A NEW DISTRIBUTION RECORD FOR *CULEX SALINARIUS* COQ.: THE BERMUDA ISLANDS [1]

ROGER W. WILLIAMS [2]
School of Public Health and Administrative Medicine, Columbia University

Johnson (1913) and Ogilvie (1928) list the following mosquito species from the Bermudas: *Aedes argentus* (*Culex argenteus* Poiret, *Stegomyia calopus* Meig., *Stegomyia fasciata* Fab., *A. aegypti* L.), *A. sollicitans* Walk., *A. taeniorhynchus* Wied., and *Culex fatigans* Wied. (*C. quinquefasciatus* Say). In 1940, Waterston published a supplementary list of Bermuda insects which did not add to the list of mosquitoes.

On July 12, 1955 a study project was begun at Seymor pond, just west of Church Road, in Southampton parish. During the next week, mosquito adults were taken in *Culicoides* recovery cages placed in the thick seashore rush grass, *Sporobolus virginicus* (L.) Kunth., which grew profusely 2 or 3 feet out into the water. Larvae and pupae were dipped. Two mosquito species were recovered, *Aedes sollicitans,* which was in the minority, and a species of *Culex* other than *quinquefasciatus*. Study disclosed them to be *Culex salinarius* Coq.[3] The salinity of the water was determined with a special set of hydrometers for the determination of salt concentration in sea water and was found to be 13 parts of salt per 1,000 parts of water. The pH of the water, as determined by a Beckman pH meter, was 7.3 and the water temperature on July 13 was 27° C.

On July 28, 1955, *C. salinarius* was found again breeding profusely in the smaller of the two unnamed ponds on the Mid Ocean golf course in Hamilton parish near the entrance to the Castle Harbour Hotel, some 10 miles east of Seymor pond. The mosquito was again associated with a thick growth of *S. virginicus*. The salt content of the water was 10.9 parts per 1,000, the pH 6.7 and the water temperature 26° C.

It is well known by those who are familiar with the breeding habitats of this species that it may be found in either fresh or brackish water. However, the student who relies on the literature for this information may become confused, for Horsfall (1955) states that *C. salinarius* (according to Dyar and Knab) does not breed in brackish water and is strictly a fresh water mosquito. Horsfall does, however, mention elsewhere in his book that other investigators (e.g., Dorsey, 1944) found *salinarius* in brackish water. Carpenter and LaCasse (1955), in discussing the bionomics of this species, mention that it may be found in fresh and foul water but make no mention of brackish water, although Carpenter, *et al.* (1946) do state that it is found in brackish waters. Matheson (1944) states only that it breeds in marshy areas and rain barrels while Headlee (1945) on the other hand, mentions that the larvae occur in salt as well as in fresh water. The finding of *C. salinarius* in the brackish water ponds of the Bermuda islands re-emphasizes that this species may be found in brackish as well as in fresh water.

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[3] Identification was confirmed by Dr. Alan Stone of the U. S. National Museum.

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OPERATIONAL AND SCIENTIFIC NOTES

GOOD DRAINAGE is one of the fundamentals of mosquito prevention. Thousands of miles of drainage ditches have been dug by the numerous mosquito control districts in this country and elsewhere. A lot of the ditching was done by hand and probably a lot more will be done that way. Power machinery and dynamite are widely used and have lightened the burden of the laborer. Another valuable aid is the light-weight servi-portable compressor with tools for breaking up clay and hardpan formations. This equipment can eliminate much of the pick, crowbar and mattock work so often required of labor.

The machine pictured here (fig. 1) can be wheeled out into swamps and marshes by two or three men. It has capacity to operate a 35 lb. clay spade, pavement breaker or rock drill. In clay and hardpan digging it does the work of two or three men.—R. L. Armstrong, Supt., E. Middlesex Mosquito Control Project, Cambridge, Mass.

FIGURE 1. Light weight compressor used to facilitate ditch digging.