

MIMICRY AND INHERITANCE

the yellow bar crossing the hind wing of the female *polytes*. The bar is not only widened by the lengthening of its central constituent spots, but by the appearance of a patch of yellow at the end of the cell. A very similar shortening and widening of a yellow bar crossing the hind wing is to be seen in an African Nymphaline butterfly, *Neptis woodwardi*.* The mimetic transformation is here evidently very recent, and distinct progress is seen† when we pass from the N.E. shores of the Victoria Nyanza to the Kikuyu country, east of the Rift Valley, where the Danaine model (*Amauris albi-maculata*) is especially predominant, and other mimics of its pattern abound.‡ Such a change in its most conspicuous element would by itself cause the pattern of *polytes*, upon the wing or at a little distance when at rest, to suggest that of *aristolochiæ*. The remaining features of the resemblance were then gradually added, each contributing something to the effect and suggesting more and more strongly the pattern of *aristolochiæ*: (1) the disappearance of the marginal yellow spots of the fore wing, (2) the emphasis and reproduction, on the upper surface, of the sub-marginal spots of the hind-wing under surface—already present in the male and generally red, although sometimes yellow, already tending to appear on the upper surface of some male-like females; (3) the peculiar light-and-dark striation of the outer half of the fore wing, and its reproduction with a marked brightening of the pale elements on the under surface; (4) lastly, the almost entire disappearance from the hind-wing upper surface of the yellow lunules marking the bay-like indentations of the margin—a character already extremely variable in the male and male-like female. I do not mean to imply that these changes took place in the above order or that none of them occurred simultaneously. Comparison with the “*hector* form” renders it probable that (4) was the last change (see p. 310).

Now that the elements in the resemblance to *P. aristolochiæ* have been analysed, the improbability of their all appearing together at the same moment is emphasised. That Mendelian heredity has probably played an important part at some of the stages I freely admit. Why Professor Punnett should prefer to think that

* *Trans. Ent. Soc. Lond.*, 1908, p. 512.

† *Ibid.*, Pl. XXIX., Figs. 2 and 4.

‡ *Ibid.*, Pl. XXVIII.

