CORRECTIONS OF AND ADDITIONS TO OUR "REVISION OF THE SPHINGIDAE."

BY LORD ROTHSCHILD, Ph.D., AND DR. K. JORDAN.

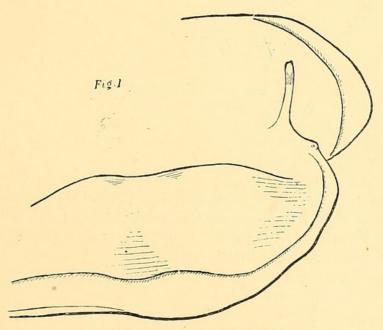
(With 3 Text-figures.)

1. Polyptychus draconis spec. nov. (text-fig. 1)

3. P. trilineato similis, magis grisescens, alis fortius dentatis, anticis apice angustiore, lineis duabus externis modice sed distincte incurvatis haud angulatis; alis subtus ut in P. trilineato duabus lineis fuscis notatis, linea prima in ala antica obsolescente, secunda tenuissima extus albo-griseo determinata.

Al. ant. long.: 56 mm.

Hab. "Thibet" (verisimiliter China occidentalis), specimen unicum a dom. E. Le Moult communicatum.



Text-fig. 1 .- Polyptychus draconis.

The general colour is a mixture of ashy grey and fuscous, without the luteous and purplish tints of *P. trilineatus* Moore (1888).

Palpus rather smaller than in *P. trilineatus*. The apex of the forewing more produced, the dentition of the outer margin more prominent (as is also the case in the hindwing), and the hindmargin rather more deeply incurved before the angle; the lines placed as in *P. trilineatus*, but the dark shade situated outside the first line not separated from the line by a pale interspace, the two discal lines evenly incurved from costal to hindmargin, almost parallel, the outer line more conspicuously bordered with grey, not excurved, the fuscous diffuse marginal patch below the apex extending to tooth R³. Hindwing fuscous along abdominal margin, otherwise ashy grey, palest costally; a whitish grey line extends from anal angle forward.

On the underside the external fuscous line of both wings very thin, being

edged on the outer side by a conspicuous, somewhat broader, whitish grey line; the line straighter on the forewing than in *P. trilineatus*; the proximal discal line of the forewing obsolescent (for the greater part absent in our somewhat abraded specimen); the corresponding line of the hindwing not accompanied by a fuscous diffuse band on the outer side, as is generally the case in *P. trilineatus*; marginal area of both wings darker blackish grey than the proximal half of the wings, of a dark hair-brown tint (Ridgway, *Nomencl. Colours*, pl. 3, No. 12).

Genitalia quite different from those of *P. trilineatus* and *dentatus*. Tenth tergite ending in a broader and more obtuse hook than in *P. trilineatus*; the sternite represented by a large plate, which is convex on the upperside and apically sinuate, the two lobes separated from one another by the sinus are broad, rounded, and slightly bent downwards. The clasper (text-fig. 1) is very much larger than in *P. trilineatus*; it is divided distally by a slit into a rather soft, scaled, upper lobe and a more strongly chitinised, more or less naked, lower portion, of which the apical margin is rounded, curving upwards and ending in a slender, apically brown, process, which lies on the inner surface of the dorsal apical lobe. Below the tenth sternite two spiniform processes, as in *P. trilineatus*, but straighter apically. The penis-funnel a simple ovate ring. The unpair ventral process of *P. trilineatus* absent.

2. Nyceryx eximia spec. nov.

Nyceryx tacita, Rothschild & Jordan, Nov. Zool. ix. Suppl. p. 418. no. 351. pl. 47. fig. 2, pl. 53. fig. 47, pl. 54. fig. 4 (1903) (partim; Chiriqui).

The specimens described in the *Revision* as *tacita* Druce are not this species. We have now two examples of true *tacita*, the possession of which allows us to compare the genitalia. The two species are certainly very similar both in colour and structure, but perfectly distinct.

In tacita the dark patch placed on the upperside of the forewing in front of the hindmargin is sharply bounded on the proximal side by a straight grey line, which is vestigial to the costa and ends here near the upper one of the two black dots situated at the apex of the cell. In eximia, the forewing of which is rather more purplish brown, this patch is posteriorly produced towards the base of the wing, its inner edge being curved. The whitish grey lines on the forewing of eximia are more irregular in shape than in tacita, the postdiscal line which runs obliquely from the costa towards the distal margin particularly being straighter in tacita than in eximia; the whitish grey submarginal curved line which extends from the brown apical spot to the central tooth of the distal margin bears in tacita a very distinct white dot, but not in eximia. The ochreous area of the hindwing is much more extended in eximia than in tacita, the blackish brown marginal border being 5 or 6 mm. wide at the subcostal in tacita, and at the most 3 mm. in eximia.

