

Best wishes  
F.F.M.

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NEW AND REMARKABLE *Aedes* (DIPTERA : CULICIDAE)  
FROM AFRICA

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*Aedes* (*Ochlerotatus*) *mombasaensis* sp. n.

*Ochlerotatus fryeri* Theobald, Edwards, 1917 : 218 (*partim*, Kenya specimens only).  
*Aedes* (*Ochlerotatus*) *fryeri* Theobald, Edwards, 1932 : 137 and 1941 : 116 (*partim*, Kenya specimens only).  
*A.* (*Ochlerotatus*) species, van Someren *et al.*, 1955 : 472.  
*Aedes* (*Ochlerotatus*) *fryeri*, van Someren *et al.*, 1958 : 643, *nec* Theobald.

*Holotype* ♂, KENYA : Mombasa, 3.v.1916 (*J. O. Shircore*). *Paratypes* : 1 ♂ and 2 ♀ (one designated as allotype) with the same data ; 2 ♀, Mombasa, 24.iv and 9.v.1916 (*Shircore*) ; 2 ♂, Mombasa, 18.iv.1915 (*Shircore*) ; 1 ♀, KENYA : Magogoni Swamp near Witu, 29.ii.1912 (*Neave*) ; 4 ♂ and 8 ♀, KENYA : Gede, iii.1954 (*J. O. Harper*), nine with associated larval and pupal skins, and a slide of whole larvae, with the data "Kenya Coast, 1953", also marked as paratypes. All in British Museum (Nat. Hist.).

This species was identified by Edwards (1941) with *Ae. fryeri* from Aldabra. The early stages of the latter are known only from two unassociated whole larvae in the British Museum, attributed to it on strong circumstantial grounds. If this attribution is correct, the present species cannot be *fryeri*. Its larvae differ strikingly in number and structure of comb teeth, structure of pecten teeth and length of anal papillae (fig. 1) and in having head setae B and C single (double in the Aldabra larvae).

It differs from *Ae. vigilax* subsp. *vansomerenae* Mattingly (*in* Mattingly and Brown, 1955), from the Seychelles, in male terminalia and larval comb teeth. The only other species of this group known to occur on the East African coast or the islands of the Indian Ocean is *Ae. (Ochl.) dufouri* Hamon (1953) from Réunion. This resembles the present species very closely both in larva and in male terminalia. There are, however, considerable differences between the females, the most important being the following :

*Ae. mombasaensis* sp. n.  
Palps with well marked white spot at tip.  
Decumbent scales on back of head white or whitish.  
Scutum with broad bands of white scales at sides.  
Posterior pronotum with a patch of flat, whitish scales posteriorly.  
Abdominal tergites with well marked basal pale bands.  
Wing with numerous scattered pale scales.  
Femora and tibiae with numerous scattered pale scales.  
Fifth hind tarsal conspicuously banded.  
Both hind claws simple.

*Ae. dufouri*  
Palps with at most a few pale scales at tip.  
These scales dark brown.  
Scutum with dark brown scales only.  
Posterior pronotum with flat, dark brown scales only.  
These bands narrow and tending to be incomplete at sides.  
Wing with few pale scales, if any.  
Femora and tibiae largely dark (some scattered pale scales on hind femur).  
Fifth hind tarsal dark.  
One hind claw strongly toothed.

In addition, the tarsal banding is more strongly developed in the Kenya species and the sternites are more extensively pale. Colour differences are less marked in the males but these can easily be separated by the banded fifth hind tarsals and the pale scales on the back of the head. The larvae seem to be separable only by the fact that there are, on average, more secondary denticles on the pecten teeth of *Ae. dufouri*. I have no pupal material of the latter with which to make a comparison. There do not seem to be any differences in major characters from Hamon's drawing.

*Distribution.*—Kenya coast.

A unique female adult from Majunga, Madagascar and another from the Cosmoledo Is., attributed by Edwards to *Ae. fryeri*, could be either that species or *Ae. vigilax vansomerenuae* or *Ae. mombasaensis*. They are not *Ae. dufouri*. I have left them under *Ae. fryeri* in the B.M. collection.

