NOTE UPON THE REVISION OF THE GENUS CUCULLIA.

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The "Revision of the Genus *Cucullia*," by Prof. Smith, in Proc. U. S. Nat. Mus., XV., pp. 33, *et. seq.*, raises the number of described North American species to 14, and is an interesting addition to the knowledge of our *Noctuidæ*. Larger collections from the west have come to hand since my study of the species and have admitted of fuller comparisons. Although the species of *Cucullia* are not among the commonest Owlet Moths and seem to fall less easily a prey to the collector's efforts than those of many other genera, still we may conclude that the above figures give, at least approximately, the N. American representation of the genus. In a comparison of the faunæ of Europe and North America* I have sought one distinction in the smaller representation of the Hooded Owlets in America. Whereas in other leading genera, such as *Apatela* (*Acronycta*), *Hadena*, *Mamestra*, *Agrotis*, *Oncocnemis*, *Lithophane*, *Plusia*, *Catocala*, the North American species are much the more numerous; in *Cucullia* the proportion is reversed, and we have only 14 American to 43 European species of the genus. Of a truth we seem to have only 12 species which represent structurally the European forms. Two of our species (*bistriga* and *serraticornis*) I have no doubt (from figures and descriptions, as well as my own observations upon the Californian form) will come to be separated generically, or at least subgenerically, from the rest. There appear to be no analogues to these two species in the European fauna.

It is noteworthy that our North American species belong, in the main, to the groups represented in Europe by *Blattariæ*, *Asteris* and *umbratica*. No North American representative of the group of *Scopariæ* appears to be known, and, in particular, the silvery group containing *argentea* is wanting with us. Our western plains have this in common with the Russian steppes that they produce *Heliothini* in abundance, and when the description of *Cucullia luna*, Morrison, appeared, I was induced to believe that we had also found an American silvery species of *Cucullia*, allied to *argentina* from Astrachan or *splendida* from the Ural and Altai. But it now appears that this species of Mr. Morrison's is my *Epinyctis notatella*, a genus referred by me originally to the white *Heliothians*, among such forms as *Pippona* and *Antapлага*, and where, from its structure, I believe still it most naturally belongs. At nearly the same time the moth was

*See Grote: "Die Verwandtschaft," etc., Verh. Gesell. Deutsch. Naturf., 2ter Theil, pp. 148-154, Leipzig, 1890.

published by Prof. Smith as a new genus, but "closely allied to *Cucullia*," under the name of *Nyctophæata*. These facts, which are of interest in a comparison of opinions upon one and the same Noctuid, are obscured by Prof. Smith's brief statement that "the species described as *luna* by Mr. Morrison is an Heliothid", l. c. p. 37. According to Smith, Bull. Br. Ent. Soc. 45, it "should stand between *Cleophana* and *Cucullia*".

If, then, we really possess a silvery *Cucullia*, it has yet to be discovered. Such a form must be looked for in the west, in the States and Territories adjoining the Rocky Mountains, and, probably, on the eastern side of the range. But not improbably such forms, so much prized by European collectors, are entirely wanting in our fauna; while, although breeding and more extended research may turn up new species, it may be concluded that we shall finally remain much behind Europe in the total number of our native species of *Cucullia*. This fact is important in a study of geographical distribution. We know too little as yet to generalize upon its probable cause. The species of *Cucullia* run often closely together and are also confined, it would sometimes appear, to single kinds of food plants. I content myself here with calling attention to the circumstance. Upon the following species I would make some notes in reference to Prof. Smith's remarks:—

Cucullia convexipennis, G. & R.

No mention, or I have overlooked it, is made in the Revision of the somewhat peculiar shape of the wings, to which this species owes its specific name. I should have been glad had I been able to note that our observations in this respect had been verified. On the whole, this seems our most striking species yet discovered.

Cucullia florea, Guen.

The specimen of this species, referred to on page 45 of the Revision as "from Dr. Lintner", was given by me, with the above determination, to Dr. Lintner when he was studying that genus, as also the types of *serraticornis*. This unique specimen, which I had determined as *florea*, agreed fairly with Guenée's figure and description, and Dr. Lintner had not recognized the species elsewhere when I gave it to him from my collection. The specimen was, I believe, from New York State, but I had lost the exact locality. I believed that I had collected it myself at a time when my attention was not especially directed to the genus. Afterwards, finding the specimen in my duplicate boxes, I determined the same with-

out being certain of its origin. This species, from its grayer colour, is readily distinguished from *postera* or *asteroides* (*i. e.* star-like ?, a queer title for the moth ; the Latin name was probably meant to refer to the European *Asteris* or to the botanical genus *Aster*, a food plant for some of the species) and must be quite uncommon. I never saw a second example.