The underside of the wings is almost the same in the two species; tacita is a little duller in tone and its marginal border contrasts slightly less with the rest of the wing, in eximia a tooth projecting from the centre of the marginal band on the forewing being especially deep brown.

The whitish lateral dots on the abdomen are rather larger in *eximia* than in *tacita*, while in *tacita* the first two abdominal sternites are more densely scaled with purplish white, contrasting rather strongly with the other segments.

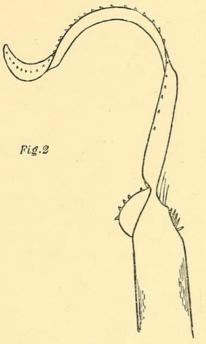
The genitalia of the 3 of eximia are figured in the Revision, l.c. The

hook of the tenth tergite is slenderer in tacita than in eximia, bearing no trace of a tooth or dilatation in tacita; moreover, in tacita the portion of the segment

proximal to the curved apical hook is more abruptly widened than in eximia. The apical ridge at the right side of the penis-sheath (left in figure) is rounded in tacita (text-fig. 2), and the one on the opposite side short; the whip is broader in tacita than in eximia, being particularly broad in our Bolivian example of tacita, less so in the one from Costa Rica. The dentate processes of the penis-funnel are rather larger in tacita than in eximia.

The \mathfrak{P} of *eximia* differs from the \mathfrak{F} in the yellow area of the hindwing above being slightly smaller.

Hab. Chiriqui, 2 & & and 1 &, and 1 & without locality, in the Tring Museum. We have 2 & & of N. tacita Druce (1888) from Tuis, Costa Rica, September (W. Schaus) and Rio Songo, Bolivia, 750 m. (A. H. Fassl). All the specimens, with one exception, recorded from other collections in the Revision from Mexico, Peru and Bolivia are, we think, tacita, but it



Text-fig. 2.—Nyceryx tacita.

would be advisable to compare them again. Judging from the notes we took in 1902, the Staudinger collection contained at that time four specimens under the name of tacita, of which one belongs to eximia.

3. Nyceryx continua cratera subsp. nov.

Nyceryx maxwelli, Rothschild and Jordan, Nov. Zool. ix. Suppl. p. 419. no. 352 (1903) (partim; S. Domingo).

3. Major, supra magis grisescens, alis anticis magis variegatis, posticis in disco brunneo notatis, limbo nigro-brunneo ante marginem abdominalem ad basin usque continuato, basi ipsa nigro-brunnea.

Al. ant. long.: 30 mm.

Hab. Rio Songo, Bolivia, 750 m. (A. H. Fassl); and S. Domingo, Carabaya, S.E. Peru, 6000 ft., June and August 1902 (G. R. Ockenden); 6 & &, type from the Rio Songo.

When we wrote our Revision of the Sphingidae we had only one specimen of N. maxwelli Roths. (1896). The figures of the genitalia published in the Revision were taken from this specimen. The second specimen mentioned in the Revision was received while the work was in press. Considering it to be a somewhat different example of maxwelli, we did not compare its genitalia. We now find that the specimen belongs to a new subspecies of N. continua.

We have six $\delta \delta$ of N. maxwelli, from Bolivia, and Zamora, Ecuador, and a φ from Theresopolis, Santa Catharina. The specimens of the new form of N. continua are of the same size as these maxwelli, i.e. much larger than the Brazilian $\delta \delta$ of continua, but all differ from maxwelli (apart from the genitalia, which are in cratera like those of N. continua continua figured in the Revision) in the hindwing bearing an

orange streak along the abdominal margin, and in the underside of the wings having no or very few yellow spots.

N. c. cratera is distinguished from N. c. continua by superior size, greyer colouring of the upperside of the body and forewing, the broader and less sharply defined border of the hindwing, which, moreover, is connected with the base along the second submedian vein, and by the upperside of the hindwing bearing a brown stigma, and between it and the marginal band a number of brown spots. Besides, the pronotum shows distinct traces of brown transverse lines, which are absent from N. c. continua.