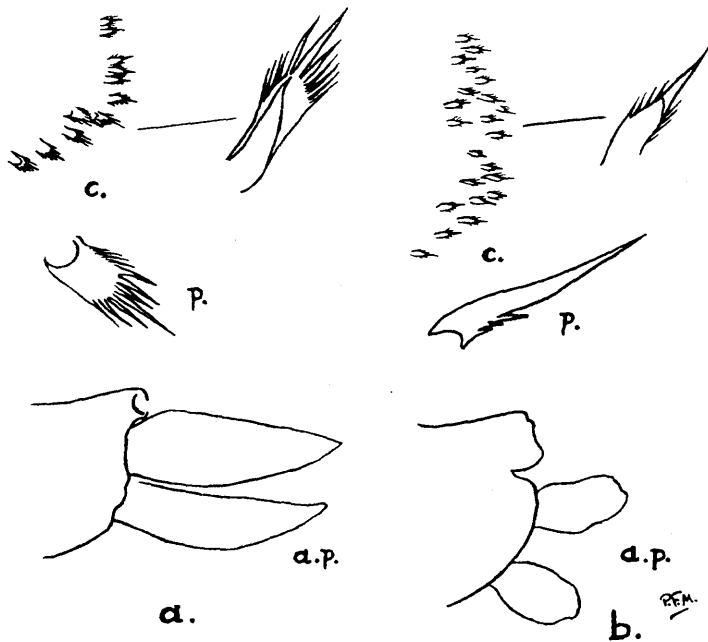


FIG. 1.—Larval characters of: (a) *Ae. (Ochl.) fryeri*; (b) *Ae. (Ochl.) mombasaensis* sp. n. c, comb; p, pecten tooth; a.p., anal papillae.

#### *Aedes (Aedimorphus) hamoni* sp. n.

The following description is based on two male and two female adults given to me by Mr. J. P. T. Boorman in Lagos. They were taken on human bait near Akute Village, on the Ogun River near Iju waterworks, S. NIGERIA (6° 41' N., 3° 18' E. on 31. x and 7. xi. 1961. One male was taken between 19.00 and 20.00 hours on a platform at 25 feet. The other three specimens were taken between 20.00 and 21.00 hours, one of the females at ground level and the remaining male and female at 25 feet. The specimens are not individually numbered and the data cannot, therefore, be individually assigned. I have marked one of the males as holotype, one of the females as allotype and the two remaining specimens as paratypes. A description follows.

#### *Adult female*

Proboscis and palpi dark; tori bright yellow with a few short, dark hairs and 1-2 small, narrow, dark scales on inner surface. Eyes almost touching. Eye margins and vertex with

narrow, whitish scales and a patch of broad, blackish scales on either side. Upright forked scales narrow and dark. Anterior pronotal lobes with narrow, curved, whitish scales, broader towards the outside. Scutum with two large anterolateral patches of narrow, blackish-brown scales surrounded by narrow white scales, which extend round the anterior and anterolateral borders and backwards as two submedian white stripes, on either side of a median dark stripe, and outwards to the lateral borders about half way back. Posterior half of scutum rubbed, apparently mainly dark with some narrow white scales round the pre-scutellar bare space and a band of whitish scales along the lateral borders. Integument of pleura and coxae creamy-white with conspicuous dark patches on anterior and posterior pronotum, propleuron, upper part of coxae, post- and sub-spiracular areas, paratergite, upper and lower portions of sternopleuron, mesepimeron and meron. Paratergite bare. Lower mesepimeral bristles absent; dorsocentrals well developed; acrostichals absent. Scutum with narrow black and white scales only. Wings

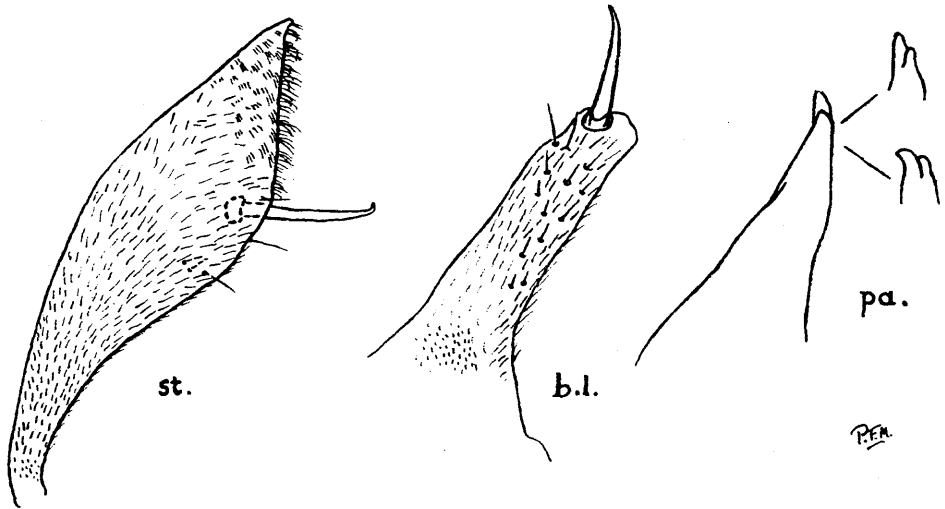


FIG. 2.—Male terminalia, *Ae. (Aedim.) hamoni* sp. n. *b.l.*, basal lobe of coxite; *pa.*, paraproct; *st.*, style.

dark except for a small white spot at base of costa. Legs unbanded; femora without knee spots; hind tibia with a conspicuous white apical spot, about twice as long as broad; hind femur pale below from base to tip, pale on about the basal half on anterior and posterior surfaces. Abdominal tergites with median basal creamy-white spots, progressively larger on posterior segments, and pure white basal lateral spots, only just visible from above. Sternites creamy-white third to sixth with black apical bands.

