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PTEROPHORIDÆ

OF

CALIFORNIA AND OREGON.

BY

THOMAS, LORD WALSINGHAM.

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JOHN VAN VOORST, PATERNOSTER ROW.
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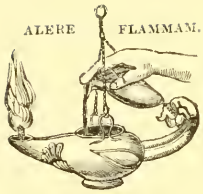

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PTEROPHORIDÆ OF CALIFORNIA AND OREGON.

BY THOMAS, LORD WALSINGHAM.

JOHN VAN VOORST, 1, PATERNOSTER ROW, E.C.

Royal 8vo, 85-pp., Half-Bound (Roxburgh), with Four Coloured Plates, illustrating 45 species, 10s. 6d.

AN ILLUSTRATED ESSAY ON THE NOCTUIDÆ OF NORTH AMERICA;

With "A COLONY OF BUTTERFLIES."

BY AUGUSTUS RADCLIFFE GROTE, A.M.,

President of the New York Entomological Club, &c., &c.

JOHN VAN VOORST 1, PATERNOSTER ROW, E.C.

PREFACE.

The object of this pamphlet is to make known several new species of Pterophoridæ occurring in California and Oregon, some of which may probably have also a wider distribution. The types are at present in my own collection, where they will always be at the service of any entomologists who may be engaged in the study of this group of insects on this side of the Atlantic; and I have given duplicates of nearly all the species here described to a friend in America, by whose known courtesy I feel sure that they will there be made available, in the interests of science, to all who may wish to see them.

WALSINGHAM.

INTRODUCTION.

In the course of a sporting-expedition through California and Oregon, extending from the middle of May 1871 to the end of June 1872, I devoted much time to collecting Lepidoptera.

With the exception of about four months spent in winter-quarters, in a log hut on the site of old Camp Watson, about sixty miles from Canyon City, all my time was passed in open camp, which gave me exceptional opportunities of collecting at all hours; and as my outfit was purposely adapted to the requirements of a vagrant entomologist, as well as to those of a sportsman, I was able, with the help of my energetic

assistant Thomas Eedle, to capture and set a great number of specimens nearly every day, and to bring them to Europe in the best possible condition.

One large tin case, divided into about seventy partitions, was exclusively devoted to the rearing of Microlepidoptera from their earlier stages, in as many wide-mouthed glass bottles, which were corked or covered with wire gauze, according to the circumstances of each particular case; but, although this enabled me to ascertain the food-plants of many interesting species, I unfortunately omitted to make any sufficient descriptions or to preserve specimens of the larvæ.

The numerous species of Pterophoridæ forming so great a proportion in the rich results of this expedition prove that that group is strongly represented in the Western States, and that the close resemblance to European forms, which has so often been mentioned by different writers as one of the characteristics of the Lepidopterous Fauna of Western North America, is here fully maintained.

The manner in which my journey was performed has brought into some prominence the very interesting but perplexing question of the value of apparently specific differences. In consequence of my changing the collecting-ground every two or three days, with a few exceptions, throughout the season, by short marches of from fifteen to thirty miles a day (moving northwards in the summer of 1871 and southwards in the spring of 1872), I was enabled to acquire a considerable series of specimens of several species, ranging perhaps, in some instances, over 100 or 150 miles of country, exhibiting almost imperceptibly gradual but extensive variation both in size and colour. In one or two notable instances the range of this variation would seem to include two or even three different forms, which, if they had been found without their intermediate connecting-links, would certainly have been considered distinct species; and even after a careful comparison of an extended series, it must still remain, in some cases, an open question whether they are or are not entitled to specific rank.

In the genera *Amblyptilus*, Hübner, *Œdemato-*

phorus, Wallengren, and even in *Lioptilus*, Hübner, this difficulty especially presents itself.

The Californian and Oregonian specimens of *Amblyptilus* certainly include examples which correspond precisely with European specimens of *A. acanthodactylus* and *A. cosmodactylus* respectively; and Prof. Zeller informs me that he has bred these two forms in Europe from larvæ feeding on the same plants of *Aquilegia* and *Geranium pratense*, but that he omitted to take the necessary pains to make out their characters in the larval stage.

My specimens of the genus *Œdematophorus*, varying in size and colour between the two extreme forms represented by those hereinafter described as *Œ. grisescens* and *Œ. guttatus*, include several varieties showing a gradual approximation in opposite directions to the intermediate species known as *Œ. cretidactylus*, Fitch; and some of these can scarcely be distinguished from the European *Œ. lithodactylus*, Treitschke; yet if this last species is not to be confounded with *cretidactylus* (and it has certainly

some distinguishing characters, which have been carefully pointed out by Prof. Zeller, Verh. z.-b. Ges. Wien, xxiv. p. 444), the two previously mentioned must be even more clearly entitled to claim specific recognition.

Under the name of *Œdematophorus occidentalis* I have ventured to include the two very different varieties figured in Plate II. figs. 13, 14, partly on the evidence afforded by a series of eight specimens obtained on Mt. Shasta in August, which do not vary among themselves, but appear to be exactly equidistant between them, and partly because I have other specimens from neighbouring localities which are again intermediate in both directions between the Shasta specimens and the two which have been selected for illustration.

Again, in the genus *Lioptilus*, the two varieties of *L. homodactylus*, Walker, would have been sufficiently distinguished from each other by the difference in the colour of their heads; but an intermediate shade of colour is observable in the heads of some

specimens, which are also apparently intermediate between them in other particulars.

The time will come when a careful and minute study of these insects in their different stages of development will throw more light upon the subject, and will probably lead to some useful revision of their synonymy; but it is difficult to foresee whether such a revision will tend to increase or to diminish the number of determined species in such genera as those above referred to.

Very few species of Pterophoridæ have up to the present time been recorded from North-west America. Three were described by Mr. Packard in 1873, in the 'Annals of the Lyceum of Natural History, New York,' vol. x. p. 266 &c., from California.

Of these the first, *Pterophorus pergracilidactylus*, is the well-known *Pterophorus monodactylus* of Linné, as pointed out by Prof. Zeller (Verh. z.-b. Ges. Wien, xxv. p. 266).

The second, *Pterophorus sulphureodactylus*, belongs

to the genus *Lioptilus*, Wallengren, and is re-described and figured in this pamphlet.

The third, *Pterophorus cervinidactylus*, to judge from Mr. Packard's description, may probably be found to be identical with the somewhat variable and widely distributed *Platyptilus bertrami*, a Texan variety of which has been described by Prof. Zeller (Stett. ent. Zeit. 1867, p. 333) under the name of *P. bischoffii*.

Mr. Walker (Cat. Lep. Het. xxx. p. 940) described *Pterophorus homodactylus* from Vancouver's Island; and Prof. Zeller (Verh. z.-b. Ges. Wien, xxiv. pp. 444, 445) records *Œdematophorus cretidactylus*, Fitch, and describes *Lioptilus matthewianus*, both also from Vancouver's Island.

With these exceptions I am not aware of any Pterophoridæ having been alluded to by entomological authors as occurring in North-west America.

In this pamphlet I have described several new species, giving figures of each; and have given

figures also of such known species as were met with in the course of my expedition.

Three species are figured here which do not, so far as I am aware, occur in California or Oregon. Of these, two—*Lioptilus paleaceus*, Zell., and *Oxyptilus periscelidactylus*, Fitch—are given for convenience of comparison with some of their near allies; the other, *Platyptilus petrodactylus*, Walk., to enable those who have not access to Mr. Walker's types to become acquainted, through this pamphlet, with all the three North-American Pterophoridæ which he has described.

The arrangement followed here is that of Herr Pastor Wallengren, as explained in his 'Skandinaviens Fjädermott,' published in 1859 (K. Vetensk.-Akad. Handlingar, B. iii.), of which Prof. Zeller has given an abstract in the 'Stettiner ent. Zeitung' for 1867, and of which the Latin diagnoses have been translated by Dr. R. C. R. Jordan in a very useful paper in the 'Entomologist's Monthly Magazine,' nos. 65, 66, 67, for the months of October, November, and December of the year 1869.

The genera *Platyptilus*, *Amblyptilus*, and *Aciptilus*, first characterized by Hübner (Verz. pp. 429, 430), were originally spelt *Platyptilia*, *Amblyptilia*, and *Aciptilia*. I have followed Wallengren in adopting the termination suggested by Zeller (Isis, 1841, pp. 768–770), and in quoting Hübner as the authority for the sense in which they are used.

Dr. Jordan and Mr. Stainton both agree in referring the genus *Chrysocorys*, Hübn., to the Pterophoridæ rather than to the Tineidæ, and I have followed those authors in including it here.

I cannot hope that this contribution to the history of the North-American Pterophoridæ will be even nearly as useful as at one time I hoped and intended it to be; for instead of continuing to acquire specimens of this group of insects, and to study them whilst the recollection of those which I had seen in American collections was fresh in my mind, owing to a variety of other occupations withdrawing my attention from the subject, I laid aside in 1873 (about a year after my return to England) all the material,

with the steel plates which had been prepared by the late Mr. E. W. Robinson to illustrate it, and have found myself at great disadvantage in taking it up again after such a lapse of time. The plates themselves had become rusted, and could only be utilized by printing first on stone, instead of working direct from the steel; this has impaired the clearness of the delicate outlines in some cases, but I trust that in the colouring this will be found to have been remedied.

Whilst rendering my grateful acknowledgment to Prof. P. C. Zeller for his kind and courteous replies to numerous queries which I have addressed to him, and for the great assistance I have derived from them, I must crave indulgence for many and serious shortcomings in this humble attempt to add to the knowledge of a somewhat difficult group of insects.

WALSINGHAM.

April 26th, 1880.

SYSTEMATIC INDEX.

PTEROPHORIDÆ

OF

CALIFORNIA AND OREGON.

CHRYSOCORYS, *Curtis.*

Chrysocorys festaliella, *Hübner.*

(Plate I. Fig. 1.)

Schreckensteinia festaliella, Hübn., Wocke, Cat. 2705.

Of this species six specimens occurred on the 29th May, 1871, in Mendocino County, California, and three more early in June of the following year on the coast near Klamath River. They appear to be in all respects the same as European specimens, having also the same habit of frequenting one or more species of the genus *Rubus*.

The only *Chrysocorys* at present described as occurring in North America, *C. erythriella*, Clemens (Proc. Ac. Nat. Sc. Phil. 1860, p. 168), is very closely allied to this species.

I have examined Dr. Clemens's type in the collection of the Entomological Society of Philadelphia, as well as two specimens in Mr. Stainton's collection. The differences which exist between them are well

expressed in a letter which I received from Mr. Stainton, who kindly examined my Californian specimens in June 1873:—

"My impression is that your *Chrysocorys* are *festaliella*. *C. erythriella* is smaller and darker, and the dark streak near the inner margin seems to stop at the anal angle, instead of turning up along the hind margin to terminate at the apex, as in our *festaliella*."

Chrysocorys felicella, sp. nov.

(Plate I. Figs. 2, 2*a*, 2*b*.)

Capite, palpis, thorace et abdomine nitide griseo-fuscis.

Antennis setaceis.

Alis anticis sericeis, subpurpurascenti-fuscis, ciliis unicoloribus; posticis cum ciliis brunneo-fuscis.

Tibiis et calcaribus subnitidis.

