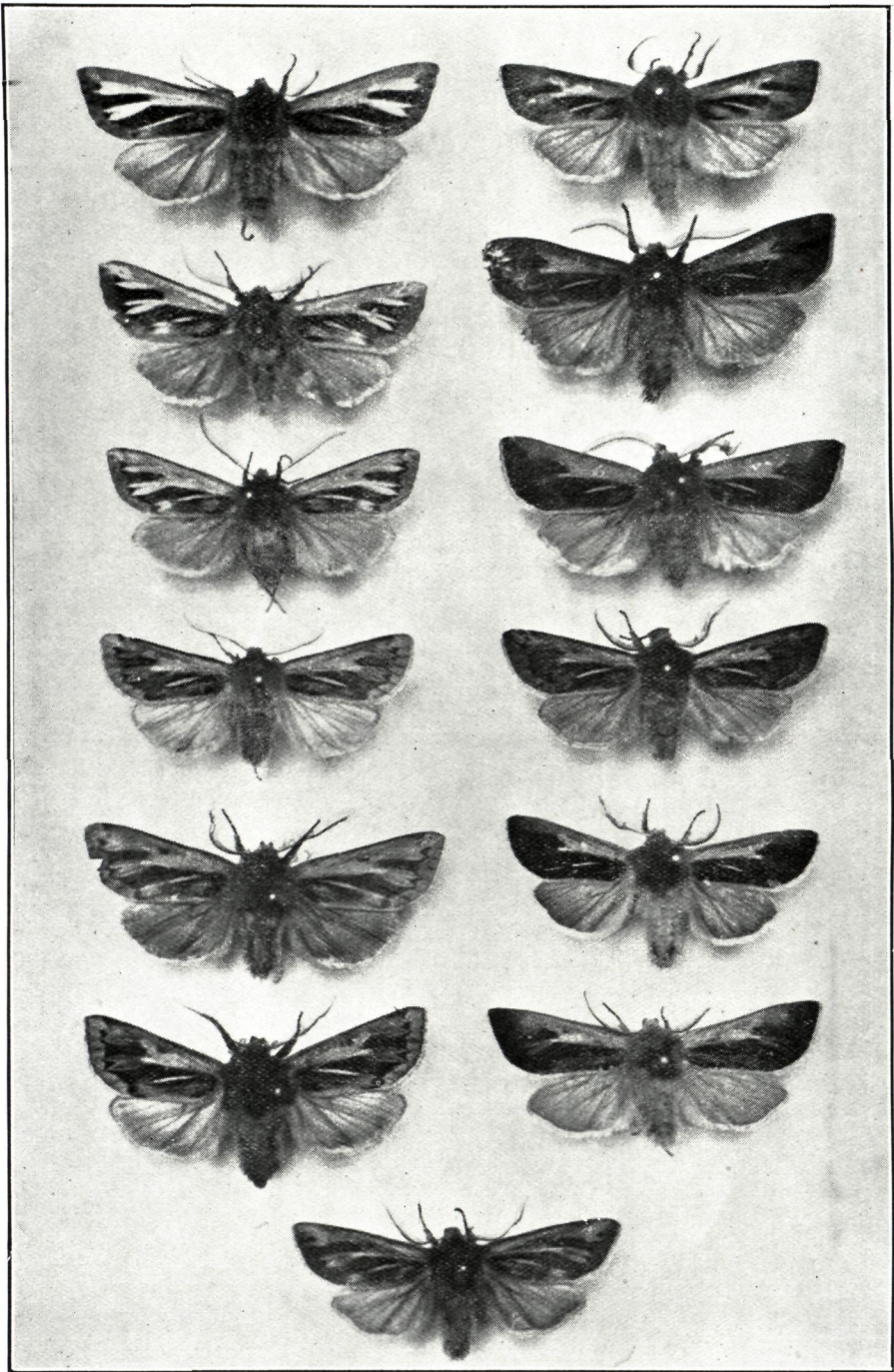


FIG. 2. Unique pupation nest of *Metacrias huttoni* sub-spec. *erichrysa*.

L. D. Coombs, photo.

To face page 96.



Some of the variations of *Ichneutica lindsayi*.

J. T. Salmon, photo.