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FELTIA SUBGOTHICA, HAWORTH, OR AGROTIS (SUBGEN. AGRONOMA) JACULIFERA, GUENÉE, WHICH ?

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The latest statement of this case by the two recognized authorities, Mr. Grote and Prof. J. B. Smith, is as follows :

From "Bull. 44, U.S. Nat. Mus., p. 81 (1893)," by J. B. Smith,
Feltia subgothica, Haw.

jaculifera, var. Gn.

jaculifera, Gn.

tricosa, Lint.

From "List of N. Am. Europteridæ, * * * and Agrotidæ
p. 24 (1895)," by A. R. Grote.

Subgen. *Agronoma*.

Agrotis jaculifera, Gn.

subgothica, Auct. nec Haw.

tricosa, Lint.

jaculifera, Sm. in err.

jaculifera, var. A, Gn.

From 1873, when *jaculifera*, Gn. was first placed in the synonymy of *subgothica*, Haw. by Mr. Grote, until 1890, all American entomologists accepted the reference and did not use Guenée's name. In 1874, Dr. Lintner described Guenée's *jaculifera*, var. A, as a distinct species—*tricosa*, and correctly restricted Mr. Grote's *herilis* (described in 1873) to *jaculifera*, var. B, Gn. Prof. Smith's revision of the synonymy (Bull. 38, U.S. Nat. Mus., p. 111) was made in 1890, principally on the authority of Mr. Butler, who said the year before that "*tricosa*, Lint., is typical *jaculifera*; *herilis* is a poor variety." Mr. Grote bases his recent revision on the authority of Mr. Tutt, who stated (CAN. ENT., XXIII., 159 and 202): "I think there can be no doubt that Haworth's description applies to a well-known variety of *Agrotis tritici*."

An historical investigation which I made, a few years ago, of the names of the species of *Drasteria*, suggested that perhaps a similar critical study of the early literature of the insect under discussion might throw some light on the subject and enable one to arrive at an approximately correct synonymy. What little experience I have had in this line of work leads me to believe that there must be much similar critical study before the nomenclature of the moths reaches anywhere near the stability that Mr. Scudder's historical investigations have given to the nomenclature of the butterflies.

In 1810, Haworth described (Lep. Britt., p. 224) *subgothica* from a supposed English specimen; the sale catalogue of Haworth's collection published in 1834 indicates that he had but one specimen. As Haworth's work is very rare (I have not been able to get track of a single copy in this country), and as neither Mr. Grote (CAN. ENT., XXIII., 202) nor Prof. Smith (Bull. U. S. Nat. Mus., No. 44, p. 81) have ever seen the original description of *subgothica*, the following copy of it (obtained through the kindness of Mr. Champion, Librarian of Ent. Soc. of London) will be of interest and value:

"185. *subgothica*. (The Gothic Dart) alis griseo-fuscis, costa late at dimidiatim, stigmatibusque pallidis.
Habitat in Anglia valde infrequens. In Musæis tribus solum vide.
Expansio alarum. (Mr. Champion gives no figures.)
Descriptio. Præcedentibus (*sagittifera*) affinis absque punctis posticis sagittatis. Stigma anticum, subtriangulare, posticum reniforme: ante et inter hæc arcus niger qui reversus apparit in alis expansis. Stigma teliforme prægrande a basi fere ad medium, sed lineolis duabis divaricatum transversis interruptum. Posticæ pallidæ fimbria fusca."

No figure of the insect is given, and it is not definitely known if the single type specimen exists, thus much depends upon this description. Is there anything in it that does not apply to our American insect? Does it fit any known variety of the European *tritici* better?

Except in Stephens's Catalogue, *subgothica* seems not to again appear in the literature until 1829, when Stephens describes and figures (Ill. Brit. Ent., Haust., II., p. 126, pl. 22, fig. 3) an insect as *subgothica*, which he

