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SOME NEW GENERA AND SPECIES OF N. A. DERBIDAE WITH NOTES ON OTHERS (FULGORIDAE).

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The species of *Otiocerus* occuring north of Mexico can readily be divided into three apparently natural groups as follows:—

Group I.—Head as seen from side, deeply triangularly indented just before the acute upturned apex—Elytra angularly inflated at apex ..... Genus *Hynnis* Burn (preoccupied)—*Apache* Kirk.

Group II.—Dorsal margin of head straight or nearly so, apex slightly acutely angled above, rounding below ..... Genus *Otiocerus* Kby.

Group III.—Apex of head rounding, not angled above; color variable, pale to deep smoky with red nervures ..... Genus *Shellenius* nov.

The genus *Apache* includes only one N. A. species; *A. degeeri* Kby., which in a number of characters is quite distinct.

KEY TO THE SPECIES OF OTIOCERUS

A.—Reddish or smoky; solid color, ... *stolli* Kby.
AA.—Spotted or banded or both.
B.—Elytra uniformly spotted and sometimes slightly banded.
C.—Spots smaller and wanting at base ..... *abboti* Kby.
CC.—Heavily spotted and sometimes obscurely banded ..... *francilloni* Kby.
BB.—Elytra banded.
D.—Bands broad, obscure, five spots on basal half .... (*signoreti* Fh.)—*reaumuri* Kby.
DD.—Bands narrow oblique.
E.—Band scarlet ..... *coqueberti* Kby.
EE.—Band brown, head with black mark ..... *wolfi* Kby.
EEE.—Band brown, head without mark ..... *amyoti* Fh.

KEY TO THE SPECIES OF SHELLENIUS

Head short, dorsum curved ..... *schellenbergi* Kby.
Head long, straight *balli* McA.

Otiocerus kirbyi Fh. is unknown to the writer. It would fall under CC. of Group II by description. It may well be a pale form of one of these species. The species found in collections under the name of *signoreti* Fh. is undoubtedly *reaumuri* Kby. Metcalf separated the latter as "without" the five spots ignoring the fact that Kirby specially describes them. In the explanation of Plate 40 Metcalf has reversed the name of *O. degeeri* and *coqueberti*. The head of the example of the latter species must have been distorted or out of focus as in nature the apex is but little less than a right angle.

Fowler in the Biologia describes seven new species under the genus *Otiocerus* without recognizing any of the ten previously described. Of these species two (from C. A.), *venustus* and *breviceps*, evidently belong to Group II. Three of them; *montanus* (Mex), *graiseus* (Mex) and *gracilior* (C.A.) belong to Group III and may well include the very variably colored species that McAtee later described as *balli*. One species *O. interruptus* (C.A.) cannot be placed, as the head is neither described nor figured. *O.* (?) *rubescens* (Mex) is certainly not an

Otiocerus if the artist has correctly interpreted the venation.

Genus **Shellenius** nov.

Resembling *Otiocerus* in general form and structure but with the elytra extremely long and narrow before the roundingly expanded apex. The head is horizontal, extremely long and thin, the upper and lower margins almost straight, the apex rounding.

Type of the genus *Otiocerus balli* McAtee.

In *Apache* the head is much broader at the base than at the apex and the whole structure is at an angle with the body. The elytra in *Apache* are somewhat narrowed but the apical enlargement is angulate. The representatives of *Shellenius* are apparently more abundant in the subtropical region. *S. schellenbergi* and *balli* are both found commonly along the margins of the deeply shaded swamps in Florida. Early in the fall they were taken from the leaves of maple and blue beach but later were found almost exclusively on the under sides of the broad palmetto leaves, probably a hibernating place as they have been taken occasionally in the spring.

Apache degeeri is also common in the swamps of Florida and has been taken from the leaves of several trees. Mr. W. E. Stone took an example of *O. francilloni* from a palmetto leaf at Sanford. Mr. J. A. Reeves captured an example of *wolfi* from maples in a swamp at Silver Springs, Florida, and Dr. C. J. Drake one at Belmont, Miss. Mr. Reeves also took an example of *O. stolli* in a black jack oak area with a few scattered hickory at Ocala, Florida.

Genus **Anotia** Kirby

A number of examples of what appears to be *Anotia bonneti* Kby. have been taken in Florida swamps in the past two years. They have the venation, pattern of marking and the striking antennae of that species; while variable they are mostly paler than the picture would indicate. Kirby's figure, however, shows three spots on one wing tip and four on the other, with quite a difference in the shape and width of the bands on the two wings. Fowler places his *A. ruficollis* (Mex) in the section with broad antennae. The antennae are shown with the seta arising from a ledge far back of the apex, the pattern and markings are all typical of *bonneti* and it is no doubt that species.

A invalida Fowl. (C.A.)=*kirkaldayi* Ball. The black spots along the basal portion of the sub costa and again before the apex of clavus together with the irregular tawny clouding are quite distinctive.

