

CONCLUSION OF LIST OF AMERICAN APATELÆ.

BY A. R. GROTE.

Genus APATELA. Hubn.

Sub-genus *Megacronicta*. Gr.

The type of this section is the well-known *A. Americana*, Harr., which seems to have no European analogue, strictly speaking. The section contains the largest and stoutest species, coming nearest to the section *Acronicta*.

1. *A. AMERICANA*, Harris, Ins. Inj. Veg., p. 317, "American Dagger." This is, on the whole, our stoutest species and its range is Northern; Its identification with the *Aceris* or *Hastulifera* of Abbot and Smith is probably illusory. What species Smith intended, or if more than one, can only be ascertained by breeding Georgia specimens and by a careful comparison, in all stages, with the published figures. Gueneé's *Acericola* is a name proposed (after Harris) for *Aceris* of Smith, which, in any event, is not the European species of that name. Caterpillar on elm, chestnut, etc.

2. *A. DACTYLINA*, Gr., Proc. Bost. Soc. N. H., XVI., 239 (1874). This species is nearly as stout as the preceding, the color is a bluer-gray, the hind wings in the male whitish, the markings are more continuous, the squamation rougher. In no event can it be a variety of the foregoing. I have seen no description of the larva. "Fingered Dagger." Seems to be Northern in its range.

3. *A. INSITA*, Walk., C. B. M., 61. This has apparently the hind wings white in either sex. It is much whiter than either of the other two species and had some resemblance to Smith's figures of *Aceris*, but any identification of these is clearly premature under the circumstances. The larva is not known. My specimens of the moth were from Massachusetts. I have examined Walker's type. I believe this is his only valid species in the genus.

Sub-genus *Focheaera* Hubn.The type is the European *A. Alni*.

1. *A. FUNERALIS*, G. and R. Proc. E. S. Phil., 6. 17, pl. 4, fig. 10; Grote Check List, 1875, plate 1, fig. 1 (photo.); *Americana*, Harr., Corr., edit. Scudd., 313, pl. 3, fig. (larva).

Dr. Speyer notes the difference (Stett. Ent. Zeit., 200) between the two species in the moth stage. Lintner describes the larva of the American species which, in this stage, closely resembles the European form with its curious club-shaped body hairs, looking like *Zygæna antennæ*, according to Lederer. Not only is the Mss. name *Americana* preoccupied, but it is *later* in point of publication and should not have appeared at all. The larva of *Funeralis* has been taken on hickory, elm, willow and oak. A detailed comparison of it in this stage with the European *Alni*

would be of great interest. Canada Eastern and Middle States. Considered by some writers our handsomest species of *Apatela*. I prefer *Quadrata* and *Lanceolaria*.

Sub-genus *Merolonche*. Gr., c. f., Ill. Ess.

The type is the Californian *A. Spinea*, and this section, characterized by the peculiarly sunken head and bombyciform appearance, is apparently unrepresented either in the East or in Europe.

1. *A. SPINEA*, Gr., Bull. B. S. N. S., 3, with photo. figure. "Spiny Dagger." The egg and young larva of this Californian species are described by Mr. Henry Edwards in his valuable notes on Pacific Coast Lepidoptera, but the food plant is not stated.

2. *A. LUPINI*, Behr. Mss., Grote, Bull. B. S. N. S., 1, 79. This is a darker species than *Spinea*, the head slightly less retracted; the markings differ in detail. California. "Lupin Dagger." I have seen no description of the larva. I have used for this species a manuscript name attached to my specimens. Neither before or since has it been described by Dr. Behr, so far as I know. As with *Luteicoma*, I suppose the authority describing the moth, first, should be alone cited; so far as I can find, this is the view taken by the majority. In future the moth should be called *Lupini*, Gr.

Sub-genus *Lepitoreuma*, Gr.

The type is *A. Hamamelis*, and this group is characterized by the somewhat ovate wings, with slender, short bodies, and raised scales on the wings.

1. *A. OVATA*, Gr., Bull. B. S. N. S., 1, 80, Pl. 2, fig. 14. "Oval Dagger." The larva is unknown to me; the species is not common in New York and Massachusetts. It looks like *Clarens*, which, I think, belongs to another group.

2. *A. EXILIS*, Gr. A small species which I believe is best placed here and next to *Ovata*. Larva unknown. New York to Texas.

3. *A. HAMAMELIS*, Guen., Noct. 1, 52. Guenée describes the larva on Hazel, but the species has been reared by Coquillett and others on various shrubs and trees. The moth is common and very variable. "Hazel Dagger." Canada to Alabama and Texas. My kind friend, L. W. Goodell, gives a clear description of the larva, on chestnut, *Can. Ent.*, ix., 61.

