

and blunt (Fig. 1). In the Samoan material two types of abnormal spines were observed. In 55 specimens one or both of the spines were divided longitudinally (Fig. 2). The division varied from a simple notch at the apex to separation to the basal tubercle. In 3 specimens the twin spines had individual basal tubercles (Fig. 3). The most bizarre deformity was the presence of separate twin spines, one of which was further divided to the basal tubercle (Fig. 4).

Among the 296 larvae examined, 59 had some deformity of the clypeal spines. The abnormality was unilateral in 43 larvae and bilateral in 15. On one larva the right spine was broken off.

At least one abnormal larva was found in 12 of the 13 collections. These collections were made over a period of 13 months and over approximately 15 miles of coastal area.

Discussion. Gaud and Laurent (1950) believed that the duplication of clypeal hairs in anopheline larvae resulted from injury to the hair bud. Because of the high prevalence of abnormal clypeal spines in the Samoan *C. sitiens*, this explanation, while possible, seems improbable. Teratology (abnormal development of the embryo) is a more likely cause. The malformations may have been genetically transmitted. The recovery of such larvae from collections made over a period of 13 months suggests this possibility.

ACKNOWLEDGMENTS. I thank the other members of the U. S. Navy Filariasis Research Team (C. Schultz, H. Marrer and M. Powell) for assistance in collecting and mounting the larvae.

References

- GAUD, J. and LAURENT, J. 1950. Les soies doublées chez les larves d'*Anopheles*. Ann. Parasitol. Hum. Comp. 25:480-484.
LAIRD, M. 1955. Abnormalities exhibited by mosquito larvae collected in Tonga. Bull. Ent. Research 46:185-188.

Deinocerites cancer THEOBALD RECOVERED FROM TREE HOLES AT MIAMI, FLORIDA

JOHN E. PORTER¹

Eight larvae removed from a basin-type hole in *Ficus* species at Miami, Florida, November 21, 1963 were identified as *Deinocerites cancer* Theob. In addition, larvae of *Aedes triseriatus* Say and *Culex nigripalpus* Theob. were recovered simultaneously from the tree hole, located about five feet above ground level.

D. cancer is commonly known as a crabhole mosquito; it is found principally in the ground

holes made by species of crabs of the families Gecarcinidae and Ocypodidae (Belkin and Hogue 1959). These holes may contain either fresh water or that which is of various degrees of salinity. In addition to being taken from crabholes, this mosquito has also been reported from tin cans (Dyar 1928) and flooded post holes (Carpenter and LaCasse, 1959), while Stutz and Heidt (1963) have also noted *D. cancer* larvae in a wooden bucket, an abandoned septic tank, and a tin can.

The fact that *D. cancer* occurs in a tree hole habitat had been noted earlier (Porter *et al.*, 1961.) However, in that instance the tree hole was just slightly above ground level in an area with many existing crabholes. This area, too, had recently been subjected to heavy flooding which conceivably could have flushed the *D. cancer* larvae into the tree hole.

In the current observation, however, the relatively high location of the tree hole rules out the possibility of flooding and indicates that adult *D. cancer* definitely deposited eggs in this type of habitat.

The presence of *C. nigripalpus* with *D. cancer* in crabholes is frequently observed, while the presence of *A. triseriatus* with *C. nigripalpus* can be expected in tree holes. The association of this crabhole mosquito with an *Aedes triseriatus* larva, however, is unusual.

Literature Cited

- BELKIN, J. N., and HOGUE, C. L. 1959. A review of the crabhole mosquitoes of the genus *Deinocerites* (Diptera, Culicidae). Univ. Calif. Public. in Entom. 14(6):411-458.
CARPENTER, S. J., and LACASSE, W. J. 1959. Mosquitoes of North America (North of Mexico). Berkeley, Univ. Calif., 360 pp.
DYAR, H. G. 1928. The Mosquitoes of the Americas. Carnegie Inst. Wash. Public. 387, 616 pp.
PORTER, J. E., EVANS, B. R. and HUGHES, J. H. 1961. The significance of water-holding cavities of trees as mosquito foci with special reference to *Aedes aegypti* control programs. Mosq. News 21 (3):234-237.
STUTZ, F. H., and HEIDT, J. H. 1963. Unpublished records. Dade Co. Mosq. Cont. Div., Miami, Florida.

A SIMPLE DEVICE FOR ANESTHETIZING MOSQUITOES WITH CARBON DIOXIDE

L. J. BRUCE-CHWATT, M.D.

Division of Malaria Eradication, WHO, Geneva

Preparation of mosquitoes for insecticide tests or the transfer to recovery containers of exposed batches of any winged insects generally requires some method of immobilizing them temporarily with as little mechanical or toxic damage as possible.

¹ Scientist Director, Quarantine Station, Division of Foreign Quarantine, Public Health Service, U. S. Department of Health, Education and Welfare, Miami Beach, Florida.