says he obtained from a Mr. Raddon, who had evidently labelled it "near Barnstaple, Devon." A photographic copy of Stephens's figure is reproduced at *1a* on the plate. This figure is accepted by Mr. Grote (CAN. ENT., XXIII., 202) as that of *jaculifera*, Gn., but Prof. Smith doubts it (Bull. 44, U.S. Nat. Mus., p. 81). However, I think that a glance at the next figure of the insect that appeared, taken doubtless from Stephens's specimen, will remove all doubt as to what insect Stephens tried to represent. This figure, which is reproduced at *1b* on the plate [it is enlarged to natural size], is from Wood's Index Entomologicus, pl. 9, fig. 149 (1839). All must admit that it is one of the best figures of our American insect ever published. Although Wood does not state definitely that his figure was made from Stephens's specimen, we know he did thus make use of Stephens's collection for many of his figures, as he states in his preface. But one more figure of the insect seems to have appeared in English works. This one, by Humphrey (in Humphrey and Westwood's British Moths and their Trans., I., pl. xxiv., fig. 1, 1843), was recently referred to by Mr. Barrett (Ent. Month. Mag., XXV., 224) as being certainly a variety of *A. tritici*. The fact is, as Humphrey states, that his figure was copied from Stephens's figure; this was evidently not known to Mr. Barrett, as the context of his article indicates. Humphrey's figure is reproduced at *1c* on the plate.

Up to 1847, the English entomologists considered *subgothica* a British insect and a distinct species. Then, Mr. Doubleday stated (The Zoologist, V., 1728) that "Haworth's insect is evidently simply a variety of either *Agrotis tritici* or *aquilina*. The species described and figured by Stephens is American." For many years after this the name *subgothica* rarely appeared in British lists and only as a variety of *tritici*; it apparently does not occur at all in recent lists. It has never been taken in England, so far as I can find any record, since Stephens's time.

The name *subgothica*, Haw., was introduced into American literature by Dr. Fitch in 1856 (Second Rept. on Insects of N. Y., p. 546). It has been in universal use here since, and no American writer has seriously questioned the identity of our species with the *subgothica* of Stephens and later English writers, or even with the *subgothica* of Haworth, until 1891, when Mr. Grote changed his mind in accordance with the opinion of Mr. Tutt. I think that all now agree that the species under discussion is distinctly American. It undoubtedly has never occurred in England, notwithstanding the records of its English habitat by the earlier English

writers. Dr. Fitch suggested that the eggs or larvæ may have been accidentally carried to England, but Doubleday's explanation is doubtless the more correct one. He says (*The Zoologist*, V., 1729): "I have traced all the specimens which I have seen of this species (the one described by Stephens) in collections of British Lepidoptera to one source, and I believe the gentleman who distributed them [Mr. Raddon is the gentleman referred to] inadvertently mixed a number of North American insects with his British ones. I received from him as *British* a Bombyx which my brother took in Florida; and Mr. Benjamin Standish possesses two Bombyces, one of them a *Cerura*, the other perhaps a *Notodonta*, from the same entomologist, which were sent to him as British, whereas both are well-known North American insects." There can be no doubt that several American insects found their way into the larger English collections formed in the beginning of the present century; and some of these, as Doubleday points out, were described by Haworth and Stephens as English insects. The evidence on this point is very conclusive as regards *Drasteria crassiuscula*, Haw.

Wood's figure (*ib* on the plate) and Doubleday's testimony are sufficient evidence, I think, that the *subgothica* of Stephens and later writers is our common American insect. But, is Haworth's *subgothica* the same as Stephens's? Probably Haworth's single type specimen could not now be found, if it exists at all. Without the specimen, we must depend on the original description and a little circumstantial evidence to settle this point. Haworth's specimen may easily be the one which Mr. Barrett recently found in an old English collection made up of specimens obtained from older collections by a Mr. Burney, who was contemporary with—and corresponded with—Haworth and others, and many of whose insects ultimately fell into his hands (*Ent. Month. Mag.*, XXV., 223). Mr. Barrett says there was one specimen that proved to be really a type of *A. subgothica*, and the specimen was not a variety of *tritici*. Mr. Dale says (p. 246 of the same magazine) that this specimen "probably came from Mr. Raddon, the gentleman referred to by Mr. Doubleday" as having introduced several American insects into English collections; Stephens's figure was made from one of these specimens. Haworth's description seems to apply very well to our American insect, and it also affords a valuable bit of circumstantial evidence in the remark that he had seen the species in only three museums. It is hardly probable that one of these three col-

lections was not that of Stephens, then one of the few great English collections. Thus, I believe that the weight of evidence indicates that the *subgothica* of Haworth and Stephens were the same species.