Head, face, thorax, and abdomen smooth, with closely appressed, shining, greyish-fuscous scales; the palpi drooping, scarcely recurved, the second joint with a few projecting scales in front, the third joint smooth and of equal length with the second; the tongue distinctly yellowish.

The underside of the thorax and abdomen shining, almost metallic, whitish grey.

Fore wings unicolorous, smooth, rather shining, fuscous, with a very slight purplish tinge; the cilia the same.

Hind wings and cilia rather pale brownish fuscous.

The legs rather shining brownish grey; the third pair armed, as in *C. festaliella*, with moderately long spurs of the same colour.

Expanse 9 millims.

The small, green, and slightly hairy larvæ were found feeding (April 16th), in Northern Oregon, on a species of *Orthocarpus*, and again, on another species of the same plant, at the end of June, near Eureka, in Humboldt County, California. Three specimens bred from the former emerged at the beginning of May, and one specimen from the latter on the 10th of July.

The larva appeared to draw together the slender leaves at the terminal shoots of the food-plant, and constructed a white open network cocoon, in which the pupa was distinctly visible.

PLATYPTILUS, *Hübner.*

Platyptilus bertrami, *Rössl.*

(Plate I. Fig. 3.)

Platyptilia bertrami, Rössl., Wocke, Cat. 3122.
Platyptilus bischoffii, Zell. Stet. ent. Zeit. 1867, p. 333.
Platyptilia bischoffii, Zell. Verh. z.-b. Ges. Wien, xxiii. p. 317.
? *Pterophorus cervinidactylus*, Packard, Ann. Lyc. Nat. Hist. New York, vol. x. pp. 266, 267 (1873).

I have carefully compared a series of Californian specimens with an equal number of English examples

of *P. bertrami*, and am unable to detect any recognizable difference. The Californian form does not possess the unicolorous white hind feet which, according to Prof. Zeller, distinguish his Texan *Platyptilus bischoffii* from the European species.

The only other species to which it might perhaps be referred is *Pterophorus cervinidactylus*, Packard (Ann. Lyc. Nat. Hist. N. Y. x. 266); but that species is described as having the "fringe" (of the fore wings) "concolorous with the wing," which is stated to be "fawn-brown." If this may be read as intended to refer to the pale ground-colour of the wing (the "paler subochreous along the inner edge"), the description exactly applies to my specimens and to the European species. The only other point in which it scarcely agrees with *P. bertrami* is in the "black dot just above and near the end of the split." American and English specimens of *P. bertrami* have a few dark scales near the end of the fissure, some above and some below it; but they scarcely amount to what may be called a black dot.

I am nevertheless inclined to think that this will be found to be the species described by Mr. Packard.

Since writing the above, I have heard from Prof. Zeller that he is now inclined to regard *bertrami*, *ochrodactylus*, and *bischoffii* as all belonging to the same species.

Taken not uncommonly in Mendocino and Lake

Counties, California, June 1st to 18th, 1871, and on the Siskiyou Mountains, June 8th, 1872.

Some varieties, also from California and Oregon, are decidedly paler than the figure, indeed so much so as to suggest the idea that they may possibly be distinct; but I have an equally pale specimen bred from a larva found in England.

Platyptilus adustus, sp. nov.

(Plate I. Fig. 4.)

Capite, palpis et alis anticis aduste cervinis, parum partim subliturratis, costa vix infuscata, lineola ad bases ciliorum marginis apicalis brunnea.

Alis posticis brunneis, digito tertio paulo pallidiore.

Head, face, palpi, and antennæ, together with the projecting frontal tuft, fawn-colour, with a browned or burnt appearance.

The anterior wings the same, but with very faint indications of paler blotches about the dorsal margin and above the fissure. The costa is of a slightly darker shade, and a slender brownish line runs along the base of the cilia on the apical margin; the cilia are scarcely paler than the fore wings.

Hind wings with the two anterior lobes more brownish; the posterior lobe of the same colour as the fore wings.

Legs pale fawn-colour; the feet and anterior portions of the tibiæ scarcely paler.

Expanse 23 millims.

Siskiyou Mountains, California, June 1872.

Distinguished from *P. bertrami* by its brown head and frontal tuft, and by the darker cilia of the apical margin, as well as by its more uniformly brownish colour.

Platyptilus grandis, sp. nov.

(Plate I. Fig. 5.)

Capite, palpis et flocco frontali brevi dilute cervinis.

Alis anticis costa, punctis duobus elongatis ante medium et macula triangulari costali ante fissuram brunneo-fuscis, regione apicali adumbrata, lineola subapicali et ciliis pallidioribus, ciliis in sinu marginis dorsalis et ad angulum analem brunneo-fuscis; posticis dilute brunneo-cervinis.

Head, palpi, and frontal tuft pale fawn-colour, the latter shorter than in the smaller allied species, *P. bertrami* and *P. adustus*; antennæ fawn-brown, faintly spotted on their upperside.

Anterior wings pale fawn-colour; the costa tinged with brownish fuscous as far as the triangular costal blotch before the fissure, which is of the same colour; two brownish-fuscous elongated dots are situated before the middle of the wing, the lower one of these being nearest to the base. Beyond the costal triangle, after a pale intervening space, the lobes above and below the fissure are shaded with fawn-brown to the apical margin,

but crossed by a slender pale waved line running parallel to it. A brownish line runs along the base of the cilia, terminating in a brownish-fuscous shade at the anal angle. The cilia on the dorsal margin are brownish fuscous except immediately before the anal angle, where they are very pale fawn-colour.

Hind wings fawn-brown, with paler cilia, except those on the dorsal margin of the third lobe, which are tinged with brownish fuscous.

Legs and spurs very pale fawn-colour. The hinder extremities of the third pair of tibiæ slightly darkened.

Expanse 36 millims.

I took three specimens of this large and distinct species on M'Leod Creek, near Mount Shasta, California, at the latter end of August 1871.

Platyptilus cardui.

(Plate I. Fig. 6.)

Pterophorus carduidactylus, Riley, Rep. Ins. Miss. i. 1869, pp. 180, 181, pl. 2. figs. 13, 14.

Platyptilia cardui, Zell. Stet. ent. Zeit. xxxii. p. 179; Verh. z.-b. Ges. Wien, 1873, xxiii. p. 318.

I have adopted Zeller's name for this species in preference to the mixed name originally given to it by Professor Riley. It occurred in Northern California in June 1872, flying among mixed growth at springs on a hill-side. The specimens are perhaps

somewhat paler than those which I have seen from the Eastern States, and seem to be almost undistinguishable from the European *P. zetterstedtii*, Zeller (Isis, 1841, p. 777). Prof. Zeller (Verh. z.-b. Ges. Wien, 1873, pp. 119, 120) carefully compares the two species. He relies, amongst other points, upon the extent of the brown colour upon the hind legs between the two pairs of spurs, as pointing to a sure specific difference ("An der Hinterschienenspitze nimmt bei diesem Texaner Exemplar die braune Farbe weniger als den halben Raum zwischen den zwei Sporenpaaren ein, bei *cardui* $\frac{2}{3}$").

I observe that in my Californian examples the brown colour occupies fully one half of the space between the two pairs of spurs. The habits of the two species in their larval stages are undoubtedly very distinct, the European *zetterstedtii* feeding singly in stems of *Senecio nemorensis*, the American *cardui* being gregarious on heads of thistles (*Cirsium lanceolatum*).

Platyptilus percnodactylus, sp. nov.

(Plate I. Fig. 7.)

Capite, palpis et alis anticis dilute brunneis, lituris apud fissuram et marginem dorsalem, et lineola subapicali pallidioribus, macula triangulari cos-

tali, margine apicali et ciliis brunneis; posticis brunneis, ciliis digiti tertii squamis fusco-brunneis apud medium marginis dorsalis ornatis.

Head and palpi pale brown; the antennæ spotted above with brown and whitish.

Fore wings pale brown, with very pale fawn-coloured diffused blotches, one above the base of the fissure reaching to the costa, another below the costal triangle, and another at the base of the dorsal margin; a pale line runs parallel to the apical margin; beyond this line the apical margin is shaded with brown, a pale line running along the base of the cilia, which are brown, except within the fissure and before the anal angle; a small dot of brownish-fuscous scales lies beyond the middle of the dorsal margin at the commencement of the dorsal cilia.

Hind wings brown, the third lobe slightly paler towards the base and ornamented with a spot of brownish-fuscous scales in the cilia on its dorsal margin.

Legs slender, whitish fawn, slightly thickened and touched with brown at all the joints; the spurs pale.

Abdomen brownish, paler at the base.

Expanse 22 millims.

Hatchet Creek, Shasta County, California, July 14th, 1871.

This species is allied to *P. zetterstedtii* and *P. cardui*; but the fore wings are shorter, the apex less

produced, the legs more slender, the whole insect having a less robust appearance.

It approaches more nearly to *P. gonodactylus*, Schiff.

Platyptilus albidus, sp. nov.

(Plate I. Fig. 8.)

Capite et thorace cinereo-albidis.

Alis anticis cinereo-albidis, macula triangulari costali brunnea, costa et margine apicali brunneo suffusis, ciliis albidis; posticis cum ciliis unicoloribus dilute brunneis.

Tibiis posticis cinereis, pedibus et calcaribus paulo pallidioribus.

Head, palpi, and thorax bluish white; antennæ dotted above.

Fore wings bluish white, dusted with brownish scales, much suffused towards the apical margin with greyish brown; a pale line running from the apex across the fissure parallel with the apical margin, and a pale space immediately beyond the triangular costal patch; the costa is dusted with brown, the triangular patch brown, the dorsal margin touched with brown. A faint indication of two brown spots before the middle of the wing; the upper one twice as far from the base as the lower; and a brown line running along the base of the cilia on the apical margin,

which are otherwise white except at the anal angle.

Hind wings brown, *with unicolorous brown cilia, those on the dorsal margin of the third lobe only being slightly paler at their base.*

The third pair of legs suffused with ashy fuscous; the spurs and feet only slightly paler.

Expanse 24 millims.

Twelve specimens taken on the banks of Rouge River, in Southern Oregon, May 7th, 1872, others having been met with in Lake County, California, June 18th, 1871.

This species differs from the following, *P. orthocarpi*, in its whiter head, in the unicolorous brown fringes of the lobes of the hind wings, and in the cinereous hind legs, which have not the same conspicuous white annulations beneath the joints as in that species; moreover, the triangular costal patch is straighter at its outer margin (*i. e.* less produced outwards); the apex and the ground-colour of the fore wings *bluish* white.

Platyptilus orthocarpi, sp. nov.

(Plate I. Fig. 9.)

Capite subochraceo.

Alis anticis subochraceo-cinereis, macula triangulari costali et margine apicali fuscis, costa fusco

atomosa; posticis brunneis, ciliorum basibus albidis.

Tibiis cinereis, albido annulatis, *pedibus et calcaribus* albidis.

Head and palpi rather ochreous; frontal tuft short.

Fore wings thickly dusted with brownish ochreous; the costa irrorated with fuscous, the two antemedian spots and the triangular costal patch fuscous; the line at the base of the white fringes on the apical margin brownish fuscous; the space beyond the triangular patch and the submarginal line conspicuously whitish, the intervening shade brown.

Hind wings brown, with brownish fringes, which have their bases distinctly whitish; a few fuscous scales on the dorsal margin of the third lobe near the base.

The third pair of legs cinereous, with conspicuous whitish annulations below each joint, the spurs and feet being also white; the triangular costal patch more produced towards the apex than in the preceding species.