4. *A. HÆSITATA*, Gr. This is founded upon large, smoothly mixed gray specimens, which may only be a variety of the preceding, but are easily picked out. It is at least a good variety and it must be bred to decide. Pennsylvania. I have seen several specimens since describing it.

5. *A. INCRETA*, Morr.

Looks very much like a small *Hamamelis*, but is, I feel pretty confident, distinct. Massachusetts and New York. The larva is unknown.

6. *A. DISSECTA*, G. and R., Tr., Tr. Am. Ent., S. C., 178, Pl.

1, fig. 81. "Frail Dagger." This is the flimsiest of our *Apatelæ*, and might almost be taken for a *Microscælia*. The markings are like the preceding, but the color is more plainly of an obscure gray. The moth is taken from Canada to Middle States, and Mr. Thaxter has discovered the larva.

Sub-genus *Arctomyscis*, Hubn.

The type is the European *Euphrasie*. We have, apparently, one species in North America belonging to this group.

1. *A. SPERATA*, Gr., Bull. B. S. N. S., 1, 81, Pl. 2, fig. 1. The hind wings are white in the male sex. The markings are distinct and neat. The larva is not known. Eastern and Middle States.

Sub-genus *Mastiphanes*, Gr.

The type is *A. Xyliniformis*, and the species are intermediate in shape of wing between the foregoing and *Eulonche Oblinita*. I refer to this section 1, XYLINIFORMIS, Guen. 2. PALLIDICOMA, Gr. (I have seen this wrongly labelled "*Spinigera*," which belongs in reality to *Semaphora*, and must be a stronger marked insect.) 3. EXTRICATA, Gr. (A large Texan species mistaken for *Xyliniformis* by Belfrage.) 4. EDOLATA, Gr. 5. LITHOSPILA, Gr. Except No. 2, the species are easily known and generally correctly named in all collections which I have seen. No. 5 looks like a species of *Lithophane* at first sight.

1. *A. OBLINITA*, A. and S. Mr. Thaxter obtained specimens of this moth in Florida, which were, perhaps, larger and paler, but afforded me no ground for describing our Northern specimens as distinct. The larva is said not to agree, but we must be prepared for variation and even dimorphism in this stage. I think that over so wide a territory there will be some slight variation, and that there is no evidence we have more than one species. Canada to the Gulf.

2. *A. LANCEOLARIA*, Gr., Proc. Acad. n. s. Phil., 418, 1875. This species is figured in my Illustrated Essay, the abdomen being too darkly colored, as I forgot to tell the artist the specimen was somewhat "greasy." The forewings were more pointed, the outer median line continuous and angulate compared with *Oblinita*. On the white secondaries there are no discal marks beneath. This is a very distinct species, and, to me, one of the most interesting. "Pointed Dagger." June. Collected by Mr. Thaxter. I have seen several specimens from Massachusetts. The larva, which I would like to know, has not yet been observed.

3. *A. INSOLITA*, Gr., Bull. B. S. N. S., 1, 82. I have only seen the type. By the shape of the wings and white secondaries it belongs here. Fore wings almost black, with the outer median line written in broad gray lunules. It is a very distinct looking species, but it must be a great rarity. It seems impossible that it could be a variety of either of the foregoing, as it differs very clearly in color and marking. "Rare Dagger." My type was

taken about Philadelphia. The limits of the genus are clearly reached, if not overstepped, with the present section.

Sub-genus APATELA, Hubn.

There now remain a goodly number of species which, perhaps, fall into unnamed sections of the genus, and may, for the most part, be arranged between the group *Megacronycta* and *Lepitoreuma* m. The best marked of these sections is that of which the European *Auricoma* may be considered typical, and to which the term *Apatela* must be specially applied. According to Dr. Speyer's instructive article, the N. Am. *Brumosa* is related to the European *Auricoma*. Guenee does not so regard it, but finds in *Rubricoma*, Guen. and *Luteicoma*, Guen., MSS., species which he found to resemble the European *Auricoma* in their immature stages. I, myself, cannot now compare all these species, but it seems difficult to further divide the American forms into different sections or sub-genera. The larvæ of but few, however, are known, and it is upon the peculiarities of clothing in the larval stage that I would chiefly rely in limiting the sub-genera of *Apatela*. As to this latter term I have fully shown that it must be retained for the genus on grounds of priority. I follow Stephens in this. The term is significant of the curious larval structure in this group which we must call *Bombycoideæ* of Boisduval, and not *Acronyctadæ* of Harris. The best name for the sub-family group, of which the genus *Apatela* is typical, is certainly APATELINÆ. The Dasychiriform or Arctiiform larvæ are of great interest and help to bridge over the gulf between the two great families of *Bombycidæ* and *Noctuidæ*.

