The species was absent in 1945 with the exception of one female captured aboard a small aircraft rescue boat from Pascagoula which had recently docked at the island. The absence of this species in 1945 may be explained by two factors, (a) sanitary measures initiated in 1944 were rigidly enforced during the latter part of 1944 and 1945, and (b) screening on all buildings within the camp area was treated each month with a solution of 5 percent DDT in oil from July, 1944, to August, 1945. Considering the domestic habits of this species, it is quite probable that the residual toxicity of treated screens has more effect on populations of this species than on other mosquito species of a less domestic nature.

Two species of "gallinippers" *Psorophora ciliata* and *P. howardii* were abundant and troublesome during certain periods from April to August of both years. The adults were observed to be severe biters and were usually accompanied by *Aedes sollicitans*. The larvae were collected from freshwater pools where they were associated with *Aedes vexans* and *Psorophora confinnis*.

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PICTORIAL KEYS TO THE MOSQUITOES OF MEDICAL IMPORTANCE IV. ANGLO-EGYPTIAN SUDAN

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The accompanying keys are the fourth in a series being prepared under a transfer of funds by the Department of the Army to the Bureau of Entomology and Plant Quarantine. They are designed primarily to assist public health workers in rapidly separating and identifying the mosquito species of primary medical importance in various regions throughout the world. The keys are so constructed that they separate the important species not only from each other, but also from all others known to occur in the area concerned. The keys are presented (see also *Mosquito News*, Vol. 13, Nos. 1 and 2, 1953) in the hope they may elicit suggestions and comments, especially from persons having first hand information about the faunas or diseases of the areas concerned.

Anopheles gambiae, the most important

MOSQUITOES OF MEDICAL IMPORTANCE — ANGLO-EGYPTIAN SUDAN

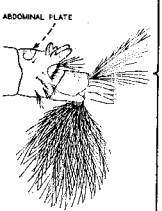
IMPORTANT
A SPECIMEN MUST HAVE ALL CHARACTERS LISTED FOR THAT SPECIES

FULL-GROWN LARVAE

INSECT IDENT. BEPQ. USDA UNDER FUNDS ALLOTTED BY SECRETARY OF ARMY APRIL 1953

NO SIPHON ON *ANOPHELES*

ABDOMINAL PLATE



ABDOMINAL PLATES 4 TO 7

LONG PLEURALS OF 3RD GROUP

OUTER CLYPEALS

BOTH BARE + NOT = *ANOPHELES NILI*

COVERING LESS THAN 1/2 OF SEGMENT

PROTHORACIC HAIR

ONE HAIRED + NOT = *ANOPHELES GAMBIAE*

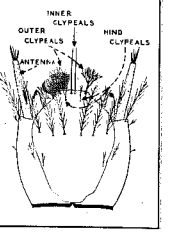
OUTER CLYPEALS

BOTH HAIRED + NOT = *ANOPHELES RUFIPES*

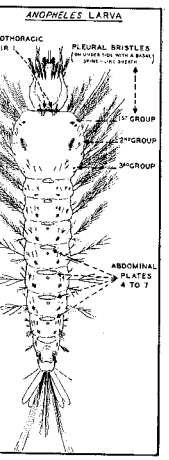
COVERING ABOUT 1/2 OF SEGMENT

= *ANOPHELES FUNESTUS*

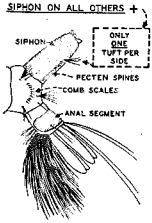
HEAD OF *ANOPHELES* LARVA



ANOPHELES LARVA



SIPHON ON ALL OTHERS +



HEAD HAIR 6

SINGLE

COMB SCALES

IN SINGLE EVEN ROW = *AEDES LUTEOCEPHALUS* AND *AFRICANUS* (ONLY *LUTEOCEPHALUS* IMPORTANT; LARVAE CANNOT BE SEPARATED)

PECTEN SPINES

IN SINGLE EVEN ROW = *AEDES AEGYPTI*

= *AEDES SIMPSONI LILII*

TUFT OF SIPHON

IN SINGLE EVEN ROW + ABOUT AS LONG AS WIDTH OF SIPHON = *AEDES METALLICUS*

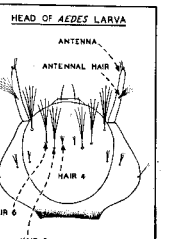
HEAD HAIRS 4, 5 AND 6

IN IRREGULAR ROW + NOT = *AEDES VITTATUS*

ANAL SEGMENT

WITH HAIRED BRANCHES + ABSENT = *AEDES FURCIFER* AND *TAYLORI* (BOTH IMPORTANT; ONLY MALES CAN BE SEPARATED)

HEAD OF *AEDES* LARVA



MOSQUITOES OF MEDICAL IMPORTANCE — ANGLO-EGYPTIAN SUDAN

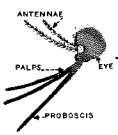
FEMALES

[MALES HAVE BUSHY ANTENNAE  AND DO NOT BITE]

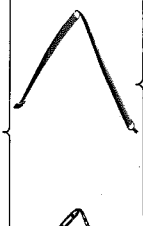
IMPORTANT
A SPECIMEN MUST HAVE ALL CHARACTERS LISTED FOR THAT SPECIES.