Expanse 25 millims.

This species occurs in Northern Oregon; the larvæ were found feeding on buds and flowers of a species of *Orthocarpus*, Nuttall (one of the Scrophularineæ), on Current Creek, an affluent of the John-Day River, April 16th, 1872, from which four specimens of the imago were bred in June.

Platyptilus albidorsellus, sp. nov.

(Plate I. Fig. 10.)

Capite albido et fusco irrorato.

Alis anticis albidis, costa et macula triangulari costali brunneis, regione apicali brunneo suffusa, lineolam albam obliquam gerente; posticis brunneis, ciliorum basibus albidis.

Tibiis posticis cinereis, pedibus et calcaribus paulo pallidioribus.

Head and palpi cinereous, sprinkled with whitish scales; frontal tuft short.

Thorax sprinkled cinereous and whitish.

Fore wings white, with two brown antemedian spots; the costa thickly dusted with brown, forming a gradually widening streak from the base to the triangular brown costal patch. The dorsal margin touched with brown, with a spot of the same colour at the commencement of the dorsal cilia. The apical region is suffused with paler brown, separated from the triangular patch by a white space, and from the apical margin by a *slender* oblique white line crossing the two lobes; the line at the base of the white cilia is brown.

Hind wings brown, with *decidedly pale bases* to the brown cilia on every lobe.

The posterior pair of legs are clouded with cinereous; the spurs and feet scarcely whitish.

Expanse 30 millims.

Separated from the two preceding species by its much larger size as well as by the more slender and more oblique pale line near the apical margin.

The dark costal shade is wider at its junction with the triangular costal patch.

The pale bases of the cilia of the hind wings separate it more particularly from *P. albidus*, and the whiter fore wings and more uniformly cinereous legs from *P. orthocarpi*.

Three specimens occurred (June 10th and 16th, 1871) in Mendocino and Lake Counties, California.

I have met with no intermediate connecting links between this species and its near allies either in size or colour.

Platyptilus shastæ, sp. nov.

(Plate I. Fig. 11.)

Tenuis.

Capite albo.

Thorace et alis anticis albidis, cinereo atomosis, *macula triangulari costali brunnea, lineola subapicali tenuissime albida*, apice costæ albo, *linea in basi ciliorum alborum brunnea; posticis* dilute cinereis, *ciliis unicoloribus.*

Tibiis posticis cinereis, pedibus et calcaribus pallidioribus.

Slender and of delicate appearance.

Head white; palpi white, touched with cinereous at the sides; antennæ dotted above.

Thorax dusted with cinereous.

Fore wings narrow, whitish, dusted with cinereous atoms, especially along the costa; the triangular costal patch brown, followed by the usual pale space; a brown line along the base of the white fringes; a very slender whitish line, running parallel to the apical margin, terminates in a white dash on the costa, *reaching to the extreme apex*; the antemedian dots scarcely indicated.

Hind wings pale cinereous, the third lobe perhaps slightly the lightest in colour; fringes nearly unicolorous, pale cinereous, scarcely paler at their bases.

Abdomen yellowish white.

The third pair of legs cinereous, slightly whitish below each joint and on the spurs and feet.

Expanse 20 millims.

This species may be distinguished by its slender appearance and narrow fore wings, which are so delicately dusted as to be of almost the same shade as the pale cinereous hind wings, which separate it at once from any of its allies now described.

I found only one specimen of this species, flying

among plants of *Arnica angustifolia*, at an elevation of about 6700 feet, on Mt. Shasta, California, in August 1871.

Platyptilus fragilis, sp. nov.

(Plate I. Fig. 12.)

Capite, thorace et alis anticis subochraceo-albidis, macula triangulari, punctis duobus ante medium et linea in basi ciliorum marginis apicalis brunneis.

Alis posticis dilute brunneis, ciliis pallidioribus.

Tibiis posticis albidis, articulis brunneo dilute suffusis.

Head and thorax yellowish white; the palpi touched with cinereous.

Fore wings yellowish white, with the two antemedian spots distinctly indicated; these and the triangular costal patch brown. The apical margin brownish, the brown line running slightly within the cilia scarcely at their extreme base; two small brownish dots in the cilia of the dorsal margin before the anal angle.

Hind wings very pale brown, with paler cilia.

Abdomen and legs yellowish white, the joints only slightly suffused with brownish.

Expanse 19 millims.

Two specimens taken (September 7th, 1871) near

Lower Klamath Lake, at the extreme northern part of Siskiyou County, California.

It is not impossible that this may be found to be a variety of *P. shastæ* described above, and that the difference in colour may be partly owing to the bleaching effect of a hot sun on the plains where it occurred, the Shasta specimen having been met with under the shade of a pine-forest. The main points of difference are the yellowish tint of the fore wings, the browner hind wings, and the decidedly whiter legs, of which the joints only are suffused.

Platyptilus albiciliatus, sp. nov.

(Plate I. Fig. 13.)

Capite et palpis cinnamomeis, flocco frontali brevi.

Antennis griseo punctatis.

Alis anticis cinnamomeis, thorace, costa et margine apicali griseo atomosis, ciliis marginis apicalis albidis, in basi cinnamomeis; posticis brunneis, ciliis in basi pallidioribus.

Tibiis et tarsis subcinereis, pedibus paulo pallidioribus.

Head and palpi cinnamon-brown; frontal tuft short.

Thorax greyish tawny.

Fore wings cinnamon-brown, dusted towards the costa and apical margin with greyish; near the latter are also a few fuscous scales. The cilia of the

apical margin are white, their bases only being of the same colour as the wings. There is no indication of a spot near the fissure.

The hind wings are brown, with the cilia slightly paler along their base.

Abdomen brown; the third pair of legs brownish cinereous; the feet and spurs scarcely paler.

Expanse 24 millims.

The white apical half of the cilia is easily abraded, and is not distinguishable in worn specimens; but the shorter frontal tuft at once distinguishes it from *P. adustus.*

It approaches more nearly the genus *Mimeseoptilus* in general appearance; but the anal angle is more strongly defined, and, indeed, it decidedly possesses the generic characters of the genus to which I have here referred it.

Six specimens, ♂ and ♀, were taken (May 30th, 1871) on the coast near Mendocino, California.

Platyptilus modestus, sp. nov.

(Plate I. Fig. 14.)

Capite, palpis, antennis (dilute punctatis) et alis anticis cinereis, costa ante fissuram fusco adumbrata, triangulo costali vix indicato, puncto ante apicem fissuræ fusco; ciliis intra fissuram et in

margine dorsali albidis, in margine apicali fuscis albo terminatis.

Alis et tibiis posticis cinereis, ciliis et pedibus paulo pallidioribus.

Head and palpi cinereous; antennæ slightly dotted above.

Fore wings very narrow, cinereous, with a slight ochreous tinge towards the dorsal margin. The costa sprinkled and shaded with fuscous, the fuscous shade widening towards the fissure, forming an elongate but indistinct triangular costal blotch. The apical portion of the wing more or less shaded with fuscous, and a fuscous line along the base of the cilia on the apical margin, which are whitish at their points. The cilia within the fissure and those along the dorsal margin before the anal angle white, the latter containing a few dark scales.

Hind wings cinereous; the cilia slightly paler, especially along their bases.

Posterior legs cinereous; the feet slightly paler.

Expanse 22 millims.

This species, of which I took two specimens, in fair, but not very good, condition, on the 4th of June, 1871, near Mendocino, in California, has narrow fore wings, and is plain and inconspicuous; the posterior or anal angle of the fore wings is very well defined,

but in other respects it seems to approach very closely the genus *Mimeseoptilus*.

Platyptilus petrodactylus.

(Plate II. Fig. 15.)

Pterophorus petrodactylus, Walker, Cat. Lep. Het. xxx. pp. 940, 941, nec *petradactyla*, Hübn. Eur. Lep. 37, 38.

The fore wings are white, shaded with cinereous or ashy-brownish scales, especially about the base and towards the costa; the costa itself is brownish beyond the middle; an oblique brownish-fuscous dash comes from the costal cilia above the fissure, starting from before the apex and pointing inwards more obliquely than the apical margin. This dash is widest on the costa, tapering to a point inwards, and is much darker, more fuscous, at its lower portion. There is a cinereous shade towards the apical margin, with a cinereous line in the white cilia near their bases. The cilia within the fissure are white, at the anal angle shaded with fuscous; there are no spots in the pale cilia of the dorsal margin.

Hind wings very pale cinereous; cilia very slightly darker toward the points of the lobes.

Legs and body shaded cinereous; the spurs apparently equal; the joints scarcely thickened.

Expanse 23 millims.

I have been utterly unable to reconcile Walker's

description of this species with the specimen labelled as from Arctic America, which appears to have been placed by him in the space assigned to it above that name.

It is not properly included in this pamphlet; but I have caused it to be figured here, and have given a short redescription of the supposed type, for the use of any American entomologists who may be unable to refer to the typical specimens of Walker's species in the British Museum.

The species is quite distinct from any other with which I am acquainted, and in fair, although not good, general condition.

It is certainly not "nearly allied to *Lithodactylus*," as stated by Walker, although that statement was the cause of its having been inadvertently figured in this pamphlet amongst species of the genus *Œdematophorus* rather than in its proper place.

AMBLYPTILUS, *Hübner.*

Amblyptilus pica, sp. nov.

(Plate II. Fig. 1.)

Capite et palpis cinereis albo atomosis.

Alis anticis albis, fusco nigroque maculatis, ciliis albis, in margine dorsali nigro bidentatis; posticis fusco-brunneis, ciliis digiti posterioris albidis nigro conspicue irroratis et unidentatis.

Abdomine albo, nigro striato.

Tibiis et tarsis posterioribus albo et fusco annulatis.

Head and palpi cinereous, dusted with white scales. Antennæ cinereous, faintly dotted with whitish above.

The thorax white, touched with cinereous above and at the sides, with two black spots behind.

Fore wings white, dusted with cinereous along their costal half before the fissure; the costa fuscous, dotted with white; a blackish spot before the middle of the wing touching the costal shade; another nearer to the base below it; a blackish-fuscous, triangular, costal patch before the fissure, followed by a conspicuous white space, beyond which is a fuscous shade, crossing both lobes, divided by a white line running parallel to the apical margin, on which the cilia are white, dotted with some fuscous. The dorsal half of the wing is less shaded or dusted than the costal, and contains two short, oblique, blackish dashes near the middle, the second being followed by a straight streak of brownish-fuscous scales running parallel to the dorsal margin. The cilia on the dorsal margin are white, with two distinct tooth-like tufts of black scales; the cilia within the fissure are fuscous.

Hind wings fuscous-brown, with cilia of all the lobes the same colour, except on the dorsal margin of the third, where they are white irrorated with black scales along the basal half, and bearing a

conspicuous projecting triangular tuft of black scales beyond the middle, and a few more below the apex of the lobe.

The abdomen is white above and beneath, with a fuscous line along each side, which also crosses it above near the base, and again below the middle.

The third pair of legs are annulated with white and fuscous-brown, the bases of the white spurs being also fuscous.

Expanse 23 millims.

I took three specimens of this conspicuous and distinct species in the forest of *Taxodium sempervirens* near Crescent City, on the coast in the north of California, about the 20th June, 1872. It is allied to *A. acanthodactylus* and *A. cosmodactylus* of Hübner.

