The Journal of The
EGYPTIAN PUBLIC HEALTH
ASSOCIATION
Vol. XLII No. 6
1967

FURTHER NOTES ON ANOPHELES STEPHENSI IN EGYPT, U. A. R.

AMIN M. GAD, Ph.D. and OSMAN M. KAMEL, M. Sc.
Research Institute Of Medical Entomology, Dokki, Cairo, UAR.

A. stephensi, a malaria vector belonging to the oriental region and occuring outside this region in Iran, Iraq and the Eastern region of Saudi Arabia near the Persian Gulf, was first recorded in Egypt in Shokeir near Ras Ghareb on the Suez Gulf (GAD 1967). Larvae were found breeding at the periphery of a large salt water pool in scattered small, more or less, circular pits ranging from 30 to 120 cm. in diameter. The amount of inorganic chlorides present in the water was 18.9 per thousand which is about 65% sea water.

Since this is the first record of *A. stephensi* outside its zoogeographical boundaries and the first in the African continent, the question arises whether this species is indigenous in the Red Sea area or was transported from some other countries.

The nearest sea port to Shokeir is Ras Ghareb (35 km. to the south) which is only a local port and does not receive ships of any kind from foreign countries, thus the chance that a mosquito arrived to this port from another country onboard a steam ship is not likely.

Moreover, *A. stephensi* is not recorded from the western region of Saudi Arabia (Shang and Ungureanu 1965). the only

area in which it is known to occur is around the Persian Gulf. Therefore there is practically little chance of its being carried out by wind across the Red Sea.

The only other possibility is that the mosquito might have established itself in Shokeir from specimens carried onboard ships by vessels heading up on their way to cross the Suez Canal (without landing at Ras Ghareb).

When specimens found in Shokeir were examined by Dr. Mattingly at the British Museum they were found not to match any of the Museum's collection in all respects. «The wing is rather paler than usual. The leaflets on the phallosome are rather smaller than figured by Christophers for stephensi ... The most striking difference in the larvae seems to be the quite heavy spiculation of the inner, and sometimes outer clypeal hairs, and the branching of the post clypeal ... «*These marked differences in the Egyptian material might indicate that the mosquito has existed for a long time in the area.

The fact that larvae were found in water with high salinity, whereas normal breeding places of *A. stephensi* within its range of distribution, contains fresh water, might indicate also that the species has adapted itself over a long period to this new biotic habitat.

Moreover, larval susceptibility tests on *A. stephensi* from Shokeir revealed that the larvae are susceptible to DDT, dieldrin (DLD), benzene hexa chloride (BHC) and malathion (Mal.) insecticides (Table I), whereas A. *stephensi* in Saudi Arabia, Iran, Iraq and India is resistant or highly tolerant to DDT and/or DLD. (Shang and Ungreanu 1965).

All the above points indicate that there is little likelihood of the mosquito being recently imported to the area onboard ships. The Egyptian *A. stephensi* population is either indigenous

---

* communication from Dr. Mattingly to WHO/Geneve.

or at least established through numerous generations to allow for biological and morphological adaptations. and variations.

The reason that *A. stephensi* was only recorded recently in U A R, is the discovery of oil fields in Shokeir, an area that was non-inhabited before. Wild animals such as deers and lizards were observed in the vicinity of the breeding places and might have provided blood meals for *A. stephensi* before the start of the recent human activities.

ACKNOWLEDGEMENT

The authors wish to acknowledge their sincere thanks to Dr. A.A. Shawarby, Under-secretary of State For Public Health for his critical reading of the article.

REERFNCES

1. GAD, A.M. 1967: **Anopheles stephensi** Liston in Egypt, U.A.R. Mosquito News vol. 27 no. 2.

2. CHANG, L.T. and UNGUREANU 1965: Insecticide Resistance in **Anopheles stephensi** and its Operational importance. in «Insecticide Resistance in Major Vectors of malaria and its Operational Importance in Malaria Eradication Programmes..

WHO/MAL482.65, WHO/Vector Control 105.65 (mimeographed docu. ppm

TABLE I — Larval susceptibility tests on Anopheles stephensi in Shokeir, Red Sea Governorate, U.A.R., September 1967.

Insecticide	Exposure period	No. of tested larvae	Mortality percentage on: 2.5 ppm	0.5 ppm	0.1 ppm	0.02 ppm	0.004
D D T	24 hours	180	100	100	62.5	10	5
D L D	24 hours	100	—	100	100	35	35
B H C	24 hours	100	—	100	80	15	5
Mal.	24 hours	140	—	100	95	35	20

Remarks:

1) control mortality was always nil
2) range of water temperature: 27-28°C.