

The Problem of the Identity of the Species of Culex
(Melanoconion) Related to Opisthopus

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Recently, Stone and Hair (1968. Mosquito News 28:39-41) proposed the name cedecei for a Florida population which was formerly known under the name Culex (Melanoconion)opisthopus Komp, 1926. The latter was based originally on material from Puerto Castilla, Honduras and had been reported also from Panama (as mychonde Komp, 1928), Puerto Rico by Pratt, Wirth and Denning (1945. Entomol. Soc. Wash., Proc. 47:245-251) and Mexico by Martinez Palacios (1952. Soc. Mex. Hist. Natur., Rev. 13:85). All these records were based on the very characteristic male genitalia and the immature stages were unknown until the larva and pupa were first described by Pratt, Wirth and Denning (loc. cit.) apparently on a mixture of material from Florida and Puerto Rico. The immature stages are still undescribed for the populations from Honduras, Mexico and Panama.

During recent field work on Jamaica and Grand Cayman Island, males with opisthopus-like genitalia have been collected and William A. Page and I succeeded in rearing both sexes from egg rafts laid by several females of the Jamaican Culex (Mel.) annulipes (Theobald, 1907) formerly known only by the female and currently considered to be synonym of taeniopus Dyar & Knab, 1907. The males of annulipes proved to be of the opisthopus type. I have also had the opportunity of examining material of the opisthopus complex from British Honduras (females only) through the courtesy of D. S. Bertram and from Honduras and Florida thanks to W. Daniel Sudia.

In September 1968 I compared the Jamaican material of annulipes with the type material of opisthopus and cedecei as well as with additional material of the latter 2 from Honduras and Florida respectively. I found no significant differences whatever in the male genitalia from the 3 populations. In all 3, one of the setae of the outer division of the subapical lobe is distinctly flattened but appears rodlike in some preparations due to differences in orientation; therefore, topotypic opisthopus does not differ from cedecei in this character as stated by Stone and Hair. The phallosome plate and the 9th tergite lobe show the same range of variation in all 3 species and cedecei cannot be separated by these characters from either topotypic opisthopus or annulipes.

As indicated by Stone and Hair, cedecei adults have restricted tarsal markings. These markings are more conspicuous in the Honduras population of opisthopus but they are extremely variable in the Jamaican annulipes which shows nearly the entire range of variation in this character found in the other 2 populations.

The larvae of cedecei and annulipes are very similar and conform to a type unique in Melanoconion in the distal displacement of the 2 subdorsal siphonal tufts as figured in Carpenter and LaCasse (1955. Mosquitoes of North America, fig. 270, p. 311). They also show the same range of variation in the branching and the development of the siphonal and other hair tufts but the siphon appears to be slightly more slender and longer in annulipes. I have not been able to find any differences at all in the pupae of the 2 populations which agree in general with the figures and descriptions of opisthopus in Foote (1954. U.S.D.A. Tech. Bull. 1091: 78-79).

Brief observations on annulipes in Jamaica suggest that it has a life history very similar to that reported for cedecei by Hair (1968. Mosquito News 28:425-429), with a very long pre-oviposition period, very small egg rafts, and prolonged larval and pupal stadia. The natural breeding sites of annulipes are not known but it seems very likely that they are in solution holes in coral limestone as in the case of cedecei (Hair, loc. cit.). A few adults have been collected resting in crabholes at the edge of coralline hills.

In view of the above similarity in all stages, I am convinced that annulipes and cedecei are only slightly differentiated populations of the same species. The name annulipes was originally proposed in the combination Melanoconion annulipes (Theobald, 1907. Monogr. Culicidae 4:512-513). Howard, Dyar and Knab (1915. Mosq. North Central Amer. West Indies, 3:258) transferred the name to the genus Culex where it became a junior secondary homonym of Culex annulipes Meigen, 1830, and Culex annulipes Walker, 1857. This homonymy no longer exists as the 2 senior homonyms have been transferred to Aedes and Mansonia respectively; it also remained undetected and the name annulipes was not rejected prior to 1961. Therefore, annulipes Theobald, 1907 is the valid name for the species in question.