Amblyptilus cosmodactylus, *Hübner.*

(Plate II. Figs. 2, 3, 4.)

Amblyptilia cosmodactyla, Hübn., Wocke, Cat. 3131.

I have at least fifty specimens of this species taken at different times and places, ranging from San Francisco on the 16th of May to Mount Shasta at the end of August 1871. The species seems to be widely distributed and to be everywhere common.

I met with it again, early in April 1872, in the

north of Oregon; and bred it from larvæ found feeding on *Orthocarpus* in June of the same year in the neighbourhood of Rouge River in Southern Oregon, which I had expected to produce *Platyptilus orthocarpi* above described. The species must be at least double-brooded, and it varies considerably in size and in the intensity of its markings. I had at first some doubts whether my numerous specimens might not be separated into at least two species; but a careful examination and comparison of these with a series of the European form, as well as the perfectly regular and gentle gradations of size and colour by which they are distinguished, tend to prove that they all belong to the same.

Prof. Zeller, in his abstract of Wallengren's 'Scandinaviens Fjädermott,' published in the Stettiner ent. Zeitung, 1867, treats of *cosmodactylus* as identical with *ulodactylus*, Zett., and *acanthodactylus*, Hübn.; and I am indebted to him for specimens of what he understands by the first and last of these three names. The two forms which he has so kindly sent me are certainly included in my American series, of which three varieties are figured here to facilitate identification.

The expanse varies from 18 to 23 millims.

I am not acquainted with *Pterophorus lobidac-*

tylus, Fitch (Nox. Ins. New York, Rep. 1 & 2, pp. 143, 144); but from his description it seems possible that if it is not an *Oxyptilus* it may belong to the genus, and perhaps to the species, here mentioned.

OXYPTILUS, *Zeller.*

Oxyptilus periscelidactylus.

(Plate II. Fig. 5.)

Pterophorus periscelidactylus, Fitch, Nox. Ins. N. Y. Rep. 1 & 2, pp. 139, 143; Riley, Rep. Ins. Miss. i. pp. 137, 138, pl. xi. figs. 15, 16, and iii. pp. 65–68; Fitch, Am. Ent. ii. pp. 234, 235.
Oxyptilus periscelidactylus, Zell. Stet. ent. Zeit. xxxii. p. 178; Verh. z.-b. Wien, xxiii. p. 319; Saunders, Can. Ent. v. pp. 99, 100; Packard, Guide Stud. Ins. pp. 356, 357, pl. viii. fig. 23, *a*, *b*.

This species has not, so far as I am aware, been met with in California or Oregon. I have merely caused it to be figured here for convenient comparison with some of its allies, from which it differs chiefly in its paler colouring and in the wider and more conspicuous dark band on the third lobe of the hind wings. The localities from which it has been hitherto recorded are New York, Missouri, and Texas.

The larva feeds on the vine.

Oxyptilus ningoris, sp. nov.

(Plate II. Fig. 6.)

Alis anticis fusco-brunneis, puncto in basi fissuræ albo, laciniis albo bistrigatis, puncto in quadrante marginis dorsalis albo, ciliis dorsalibus albis fusco bidentatis, ante angulum analem fuscis; ciliis marginis apicalis laciniæ posticæ fuscis albo interruptis.

Alis posticis brunneo-fuscis, digito tertio late albo fasciato, apice utrinque atro squamato; digito primo infra albo fasciato.

Abdomine brunneo-fusco, lineolis diversis albidis supra notato, basi albo.

Tibiis et tarsis brunneo-fusco et albo alternatis.

Head brownish fuscous, sprinkled with whitish scales; the palpi whitish, but streaked with brownish fuscous; antennæ brownish, spotted on the upperside with white.

Fore wings dull greyish brown; the costa fuscous, dusted with whitish scales; a white spot at the base of the fissure projecting upwards; a sometimes inconspicuous white spot on the dorsal margin one fourth from the base; an ill-defined whitish spot about the middle of the wing, and two white bars on each lobe, the outer ones directed obliquely inwards towards the dorsal margin, the inner ones directed obliquely inwards towards the fissure. The cilia on the

dorsal margin are white, with two small teeth of blackish scales, one before and one beyond the base of the fissure, but at the anal angle and somewhat before it they become distinctly fuscous. At the extreme apex of the second lobe and at the anal angle are small spots of blackish scales in the base of the cilia, the cilia immediately above the anal angle being white; the costal cilia above the apex of the anterior lobe are white, those beneath it fuscous.

Hind wings brownish fuscous; the first lobe barred with white on its underside: the third lobe is widely barred with white, the base of the cilia at the extreme apex being also white; immediately before the apex it is adorned with blackish scales on both sides, extending further along the lobe on the costal than on the dorsal margin; there are also a few scattered blackish scales in the cilia on each side towards its base. In many specimens the dorsal half of the third lobe is also white from the base to the fascia.

Abdomen conspicuously greyish white at the base, brownish fuscous beyond, but marked on its upper surface with three pairs of slender white streaks, diverging from the front to the back of each of the anterior segments; beyond them crossed by lines of whitish scales.

The legs are white, distinctly and widely barred with brownish fuscous; the spurs are long, white on their upperside, fuscous beneath.

Expanse 15–20 millims.

I have this species from Sacramento in April, from Mendocino County in May and June, and from Shasta County as late as the 24th of July, 1871; also from Fort the Dalles, on the Columbia River, in April, and from Rouge River, in Southern Oregon, in May 1872.

In spite of this very wide range of distribution, the specimens vary scarcely at all in colour and markings, although they differ somewhat in size.

It approaches very closely to the English *Oxyptilus teucrii* of Jordan, Ent. Mon. Mag. vi. p. 14, differing in the usually more conspicuous whitish spot on the first fourth of the dorsal margin, in the hinder margin of the second lobe of the fore wings being less clearly defined against the base of the pale lunule, in the far more conspicuous white base of its abdomen, and in the more striking whiteness of some part of the third lobe of the hind wings.

I have an impression (in confirmation of which, however, I can find no written memoranda) that this insect flew in California among plants of a species of *Teucrium*; and it was with some hesitation that I was brought to believe in its distinctness from our European *O. teucrii*; but a careful comparison and renewed examination, consequent upon a correspondence with Prof. Zeller, has enabled me clearly to distinguish them.

Oxyptilus delawaricus.

(Plate II. Fig. 7.)

Oxyptilus delawaricus, Zell. Verh. z.-b. Ges. Wien, xxiii. p. 318.

Head light reddish brown; palpi projecting about the length of the head beyond it, acuminate, light reddish brown, whiter beneath and at the tips; antennæ fuscous, dotted with white on their uppersides.

Fore wings light reddish brown, paler than in *O. ericetorum* and *O. pilosellæ*; but not so light as in *O. periscelidactylus*. A few whitish scales are scattered along the costa, which is also slightly shaded with fuscous beyond the middle. There is a faintly indicated whitish antemedian spot, less conspicuous than in *O. pilosellæ*. An indistinct pale spot lies on the dorsal margin one fourth from the base. There is a white spot at the base of the fissure, not preceded by a dark shade as in our English examples of *O. pilosellæ*, but somewhat extended upwards directly towards the costa, and partly connected by a line of white scales in the cilia within the cleft to the first of two pairs of whitish bands which cross the lobes: the first pair, before the middle of the lobes, point obliquely outwards in opposite directions, the lower one being somewhat interrupted and less conspicuous than the upper; the second pair beyond the middle are narrower, the upper one nearly straight, the lower one

more oblique, pointing outwards from the dorsal margin. The costal cilia on the anterior lobe are white up to the apex, as are also those in the sinus on the outer margin of the falcate second lobe and along the dorsal margin, except immediately preceding the anal angle, where they are broadly and distinctly fuscous. There is also a fuscous spot in the cilia of the dorsal margin just before the first pale transverse band. Within the fissure the cilia are brownish fuscous.

The two anterior lobes of the hind wings are reddish brown, redder than in *O. pilosellæ*, *ericetorum*, or *periscelidactylus*; the third lobe paler, sometimes touched with whitish, having a few blackish scales along its hinder margin, and a triangular-shaped patch of blackish scales immediately preceding the whitish apex, with a few similar scales on the costal margin above them. The patch is of a different shape to that of *O. tenuidactylus*, which is squarer, forming as it were a more even spatule. Moreover the lobe itself is less distinctly marked with white than in that species.

The abdomen is yellowish white, at the base reddish brown, indistinctly marked with whitish scales and lines beyond, but not so conspicuously marked as in *tenuidactylus*.

The legs are white, beautifully barred with dark brown. The spurs white, marked with a brown line along their inner surface.

Expanse 18 millims.

This species, probably more nearly allied to *O. pilosellæ* than to any other, and intermediate between *O. tenuidactylus* and *O. periscelidactylus*, occurred not uncommonly from July 17th to 25th, 1871, in Shasta County, California. I was not aware that my specimens agreed with *O. delawaricus* until I sent a specimen to Prof. Zeller, who considers them identical, although his type is a little darker.

It is, perhaps, superfluous to publish this description; but as Prof. Zeller described his species from a single example, I venture to do so in case it may ultimately be found that the Californian form is in any way to be distinguished from that which occurs in Delaware.

Oxyptilus nigrociliatus.

(Plate II. Fig. 8.)

Oxyptilus nigrociliatus, Zell. Verh. z.-b. Ges. Wien, xxiii. pp. 322, 323.

?=*Pterophorus tenuidactylus*, Fitch, Nox. Ins. N. Y., Reps. 1 & 2, p. 143.

The specimen here figured, which Prof. Zeller informs me is identical with his *O. nigrociliatus*, was taken with many others, which exhibited no variation whatever in colour, and scarcely any in size, on the 14th July, 1871, in Shasta County, California, the only locality in the Western States where I met

with it. It differs from specimens which I have seen from the Eastern States under the name of *tenuidactylus* in its paler (more reddish-brown) colouring, and in the somewhat duller whitish markings of the abdomen on the upper and underside, but not in the blackish fringes of the anterior lobe within the fissure. Yet in form and in the arrangement of its markings it seems to agree precisely with Mr. Asa Fitch's species, of which I saw specimens in the Central-Park Museum at New York. It is open to question how far these two forms may be entitled to be considered distinct; but I must leave it to be decided by some one who has a more extended series of the undoubted *O. tenuidactylus* to refer to.

Prof. Zeller gives Delaware as the habitat of *O. nigrociliatus.*

MIMESEOPTILUS, *Wallengren.*

Mimeseoptilus exclamationis, sp. nov.

(Plate II. Fig. 10.)

Capite griseo; palpis supra griseis, utrinque et infra brunneis.

Alis anticis griseis, apud costam fusco atomosis, punctis (uno ante medium, duobus ante fissuram) fuscis; nota elongata fusca supra fissuram, in

costa subreduplicata, punctum anterius indicat; ciliis fusco et albo alternatis: posticis cum ciliis brunneis.

Tibiis supra brunneo suffusis, infra albidis.

Head and palpi above grey, the latter brownish at the sides and beneath; thorax grey; antennæ brownish grey.

The fore wings grey, dusted with fuscous scales, especially towards the costa, and tinged on the dorsal half with brownish ochreous; from the base a row of detached fuscous scales extends along the lower edge of the cell one third of the length of the wing; a small elongated fuscous dot lies below the costa before the middle. There are two fuscous spots before the base of the fissure, and beyond them on the anterior lobe, pointing towards the upper spot, is a fuscous dash, resembling, together with the spot, a note of exclamation; above the fuscous spots and dash are slightly indicated fuscous shades on the costa. The cilia within the fissure are white, along the apical margin cinereous, with a fuscous line along their base, but interrupted with white on the middle of the anterior and at the upper angle of the posterior lobes.

