

Mosquito Eggs X

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Oviposition in Neoculex

In a previous note in this series I discussed some of those Culex spp. which lay their eggs otherwise than directly onto the water surface¹²⁷. A further record, relating to two species of Neoculex, is that of Callot¹⁶⁵. It appears from this that eggs of C. hortensis Ficalbi, though normally deposited above the waterline, may sometimes be deposited on the water surface. The evidence, however, is not clearly stated. Although it seems that Neoculex rafts normally hatch before falling into the water it may be that they are sometimes washed down prior to hatching as suggested by Knab¹¹². The account by McIver¹⁶⁶ of oviposition by C. territans Walker in the laboratory also seems to suggest that, under these conditions, eggs may be laid on the water surface but again there is no unequivocal statement to this effect.

I think this is an important point, requiring clarification, because it seems to me that oviposition in Neoculex may embody an aspect of mosquito behaviour of fundamental importance which is currently little appreciated. In contrasting the oviposition behaviour of Neoculex with that of other Culex it is tempting to think in terms of "dry laying" and "wet laying" as alternative responses to the oviposition substrate. However, such naive antitheses have so often proved false in the past (see, e.g., Thomson¹⁶⁷, Mattingly¹⁶⁸) that I should regard this one with considerable suspicion. Moreover a quite different interpretation is possible.

During studies on oviposition in Culex fatigans in Burma I found it convenient to distinguish five successive phases, namely activation of the gravid female, location by her of the oviposition site, pre-oviposition resting on a dry vertical surface bordering the site, take off and alighting on the water surface and, finally, deposition of the eggs. The antepenultimate resting phase, which I have elsewhere christened 'intercurrent resting'¹⁶⁹, interested me particularly. It recalls in a striking manner the pre-feeding resting of certain Anopheles¹⁷⁰⁻¹⁷² and could well be a quite general feature of mosquito behaviour. If the two final phases of the oviposition regime were suppressed and egg deposition was pushed back into the pre-oviposition resting phase we should have a mode of oviposition behaviour precisely like that observed in Neoculex. At the same time the illusion would be created of a change in 'preferred' oviposition substrate when in fact the change involved would relate solely to the programming of the animal and not at all to its ad hoc response to environmental stimuli. The effect would be somewhat analogous to that exerted by the 'internal clock' whose ecological implications

I have discussed elsewhere^{168,173} while its methodological implications would be not unlike those associated with the use of unitary diagnostic characters at the more naive levels of mosquito taxonomy.

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