The identity of the other populations and the status of the names opisthopus Komp, 1926 and mychonde Komp, 1928 are more complex problems and cannot be resolved without associated immature stages.

The population on Grand Cayman Island is the most similar to the Florida population in the greatly reduced light tarsal markings. The genitalia of 2 males collected in a coral fissure (CAY-110,111) are indistinguishable from those of the Jamaican and Florida populations and topotypic opisthopus. The immature stages are unknown. The most likely breeding sites are solution holes in coral and limestone rock which abound on this island but are very difficult to sample. Even in the absence of the immature stages, I am inclined to assign this population to annulipes.

Of the populations reported from Central America, I have seen no material from Mexico or Panama and no immature stages for any of these have been reported. As stated above, the male genitalia of topotypic opisthopus from Honduras are indistinguishable from those of annulipes from Jamaica and Florida as well as from those of the Cayman population. The tarsal markings of females of a population from British Honduras are very conspicuous but similarly marked females are not infrequently encountered in Jamaica. Komp (1935. Entomol. Soc. Wash., Proc. 37: 3-4), on the basis of additional males from Almirante, Panama, the type locality, synonymized mychonde Komp in Dyar, 1928 with opisthopus and stated that it was Dyar himself who described mychonde under Komp's name. Martinez Palacios (1952, loc. cit.) presumably identified opisthopus from Mexico on the basis of male genitalia. Possibly all of these populations are conspecific but this, as well as the possible conspecificity of opisthopus with annulipes, cannot be determined with certainty until the immature stages are known. For the present, I am retaining the name opisthopus for all of them and consider this species distinct from annulipes.

I have not seen any of the material reported as opisthopus from Puerto Rico by Pratt, Wirth and Denning (1945, loc. cit.) and it is not possible from the descriptions and illustrations of these authors to determine whether this population is conspecific with the others mentioned above since they may be composite ones based at least partially on material from Florida. The description of the larva of opisthopus in

Foote (1954, loc. cit.) was based largely on this Puerto Rican material. It agrees in general with annulipes from Jamaica and Florida as does the illustration of the head of the larva. However, the illustration of the terminal segments of the larva does not agree in the most significant feature of the siphon of annulipes, namely the location of the subdorsal tufts of the siphon. If this illustration is accurate and is based on Puerto Rican material associated with the adults, it would appear that this population is not conspecific with annulipes. This is also suggested by the breeding sites reported for this population, a stream and pools alongside this stream.

The Validation of Two Names in Anopheles

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Anopheles durenii millecampsi. Stone (1963, Proc. ent. Soc. Wash. 65:136) stated that this was a nomen nudum in Lips (1960, Riv. di Parassit. 21:39). This was incorrect. Lips proposed the name for a variety of durenii from Katanga (Elizabethville), and while he was very careful not to give any description, intending to do so later, he did give several bibliographic citations to treatments of the form, and in one of these de Meillon (1947, Anophelini of the Ethiopian Geographical Region, p. 67) wrote of specimens from Elizabethville, Belgian Congo, that they "-----differ markedly in the scaling or (sic) tergite 8 of the female which is confined to the posterior border of the segment-----". The egg of the Elizabethville form was also described by de Meillon. The name is therefore validated by bibliographic citation and as it was proposed before 1961 its treatment as a variety does not make the name unavailable. Gillies and de Meillon (1968, Anophelinae of Africa South of the Sahara, p. 75) treat millecampsi as a geographical form (=subspecies). The taxon should be known as Anopheles durenii millecampsi Lips, 1960. It should be noted that Lips also mentioned the manuscript name keybergi (or keyberghi) as a synonym of millecampsi. This remains a nomen nudum, as a name published only in synonymy is not available.

Anopheles upemba. Lips (1960, Riv. di Parassit. 21: 303) applied this name to a species described but not named by Mattingly (1955, Parc National de l'Upemba, I Mission G. F. de Witte 32(3):50) from Lusinga, Upemba National Park, Katanga, Congo. Although Lips did not redescribe the species, the definite author and date citation to Mattingly's description is sufficient to validate the name. This name should therefore be Anopheles upemba Lips, 1960.