Hind wings and their cilia brown.

Abdomen brownish ochreous.

Legs tinged with brownish above, whitish beneath; the feet white.

Expanse 22 millims.

Seven specimens taken on the Siskiyou range of mountains, on the borders of California and Oregon, June 17th, 1872.

ŒDEMATOPHORUS, *Wallengren.*

Œdematophorus grisescens, sp. nov.

(Plate II. Fig. 11.)

Capite et thorace griseis; palpis griseis, articulo apicali supra fusco.

Alis anticis griseis, fusco atomosis, albido sublituratis, dimidio dorsali ferrugineo attincto, ciliis albido et griseo alternatis; posticis cum ciliis cinereis.

Abdomine griseo.

Tibiis posticis griseo-albidis, articulis incrassatis et calcaribus subfusco finitis.

Head and thorax grey; palpi grey, the apical joint touched with fuscous above; antennæ spotted with grey and fuscous.

Fore wings grey, slightly blotched with white, and dusted with fuscous scales, the dorsal half of the wing being touched with ferruginous. Two whitish spots on the costa, one before and one beyond the base of the fissure, the latter obliquely connected by whitish scales with the base of the fissure itself; a whitish spot before the middle of the dorsal margin, with an indistinct spot of fuscous scales immediately above

it; the cilia are mottled alternately white and greyish fuscous.

Hind wings cinereous.

Abdomen greyish, mottled and dusted with fuscous.

The legs greyish white, slightly thickened at the joints, which, with the extremities of the whitish spurs, are touched with greyish fuscous.

On the underside the wings are all cinereous, the costa and the cilia at the anal angle of the fore wings and the body being whitish.

Expanse 29 millims.

Eight specimens bred from larvæ feeding on a species of *Artemisia* early in May 1872, on Rouge River, Southern Oregon. This and the two following species are all very nearly allied to the European *O. lithodactylus* of Treitschke.

Œdematophorus cretidactylus*.

Pterophorus cretidactylus, Fitch, Nox. Ins. N. Y., Reps. 1 & 2, p. 142.
Œdematophorus cretidactylus, Zell. Verh. z.-b. Ges. Wien, xxiv. p. 444.

Several examples supposed at first to belong to the species described above as *O. grisescens*, but differing in size and in the intensity of their colouring, were

* It is to be regretted that Mr. Fitch did not adopt a different name for this species, *cretidactylus* being open to the same objection as *sulphureodactylus*, *carduidactylus*, &c. I would suggest *gypsodactylus*, as conveying the same meaning in a preferable form.

met with from the middle of June to near the end of July of the preceding year, in different localities in California. I am informed by Prof. Zeller, to whom one of these supposed paler varieties has been submitted, that it corresponds with *Œdematophorus cretidactylus*, Fitch (Nox. Ins. N. Y., Reps. 1 & 2, p. 142), which has been redescribed by Zeller (Verh. z.-b. Ges. Wien, xxiv. p. 444), from Vancouver's Island, and carefully contrasted with *Œ. lithodactylus*, Tr., and *Œ. rogenhoferi*, Mann. He considers it to be distinct from the species above described as new. It must therefore now be included among the Californian Pterophoridæ. I regret that in the Plates prepared to accompany this pamphlet the species has not been figured, owing to my having failed at first to recognize it.

Œdematophorus guttatus, sp. nov.

(Plate II. Fig. 12.)

Capite, thorace et palpis cinereo-albidis.

Alis anticis albido-cinereis, apud costam fusco atomosis, gutta ante fissuram albida, squamis subfuscis aliquando introrsum marginata, ciliis marginis apicalis et intra fissuram subfusco-cinereis, albidis paucis interjectis; posticis cum ciliis dilute cinereis.

Tibiis albidis, fasciculis duabus subfuscis.

Head, thorax, and palpi whitish cinereous, the latter touched with fuscous at the sides.

Fore wings whitish cinereous, paler at the base, dusted towards the costa and slightly also on the dorsal margin with fuscous scales; a rather conspicuous whitish spot lies at the base of the fissure, usually margined on its inner edge by a few fuscous scales; another whitish spot is sometimes faintly indicated before the middle of the dorsal margin. The cilia of the apical margin and within the fissure are cinereous, tinged with fuscous, with a few whitish streaklets interspersed.

The hind wings are pale cinereous; the body whitish.

The third pair of legs white, with two subfuscous annulations.

Expanse 25 millims.

Several specimens, taken July 26th, 1871, on Pit River, California.

Œdematophorus occidentalis, sp. nov.

(Plate II. Figs. 13, 14.)

Var. *a*. *Capite et thorace dilute subochraceis, cervice et palpis cervinis.*

Alis anticis dilute subochraceis, apud costam cervino adumbratis, macula ante fissuram cervina alteri costali oblique connexa, ciliis et alis posticis dilute sericeo-cervinis.

Tibiis anticis uno, mediis duobus floccis cervinis ornatis, albidis; tibiis posticis subcervinis, articulis vix incrassatis.

VAR. β. *Capite et alis anticis subochraceis, costa dilutiore, maculis vix indicatis.*

VAR α. Head and thorax very pale whitish ochreous; the face slightly tinged with fawn-colour; the palpi fawn-colour; the neck with a conspicuous collar of erect fawn-coloured scales; antennæ whitish, faintly spotted above with very pale fawn-colour.

The fore wings whitish ochreous, having the costa and apex slightly shaded and the dorsal margin delicately tinged with pale fawn-colour; a dark fawn-coloured spot before the base of the fissure is more or less connected obliquely with an elongated spot of the same colour on the costa beyond it. The cilia are delicately tinged with very pale fawn-colour.

The hind wings and their cilia shining pale fawn-colour.

The first and second pairs of legs are white, ornamented at the joints, the first with one, the second with two conspicuous dark fawn-coloured brush-like tufts. The third pair of legs tinged with pale fawn-colour, whitish along their inner sides; the joints slightly thickened, not annulated.

The anal appendages of the male of this species are very large and conspicuous, the lateral ones

extending, with their cilia, nearly 3 millims. beyond the apex of the abdomen, the upper one being less than half the length of the others, but fringed with a double brush of long, pale ochreous, hair-like scales.

VAR. β. The head and fore wings pale ochreous; the costa even paler, the spots scarcely indicated.

Expanse 26 millims.

Several specimens obtained through Colusa, Shasta, and Siskiyou Counties, California, in July and August 1871, show various modifications of colouring. The darkest varieties occurred on Pit River, the palest about 60 miles to the south, at a few days' interval; but having met with almost every possible intermediate gradation, I must conclude that they belong to one and the same species. I have one bred specimen of the intermediate form, the larva having been reared on leaves of a species of sunflower.

PTEROPHORUS, *Wallengren.*

Pterophorus monodactylus, *Linn.*

(PLATE II. FIG. 16 AND PLATE III. FIG. 1.)

Pterophorus monodactylus, Linn., Wocke, Cat. 3167.
Pterophorus pergracilidactylus, Packard, Ann. Lyc. Nat. Hist. N. Y. x. p. 266.
Pterophorus cinereidactylus, Fitch, Nox. Ins. N. Y., Reps. 1 & 2, p. 144.

Two varieties of this species are recorded by Prof. Zeller from Texas and Ohio (Verh. z.-b. Ges. Wien, xxiii. p. 326); and in Verh. z.-b. Ges. Wien, xxv. pp. 355, 356, the same author discusses the identity of *Pt. pergracilidactylus*, Packard, and *Pt. cinereidactylus*, Fitch, with this species, Mr. Packard, in the Rep. Peab. Ac. Sc. vi. p. 88, 1874, having pointed out that these two names should be considered to refer to the same species.

I have several varieties from different localities in California and Oregon, two of which are figured to assist those who do not possess European specimens in determining the extreme limits of colour between which they are found to range. I bred two specimens from larvæ feeding on a plant which was unfortunately not recognized at the time; and I am unable to say whether it was or was not one of the *Convolvuli*.

One distinguishing peculiarity of this genus and species, whether in Europe or in America, by which it may always be immediately recognized, is the presence of brush-like tufts of appressed scales on the upperside of the hind feet; in good specimens these are noticeable on each of the tarsal joints below the second pair of spurs.

This character is not mentioned by Wallengren in his Latin summary of the generic characters of *Ptero-*

phorus; but it is remarkably constant, and does not occur, so far as I am aware, in any other genus of the Pterophoridæ. Zeller notices this peculiarity (Verh. z.-b. Ges. Wien, xxv. p. 356) as pointed out to him by Dr. Speyer, and states that it has not before been noticed.

LIOPTILUS, *Wallengren.*

Lioptilus paleaceus.

(Plate III. Fig. 2.)

Lioptilus paleaceus, Zeller, Verh. z.-b. Ges. Wien, xxiii. pp. 326, 327.

This species appears to differ in some particulars from any of the allied forms which I have met with in California and Oregon; but I have thought it desirable to have it figured in this pamphlet for convenience of comparison, without which it is extremely difficult to separate several species which present very slight distinctive differences. The yellowish-brown head ("occipite cinnamomeo") serves best to distinguish it. It is also considerably larger than the two following allied species.

Lioptilus stramineus, sp. nov.

(Plate III. Fig. 3.)

Occipite dilute brunneo, fronte stramineo-albida.

Alis anticis dilute stramineis, brunneo partim atomosis; punctum in basi fissuræ brunneum lineolæ costali simile oblique subjacet; ciliis grisescente brunneis: posticis dilute griseo-brunneis.

Abdomine et tibiis stramineis.

Head brownish above and in front, yellowish white between the antennæ; palpi and antennæ very pale straw-colour above, brownish beneath.

Fore wings pale straw-colour, faintly irrorated with brownish scales along the middle from below the cell at the base to a point above the base of the fissure, as also along the basal half of the costa. There is a slight, inconspicuous, oblique, brownish streak on the costa, pointing inwards towards a brown spot exactly at the base of the fissure, not below it as in *L. scarodactylus*, Hübn. There are no spots about the ends of the lobes of the fore wings as in *L. microdactylus*, Hübn. Cilia greyish brown.

Hind wings pale greyish brown.

Abdomen, legs, and spurs pale straw-colour.

Expanse 19 millims.

This species is nearly allied to *L. osteodactylus*, Zeller. It differs from it in having the cilia of the fore wings rather darker, more greyish brown than in that species, also in the presence of a slight costal streak, and in its rather smaller size. I met with two

or three specimens on the Siskiyou range of mountains in Southern Oregon in the middle of June 1872.

It approaches even more closely the South-American *Lioptilus lenis*, Zeller (Horæ Soc. Ent. Ross. xiii. p. 477, pl. vi. fig. 169), for an example of which I am indebted to the kindness of Prof. Zeller; but it differs from that species in the absence of the small marginal dots on the lobes of the fore wings.

Lioptilus angustus, sp. nov.

(Plate III. Fig. 4.)

Capite dilute stramineo.

Alis anticis angustis, dilute stramineis, subochraceo atomosis vel suffusis, puncto subobsoleto in basi fissuræ fusco-brunneo, ciliis dilute stramineis (apicalibus extremis exceptis griseis); posticis cum ciliis dilutissime subcinereis.