On the one side the sub-genus *Apatela* resembles *Semaphora* or *Triaena* (the more significant title); on another they seem to run into *Lepitoreuma*. I would add the following to my list of Triaenæ (Papilio, 3, 67):

14. A. QUADRATA, Gr. Bull, B. S. N. S., 2, 154. This, with the next following, is among our finest Apatelæ. It is a stout, rather short and wide-winged species, very distinctly marked, the black dashes squared and cut off. "Square Dagger." The species has been raised by Mr. Dodge from the larvæ. Missouri and the Western States.

13. A. RADCLIFFEI, Harvey. The exact position of this fine insect, which has the primaries of a peculiar pearly gray, and the hind wings whitish in the male, is doubtful. It seems allied to the species I have described from Texas under the name of *Tota*. The larva is not known, and perhaps this and the next are better placed in the section *Acronicta*. Eastern and Middle States. "Radcliffe's Dagger."

16. A. INNOTATA, Guen., Noct. 1, 50. *Graefii*, Gr., Proc. E. S., Phil. 2, 68, pl. 3, fig. 6. This species varies in color, some specimens being of a clearer, light fawn-yellow, others more grey and clouded. It is curious to see how the lines copy the course

in *Diphthera Fallax*. A highly colored *Innotata* does not look unlike a *Fallax* which has lost its green color and turned yellow. "Graef's Dagger." The larva is apparently not described; it will be curious to note its relation to that of *D. Fallax*. Canada to Middle States; rare about Brooklyn, in the then suburbs of which the type of my *Graefii* was taken rather more than twenty years ago. I venture to keep the name in the English equivalent. We used to consider this a very rare and interesting insect.

I will now enumerate the species referable to the typical group of the genus "*Apatela*" in a restricted sense, a group which is represented in Europe by *A. Auricoma*, and in North America by *A. Brumosa* more especially, as held by Speyer, though Guenee disagrees. I think that the species clustering about *A. Separans* may afford another division, and by no means consider the group as homogenous. We must know the immature stages before deciding. In *Triæna* itself, which is a more easily defined group, I am uncertain whether *Occidentalis*, *Lobelia*, *Haëta*, *Quadrata*, etc., should not be separated from *Albarufa*, *Falcula*, etc., to say nothing of single species of difficult affinities, such as *Vinnula*. The species of *Apatela* proper are: 1. BRUMOSA, Guen., 2; DISTANS, Gr., 3; RUBRICOMA, Guen., 4; LUTEICOMA, Guen., Mss. (this name was given us by Mr. Guenée with that of *Agrotis Repentis*, names not published in the Species General, but attached subsequently to types in M. Guenée's collection, and under which we illustrated the species—there were three such names given us by M. Guenée to my collection, but the third I no longer remember); 5, SUBOCHREA, Gr. (a fine insect taken about Buffalo—"Bright Dagger"—in no way related to Mr. Morrison's *Aspera*, which is a Hadenoid form, probably belonging to *Polia*); 6, CONNECTA, Gr.; 7, PERDITA, Gr.; 10, AFFLICTA, Gr.; 11, NOCTIVAGA, Gr. To these 11 may be added 12, HARVEYANA, Gr., and 13, CLARESCENS, Guen., which resemble *Triæna* in some respects and, perhaps, do not belong here. I do not know what the larvæ are like.

To recapitulate this list of our *Apatelæ*, and following in the main my arrangement in the new check list, the following are the approximate figures. There are about eighteen European species known;

Name of Sub-genus.	No of Species.	Name of Sub-genus.	No. of Species.
<i>Triæna</i>	16	<i>Lepitoreuma</i>	6
<i>Acronicta</i>	4	<i>Arctomyscis</i>	1
<i>Megacronycta</i>	3	<i>Mastiphanes</i>	5
<i>Merolonche</i>	2	<i>Eulonche</i>	3
<i>Focheæra</i>	1		
<i>Apatela</i>	13	Total number of species.....	54

