

SOME NEW WEST AFRICAN SPECIES OF ANOPHELES
(SENSU LATO), WITH NOTES ON NOMENCLATURE.

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In describing the following new species from West Africa, some words of explanation are needed as to the generic names used. In the first place, it is necessary to say that the writer follows Messrs. Dyar and Knab in considering that most of the genera into which Meigen's genus *Anopheles* has recently been split up are not genera in any accepted sense, and should sink under the old name *Anopheles*. Provisionally, however, *Stethomyia*, *Chagasia*, *Calvertina* and *Bironella* are considered as distinct; as none of these genera are African, this will not affect the present paper. Lieut.-Col. A. Alcock, of the London School of Tropical Medicine, has kindly allowed me to see the manuscript of a paper on the classification of *Anopheles*, which he is about to publish in the *Annals and Magazine of Natural History*, and I have been able to concur entirely with his views; he recognises only five sub-genera of *Anopheles*, the sub-genus *Nyssorhynchus* including all those species with flat scales on thorax and abdomen, *i.e.*, the genera *Nyssorhynchus*, *Cellia* and *Neocellia* of Theobald's Monograph.

It may be as well to point out that whether this course be adopted or not, certain other changes of nomenclature will be necessary. In his original paper on the classification of the ANOPHELINÆ (*Journ. Trop. Med.* II., 1902, p. 181), Theobald designated *Anopheles rossi* as the type of his genus *Grassia* (*Myzomyia*, Blanchard), and *A. argyrotarsis* as the type of *Laverania* (*Nyssorhynchus*, Blanchard). Although he subsequently (*Mon. Cul.* III., pp. 12-14) altered the type-species, the original types must stand, having once been published. This means that James' *Nyssomyzomyia* must sink as a synonym of *Myzomyia*, and Theobald's *Cellia* as a synonym of *Nyssorhynchus*. If it is desired to retain as distinct the group James has called *Nyssomyzomyia*, it must be known as *Myzomyia*, and the species included under *Myzomyia* by James must be given a new name. In the same way Theobald's *Cellia* becomes *Nyssorhynchus*, while if the group *Nyssorhynchus* (as used by Theobald in the fifth volume of his Monograph) be retained as a genus or sub-genus, it will also require renaming. It should further be noticed that in his paper on the Indian ANOPHELINÆ (*Rec. Ind. Mus.*, Vol. IV., No. 5, Nov., 1910), Captain James has incorrectly cited the type-species of the genera *Myzomyia*, *Pyretophorus*, *Nyssorhynchus*, *Cellia* and *Myzorhynchus*. Captain James says of the genus *Stethomyia*, "probably all the species now assigned to it would come in my new genus *Neostethopheles*." If this is the case, *Neostethopheles* sinks as a synonym of *Stethomyia*. I have examined the types of *A. aitkeni* and *A. immaculata* in the British Museum; the former appears to be a true *Stethomyia*, but the latter has head-scales of quite the ordinary type.

Anopheles (Myzomyia) umbrosa, Theo.

Myzomyia funesta var. *umbrosa*, Theobald, Mon. Cul. III., p. 34 (1903).

Mr. G. A. K. Marshall has shown me five specimens of this species which have been sent to the Entomological Research Committee by Dr. T. F. G. Mayer, W.A.M.S., who found them at Oshogbo, Southern Nigeria, in December, 1910. They agree closely with the type, and are evidently quite distinct from *A. funesta*. One of the most striking characters of the species, which Theobald does not mention in his description, is that the palpi are only whitish at the tip, otherwise having no pale bands. This peculiarity alone will suffice to differentiate the present species from any other of the group *Myzomyia*, while when the wing markings are taken into account it is clear there is no very close relationship between *A. funesta* and *A. umbrosa*. In *A. umbrosa* the first fork-cell is slightly shorter than the second, another important difference from *A. funesta*, in which the first fork-cell is markedly the longer.

Anopheles (Myzomyia) flavicosta, sp.n. ♀.