INSECT IDENT., EEPQ, USDA UNDER FUNDS ALLOTTED BY SECRETARY OF ARMY APRIL 1953

LONG PALPS ON *ANOPHELES*



PATTERN ON HIND FEMUR AND TIBIA

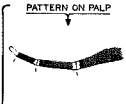


3 SHORT DARK SPOTS BEHIND MIDDLE MARGINAL SPOT

= *ANOPHELES RUFIPES*

1 LONG DARK AREA BEHIND MIDDLE MARGINAL SPOT

PATTERN ON PALP



BASE OF VEIN 4 DARK

= *ANOPHELES FUNESTUS*

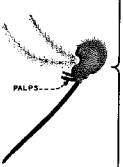
= *ANOPHELES NILI*

PATTERN ON HIND TARSUS

SPOTS IN FRINGE AT END OF EACH VEIN

= *ANOPHELES GAMBIAE*

SHORT PALPS ON ALL OTHERS



PATTERN ON THORAX

VEINS OF WINGS WITH BROAD DARK AND LIGHT SCALES MIXED

PATTERN ON PROBOSCIS LIGHT BAND NEAR MIDDLE

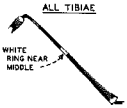
= *AEDES FURCIFER* AND *TAYLORI* (BOTH IMPORTANT; ONLY MALES CAN BE SEPARATED)

PATTERN ON HIND TARSUS

TOP VIEW OF ABDOMEN WITH WHITE BANDS

= *AEDES LUTEOCEPHALUS*

ALL TIBIAE WHITE RING NEAR MIDDLE

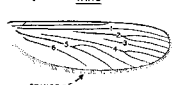


= *AEDES VITTATUS*

PATTERN ON HIND TARSUS

= *AEDES SIMPSONI LILII*

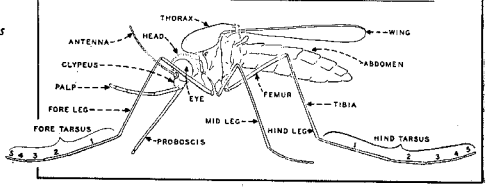
WING



= *AEDES METALLICUS*

= *AEDES AEGYPTI*

ADULT MOSQUITO WITH PARTS LABELED



vector of malaria in the Anglo-Egyptian Sudan, as in all of Africa, is widely distributed in the southern and central Sudan and along the Nile from Uganda to Egypt. It breeds in a wide variety of situations, principally in small pools at least partially exposed to direct sunlight. Because such accumulations of water, as those in foot and hoof prints and irrigation and drainage ditches, are commonly associated with man, and because *gambiae* forms a large proportion of mosquitoes caught indoors and feeding on man, control of this species is the problem of prime importance in malaria eradication. *Anopheles funestus* is considered to be the second most important vector. Its distribution is confined to many parts of the southern and central Sudan and along the White Nile as far north as Jebelein. In contrast to *A. gambiae, A. funestus* breeds in bodies of more or less permanent clear water such as swamps, lakes, edges of rivers and seepage areas, almost always in association with vegetation and shade. The year round character of its breeding and prevalence tends to associate *A. funestus* with endemic rather than with epidemic malaria, the latter being more characteristic of the more seasonal *A. gambiae* populations. The females of *A. funestus* readily enter houses and feed on man. *Anopheles nili* is a subsidiary vector and is subject to marked variation in behavior. Its breeding is typically associated with the marginal vegetation of rivers and streams, and population densities are usually correlated with the seasonal rise and fall of river systems. Adults appear to vary from area to area in their househaunting habits, but naturally infected females have been found in native dwellings, where the species is important if it occurs in large numbers. *Anopheles rufipes* has been found in many localities in the Sudan, especially along the White Nile, and usually breeds in stagnant and semistagnant pools in partial shade. This species is of importance only where it appears in large numbers. In most localities it is rare and is often found resting out of doors.

In addition to these four species of *Anopheles,* the following have been recorded from the Anglo-Egyptian Sudan, or are suspected of being present in that country: *cinereus, coustani coustani, coustani ziemanni, d'thali, implexus, leesoni, macmahoni, maculipalpis, marshalli marshalli, marshalli gibbinsi, multicolor, obscurus, pharoensis, pretoriensis, rivulorum, rupicolus, squamosus squamosus, symesi, theileri septentrionalis, turkhudi* and *wellcomei.*

Yellow fever has not occurred in humans in the Sudan for several years, but sylvan yellow fever is known to be present across the southern third of the country. This disease is typically that of forest-inhabiting monkeys. The monkey-to-monkey transmission cycle is believed to be maintained by *Aedes vitattus* and possibly by *Aedes africanus,* mosquitoes that breed in tree holes and plant containers and inhabit the forest canopy, preferring monkey to human blood. At ground level, however, especially in plantation areas, the principal vector is *Aedes simpsoni lilii,* another plant container breeder. *Aedes simpsoni* feeds on infected monkeys either outside or just within the forest, and having a wide host preference, feeds on man as well, transmitting the virus in a monkey-to-man cycle. *Aedes metallicus, A. luteocephalus, A. furcifer,* and *A. taylori* are believed to act in much the same capacity as *A. simpsoni lilii* to spread yellow fever from monkey to man. *Aedes aegypti* has been included in the key, since it is universally responsible for the presence of urban yellow fever, and is prevalent only at certain times and localities. Dengue has not been reported from this country. In all, approximately 115 non-anopheline mosquitoes are known to be present in the Sudan.