But, curiously enough, while all American entomologists have claimed the name *subgothica*, Haw., for our insect, the English authors since Doubleday have claimed Haworth's insect as a variety of their *tritici*. Doubleday said it was "simply a variety of either *tritici* or *aquilina*," but it was soon restricted to the former in British lists, and it is still considered as such by Mr. Tutt. The evidence in support of this seems to be confined principally to the simple statement of Doubleday, although Tutt intimates that he has seen Haworth's description; but Tutt does not (CAN. ENT., XXIII., 159) know our American insect. I think the evidence produced to show that Haworth's *subgothica* is our American insect outweighs any opinion which English writers, who do not know our insect, may form from the original description alone.

The name *jaculifera*, which occupies so conspicuous a part in the synonymy of this insect, was proposed by Guenée, in 1852, for an American insect. His description of the species includes a good characterization of the type, followed by brief descriptions of two varieties, A and B. I think both Mr. Grote and Prof. Smith agree that Guenée's figure (reproduced at *1 d* on the plate) and his description of the type of the species correspond to what American writers have been calling *subgothica*, Haw., for the past quarter of a century. *Jaculifera*, Gn., was first placed in the synonymy of *subgothica*, Haw., in 1873, by Mr. Grote, and on the same page he described both of Guenée's varieties, A and B, as a new species—*herilis*. In 1874, Dr. Lintner made a careful study of the forms included under Guenée's specific title *jaculifera*, with the result that Mr. Grote's *herilis* was restricted to *jaculifera*, var. B, Gn., and var. A was described as a new species—*triosa*.

No one has since questioned the specific rank of Guenée's varieties. Therefore, according to Canon XXVIII. of the A. O. U. Code of Nomenclature, the name *jaculifera* must be restricted to the first or main part of Guenée's description; this is the only portion of the description that can apply to his figure or to the insect under discussion. It is true, as Prof. Smith says (Bull. 38, U. S. Nat. Mus., p. 113): "Under all circumstances Guenée's name must stand for one of the forms, since he had all three before him," but in 1873 and 1874 the name was restricted to, or "was retained for that portion of the group to which it was first applied"

(to use the language of the Canon referred to) by Mr. Grote and Dr. Lintner. Therefore, I cannot understand how Guenée's name can be consistently applied to Dr. Lintner's *tricosa*, and it is not in accordance with the rule of nomenclature just cited. The fact that the form which agrees with the main part of Guenée's description and with his figure may or may not be a synonym of *subgothica*, Haw., does not affect the case in any way. I believe Mr. Grote is right in his protest (CAN. ENT., XXIII., 151) against the resuscitation of *jaculifera* at the expense of *tricosa*.

As has been stated, Prof. Smith's synonymy is founded principally on the statement of Mr. Butler that "*tricosa*, Lint., is typical *jaculifera*; *herilis* is a poor variety." The antennal differences between *herilis* and *tricosa*, pointed out by Prof. Smith, show that Mr. Butler did not study the species very carefully. The other point has been discussed by Mr. Grote as follows: "Guenée happens to figure typical *jaculifera* and he figures typical *subgothica*! Prof. Smith does not quote Guenée's illustration, which contradicts both Butler's statement and his own course. Guenée's types of '*jaculifera*,' or so-called 'types,' were several in number at least, as he included two other species as varieties. One of these so-called types Mr. Butler may have, and this may be a *tricosa*, Guenée's var. A. Guenée made three mistakes as to his material: First he described and figured *subgothica* as *jaculifera*; then he described specimens belonging to two different species, *tricosa* and *herilis*, as varieties of *jaculifera*. Under no circumstances can Butler's statement be correct (CAN. ENT. XXIII., 151)." The enlarged figures (twice natural size) of a front and hind wing of each of the three species just discussed show some of their differences and will aid in their determination. I believe the above evidence warrants the following synonymy for these much-discussed forms:

subgothica, Haw.

jaculifera, Gn. (type and figure).

tricosa, Lint.

jaculifera, var. A, Gn.

herilis, Grote.

jaculifera, var. B, Gn.,

or the same as that given by Dr. Lintner in detail in 1874 (Ent. Cont., III., 161), and accepted by Mr. Grote until recently.

Shall it be *Agrotis*, *Feltia*, or *Agronoma subgothica*, Haw.? Apparently Mr. Grote and some other systematists are not yet ready to

accept all of the new genera which Prof. Smith has recently proposed in his revision of the old genus *Agrotis*. While I am a thorough believer in the value of sexual characters in the classification of the Noctuids, I should hesitate to establish genera upon them without first examining other than our own fauna. In a recent study of the genus *Drasteria* I found that all of the known species in our fauna had decidedly asymmetrical male genitalia, while the species in the allied genera *Euclidia* and *Caenurgia* had not; nor had this peculiarity been noticed in any other Noctuids. Although none but American forms have been placed in *Drasteria*, I am sure that at least one of the common European Euclidias belongs to it, but I am not yet sure that this European species does not have symmetrical male genitalia.