Abdomine stramineo.

Tibiis albidis.

Head very pale straw-colour; palpi the same, but touched with brownish at the sides; antennæ whitish, very faintly spotted with brownish ochreous above.

Fore wings narrow, very pale straw-colour, faintly dusted or partly suffused with pale ochreous; a brownish-fuscous inconspicuous dot lies at the

base of the fissure. The cilia are very pale straw-colour, except at the extreme apex of the underside of the first and of the upperside of the second lobes, where they are greyish.

The hind wings and their fringes are very pale cinereous.

The abdomen pale straw-colour.

The legs whitish.

Expanse 18 millims.

Nine specimens taken on Mount Shasta, California, in August 1871, have the fore wings narrower and the hind wings paler than in *L. osteodactylus* or *L. stramineus*, their general appearance being more slender; moreover, they show no indication of a costal streak: they are decidedly distinct from those species.

Lioptilus inconditus, sp. nov.

(Plate III. Fig. 5.)

Capite, palpis et alis anticis dilutissime cinereo-albidis, venis subcinereis vix indicatis, ciliis paulo dilutioribus; alis posticis dilute cinereis.

Abdomine et tibiis stramineo-albidis.

Head and palpi very pale brownish grey, the space between the antennæ slightly paler; antennæ pubescent, whitish, the basal joint thickened and

having a few erect scales projecting on its inner side.

Fore wings very pale brownish grey, so exactly bone-colour as to make me regret that the name "*osteodactylus*" is preoccupied. There is no spot at the base of the fissure, and the only trace of markings on the fore wings are some very slender lines, slightly darker than the ground-colour, which follow the veins on the dorsal half of the fore wings, diverging from the base and attaining the opposite margins of the second lobe below the base of the fissure. The cilia of the fore wings are perhaps a shade paler than the ground-colour of the wings themselves.

The hind wings very slightly darker, showing rather more of the brownish or cinereous tinge. Cilia the same.

Abdomen faintly tinged with yellowish.

The legs yellowish white.

On the underside all the wings are brownish grey, the costal margin of the fore wings only being slightly paler.

Expanse 19 millims.

Southern borders of Mendocino County, California, May 25th, 1872. A specimen taken at Washington, in the beginning of May 1871, shows that this species is not confined to the Western States.

Lioptilus agraphodactylus.

(Plate III. Fig. 6.)

Pterophorus agraphodactylus, Walker, Cat. Lep. Het. xxx. p. 94.

Capite albo, cervice et ore ochraceis.

Alis anticis perangustis, substramineo-albidis, lineolis dilutissime cinereo-griseis in longitudinem dispositis, costa albida, ciliis subcinereo-albidis; posticis dilute cinereis.

Abdomine dilute stramineo.

Tibiis albidis.

Head whitish in front, touched with brownish ochreous towards the thorax and in front; antennæ whitish, browner beneath; palpi very short.

Thorax yellowish white.

Fore wings remarkably narrow, dirty white, with a faint yellowish tinge streaked longitudinally with faint slender lines of brownish grey, apparently following the neuration; the widest and most conspicuous of these runs parallel to the costa from the base of the wing to the middle of the anterior lobe, where it is diffused in a faint shade towards the costa, sending two slender and scarcely discernible lines to the apex and inner margin. There are two slender brownish-grey lines on the dorsal half of the wing—the upper one, coming from the base, passing below the cleft, where it throws off a branch beneath and

running along the upper edge of the second lobe to its apex; the lower one coming also from the base and attaining the dorsal margin below the base of the cleft. The costa pale; the cilia tinged with grey.

Hind wings and fringes pale cinereous.

Abdomen and legs slightly yellowish white.

Underside uniformly pale cinereous, except the costa and the fringes of the anterior lobe within the fissure, which are whitish.

Expanse 25 millims.

I obtained two specimens early in May on Rouge River, Southern Oregon.

It is nearly allied to *L. modestus*, apparently to be distinguished by its much larger size, by the whiter ground-colour of the head and fore wings, and especially by its whitish costal margin and decidedly shorter palpi.

Mr. Walker's description of this species is scarcely sufficient to distinguish it from its allies; but a careful comparison of my Oregonian examples with the typical specimen in the British Museum makes it impossible to consider them distinct. St. Domingo is given as the locality from which the type was obtained; and it is certainly surprising that the same species should occur in such widely different degrees of latitude.

Lioptilus sulphureus.

(Plate III. Fig. 7.)

Pterophorus sulphureodactylus, Packard, Ann. Lyc. Nat. Hist. New York, vol. x. no. 9, p. 266 (1873).

Capite et alis anticis sulphureis; antennis supra sulphureis, infra brunneis.

Alis anticis costa media et ciliis apicalibus extremis brunneis; punctum in basi fissuræ brunneum strigæ costali vix indicatæ oblique subjacet: posticis dilute cinereis.

Abdomine sulphureo.

Tibiis posticis pallidioribus.

Head sulphur-yellow; the palpi sulphur-yellow, touched with brownish at their sides; antennæ very pale sulphur (almost white) above, brownish beneath.

Fore wings bright sulphur-yellow; the costa slightly shaded with brown about the middle; a brown dot at the base of the fissure, having a slight dash of the same colour on the costa obliquely above it. The cilia pale yellow, having a scarcely perceptible brownish tinge, except at the extreme apex, where they are distinctly brownish.

Hind wings pale cinereous.

Abdomen bright sulphur-yellow; the legs decidedly paler, the first and second pair having a slender

brown line on each side of the femora and tarsi, sometimes extending along the tibiæ.

Expanse 25 millims.

I took several specimens of this beautiful and distinct species on Pit River, in Shasta County, California, on the 25th July, 1871.

The species is easily recognizable by Mr. Packard's description above referred to; but I have ventured to redescribe it here for the purpose of noticing a few points which have not been mentioned by him.

The greater liberty which has been taken in changing the termination of the original name will, perhaps, be considered justifiable according to the rules of zoological nomenclature. Prof. Zeller (Verh. z.-b. Ges. Wien, 1873, p. 117) has rightly called attention to the objectionable mixture of two languages exhibited in such names ("Bastardnamen") as those given by Mr. Asa Fitch to several of the Pterophoridæ in his first and second Reports on Noxious Insects of New York, pp. 139, 143; and the same author has renamed Fitch's *Pterophorus carduidactylus*, omitting the termination, and reducing it to the unobjectionable *P. cardui*.

He has also pointed out (Verh. z.-b. Ges. Wien, 1874, p. 447) the same objection to the names given by Packard to the three Californian Pterophoridæ

described by him in the 'Annals of the Lyceum of Natural History,' vol. x. p. 266, of which *Pterophorus sulphureodactylus* was one.

Lioptilus homodactylus.

(Plate III. Figs. 8, 9.)

Pterophorus homodactylus, Walker, Cat. Lep. Het. xxx. p. 941.
? *Lioptilus hololeucos*, Zell. Verh. z.-b. Ges. Wien, xxiv. p. 445.

Var. α. *Capite albo, palpis et antennis albidis.*

Alis anticis albis, squamis brunneis præcipue apud costam et in lacinia anteriore rare atomosis, puncto ante fissuram brunneo, ciliis albidis; alis posticis et tibiis albidis.

Var. β. *Capite albo, occipite, ore et palpis brunneis.*

Alis anticis albis creberrime brunneo atomosis, ciliis partim cinereo attinctis; posticis cum ciliis dilutissime cinereis.

Var. α, ♂. Head entirely white; palpi and antennæ whitish.

Fore wings white, very thinly dusted with brownish scales, especially towards the costa and on the anterior lobe; a brownish spot before and slightly below the base of the fissure; a group of brownish scales, scarcely amounting to a spot, sometimes observable halfway between this and the base of the wing; in some specimens there is a faint indication of two brownish dots on the extreme margins of the anterior lobe, the costal

spot being the furthest from the apex. Cilia white.

Hind wings with their cilia white.

Legs white; underside white, scarcely touched with cinereous.

This variety occurred in some abundance in Shasta County, California, towards the end of July 1871. One specimen also on Mount Shasta in August.

Var. β. Head white between the antennæ, brown behind and in front; palpi brownish; antennæ dirty whitish.

Fore wings white, much dusted with brown scales towards the costa and on the anterior lobe; a brown spot before and slightly below the fissure; cilia white, tinged at the tips around the obsolete anal angle with pale cinereous.

Hind wings and fringes very pale cinereous.

Legs white, the first two pairs touched with brownish on their inner sides; underside very pale brownish.

Expanse, as of the preceding variety, 25 to 27 millims.

Three specimens of this variety occurred on the Siskiyou range of mountains in Southern Oregon, June 25th, 1872, differing from the Californian variety previously described in the brown colour of the head before and behind, in the more thickly dusted appearance of the fore wings, and in the

cinereous shading of their cilia about the anal angle, also in the pale cinereous hind wings and cilia, and in the darker colour of the underside.

Having examined most carefully a considerable series of the first variety, which seems to be the most usual form, I am inclined to think that the two above described belong to the same species. They differ from the description of *Pterophorus nævosidactylus*, Fitch (Nox. Ins. N. Y. Rep. 1 & 2, p. 143), in the absence of a "dot halfway between the cleft and the base," and of a "tawny brown spot on the outer margin near the tip," as well as in their paler fringes and larger size.

Mr. Walker's typical specimen of this species in the British Museum is not in good condition; the thinly scattered brownish scales are apparently displaced by friction, and the brown spot before the fissure is so nearly obliterated as to have escaped the observation of Mr. Walker in describing the species. The specimen belongs rather to the second of the two varieties described above, having the head slightly marked with brownish towards the thorax, the hind wings very pale cinereous, and the underside rather brownish white.

Prof. Zeller remarks upon a specimen of var. *a* which I sent to him:—"Only larger, otherwise agreeing with *Lioptilus hololeucos*, Z. (Verh. z.-b.

Ges. Wien, xxiv. p. 445); on the right anterior wings it has also two dots." Mr. Chambers's description of *Pterophorus lacteodactylus*, Can. Ent. v. p. 72, is so meagre that it is impossible to determine even that it must have belonged to the genus *Lioptilus*.

Lioptilus subochraceus, sp. nov.

(Plate III. Fig. 10.)

Capite albido, cervice brunnea; palpis brevissimis.

Alis anticis subochraceo-albidis, apud costam post mediam ferrugineo oblique leviter adumbratis; posticis stramineis.

Tibiis albidis.

Head whitish above; the face and neck brownish; the palpi very short, not projecting as far as the front of the head; antennæ whitish ochreous, with the basal joint brown.

Fore wings pale subochreous, without spots or markings, except a rather oblique delicate ferruginous shade above the base of the fissure, reaching the costa before the apex; the cilia about the dorsal margin of the second lobe are slightly tinged with brownish.

Hind wings very pale brownish straw-colour.

The legs whitish.

Expanse 28 millims.

Three specimens, ♂ and ♀, Lake County, California, June 19th, 1871.

Lioptilus helianthi, sp. nov.

(Plate III. Fig. 11.)

Capite albido; antennis albidis brunneo supra punctatis; palpis brunneis.

Alis anticis lacteis, apud costam brunneo atomosis, punctis duobus utrinque apud basim fissuræ brunneis lituræ costali brunneæ subjacentibus, ciliis apicalibus brunneis apud angulum analem cinereis; posticis dilutissime cinereis, ciliis cinereis.