4. Epistor taedium Schaus (1890)

The $\mathfrak P$ of this species is as yet undescribed. Some time before the war we received from Messrs. Standinger and Bang-Haas both sexes of the subspecies taedium taedium labelled Chiriqui. This $\mathfrak P$ is undoubtedly taedium. It agrees closely with that sex of E. gorgon Cram. (1777), but differs in the rather narrower forewing, of which the distal margin is somewhat more distinctly elbowed, the darker colouring of both the upper- and undersides as well as the legs, and in the distal margin of the forewing beneath bearing a distinct whitish grey diffuse border, as in the $\mathfrak C$. Moreover, the proximal one of the two discal lines of the underside is on both wings more prominent than in E. gorgon.

5. Temnora albilinea Roths. (1904)

In Arch. Naturg., 1913, Abt. A, Heft 6, p. 110, Embrik Strand describes as Temnora albilinea Roths. v. obscurascens Strand n.v., a 3 of T. albilinea from Ujiji in German East Africa, which has a darker ground-colour than is shown in the figure of T. albilinea published in Wytsman's Gen. Ins. 57. pl. 6. fig. 3 (1907). This figure, however, is a somewhat inaccurate representation of the species. Moreover, the specimen from which it was taken was collected in 1875 (A. v. Homeyer), and has not entirely escaped the influence of time on its colour. The species of Temnora, Nephele, and many other genera are liable to fading, and a difference in the tone of the ground-colour should always be regarded with suspicion. The ten specimens of T. albilinea in the Tring Museum, from Angola and Uganda, afford sufficient evidence that obscurascens is only based on a fresh example of albilinea, and is not a variety. The figures of Sphingidae in Gen. Ins., l.c., are very hard, the colouring being exaggerated by the lithographer, and the small details in the pattern are not absolutely exact.

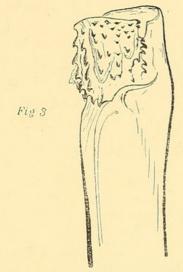
6. Temnora cinereofusca Strand (1912)

We have two \mathfrak{P} , one from Bitye, South Kamerun, and the other from Luluaburg, Kassai R., Congo, which agree with E. Strand's description of T. cinereofusca, Arch. Naturg. 1912, Abt. A, Heft 6, p. 155, no. 21 (S. Kamerun and Spanish Guinea), except that they are larger, the forewing measuring 30 mm. instead of 25. We had placed these examples in the collection under T. reutlingeri Holl. (1898), and on reconsideration adhere to this opinion. We therefore regard cinereofusca as synonymous with T. reutlingeri.

7. Temnora griseata R. & J. (1903) (text-fig. 3)

This species was described from a single ? in the Royal Museum at Brussels from the Congo. We have lately received a & from Nigeria (no more exact locality being given) which agrees with the ?. It is in a better state of preservation, and shows on the forewing two vestigial brown transverse lines in the basal fourth and three in the centre, these lines being convex on the distal side, and the two outer ones of them only indicated by dots on the veins. On the underside both wings are crossed by two discal lines, of which the distal one is dentate.

The long apical spur of the hindtibia is not quite half the length of the first hindtarsal segment. The tenth abdominal tergite is slender, gradually narrowing to the apex, which is very slightly truncate. The sternite is but little wider than the tergite, but much shorter, the apex being truncate. Clasper with six or seven large friction-scales. Harpe



Text-fig. 3.—Temnora griseata.

slender, tapering, curved upwards, similar to that of T. livida Holl. (1889). Penissheath with a large apical patch of teeth (text-fig. 3).

8. Temnora oxyptera spec. nov.

3. Alis anticis cum corpore cinereis apice magis productis quam in T. grisea, cui haec species similis, lineis medianis postice fere rectis haud obliquis; alis posticis et prona facie subtestaceis.

Long. al. ant.: 26 mm.

Hab. Chintriche, Nyassaland; 1 3.