While it is true that Walker insufficiently characterized his genus *Feltia*, yet the description of a species—*ducens*—made it a valid generic title; and as *ducens* is a synonym of *subgothica*, Prof. Smith had a right to recognize *Feltia*. But Mr. Grote now claims (in his List for 1895) that *Feltia* must fall as a synonym of Hübner's genus *Agronoma*. Hübner placed four European species in the genus, and Mr. Grote thinks the type species is *valligera* (*vestigialis*). Now, if it can be shown that *subgothica* is congeneric with the European *valligera*, and both Stephens and Guenée mention a resemblance, then Mr. Grote is right in placing *Feltia* in the synonymy. Mr. Grote gives *Agronoma* only subgeneric rank. I prefer to leave the discussion of this point to Messrs. Grote and Smith; it will require a more critical study and comparison of the American and European species than has yet been made before the question can be settled.

In the light of our present knowledge, I prefer to continue to use the name *Agrotis subgothica*, Haw., which has become so familiar to American entomologists from its frequent use in both our systematic and economic publications.

Agrotis murænula.

In his last revision of the Agrotids (Bull. 44, U. S. Nat. Mus., p. 85) Prof. Smith placed *murænula*, G. & R., in the synonymy of *vetusta*, Walk. This called forth the following protest from Mr. Grote under the above heading (CAN. ENT., XXVI., 81): "Two species, properly referred by me at the time to *Agrotis*, were described by Walker under the same specific name *vetusta*. One of these turns out to be, as I had suggested in my essay, *murænula*, G. & R., and this latter name, I claim,

under the custom and as accepted in Staudinger's catalogue, should be retained for the species it designates, since at the time it was free to be named and no subsequent generic separation can overturn its real and conceded right at the time it was proposed. *Vetusta*, Walk., as applied to *murænula*, must be relegated to the synonymy."

The facts are that Walker described *Mythimna vetusta* in 1856 and *Agrotis vetusta* in 1865; and Grote and Robinson described *Agrotis murænula* in 1868. In 1882, Mr. Grote stated that perhaps *Mythimna vetusta*, Wlk. (not both this species and *Agrotis vetusta*, as Prof. Smith states in Bull. 38, U. S. Nat. Mus., pp. 125 and 212), was *murænula*, and that it certainly was an *Agrotis*. Walker had thus unwittingly given two species of *Agrotis* the same specific name, and hence one was free to be renamed. But which one—the one described in 1856 as *Mythimna vetusta* or the *Agrotis vetusta* described in 1865? Mr. Grote evidently assumes that the former name must fall, but usage and consistency dictate that the older name should be retained. An examination of type specimens by Prof. Smith shows that *Mythimna vetusta*, Wlk., and *Agrotis murænula*, G. & R., are the same species. Then *murænula* must be placed in the synonymy of the older *vetusta*; and Walker's *Agrotis vetusta*, if it proves to be a valid species, is free to be renamed, and must be renamed should it be congeneric with *Porosagrotis vetusta*, Wlk. Thus, I believe the facts warrant Prof. Smith's use of the name *vetusta*, Wlk., for *murænula*, G. & R. Mr. Grote seems to have omitted *Porosagrotis obesula*, Smith, from his List for 1895.

THE SECOND ANACRABRO, AND THE SMALLEST AMERICAN OXYBELUS.

BY T. D. A. COCKERELL, N. M. AGR. EXP. STA.

Anacrabro boerhaviæ, n. sp. or var.—♂ about 7 mm. long; differs from *ocellatus* by the yellow markings, which are as follows:—Dorsum of prothorax and tubercles yellow, the tubercles with a black central dot. Mesothorax all black, except a small yellow spot on each side at hind border, adjacent to yellow spot of scutellum. Scutellum with a pair of large yellow spots. Postscutellum yellow. Inner side of anterior half of anterior femora yellow. Tibiæ yellow, with more or less black behind. Tarsi yellow, slightly tending to orange. Segments 1-6 of abdomen presenting a yellow spot medially, and a large yellow patch on each side. The median spot on first segment is round, that on 2-3