As near as may be we have three times as many species of *Apatela* in North America as in Europe. The genus is northern

in distribution, yet in Texas and Arizona are a number of fine species. The geographical range of genera seems wider in North America where we find *Fidonia Fimetaria* in Texas, whereas in Europe the genus does not extend so far south. As in the butterflies the lower grade of Noctuidæ (*Catocalinæ*) are much more numerous in America, but there is no parallel in the Noctuidæ to the preponderance in Europe of groups of butterflies like the brown or meadow butterflies. In typical genera or leading genera we outnumber Europe from two to three times in species, *i. e.*, *Agrotis*, *Hadena*, *Catocala*, etc. We are weak in *Cucullia* (though we seem to have most of the groups), and, in the smaller geometrid-like Noctuids, such as *Thalpochares*, *Eustrotia*. Our *Plusias* are more bizarre, but on the whole less rich and fewer compared with Europe, but here the Asiatic species intrude. I think we may safely assume double the number of species in North America, as compared with Europe, in the *Noctuidæ*. Elsewhere I have objected to the including of the Labrador fauna in European catalogues and pointed out that its affinity was with the New England fauna of which it is an extension. The Arctic forms of Labrador are found in suitable elevation within the limits of the New England States. To return finally to *Apatelæ*, the following names I have not identified, and the discovery of the species intended will disturb our synonymy somewhat. I think that Guenée has been unusually brief and unsatisfactory in his descriptions in this most interesting of genera, and which affords, like *Heliophila*, one of the most fascinating studies in the sub-order.

A. Spinigera, Guen., Noct., 1, 45.

A. Telum, Guen., Noct., 1, 45.

A. Interrupta, Guen., id., 46.

A. Longa, Guen., id., 54.

A. Ulmi, Harr. Ent. Cor. 312, Pl. 3, fig. 10. (Larva.)

A. Pruni, Harr. Ent. Corr. 313, Pl. 4, fig. 13. (Larva.)

A. Salicis, Harr. Ent. Cor., 314, fig. 44. (Larva.)

A. Aceris, Abb. and Sm., 2, 93. (Imago and larva.)

A. Hastulifera, Abb. and Sm., 2, 92. (Imago and larva.)

Mr. Walker's synonyms are noticed in my Illustrated Essay.

If we could only make out these nine species *satisfactorily*, the nomenclature of our species might be considered to be well ascertained. Of two or three of them I have suspicions, but no sufficient certainty.

The main part of the interest in the species of *Apatela* must always lie in the collection of the larvæ. These are gaily colored and diversely ornamented, so much so that they offer generic characters, while the sober gray moths they produce are, on the whole, uniform and uninteresting in appearance. The characters of the genus are not strong; they have to take in so heavy a moth as *A. Americana*, and so slight a one as *A. Vinnula*; so

compact a species as *Spinea* and so frail a one as *Dissecta*. I hope the present List will create fresh interest in the matter. As compared with its representation in Europe, the genus has taken on much new character, and its diagnosis may need rewriting. I would not be understood as giving anything but the most superficial value to the sub-genera I have here recognized; they have been merely helps to sort and arrange the species and light up the genus a little from within, so that we can see where the main differences between European and North American *Apatelæ* lies.

MID-WINTER BUTTERFLIES.

BY W. G. WRIGHT.

A three hundred mile trip was made into Lower California this past winter, starting January 18, 1883. The expedition consisted of a botanist, a conchologist, an ichthyologist and a lepidopterist, and the report of this latter is herewith given. If one cannot expect very great results at this season of the year there will be this negative advantage, that the story will be brief.

The climate of this region is so mild, equable and dry that not one of the party took overcoat, umbrella or rubber blanket. Usually we went about without coats on. One day in particular was very hot; I think the mercury must have been up to 90°. A canvas covered wagon and a small tent sheltered the party at night. It was known to us as a barren country, and especially so, since no grass had as yet started, so, as forage is not kept there for sale, we were obliged to carry hay and grain for our teams, enough to last the entire round trip, from San Diego. Water for camp use is found at springs and wells. Wherever a spring is found, there is sure to be a Mexican family living. But these improvident people never have anything to sell, and when a stranger ventures into one of the houses his first impulse is to get out again as speedily as possible, unless, indeed, he be an insect hunter. Wood for camp fires was usually abundant. Only once did we fail to have a roaring good fire nearly all night, and water for camp purposes was never lacking but once; but as for brooks and running streams, there were none. During 200 miles of the Southern part of the trip not one running stream was found. It had, however, been a dry winter, no rains having fallen up to that time., consequently the whole interior was dry and barren. During the first few days we crossed a series of high, cold hills. One of the nights there was very cold, and a skim of ice was found in the morning; then the road led down to the coast, and soon we felt the damp, mild sea air, and found warmer weather, and a little green grass and blossoming plants, and a few butterflies, and, as we worked southward along the shore we met ever-



Grote, Augustus Radcliffe. 1883. "Conclusion of list of North American Apatelae." *Papilio* 3(5-6), 111-117.

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