The outer surface of the foretibia bears fewer spines than in T. griseata, and the long apical spur of the hindtibia is only one-third the length of the first hindtarsal segment. The uppersides of the body and forewing are of a more ashy grey tone than in T. cinerea, with a slight purplish tint. The markings of the forewing are as little distinct as in T. griseata; there is in the basal fourth a pair of strongly curved lines, of which the proximal one, before reaching the hindmargin, turns basad and runs to the base, as in T. griseata; the centre of the wing has two lines, the inner one is broadened anteriorly and touches the upper cell-angle, the two lines are costally farther apart than posteriorly, excurved below the costa, and slightly incurved below the centre, standing almost at right angles to the hindmargin, which they reach just beyond two-thirds; T. griseata has four, more or less vestigial, lines in the middle of the wing, and the posterior portions of these lines are more oblique than in T. oxyptera, the proximal angles formed with the hindmargin being obtuse; about half-way between cell and distal margin there is in oxyptera a row of minute vein-dots; the subapical costal spot is as distinct as in T. griseata, but rather more luniform, and the second row of vein-dots, which in T. griseata runs from this spot towards the hindmargin, is apparently absent from T. oxyptera.—The hindwing is a pale dull brick-red shaded with brown and grey, the red tone agreeing best with the vinaceous cinnamon of Ridgway, Nomencl. Colours, pl. 4.

Underside of wings rather paler reddish than the upperside of the hindwing;

proximal half of forewing shaded with brown, on the disc three dentate lines, a complete grey marginal band angulate at the first and second radials (R¹ and R²).

——On hindwing the discal lines as on the forewing, the marginal band narrower.

The genitalia are very similar to those of *T. griseata* as regards the anal segment and the claspers; the penis-sheath, which may be expected to show a more conspicuous difference, is unfortunately missing. The anal tergite is less curved and somewhat flatter, appearing thinner in a lateral view; the sternite is a little broader than in *T. griseata*, and shows hardly a trace of an apical sinus.

9. Deilephila dohertyi callusia subsp. nov.

Deilephila dohertyi, Rothschild and Jordan, Nov. Zool. ix. Suppl. p. 507. no. 426 (1903) (partim; Solomons).

3. Minor, alis anticis supra linea grisea submarginali fere nulla, posticis subtus absque guttis griseo-albis ad marginem anteriorem.

Al. ant. long.: 35-40 mm. (d. dohertyi: 42-47 mm.)

Hab. Solomon Islands: Choiseul (type), December 1903, 6 & &; Bougainville, April 1904, 3 & &; Isabel, June—July 1901, 1&; Kulambangra, February 1901, 1&; all collected by A. S. Meek.

When writing our Revision of the Sphingidae, l.c., we had only two specimens of D. dohertyi from the Solomon Islands, two from the Bismarck Archipelago, and two from New Guinea. We have now six from New Guinea, two from the Bismarck Islands, and eleven from the Solomons. These specimens evidently belong to two geographical races of D. dohertyi, true dohertyi occurring in New Guinea and the Bismarck Archipelago, and callusia on the Solomons.

D. d. callusia is smaller than D. d. dohertyi; on the upperside the grey submarginal line which on the forewing of the latter runs from the oblique apical line to the posterior angle, is only vestigial and irregular in callusia; the grey line bordering the basal patch is on the whole more irregular in callusia; on the underside the two white spots present at the costal margin of the hindwing of d. dohertyi are absent from callusia. The fore- and hindtibiae are less white, and the greyish white median stripe of the meso-metasterna is narrower than in d. dohertyi.

10. Enpinanga labuana oceanica subsp. nov.

?. Alarum signaturis melius expressis quam in *E. l. labuana*, anticarum margine externo ad angulum posticum usque griseato, posticarum fascia marginali dentata nigro-brunnea sat bene expressa; subtus laete vinaceo-rufa.

Hab. Andamans; 1 ? in Mus. Tring, a dom. celeb. J. W. Kaye benevole don.

On the *upperside* the basal half of the forewing contrasts more sharply with the outer half than in E. l. labuana, from Borneo, of which we have two ??, the lines in the disc are more distinct, and the grey shading of the marginal area extends from the apex to the hinder angle. The hindwing is somewhat paler than in E. l. labuana, while the external margin on the contrary is darker, a deep brown, well-defined, marginal band being formed, which is dentate at the veins.

The underside is much brighter red than in E. l. labuana. On the forewing the costal portions of the first and third discal lines form two distinct anguliform brown spots accompanied by two grey spots of nearly the same shape. Three discal lines on the hindwing, the first and third prominent, the second vestigial.

11. Macroglossum amoenum spec. nov.

?. M. passalo similis, sed multo minus, alis anticis fascia nigro-brunnea antemediana magis obliqua, posticis fascia flava latiore, abdominis segmentis 4°, 5°, 6° lateribus albo-penicillatis.