Cucullia lætifica, Lint., in Grote Check List (1875).

In describing the type of *cita*, from Arizona, I had no longer specimens of *lætifica*, from Texas, for comparison. The discovery of *montanæ*, Grote, had led me to expect new western forms of the genus, and in the present instance the sexual difference in general colour assisted my mistake. I have no doubt that the reference in the Revision is correct, and that the Texan species extends its range to Arizona. I do not know Prof. French's species, also referred here. With regard to *Cucullia solidaginis*, Behr., in Strecker, if my memory serves, I had a note upon it to the effect that it did not belong to this genus. If so, we have as yet no typical species of *Cucullia* known from California or west of the Rocky Mountain range. I must concur with Mr. Smith's remarks upon the descriptions of Behr. in Strecker.

In my opinion the *Cucullini* form a tribe of the *Noctuinae*, sufficiently characterized by comparative characters. These consist in the elongate wings, the tapering abdomen, the fine and smooth vestiture, the hooded collar, the pencilled anal tuft, the short and unarmed legs, naked and lashed eyes. The European species have, in the group of *Scrophulariæ*, the fringes of primaries dentate. The rest, with the American forms, seem to have them even. The usually smooth larvæ are very distinctly marked, but are not easily distinguished upon the food-plant. In habit and character they resemble *Heliothis* somewhat. The flower of a purple double aster I had here, blooming in a pot on my window-sill, contained the coiled and partially hidden full-grown larva of one of the European species, which I did not discover for some days. The pupation is effected in the ground in a dense cocoon mixed with earth, the moth appearing in the spring. The larvæ, when disturbed, often make a jerking motion, reminding me of that of the Hawk Moth, *Thyreus Abbotii*. It must indeed be said that the moths are not without some resemblance to the *Chærocampinæ*.

In my Revised Check List of 1890, I have given eleven species of *Cucullia*. The list must now be changed to include the following fourteen apparently valid names :

1. convexipennis, <i>G. & R.</i>	8. lætifica, <i>Lintn.</i>
2. montanæ, <i>Grote.</i>	9. Speyeri, <i>Lintn.</i>
3. similaris, <i>Smith.</i>	10. dorsalis, <i>Smith.</i>
4. obscurior, <i>Smith.</i>	11. intermedia, <i>Speyer.</i>
5. asteroides, <i>Guen.</i>	12. cinderella, <i>Smith.</i>
6. postera, <i>Guen.</i>	13. bistriga, <i>Smith.</i>
7. florea, <i>Guen.</i>	14. serraticornis, <i>Lintn.</i>

A TRYPETID BRED FROM GALLS ON BIGELOVIA.

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A round, white, woolly gall was found on stems of *Bigelovia* (sp. probably *graveolens*) in several localities in western New Mexico the past summer, from June 19 to 22. Those found June 19 were old galls, and were met with near Luera Spring, in Socorro county. On June 21 the fresh galls were found in numbers near Gallo Spring. Sometimes two or three were found near each other on the same stem or twig of the plant, and in one case three galls were found joined together, forming a triple gall. On June 22 they were found extremely common west of Apache Spring, thus seeming to increase in number in a westerly direction, as did also the patches of *Bigelovia*, every plant of which was full of them. The last two localities are on the Pacific slope of the Continental Divide, the first locality (Luera Spr.) being to the east of the divide about 40 miles.

Many of the galls found June 22 were opened at the time and disclosed several hymenopterous pupæ which were at first taken for the gall-maker. Some also contained a small white larva, probably belonging to the hymenopteron. Most of the galls, however, contained puparia which were taken for those of a tachinid, but which were in reality the puparia of a trypetid and the original gall-maker. None of the puparia were noticed to contain the fly, and numerous galls that were picked and kept in pill boxes for several months developed no trypetids. It was later found, however, that two of the puparia extracted from the galls at this date and placed in alcohol contained the pupa within. The credit for the breeding of the fly is due to Professor C. P. Gillette, who sent me speci-