#### Adult male

Palps dark, slightly shorter than proboscis. The two apical segments short, subequal, with short hairs above, longer ones below. All decumbent scales on back of head creamy white, a few narrow ones in mid-line, remainder broad. Upright forked scales dark. Scutum pale scaled except for dark anterolateral patches, as in the female, and a few dark scales posteriorly to either side of the pre-scutellar bare space. Basal pale patches on abdominal tergites larger than in the female, forming broad bands on anterior segments. Terminalia (fig. 2) very much as in *Ae. nigricephalus* (Theobald) but with spine at tip of basal lobe much stouter and darker. There is also a difference in tips of paraprocts, which appear to be quite simple in *Ae. nigricephalus*.

#### Early stages

Unknown.

*Distribution.*—Known only from the type locality.

Although it resembles a pale form of *Ae. nigricephalus*, and is certainly very closely related to that species, the combination of narrow scales on the vertex,

differences in colouring and small differences in male terminalia suggests that this is a distinct species. It is very easily recognised by the remarkable ornamentation of the integument. There seems to be no doubt as to the conspecificity of the four specimens examined. The sexually dimorphic colour characters are interesting but not unusual.

*A second specimen of Aedes (Stegomyia) vinsoni Mattingly*

This species was originally described from a unique female adult from Mauritius (Mattingly, 1953). A second female adult, kindly given to me by Mr. Mamet during a recent visit to Mauritius, has now come to hand. It resembles the holotype sufficiently to leave no doubt as to its identity but differs in certain important characters. In particular, the anterolateral patches of broad scales, present on the scutum of the holotype, are absent in this specimen and the ground colour of the scutum is considerably darker. The median white longitudinal line on the scutum, composed of relatively broad scales in the holotype, is here composed of very narrow scales, so that the resemblance to *Ae. albopictus* Skuse is very striking. Taking the two specimens together it may be said that the characters of *Ae. vinsoni* are predominantly those of a member of Group C of *Stegomyia*.

Mr. McClelland, who was the first to examine the new specimen, drew my attention to two characters, other than scutal markings, shared by both specimens of *Ae. vinsoni* and by *Ae. albopictus* but not by the other *Stegomyia* (*Ae. aegypti* Linnaeus, *Ae. mascarensis* MacGregor) occurring in Mauritius. These are the confluent upper and lower mesepimeral scale patches and the shape of the lateral pale spots on the abdominal tergites, which are more or less triangular with the inner edge sloping away from the midline in the posterior direction. A third is the structure of the mid-tarsal claws, which appear to be simple in both specimens.

Differences from *Ae. albopictus* are numerous but all except two amount to no more than a general increment in pale scaling in various parts of the body. In this respect the holotype represents an extreme and the new specimen an intermediate form. In the holotype, the back of the head is wholly pale. In the new specimen, there are dark patches on either side of a median white stripe, as in most *Stegomyia*, though these are to some extent interrupted by pale scales. In the holotype, the ground colour of the scutum is very pale brown, almost white in some lights. In the new specimen it is mid-brown, *i.e.* much paler than in *Ae. albopictus*, in which it is dark blackish-brown, but, as already noted, decidedly darker than in the holotype. In the latter, the femora are very liberally sprinkled with pale scales. In the new specimen, they are as in *Ae. albopictus*. Finally, both specimens of *Ae. vinsoni* have scattered pale scales on the abdominal tergites but these are much more numerous in the type. The two characters in which these specimens differ from *Ae. albopictus* are the presence, in the type, of well marked anterolateral scutal patches, composed of broad white scales, which with proper lighting stand out sharply from the background of very narrow whitish scales, and the presence of narrow but regular basal white bands on the abdominal tergites joining the inner corners of the lateral patches of pale scales. These bands are difficult to distinguish from the general ground colour of the tergites, which is very nearly white, in the type, but they are very distinct in the new specimen.