Abdomine et tibiis lacteis.

Head and thorax white; palpi brownish; antennæ white, dotted on their upperside with brown.

Fore wings rather creamy white, dusted along the costal margin with brown scales; a brown spot before the base of the fissure and slightly beneath it; a second brown spot above the base of the fissure, and above this a brown shade on the costa. The apex of each lobe is dusted with brown scales, and there is a faint indication of two or three brown spots in the margin of the anterior lobe—one at the extreme apex, one, very small, on the costa, and one, rather nearer to the apex, on the apical margin. The cilia are brown, except within the fissure, where they are whitish, and about the undefined anal angle, where they are pale cinereous.

The hind wings are very pale cinereous; the fringes

slightly darker, especially about the ends of the two anterior lobes.

Abdomen whitish.

Legs whitish, dotted between the spurs, on the underside only, with dark brown.

Expanse 24 millims.

Seven specimens bred from larvæ found feeding on a species of *Helianthus*, on the Siskiyou Mountains at the southern extremity of Oregon, in June 1872. The species approaches the European *L. lienigianus*, but is very distinct.

Lioptilus? parvus, sp. nov.

(Plate III. Fig. 12.)

Parvus.

Capite griseo-albido; palpis porrectis capite bis longioribus, acuminatis; antennis pubescentibus griseis.

Alis anticis cinereo-griseis fusco adumbratis, lacinia anteriore subochracea, costa supra fissuram pallidiore, ciliis griseis fusco punctatis; posticis cinereis.

Abdomine et tibiis posticis griseo-albidis.

Head greyish white, a scarcely paler frontal tuft projecting slightly above the long, well-clothed, but sharply-pointed palpi, which are about twice the length of the head; antennæ pubescent, greyish.

Fore wings cleft to scarcely one third of their length, with no posterior angle to the upper lobe, which is rather narrow, acuminate, and depressed at the apex, dusty greyish, sprinkled with fuscous scales, which form an elongate shade extending from an ill-defined antemedian fuscous dot to the base of the anterior and to the apex of the posterior lobe; a small fuscous dot lies immediately before and slightly below the base of the fissure; there is a slight fuscous shade along the posterior margin of the upper lobe, of which the costal portion is rather pale ochreous; the costa itself whitish. The cilia along the apical margin of both lobes are greyish, spotted along their base with four or five groups of fuscous scales, of which one is at the extreme apex of the upper lobe. The anal angle appears to be slightly more defined in the second lobe of the fore wings, and the fissure rather wider at the base than is usual in this genus.

Hind wings cinereous.

Abdomen greyish white; the legs whitish, the first two pairs touched at the sides with greyish fuscous. The first pair of spurs on the hinder tibiæ are unequal in length; the second pair equal to the longest of the other two.

Expanse 15 millims.

I met with one female only of this very distinct little species near Mt. Shasta, California, at the end of July 1871. It differs in its palpi from the

genus *Lioptilus*, but does not agree in its remaining characters with any other genus of the Pterophoridæ.

In the absence of a defined posterior angle to the upper lobe of the fore wings it is not unlike *Mimeseoptilus phæodactylus*, Hübn., of which Dr. Jordan (Ent. Month. Mag. 1869, p. 124) writes:—"*phæodactylus* certainly does not belong to this group" (the *Mimeseoptili*) "nor to any of the Swedish genera;" "its position is well indicated in Staudinger's list, between the *Oxyptili* and *Mimeseoptili*;" but that insect has quite different palpi; moreover, it has the upper lobe of the fore wings thicker, less acuminate, and less depressed at the apex than in the species above described.

It may possibly become the type of a new genus when the North-American representatives of this family have been more completely studied; but I shall not venture to found one upon the single specimen now before me.

ACIPTILUS, *Hübner.*

Aciptilus cinerascens, sp. nov.

(Plate III. Fig. 13.)

Capite et antennis pubescentibus, subochraceis.

Alis anticis dilute subochraceis cinereo-brunneo creber-

rime atomosis, lituris (una ante fissuram, duabus in costa laciniæ anterioris) cinereo-brunneis, ciliis apicalibus brunneis, aliis dilutioribus; posticis dilute cinereis.

Tibiis albidis.

Head subochreous; palpi very short; antennæ pubescent, very pale subochreous.

The thorax of the same colour as the head, except in front, where it is slightly paler, almost whitish.

Fore wings cleft to nearly half their length, very pale subochreous, profusely dusted, except on the posterior lobe beneath the fissure, with cinereous brown, forming a blotch before the base of the fissure; an indistinct subcostal spot before the middle, and two small costal blotches on the anterior lobe above the fissure. The cilia below the apex of the anterior lobe are dark brown, as well as those on the opposite side of the fissure at the apex of the second lobe; the cilia within the fissure are pale subochreous, slightly tinged with brown at the obsolete anal angle and along the dorsal margin.

Hind wings and cilia pale cinereous; underside pale brownish.

Abdomen pale subochreous.

Legs whitish, the first two pairs tinged on the inner sides with brown.

Expanse 19 millims.

Several specimens taken, from the middle to the end of June 1871, in Mendocino and Lake Counties, California.

The species has much the appearance of *Lioptilus lienigianus*, Zell.; but the second lobe of the hind wings is decidedly narrower, the fissure being longer, and the spurs of the posterior tibiæ shorter and of more equal length. It is more nearly allied to *L. inulæ*, Zell., for specimens of which I am indebted to the kindness of Prof. Zeller.

Aciptilus montanus, sp. nov.

(Plate III. Fig. 14.)

Capite niveo, antennis supra dilute punctatis.

Alis anticis niveis, ferrugineo sparse atomosis, litura ante fissuram ferruginea, cum lituris costalibus laciniæ anterioris similibus connexa, ciliis niveis (ciliis extremis subapicalibus exceptis ferrugineis), laciniæ posterioris dimidio externo costali et ciliis subapicalibus ferrugineis, aliis niveis; posticis cinereo atomosis, lacinia tertia dilutiore.

Abdomine et tibiis niveis.

Head white; antennæ white, faintly dotted above with brownish.

Fore wings cleft to nearly half their length, snow-white, sparsely dusted with ferruginous-brown

scales, especially towards the costa; a blotch of these lies immediately before the base of the fissure, and is connected obliquely with a similar or rather darker blotch on the costa above it, which is scarcely separated from another costal blotch beyond it, nearer to the apex. The cilia are white, except immediately beneath the extreme apex, where they are dark ferruginous brown. The outer half of the costal margin of the second lobe is dark ferruginous brown, and this colour runs thence through the cilia immediately beneath the extreme apex of this lobe; all the remaining cilia are snow-white.

Posterior wings dusted with cinereous brown; the cilia of the same colour, the third lobe only being slightly paler towards the base.

The abdomen and legs snow-white, the two anterior pairs tinged with brown on their inner sides.

Expanse 16 millims.

This species occurred in some abundance at and near Mount Shasta, California, in August 1871.

Aciptilus? californicus, sp. nov.

(Plate II. Fig. 9.)

Capite dilute brunneo, palpis albidis brunneo striatis.

Alis anticis dilute brunneis, lacinia anteriore albo bimaculata ciliis costalibus albis, dorsalibus fuscis

puncto ante apicem nigro, lacinia secunda ciliis costalibus fuscescentibus, dorsalibus albo et fusco alternatis, nigro ante apicem punctatis; posticis dilute brunneis, digiti tertii margine dorsali triangulum nigrum ab apice aliquot remotum gerente, ciliis albo bistriatis.

Head pale brown, with a few elevated scales above the eyes; the palpi whitish, marked with brown, projecting about the length of the head beyond it; antennæ slightly pubescent, faintly dotted with fuscous and whitish.

Thorax pale brown.

Fore wings cleft to the middle, pale brown, the anterior lobe touched before and beyond the middle with white; the costa also white above the first white blotch and beyond the second to the apex, the second lobe having only a few white scales on its surface, but with the cilia on the dorsal margin alternated with white and fuscous, and having a small black dot before the apex. The cilia within the fissure are fuscous, with a small black dot before the apex of the anterior lobe.

Hind wings pale brown, with brownish-fuscous cilia, the third lobe having a triangular tooth-like projection of blackish scales about one third from the apex. The cilia brownish fuscous, with an indistinct pale line along their base, ending in a white dash before the projecting triangle; they are white also at the extreme apex.

Abdomen brown, with three pairs of slender, diverging, whitish streaks.

Legs brown, striped and annulated with white; the spurs white.

Expanse 17 millims.

Met with in Mendocino, Colusa, and Shasta Counties, California, June and July 1871.

It differs from the ordinary form of the genus *Aciptilus* in having a tuft of projecting scales in the fringes of the third lobe of the hind wings, and in this it approaches the new genus hereinafter characterized under the name of *Trichoptilus*; but the projecting scales in this species are nearer to the apex, and the fore wings are less deeply cleft. Its nearest European ally is probably *A. siceliota*, Zell. (Isis, 1847, p. 907).

TRICHOPTILUS, gen. nov.

Aciptilo *affinis*.

Antennæ pubescentes, articulo basali incrassato; floccus frontalis nullus.

Palpi capite longiores, tenues, articulo secundo vix fortiore quam apicalis.

Pedes sat robusti.

Tibiæ posticæ nodis duobus penicillo supra ornatis; calcaribus primis pæne paribus, secundis brevioribus.

Alæ anticæ ultra medium fissæ; laciniæ perangustæ, diversæ; angulus analis obsoletus. Alarum posticarum digiti tres filiformes, tertio paulo post medium squamis projectis ornato.

Antennæ pubescent; palpi projecting beyond the head, slender, acuminate, the second joint scarcely thicker than the apical joint and about the same length.

The legs fairly stout. The posterior tibiæ thickened at the base of the spurs, and ornamented above them with erect brush-like tufts of scales; the first pair of spurs of nearly equal length, the second pair equal and shorter.

Fore wings cleft to slightly beyond their middle; the lobes very slender, diverging; the anal angle not defined.

Posterior wings with the upper cleft reaching within one fourth of their base, the lower cleft nearly reaching the base; all the lobes very slender, almost filiform, the third being adorned with a projecting tooth of scales very slightly beyond the middle of its hinder margin.

The cleft of the fore wings is deeper and the tuft of scales on the third lobe of the hind wings is situated nearer to the base than in any genus with which I am acquainted.

It approaches the genus *Aciptilus* in its narrow lobes and in the absence of a defined anal angle.

Trichoptilus pygmæus, sp. nov.

(Plate III. Fig. 15.)

Minimus.

Alis anticis dilutissime cervinis fusco-brunneo atomosis, laciniis perangustis cum ciliis albo bistrigatis, squamis fusco-brunneis in basi ciliorum irroratis et dentatis; posticis dilute brunneis, ciliis cinereis albo alternatis, digito tertio pallidiore, margine dorsali paulo post medium fusco squamato, ciliis apicalibus albis.

Tibiis posticis albis, cervino supra maculatis et punctatis, calcaribus albis.

Very small and slender.

The head pale fawn-colour, with some erect scales above and behind the eyes; antennæ slightly pubescent, spotted alternately with fawn-brown and white above; the palpi projecting nearly the length of the head beyond it, whitish, touched with pale fawn-colour.

