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CONDUCTED BY

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On the Acræa cynthius *of Drury.* By Arthur G. Butler, Ph.D., F.L.S., &c.

In Drury's 'Illustrations of Exotic Insects' (vol. iii. pl. xxxvii. fig. 5) a butterfly is figured which has given great trouble to lepidopterists; the older authors identified it correctly, and then by some means a totally distinct species became confounded with it, and has ever since borne the name.

The true *A. cynthius* is undoubtedly an albino female of *A. bonasia* of Fabricius. An example exactly agreeing with Drury's figure was purchased by the Trustees at the sale of Milne's collection, and may even be the type of Drury's species (*vide* Preface to my 'Catalogue of Fabrician Diurnal Lepidoptera'); indeed, the fact that it was entered in the Old Register as Drury's species and as from Sierra Leone, combined with the fact that it closely agrees with the original figure, seems to make this well nigh a certainty.

This point therefore being satisfactorily settled, it becomes necessary to give a name to the common yellow-banded species allied to *A. cabira*, which has hitherto wrongly borne the name of *A. cynthius*? in the Museum collection as well as in all others, and has been well figured under that name by M. Charles Oberthür ('Études d'Entomologie,' xvii. pl. i. fig. 5, 1893). I think one cannot do better than call it *A. Oberthürii*, as a slight recognition of the services rendered to entomology by the numerous admirable coloured illustrations published by that lepidopterist.

Note on the Protoplasmic Connexion of Lasso-cells in Physalia. By Seitaro Goto.

In view of the facts that have been brought out on the subject, there are, as it seems to me, three possibilities in the mechanism by which the cnidoblasts are discharged. One is to suppose that the stimulation of the protoplasm of the lasso-cells by foreign bodies coming in contact with the cnidocil causes it, or, more accurately speaking, its muscular portion, to contract, and brings about the discharge of the cnidoblast; another is to suppose that the contact of the cnidocil with foreign bodies is transmitted as a sensation to the ganglionic cells of the subepithelial layer, and that from these cells a new impulse goes out to the lasso-cells, and causes the latter to discharge. This, however, is regarded by von Lendenfeld (Zeitschr. f. wiss. Zool. Bd. xxxviii. p. 366, ff.) as highly improbable. A third way is that the stimulation of the cnidocil be transmitted to the subepithelial ganglionic cells, and there converted into a reflex, which causes the discharge of lasso-cells. We may, however, suppose that the stimulation proceeds from the sensory cells instead of from the cnidocils. Considering the fact that a mere contact with inert foreign body, such as a grain of sand, does not bring about the

discharge of lasso-cells, it seems to me very probable that this last alternative is what takes place in the seizure of prey.

During my study of the gonophores of *Physalia* I had also occasion to make some histological observations, so far as the condition of my materials permitted. One of the most interesting of these is the protoplasmic connexion of the lasso-cells with each other. This I first observed in some siphons mounted *in toto*. In these four or five, or sometimes more, cells were distinctly seen to be connected with each other by means of protoplasmic processes. These cells were generally arranged in a line parallel to the long axis of the siphon, and each cell was therefore bipolar. In some of the cells, however, I have observed one or more lateral processes; but whether these proceeded to other lasso-cells or to ganglionic cells I have not been able to make out. All the lasso-cells that I have observed connected together were not yet fully developed; some of them were still very young, but in others the vacuole, which afterwards becomes the capsule, had already attained a large size, and contained a horse-shoe-shaped deeply staining body, which is so characteristic of the lasso-cells in this species. I have tried to demonstrate the same connexion in the ripe lasso-cells, but hitherto I have not been successful. This I think can hardly be surprising when we consider how reduced the cytoplasmic mantle of the capsules finally becomes, and how comparatively far they stand from each other, thus necessitating a considerable lengthening and consequent diminution in thickness of the protoplasmic processes. I have observed the same connexion in sections of young siphons, although, as is to be expected, I have in this case never seen more than two cells connected together. One or both of them, however, had usually a second process.

The facts already known afford a sufficient clue to the probable mechanism, by which a large number of lasso-cells are discharged simultaneously; for, the connexion of the ganglionic cells with each other as well as with the lasso-cells being proved, we have only to assume the transmission of impulse from one ganglionic cell to another, in order that a simultaneous discharge of numerous lasso-cells should take place. But the observation above recorded requires a certain modification of our conception of the matter, in that it does not necessitate us to assume the connexion of every lasso-cell with a ganglionic cell. It perhaps justifies us in supposing that the protoplasmic connexion among lasso-cells subsists to the last, and furnishes the passage for the direct transmission of impulse from one cell to another, whether this impulse be originally supplied in one or the other of the ways above mentioned. Further observation will perhaps bring to light a similar connexion of lasso-cells in other forms.—*Johns Hopkins University Circulars*, vol. xiv. no. 119, p. 80.