Both these characters suggest a possible hybridisation with one of the pale Group A *Stegomyia* known from Mauritius, either *Ae. mascarensis* or *Ae. aegypti* var. *queenslandensis* Theobald. The question of hybridisation between *Ae. aegypti* and *Ae. albopictus* is a very vexed one and considerable doubt has been thrown on earlier claims by Woodhill (1959), but it must be noted that Woodhill did himself, with great difficulty, obtain a single hybrid between these species. From his photograph this seems to be very similar in scutal markings to the type of *Ae. vinsoni*, except for the dark ground colour. Dr. Woodhill tells me that in this specimen the mes-

epimeral patches are separate as in *Ae. aegypti*. The abdomen, apart from the terminalia, has not been preserved. Fortunately this matter can be explored further either by hand-mating (McDaniel and Horsfall, 1957) or, if necessary, by mass mating, and it is hoped that an attempt will be made to cross Mauritian *Ae. albopictus* with *Ae. mascarensis* and *Ae. aegypti* var. *queenslandensis*, and also *Ae. mascarensis* with allopatric *Ae. albopictus*. Recent genetical studies suggest a strong probability of natural hybridisation between *Ae. aegypti* and *Ae. mascarensis* before the former was eradicated from Mauritius (McClelland and Mamet, 1962), but these are very closely related Group A species. If hybridisation is to be ruled out in the present case, then it may be that *Ae. vinsoni* is a mutant of *Ae. albopictus* with interesting pleiotropic effects of the mutant gene.

*Distribution*.—The holotype came from Moka, 30.v.1946 (*J. Vinson*). The second specimen came from Eau Bleue, 7.vii.1961.

#### *An Albino Specimen of Aedes (Stegomyia) simpsoni Theobald*

This specimen was given to me in Nairobi by Mrs. E. C. C. van Someren. Although its appearance at this particular time was purely coincidental, it is of obvious interest in relation to the problem of *Ae. vinsoni*. It was bred out from a bamboo pot at Morogoro, Tanganyika, in June, 1961. It agrees well with *Ae. simpsoni* var. *lilii* Theobald, differing only in the extensive pale scaling of the back of the head, scutum, abdomen and front femora. Although albinoid forms of *Ae. aegypti* are common, this is the first albino specimen of *Ae. simpsoni* ever to be recorded. Details are as follows.

#### *Adult female*

Proboscis wholly dark. Clypeus bare. Back of head entirely white. Scutum rubbed. Apparently mainly covered with very narrow white scales but with two conspicuous anterolateral patches of broader white scales. These patches rounded anteriorly, tapering posteriorly as in *Ae. simpsoni*. A small supra-alar patch of broad white scales over each wing root. Scales round pre-scutellar bare space moderately broad, curved, white. Posterior pronotum rubbed, but with at least a moderately-sized patch of flat white scales. Pleural scaling obscured by rubbing. Scutellum entirely pale scaled except for two black scales at apex of mid-lobe. Fore femur pale above and on anterior and posterior surfaces for about the basal three-fifths, dark below for the whole length; knee spot absent; fore tibia with conspicuous white ring at base; first two fore and mid-tarsal segments narrowly pale at base, the remainder dark; fore and mid-claws all toothed as in *Ae. simpsoni* var. *lilii*; anterior surface of mid-femur pale on basal two-thirds with conspicuous silvery-white spot at two-thirds; hind femur whitish on anterior surface towards base, pure white towards apex, dark on apical third; mid and hind femora each with a conspicuous white knee spot; hind tibia dark below at base; first two hind tarsals pale on about basal one-fourth and one-third respectively, third pale on about basal two-fifths, fourth all dark, fifth all white. Abdomen almost entirely pale above and below.

Although this is presumed to be an albino mutant of *Ae. simpsoni*, it must be stressed that no *Stegomyia* have been collected in the Uluguru Mountains. In the light of experience with *Ae. aegypti* and *Ae. mascarensis*, the occurrence of an albinoid member of the *Ae. simpsoni* group would not be entirely without precedent.

#### *Aedes (Neomelaniconion) spp. from Gambia*

Bertram *et al.* (1958) record as "*Aedes* sp. n. (related to *Ae. palpalis*)" some specimens from Fajara. The identification was made by myself and the material was put aside for further study. Having examined these specimens further I am satisfied that they do not represent a new species but a fortuitous combination of two known ones, all the females being *Ae. (N.) palpalis* Newstead and all the males *Ae. (N.) fuscinervis* Edwards. These species should be added to the Gambia list. An interesting feature of *Ae. fuscinervis*, which seems to have escaped notice, is the great variation in the length of the male palps. In some of my specimens these

are shorter than the proboscis. In others they exceed the proboscis by almost the length of the terminal segment.

#### ACKNOWLEDGMENTS

I am much indebted to Professor Bertram, Mr. Boorman, Mr. Mamet and Mrs. van Someren for the specimens here described. I am also indebted to Mr. McClelland for helpful discussions regarding the genetical basis of albinoid and other characters of the two *Stegomyia* and to Dr. Woodhill for details of his *Ae. aegypti-albopictus* hybrid.

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