Anotia venustula Fowl. (Mex)=*Amalopota fitchi* V.D. The examples of *fitchi* taken in Florida are for the most part even darker than Fowler's figure, the heavy black lines extend from the front across the head, thorax and elytra to join the cloud at the apex. Fowler's description emphasizes the red veining, though not shown in his figure.

Anotia smithi Fowl. is no doubt distinct if his side view drawing of the antennae is correct. *A. marginicornis* is certainly not an *Anotia* if the venation shown is typical.

Specimens of *A. robertsoni* Fh. taken in the swamps in Florida grade into *burneti* Fh. in possessing the black markings on the three abdominal segments.

Genus **Sayiana** nov.

Resembling *Anotia* in general form of head and antennae but much larg-

er, as large as an *Otiocerus*, head elongated obliquely upward and forward, rounding to a slightly acutely angled apex. Antennae with the second joint extremely long and flat, parchment like, pustulate with a thickened margin, the slightly oblique apices about equal the apex of vertex. Elytra as long as in *Otiocerus* but much broader at base, venation similar to *Anotia* but simplified; medius with four branches back of the cross vein where in *Anotia* there would be only three. Costal appendage very large arising just back of the hinge, rapidly narrowing into a narrow triangular flap that curves back two-thirds of the way across the base of elytron.

Type of the genus *Anotia sayi* Ball.

This species was described from N. Y. and the writer has taken it in Iowa. There is an example in the National Museum labeled Lake City, Fla. 4-19-189? (Uhl. Coll.).

Genus **Mula** nov.

Resembling *Muiria* but with head broader as in *Cyclocara;* elytra with even larger cells. Vertex broad at base gradually narrowing to a thin wedge; vertex and front as seen from side only slightly protruding from the contour of the dorso-ventrally elongate eyes, and finally joining the clypeus with only a slight depression. Antennae with second joint slightly longer than femur, broad, flat, strap-shaped or slightly broadening, with a definite shoulder nearly one-fourth of length from apex. Pronotum very broad, broadly incised posteriorly. Elytra held nearly vertical in repose and in a plane transverse to the axis of body, the costal margin out. Venation of the general pattern of *Sikaiana* and *Muiria,* but with the relative proportions of the cells greatly modified. The three main veins are placed close together and parallel and the costal margin is folded so that the radius appears to form the margin except at the extreme base and apex. A very broad basal, one immense discal and two smaller cells occupy most of the membrane. The rest of the cells are small and grouped around the apical and posterior margins. Hind wing strap-shaped, reduced as in *Proutista,* but still functional and carrying two veins. Stridulating appendage larger than in *Muiria.*

Type of the genus *Mula resonans* n. sp.

Mula resonans n. sp.

Superficially resembling *Muiria stridulenta* in size and appearance. White with three faint bands on elytra. Length 2 mm. length of an elytron 5 mm.

Vertex and front white, a red dot at the slightly accentuated union. Eyes black, antennae pale with a smoky crescent on the broadest part just before the base of the bristle. Pronotum white, glistening; rest of body waxy white with smoky areas each side of the base of abdomen. Elytra hyaline with three narrow, irregularly transverse, smoky bands following the nervures; serrations and transverse nervures along costa as well as some spots on the apical half scarlet.

Holotype, male, taken by the writer at Silver Springs, Fla. Nov. 3, 1927.

Allotype, female and two *paratype* males from Dr. Dozier taken at Magnolia, Miss., June 11, 1923 by T. H. Jones and W. G. Bradley and labeled "from shrubs and weeds." One female and seven male *paratypes* taken by Mr. Stone, Mr. Reeves and the writer at Sanford Nov. 14 and 19, 1927.

This striking species was found resting on the undersides of nearly hor-

izontal cabbage palmetto leaves in the deep shade of the densest swamps of the region. They were nearly all resting at about two-thirds the distance from the base to the margin and all carried their wings in a fan-like vertical position. In life they resemble a pair of enormous ears on a very small pale donkey. Their large resonant cavity and stridulating organs are probably made more effective by the use of the large leaf of the palm as a sounding board. The position taken at a certain distance from the margin of the leaf may be determined by this factor.

Cyclocara Muir and **Sikaiana** Dist.

Muir has placed *Patara vanduzei* Ball (N.Y.) in the genus *cyclocara* Muir. *Patara marmorata* Fowl. (Mex.) has the same type of head and venation and no doubt should be referred to the same genus.

Euklastis harti Metc. (III) appears to belong, as Muir has suggested, to *Sikaiana* Dist. The venation shown on the elytral drawing in Metcalf's Key is quite different from that on his colored figure. An example of this pretty species at hand from North Carolina resembles the colored figure in venation in that the second branch of the medius is nearly equally spaced with the first and third instead of four times as far from third as shown in the wing drawing.

Genus **Mysidia**.

Examples of *Mysidia mississippiensis* Doz. were taken from the margin of a swamp near Sanford, Fla. on Sept. 24. They were at that time abundant on the leaves of second growth maple. A few were taken on cabbage palmetto in November.

Mysidia rubidella nov.

Resembling *albipennis* but much smaller with the body scarlet. Length of body, 2.5 mm. Wing expanse, 11 mm.