Al. ant. long. 19.5 mm., lat. 8.5 mm.

Hab. Sungei Liat, Banka Island; 1 ?.

Easily separated from *M. passalus* Drury (1773), apart from its small size, by the lateral tufts of the three segments preceding the tail being tipped with white, and by the oblique position of the antemedian band of the forewing, the outer edge of this band being at the hindmargin as far distant from the base as at the costal margin. This latter characteristic also distinguishes amoenum from fringilla Boisd. (1875).

Upperside of palpus, head and thorax smoke-grey, with black-brown median stripe, sides of mesothoracic tegulae bright walnut, this colouring sharply defined; palpus as long as in passalus, longer than in fringilla. Upperside of abdomen nearly as in passalus, the two yellow side-patches small, a vestige of an anterior, third, patch on second segment, the two grey spots at the base of the seventh tergite very conspicuous, more so than in passalus, lateral tufts of segments 4 and 5 white, the tuft of 5 particularly conspicuous, tuft of 6 brown with the extreme tip white, tail as in passalus tipped with pale hazel. On underside, the palpus white, with a dark brown stripe in front of the eye, breast greyish white in centre, clayish brown at sides; legs clayish brown shaded with hazel in parts, the long scales of the hindtibia with whitish tips; abdomen pale hazel, greyish at base in the centre, tail chestnut tipped with hazel.

Wings, upperside. General coloration of forewing as in passalus, the basal area a little paler, slightly more contrasting with the black-brown antemedian band; this band is nearly 11 mm. broad at the costal margin and widens almost suddenly on the proximal side below the submedian vein, its outer edge being about 6 mm. distant from the base throughout, forming an obtuse angle with the hindmargin of the wing, while in passalus and fringilla the angle is somewhat less than 90°; pale median interspace much shaded with purplish grey; blackish brown postmedian band as in passalus, but more oblique and less angulate; a costal patch outside this band, posteriorly bounded by R3, much shaded with purplish grey, sharply defined; a diffuse, but very distinct submarginal band of the same purplish grey scaling extends from apex to hind angle, narrowing at both ends.— Hindwing: the orange-yellow band sharply defined, a little over 3 mm. wide in centre; black-brown marginal border of about even width from below costa to below middle, where it is as broad as the orange-yellow band, and then gradually narrows to a point, the inner margin of the border slightly denticulate, but not distinctly angulate, the border proportionately narrower than in passalus, especially the posterior portion.

Underside duller red-brown than in passalus, almost like burnt-umber faintly shaded with drab; the lines less distinct than in passalus.

12. Macroglossum poecilum R. & J. (1903).

Macroglossum insipida poecilum Rothschild & Jordan, Nov. Zool. ix. Suppl. p. 643. no. 579 c. pl. 3. fig. 17, & (1903) (Loo Choo Is.).

When describing this insect from two Loo Choo specimens we said that it was perhaps a distinct species. We have now, from the van de Poll collection,

a third example, which came from Mt. Marapok, British North Borneo. This specimen agrees with the Loo Choo ones in the structure of the genitalia as well as in the pattern of the wings and body, but has a somewhat darker coloured underside. We have no longer any doubt that *poecilum* is a distinct species.

13. Macroglossum semifasciata nigellum subsp. nov.

Macroglossum semifasciata, Rothschild & Jordan, Nov. Zool. ix. Suppl. p. 657, no. 601. pl. 50. fig. 32, pl. 56. fig. 47, genit. (1903) (partim; Java).

 δ . Fascia aurantiaca alarum posticarum angusta subinterrupta distinguendum. Hab. Java (Piepers); 1 δ .

Subapical blackish brown diffuse spot expanded between costa and R¹ of forewing distinct and proximally rather sharply defined; the smoky grey scaling placed at the proximal side of this spot and in the centre of the wing also more prominent than in true *semifasciata*, from Burma, the Andamans, Nias and Borneo.—The yellow band of the hindwing narrow, in the centre the brown-black basal area connected with the distal border by means of vein-streaks.

On underside the hindwing less extended yellow than in semif. semifasciata, the yellow abdominal patch reaching from base scarcely halfway to anal angle.

Genitalia (figured l.c.): In true semifasciata the long slender process of the harpe is slightly curved downwards, in nigellum curved upwards; the process of the penis-sheath, in the former, ends in a long slender point, while in nigellum the apex of this process is obtuse and denticulate; moreover, the teeth on the sheath at the base of the process are larger in nigellum.

