



On Scent-Distributing Apparatus in the Lepidoptera.

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It is well known that certain specialised scales found in various situations on the wings, bodies, and limbs of Lepidoptera are concerned in the distribution of a scent, which in many cases is characteristic of the species. These scales may occur in both sexes, but certain forms of them have only been found in males; among these are the plume-scales of the Pierines and Nymphalines. The Pierine plume-scale often affords a ready means of identifying the species, and is frequently of service in throwing light on questions of affinity. Thus, the interesting butterfly *Leuciactria acuta* Roths. and Jord., recently discovered in New Guinea, has been considered by some authorities to be nearly akin to the African genus *Pinacopteryx*, and by others to the Australasian genus *Elodina*. But the scent-scales with which it is abundantly furnished bear no resemblance to those of any *Pinacopteryx*, while *Elodina* appears to be entirely devoid of these structures. On the other hand, the scent-scales of *Leuciactria* strongly recall those of *Delias*, a genus well represented in the Australian Province, and especially so in New Guinea. Scales of a somewhat similar character are also found in *Huphina*, another genus with an Oriental and Australasian distribution, and probably not far removed from *Delias* in point of affinity. In a further structural feature *Leuciactria* is nearer to *Huphina* than it is to *Delias*, and it may possibly turn out to be a connecting link between these two assemblages. But from the evidence of the scent-scales it seems safe to conclude that such resemblance as exists to *Pinacopteryx* and *Elodina* is only superficial. The well-known 'battledore scales' that occur on the wings of Lycaenids furnish a means of separating two species, *Plebeius ægon* and *P. argyrognomon*, which are often indistinguishable by ordinary methods of examination.

In some cases, though not in all, a special adaptation exists with the object of economising the scent until it is required for purposes of sexual recognition or attraction. The costal folds of the forewing in many Hesperids, noticed by Doubleday and Westwood, and first adequately described by Fritz Müller, are examples of this kind of provision. Another structural feature serving the same purpose is the collection of the scent-distributing scales into a patch on that portion of the fore or hind wing which is covered in the position of rest. This arrangement is seen in many Pierines; it occurs also in Satyrines and Nymphalines. No example of a male characterised by special scent-scales was known to Fritz Müller among the Erycinids. Such, however, do exist; as, for example, in the genera *Mesosemia* and *Pandemos*, where the scent-patches occlude one another in the attitude of rest, as notably in the genus *Dismorphia* among the Pierines. The structure of these scent-distributors among the Lepidoptera is still to a large extent an unexplored field, and their study affords a promising subject for further investigation.



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