Vertex extremely narrow almost foliaceous; pronotum deeply acutely angled posteriorly. Elytra narrow, hyaline the nervures prominent. Venation simple and regular except that the fourth anteapical cell is triangular with a long petiole. Color of entire body scarlet. The vertex, front and male plates pale; Eyes black, wings hyaline, veins brown with delicate fulvous clouds in the forks and along the cross nervures. Male plates widely separated at base, elongate, expanding apically.

Holotype, male from Presido Vera Cruz, Mex.—June. (O. W. Barrett) in authors collection. This is a strikingly distinct species in color, the pattern of venation and the small size, in other characters it approaches some of the large South American forms.

Dysimia maculata Muir described from Porto Rico was taken in numbers on Nov. 19 from the undersides of Palmetto leaves in a deeply shaded swamp near Sanford, Fla. by W. E. Stone, J. A. Reeves, and the writer. This species resembles a *Mysidia* in form and habits but the large round black spots are quite striking and distinctive.

Genus **Cedusa** Fowl.

The writer in working up his recent additions by McAtee's valuable revision of this genus found that he had seven species not previously recognized from Florida and that two of them appear to be undescribed.

C. maculata V. D. This beautiful and distinct species was taken in the deep shade of a swamp at Silver Springs, Fla., Nov. 3, 1927 by Stone, Reeves, and

the writer. Another example from Jennette, Pa. was taken Aug. 15 by Rev. Modestus Wirtner.

Superficially resembling *maculata* and *wolcotti* in general ornamentation but extremely minute with the structure of the *obscura* group. Length 2-2.5 m.

Cedusa minuenda n. sp.

Vertex twice wider than long, genal ridge low, transverse veinlets on disc of elytra faint or wanting so that only two subapical cells appear, these made by forking nervures. Color, creamy, the vertex, front, and mesonotum except for the carinae testaceous. Elytra smoky, the longitudinal nervures broadly white. Below yellow, the tip of rostrum deep black. Male plates white, rather long, together convex, a triangular space between them at the base, an angular one in the middle, beyond this the apices curve up and slightly outward.

Holotype, male (3-10-27), *allotype*, female (9-16-25) together with three males and three female *paratypes*, all from Sanford, Fla. taken by W. E. Stone, J. A. Reeves, and the writer while sweeping flat woods areas.

The writer has also taken this species at Tampa and Palm Beach, Fla. in Nov. and Dec. respectively. This is by far the smallest species in the group and one of the most easily recognized by both size and color.

C. flavida V. D. described from Jamaica has been taken abundantly sweeping at Sanford, Fla. (B.S. & R.).

C. edentula V. D. The drawing of the male genitalia in McAtee's review and those presented by Metcalf are very different and both appear to be due to distortion during drying. The inner margins slightly roundingly approach each other at about two-thirds the distance and then are slightly concavely (not angularly) excavated to the blunt apices. *C. hedusa* McA. appears to be only another variation of the same structure.

C. kedusa McA. was taken by the writer in abundance on sycamore at Chevy Chase, Md. in July 1920 and again in 1924. The sycamores were growing in a grassy meadow.

C. cedusa McA. was taken by the writer on a pure stand of *Carex* at Amery, Wisc. in July.

C. mallochi McA. was taken at Sanford, Fla. in March and July.

Cedusa chuluota n. sp.

Resembling *flavida* VanD. in size and testaceous yellow color with only a trace of smoky on the elytra. Length 4 mm. The genal ridge is less prominent than in *flavida* and the face darker so that the median carina is especially emphasized as a light line throughout. The male plates are broader and shorter than in *flavida* resembling *bedusa* in proportions but much more widely separated than either and with the inner margins twice approaching each other, the first rounding the second in the form of acute spines, the two sinuations dividing the margins into three approximately equal segments, apices of the plates bluntly spoon-shaped with a short broad triangular membraneous hook.

Holotype, male, *allotype*, female and four *paratype* males taken March 16, 1927 at Sanford, Fla. on the ditch fern (*Woodwardia*).

C. cedusa McA. This species has been taken at Sanford, Fla. the past season on the Royal fern in a Sphagnum bog.

C. obscura Ball. The writer has collected this species in Colorado, Wisconsin

and Vermont in the North and Florida in the South and has examples from Miss. (Drake). It is one of the commonest and most widely distributed species in Florida. The Ark. examples of *tedusa* McA. appear to be this species. The inner margin of the plates are curved upwards (downwards) which gives the appearance of emargination shown. McAtee's figures of the plates of *obscura* are not typical of the species. In the example from which they were drawn the plates had been folded over each other so that the convex inner margins were obscured. The picture of the plates of *fedusa* McAtee is correct for *obscura* and is no doubt that species. This will add Ark., D. C., and Md. to the distribution of *obscura*.

C. incisa Metc. was taken by the writer abundantly on Birch at Ladysmith, Wisc. July 19, and still more abundantly from grass clumps (Andropogan) at Osceola, Wisc. July 20. It has been taken in Florida the past season on pine with *Andropogan* beneath.