Wings yellow, especially towards the costa. Four black costal spots, the apical one very small. Five pale fringe-spots, apart from the yellow apex. Legs with narrow apical pale bands. Palpi with three pale bands, the two apical ones equally broad.

♀. *Head* with the usual type of scaling: a tuft of very long white scales on the occiput, a patch of white upright forked scales in front, remainder of these black. Antennæ clothed with whitish hairs, segments 2-4 with a few white scales. Palpi rather thin, but shaggily scaled towards the base: a narrow white band between the first and second joints, a broad one before the apex, and another equally broad at the tip. Proboscis pale at the tip. *Thorax* with the ground-colour ashy-grey above, brown at the sides. Mesonotum with white narrow curved scales, which are longer and more numerous in front. Prothoracic lobes without scales. Scutellum with about 10 long brownish bristles, and hair-like white scales. *Wings* with the scales mainly yellow, on costa and first vein deep yellow. Costa black at the base, and with four black spots, which extend on to the first vein; the fourth is very small and extends also on to the anterior branch of the second vein. Third vein almost entirely yellow-scaled. Dark areas on the other veins are distributed as follows: nearly the whole of the stem of the second fork-cell; two small spots on the anterior and one on the posterior branch of the fourth vein; near the base of the fifth vein and at the base of its anterior branch; near the tips of the two branches of the fifth and of the sixth veins. Fringe dark grey, with five yellow spots, at the terminations of the fourth, fifth and sixth veins; yellow round apex of wing. Stem of halteres yellow, knob black. *Legs* dark brown, with narrow, ochreous bands at the tips of the tibiæ and of the first four tarsal joints. *Abdomen* dark brown, covered with golden-yellow hair.

Length of body, 3 mm.; of wing, 3 m.m.

NORTHERN NIGERIA: Baro, 21. X. 1910 (*Dr. A. Ingram*).

Type and one other female, in perfect condition, in the British Museum.

This species belongs to the genus *Pyrethophorus* in Theobald's classification, and is closely allied to *A. pitchfordi*, Power, and *A. austenii*, Theo. From both it is distinguished by the *bright yellow costa and first vein* and by the *small size of the fourth costal spot*, while the dark areas on the veins are smaller and less numerous, so that the wing has a less mottled appearance. *A. pitchfordi* is also distinguished from *A. flavicosta* by the presence of a very small fifth costal spot. *A. austenii* has the first two costal spots joined into one, and has broader bands on the legs.

Anopheles (Nyssorhynchus) watsoni, sp.n., ♂ ♀.

Closely allied to *A. maculipalpis*, Theo., and *A. pretoriensis*, Theo. From the former it is distinguished by the absence of spots on the palpi, and from both by the *entire absence of spotting on the legs*. In addition to this, the new species differs from its very near ally *A. pretoriensis* in the banding of the hind tarsi. The hind legs in *A. watsoni* are marked as follows: narrow white bands on the apices of the tibiae and first two tarsal joints; third to fifth tarsal joints white, except for a dark brown band of variable length near the base of the third joint. In *A. pretoriensis* the white band on the first two tarsal joints are markedly broader, that on the second joint being almost one-third as long as the joint itself. In *A. watsoni*, as in *A. pretoriensis*, there are no scales on the abdomen of the female, and only on the genital segment (occasionally a few also on the penultimate segment) of the male.

There is also a general (though not very close) resemblance between this species and *A. (Nyssorhynchus) aureosquamiger*, Theo. Theobald placed *A. aureosquamiger* in *Pyrethophorus*, but as it has numerous flat scales on the scutum it belongs to the sub-genus *Nyssorhynchus*, in the sense in which it is here employed.

This species bears the same relation to *A. pretoriensis* that *A. ludlowi* does to *A. rossi*, and it is a matter of opinion as to whether the spotting of the legs is a specific character or not. Banks regards *A. ludlowi* as a variety of *A. rossi*.

NORTHERN NIGERIA: Katagum, 3 ♂, 13 ♀ (*Dr. C. E. S. Watson*); Minna, 1 ♀ (*J. J. Simpson*).

Types in the British Museum.