The larva described by Piepers (1897) as that of M. faro is the larva of the present subspecies.

14. Macroglossum adustum spec. nov.

3. M. semifasciatae vicinum, alis posticis fascia aurantiaca fere nulla. Al. ant. long. 28 mm.

Hab. Solomon Islands: Vella Lavella, March 1908 (type), and Rendova, February 1904 (A. S. Meek); 2 & &.

Body and wings deeper brown than in *M. semifasciata*, but the markings the same as in that species, excepting the hindwing. On this wing, *above*, the yellow band indicated by a faint cloud placed in front of the abdominal margin, and a diffuse yellow patch situated outside the upper cell-angle, in between the cloud and the patch some yellowish hair-scales. On the *underside* the bases of both wings slightly clayish grey; on hindwing, before the abdominal margin, a dirty yellow patch from base halfway to apex of SM².

Genitalia similar to those of *M. semif. semifasciata*, differing slightly in the harpe being a little more down-curved and in the teeth of the outer row on the penis-sheath being larger.

15. Macroglossum moriolum spec. nov.

\$\footnote{\pi}\$. Corpore brunneo-nigro, abdomine lateribus albo-penicillato, subtus medio griseo-albo notato, palpis pectoreque griseo-albis. Alis anticis supra brunneo-nigris, grisescentibus, fasciis duabus nigris notatis; posticis nigris, macula subcostali et altera diffusa subanali pallide aurantiacis. Infra nigro-brunneis, basi flavescentigriseis, posticis macula subabdominali a basi ad medium aurantiaco-flava.

Al. ant. long. 22-24 mm.

Hab. Vella Lavella, Solomon Islands, February and March 1908 (A. S. Meek); 3 ♀ ♀.

Near M. melas R. & J. (1903), which it represents, apparently, on the Solomon Islands. It is easily distinguished from melas by the outer margin of the black antemedian band of the forewing being strongly curved proximad posteriorly, the postmedian band of two lines being entirely filled in with black, and by the yellow band of the hindwing (which varies very much in melas) being represented by a small, elongate, subcostal patch and an obsolescent, diffuse cloud placed in front of the abdominal margin (in one of our three examples both markings are barely vestigial). Moreover, the yellow basi-abdominal patch of the hindwing extends only halfway to outer margin.

In the type-specimen there is a trace of a yellow side-spot on the third abdominal segment.

A NEW SPECIES OF GEOMETRIDAE FROM NEW GUINEA.

By Dr. KARL JORDAN.

Milionia optabilis spec. nov.

?. M. paradiseae similis, alis anticis macula parva basali nitida, posticis duabus striis nitidis ornatis facile distinguenda.

Al. ant. longit.: 22 mm.

Hab. Near the Oetakwa R., Dutch South New Guinea, up to 3500 ft., October—December 1910 (A. S. Meek); 2 ? ?.

Body glossy blue. Wings velvety black above, with a blue sheen in certain lights; tips of fringes of both wings greyish white; on forewing a short streak on the subcostal and median veins, and another, somewhat longer, on the submedian glossy blue, united at the base, an orange (type) or red median band from the costa to hindmargin, the fringe of the hindmargin remaining black, the band just proximal to the discocellulars, the upper angle of the cell being black; distally of the band a few scattered glossy blue scales.—On hindwing the band red, abbreviated in front, extending forward to the subcostal or a little beyond it; in the basal area two glossy blue streaks, one on the median, the other on the submedian, both extending from the base close to the band.

On *underside* the forewing nearly as above, the band reddish behind, and the blue scales outside it more numerous. On the hindwing two blue streaks, the first placed on the costal and subcostal, the second on the median vein.

Veins SC² and R¹ of the hindwing (6 and 7) on a very short stalk in type, separate in second specimen.



Rothschild, Lionel Walter Rothschild and Jordan, Karl. 1916. "Corrections of and additions to our revision of the Sphingidae." *Novitates zoologicae : a journal of zoology in connection with the Tring Museum* 23, 115–123.

View This Item Online: https://www.biodiversitylibrary.org/item/105188

Permalink: https://www.biodiversitylibrary.org/partpdf/144777

Holding Institution

Smithsonian Libraries and Archives

Sponsored by

Biodiversity Heritage Library

Copyright & Reuse

Copyright Status: Public domain. The BHL considers that this work is no longer under copyright protection.

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at https://www.biodiversitylibrary.org.