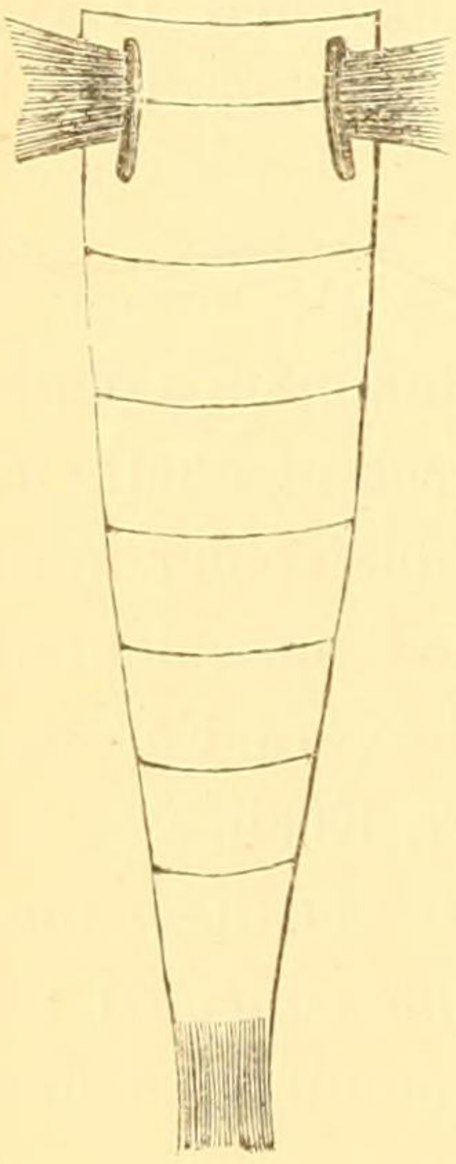
Mr. Meldola then read the following extracts from a letter from Dr. Fritz Müller to Mr. Charles Darwin, dated from Santa Caterina, Brazil, 27th November, 1877 :—

"My children lately caught on the flowers of *Calonyction* (sp.?) a Sphinx-moth, the proboscis of which is 22 centimetres long. As I think that you would be glad to see this curious proboscis I send it to you. * * * * During the month of October I have watched for some weeks the butterflies visiting a *Lantana* near my house, the flowers of which are yellow the first day, orange the second, purple the third day, and falling off on the morning of the fourth. Eight out of eleven species of butterflies (*Heliconius apseudes*, *Colænis Dido*, *C. Julia*, *Dione Juno*, *Hesperocharis Anguitia*, *Eurema Leuce*, *Daptonoura Lycimnia*, and *Callidryas Cipris*) never touched an orange or purple flower, limiting their visits exclusively to the yellow ones. Two specimens of *Pieris Aripa* (or *Elodia*?) proceeded in the same way, whilst a third specimen of this *Pieris* inserted its proboscis indifferently into yellow or orange flowers. Three specimens of *Danais Erippus* evidently preferred yellow flowers, but sometimes also tried orange flowers, and one of them even once put its proboscis into a purple flower; a fourth specimen of *Danais* visited yellow flowers only. Lastly, I saw three specimens of *Hesperidæ*, but as I did not catch them, and as the species most closely resemble each other, I do not know whether they belonged to the same species; two visited exclusively yellow flowers, the third indifferently flowers of any colour—yellow, orange, or purple. These observations, of which a full account will be published in the 'Archivos do Museo Nacional do Rio de Janeiro,' confirm those by Delpino on *Ribes aureum* and *Caragana arborescens*. If the flowers lasted but one day the flower-heads would be by far less conspicuous; if they lasted three days without changing colour, butterflies would lose much time in visiting honeyless, already-fertilized flowers. * * * Yesterday I caught, for the first time, the male of a Sphinx-moth which exhaled a strong musk-like odour; as you know, this is also the case with the males of the European *S. convolvuli* and *S. ligustri*; but nobody has as yet, so far as I know, indicated the odoriferous organ. It is formed by two pencils of hairs situated on the ventral side of the base of the abdomen, and when at rest are perfectly hidden by the scales (hairs?).



Scent-fans of Sphinx-moth.

"I do not remember whether I have already called your attention to an interesting secondary sexual character observable in several species of *Callidryas* and some other *Pierinæ*. The costal margin of the anterior wing is sharply serrated in the males, while it is smooth in the females. In *Callidryas Philea* some females have the wings smooth, others serrated, but

in a far less degree than in the male. This may be a sort of weapon in the battles of the males. Whether in *Papilio Grayi*, *P. Cleotas*, *P. Coræbus*, and their allies, the serrated margin of the fore wings is limited to the male sex I do not know, not having yet caught females of these rare species."

Mr. Meldola exhibited the proboscis of the *Sphinx* referred to in the above letter, and also the wings of a male specimen of *Callidryas Argante*, showing the serrated margin. He remarked that he was indebted to Mr. Darwin for having kindly placed the letter and specimens at his disposal. With reference to the length of proboscis of Sphinx-moths, it was stated that in the British Museum there is a South-American specimen of *Macrosila cluentius*, the proboscis of which is 23·5 centimetres (= 9¼ inches) long. Both Mr. Darwin ('Fertilization of Orchids,' 1862, p. 198) and Mr. Wallace ('Quarterly Journal of Science,' Oct. 1867) had predicted the existence in Madagascar of a moth with a proboscis sufficiently long to reach into the nectar of *Anagræcum sesquipedale*, the nectary of which orchid is from ten to fourteen inches in length. This prediction, although not at present specially fulfilled with regard to Madagascar, has been since shown to have a great amount of probability by the discovery of a *Sphinx* in South America with a proboscis 25 centimetres (= 9·8 inches) in length. This specimen was also captured by Fritz Müller (see 'Nature,' vol. viii., p. 223), and has been since identified as *Macrosila cluentius* (see 'Nature,' vol. xvii., p. 221). The selective discrimination of flowers of certain colours referred to in the foregoing letter appears to afford additional proof of the fact that insects can distinguish colours—a fact of the utmost importance to the theory of Sexua Selection. With reference to the serrated costal margin of the fore wings of butterflies, Mr. Meldola stated that this character had been shown to exist in the genus *Prioneris* by Mr. Wallace (Trans. Ent. Soc., ser. iii., vol. iv.), and in the genera *Amynthia* and *Pyrrhosticta* by Mr. A. G. Butler, but that, so far as he knew, it was now made known in *Callidryas* for the first time.

Mr. A. G. Butler stated that in many of the exotic *Notodontidæ* he had observed a fan-like tuft in the males. With reference to the *Sphingidæ* of Madagascar, he stated that he had measured the probosces of all the specimens in the British Museum, and none of them exceeded five inches in length. Mr. Butler further remarked that the whole of the Old World species of butterflies separated under the Hübnerian genus *Catopsilia*, the whole of the New World species separated under the genus *Phœbis* of Hübner, all the species of the true *Callidryas*, Boisd., and one species only of the genus *Aphrissa*, Butler, have the serrated costa in the male sex. *Aphrissa Godartiana*, Swainson, although closely allied to *A. Hartonia*, Butler, being similar in colour and pattern, but differing chiefly in size and the shortness of the wings, has a strongly serrated costa, whilst *A. Hartonia* has the costa smooth. With regard to the object of the serrated margin,