Fore wings cleft slightly more than half their length, very pale fawn-colour, dusted with fuscous-brown scales along the costa, especially above the base of the fissure, also towards the base of the dorsal margin. The two slender lobes diverge considerably, and are barred before and beyond their middles more or less distinctly with white,

which extends through the otherwise pale fawn-coloured cilia on both sides; along the base of these intermediate fawn-coloured cilia are some scattered fuscous-brown scales, two darker tooth-like projections almost fuscous appearing on the dorsal margin of the second lobe.

Hind wings pale greyish brown; the cilia cinereous, interrupted with white behind and at the points of the lobes. The third segment has long cinereous cilia, interrupted with white at the apex; slightly beyond the middle of its dorsal margin is a very small square projecting tooth of fuscous scales, preceded by a scarcely conspicuous white dash in the cilia.

The legs are white, dotted and barred above with fawn-brown; the spurs white, the joints above them being thickly clothed with fawn-brown scales, from amongst which project some few almost erect white ones.

Abdomen whitish, faintly touched with pale fawn-colour at the sides and above posteriorly.

Expanse scarcely 10 millims.

This is probably the smallest known species of the Pterophoridæ. I took three specimens near Millville, in Shasta County, California, on the 11th of July, 1871.

ALUCITA, *Zeller.*

Alucita hexadactyla, *Linn.*

(Plate III. Fig. 16.)

Alucita hexadactyla, Linn., Wocke, Cat. 3211.

This species occurred in May and June 1871 in Mendocino County, California, and again in May 1872 on Rouge River, in Southern Oregon, the specimens being to all appearance undistinguishable from European examples.

PLATE I.

Fig. 1. Chrysocorys festaliella, *Hübn.*

2, 2 *a*, 2 *b*. Chrysocorys felicella, *Wlsm.*

3. Platyptilus bertrami, *Rössl.*

4. —— adustus, *Wlsm.*

5. —— grandis, *Wlsm.*

6. —— cardui, *Zell.*

7. —— pereodactylus, *Wlsm.*

8. —— albidus, *Wlsm.*

9. —— orthocarpi, *Wlsm.*

10. —— albidorsellus, *Wlsm.*

11. —— shastæ, *Wlsm.*

12. —— fragilis, *Wlsm.*

13. —— albiciliatus, *Wlsm.*

14. —— modestus, *Wlsm.*

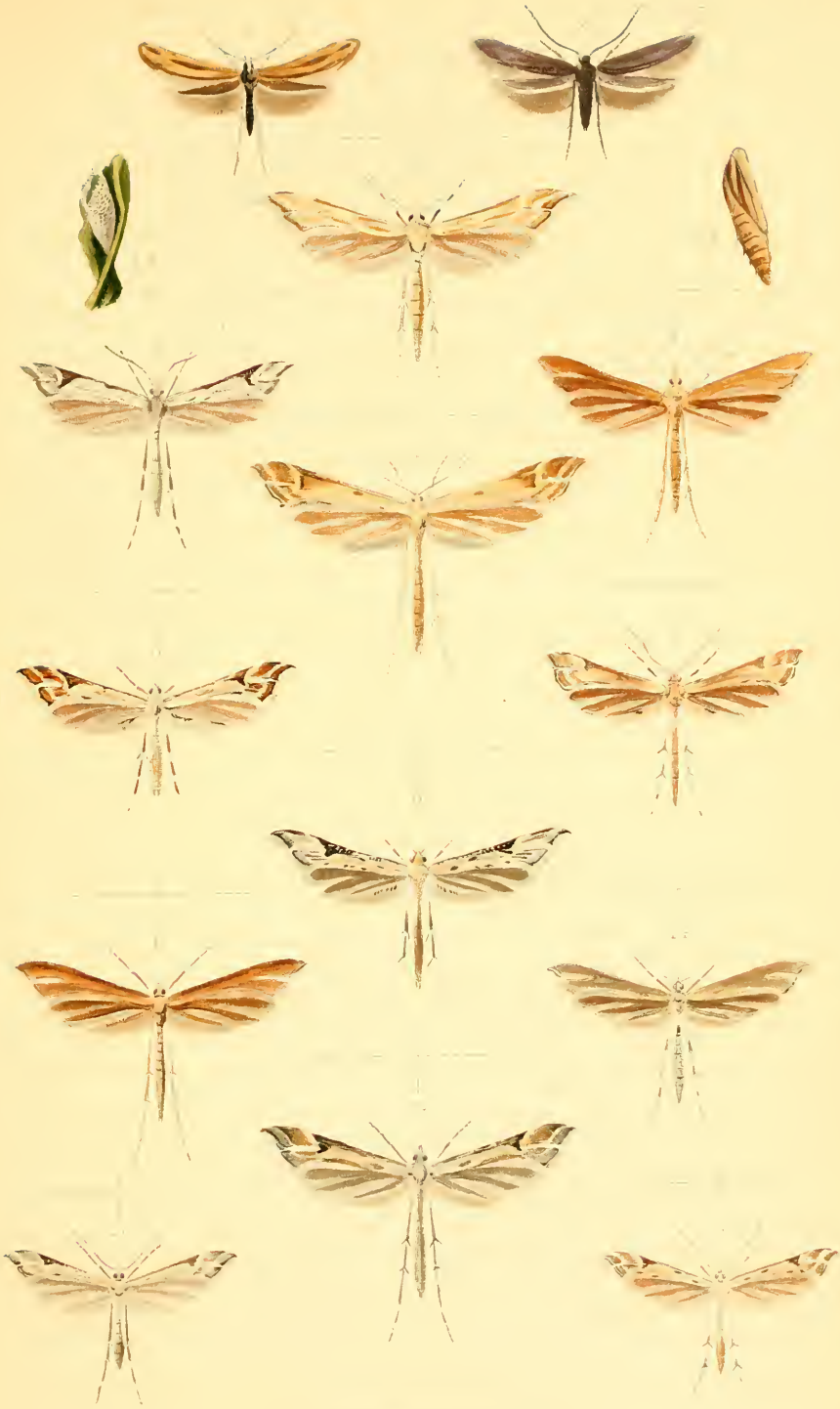


PLATE II.

Fig. 1. Amblyptilus pica, *Wlsm.*

2, 3, 4. Amblyptilus cosmodactylus, *Hübn.*

5. Oxyptilus periscelidactylus, *Fitch.*

6. —— ningoris, *Wlsm.*

7. —— delawaricus, *Zell.*

8. —— nigrociliatus, *Zell.*

9. Aciptilus californicus, *Wlsm.*

10. Mimeseoptilus exclamationis, *Wlsm.*

11. Œdematophorus grisescens, *Wlsm.*

12. —— guttatus, *Wlsm.*

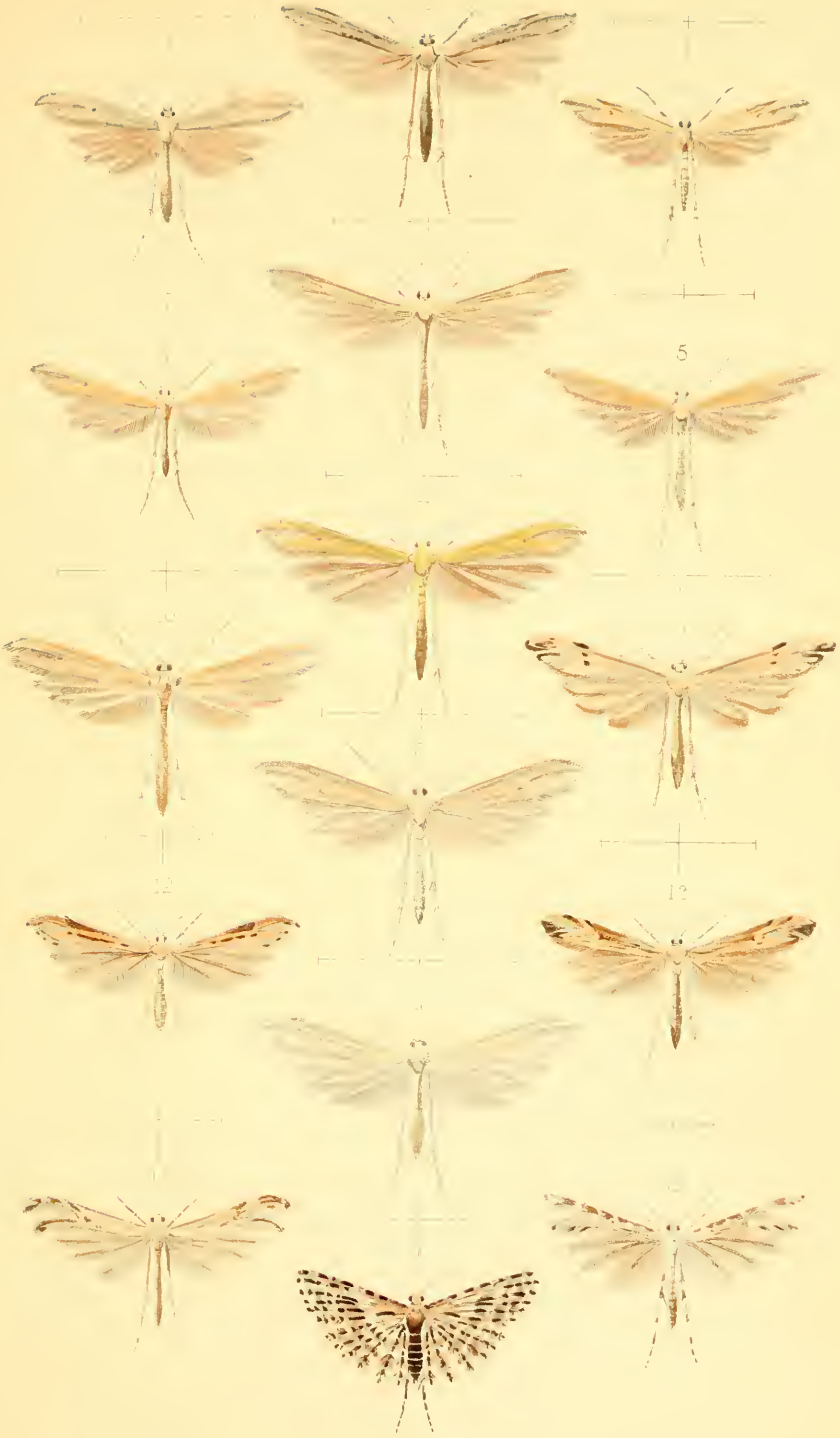
13, 14. Œdematophorus occidentalis, *Wlsm.*

15. Platyptilus petrodactylus, *Walk.*

16. Pterophorus monodactylus, *Linn.*

PLATE III.

Fig. 1. Pterophorus monodactylus, *Linn.*, var.
2. Lioptilus paleaceus, *Zell.*
3. —— stramineus, *Wlsm.*
4. —— angustus, *Wlsm.*
5. —— inconditus, *Wlsm.*
6. —— agraphodactylus, *Walk.*
7. —— sulphureus, *Wlsm.*
8, 9. Lioptilus homodactylus, *Walk.*
10. Lioptilus subochraceus, *Wlsm.*
11. —— helianthi, *Wlsm.*
12. —— parvus, *Wlsm.*
13. Aciptilus cinerascens, *Wlsm.*
14. —— montanus, *Wlsm.*
15. Trichoptilus pygmæus, *Wlsm.*
16. Alucita hexadactyla, *Linn.*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12
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Walsingham, Thomas De Grey, 6th baron, 1843-1919.

Pterophoridae of California and Oregon.