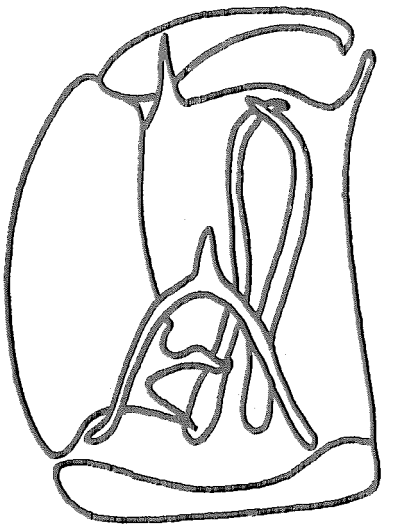

FIG. 1.—*Culicoides saevus* Kieffer, male genitalia

posed to honor Prof. J. Callot, Director of the Institute of Parasitology, Faculty of Medicine, Strasbourg, France.

DISCUSSION. The species of the subgenus *Selfia* Khalaf, 1954 have also wings without spots but the female lacks an apparent spermatheca; in the male genitalia the parameres are united in a single plate. In the subgenus *Trithecoides* Wirth and Hubert, 1959 the wings show outstanding dark spots with a long and pale second radial cell. The similarity with *Callotia* n. subgenus refers to the presence of three functional spermathecae. Using the male genitalia characters *Callotia* n. subg. can be separated from the subgenus *Selfia* because in this one the parameres form a single plate. In the subgenus *Trithecoides* the parameres are much curved and have a basal enlargement.

FEEDING OF ADULT *CHIRONOMUS RIPARIUS* MEIGEN

ALBERT M. GOFF [1]

R.R. 3 Box 226, Ashland, Ohio 44805

Although adult Chironomidae are apparently capable of feeding, especially on liquids, there are few references in the literature indicating that they do. Malloch (1915) observed females of *Chironomus riparius* Meigen feeding on fly specks in Urbana, Illinois, and indicated that "many species" resort to flowers for nourishment (nectar?) in the summertime. He did not name any of these species and his observations have apparently not been confirmed. Lieux and Mulrennan (1956) suggested that adults of *Glyptotendipes paripes* (Edwards), though not known to feed, probably consume some water as adults.

While rearing *C. riparius* Meigen in the laboratory it was noticed that adult midges appeared to be "tasting" the droplets of water which were splashed along the walls of their glass-jar cages. Individuals encountering a droplet of water were seen to touch the water with their mouthparts, immediately withdraw them, and walk along the cage until another water droplet was encountered. Here the behavior was repeated.

Since Malloch had indicated that midges resort to flower nector for food material and that *C. riparius* adult females were observed to feed, a sucrose-water syrup was prepared as a nectar substitute and smeared along the inside walls of the cages. When this material was present, definite changes in midge behavior were seen. Instead of moving from droplet to droplet in apparent random fashion, individual insects were observed to insert their mouthparts into a droplet of syrup and remain motionless for a lengthy period of time (sometimes up to 30 seconds). When the mouthparts were finally withdrawn from the syrup the activity was repeated at two or three successive syrup droplets until the insect was apparently satisfied.

While such behavior indicated that the insects were actually feeding it did not guarantee that the syrup was being ingested. To confirm this, two test food solutions were prepared and made available to the insects. One solution consisted of sucrose-water syrup which was colored a deep blue with commercial food coloring (U.S. certified food coloring in water and propylene glycol). The other solution contained only tap water colored with the same material. Strips of paper towel were dipped in each of these solutions and suspended inside the glass-jar cages.

Midges offered this food choice gave immediate confirmation that *C. riparius* does feed as an adult (in captivity at least) and that some sort of discriminatory taste is employed. Midges landing on the strips of paper which had been dipped in the colored syrup behaved in a manner identical with that shown when the uncolored syrup was provided. In this situation, however, the thoracic and abdominal regions of the insects were noted to turn a deep blue color as the syrup was ingested. Both sexes fed readily and voided brilliant blue specks on the cage walls within 24 hours of feeding. In subsequent tests, red and green colored syrups were also ingested as readily.

The behavior of those midges landing on the strips of paper which had been dipped in colored water only was consistent with that observed when only droplets of water were present on the cage walls. In no case were any of these midges

[1] Formerly from Entomology Department Purdue University, Lafayette, Indiana.

noted to "change color" while tasting the colored water. Usually the hurried activity of these insects eventually brought them into contact with the syrup-laden paper and they evidenced feeding of the syrup as did the others.

In the above observations it was also indicated that *C. riparius* does not confine its feeding activities to liquids only. When it was learned that *C. riparius* would feed on the syrup solution it was routinely provided as part of the rearing procedure. On several occasions the syrup was inadvertently allowed to completely crystallize on the cage walls. When this occurred, midges could be seen vigorously rubbing their mouthparts back and forth on the dried material in an apparent attempt to feed on the sugar.

Although no statistical data were taken, an increase in the longevity of the insects was noted and more fertile egg masses were deposited by the females when the midges were routinely fed the syrup. This probably resulted from the longevity increase, in that it allowed more time for male-female contacts prior to the death of the individual insect.

It is suggested that feeding of other species of laboratory-reared Chironomidae might circumvent problems arising from high death rates and low fertility, and possibly aid in insecticidal studies.

References Cited

Lieux, D. B. and Mulrennan J. A. 1956. Investigation of the biology and control of midges in Florida (Diptera:Tendipedidae). Mosq. News. 16(2):201.

Malloch, J. R. 1915. The Chironomidae, or midges, of Illinois, with particular reference to the species occurring in the Illinois River. Bull. Ill. State Lab. Nat. Hist. 10:273–543.

USE OF ARTIFICIAL POOLS FOR DETERMINING PRESENCE, ABUNDANCE, AND OVIPOSITION PREFERENCES OF *CULEX NIGRIPALPUS* THEOBALD IN THE FIELD [1]

WILLIAM W. SMITH [2] AND DAVID W. JONES, JR. [3]
Dept. Entomology and Nematology, 3103
McCarty Hall, University of Florida,
Gainesville, Fla. 32601

Culex (Culex) nigripalpus Theobald was the most important vector of St. Louis encephalitis in the 1962 epidemic which occurred in the Tampa Bay area of Florida (Dow *et al.*, 1964; Chamberlain *et al.*, 1964). It has also been shown to transmit the disease endemically in Jamaica (Belle *et al.*, 1964). This mosquito occurs from southern United States to northern Brazil and in some of the Caribbean islands (King *et al.*, 1960). It is particularly abundant in Florida during late summer and fall (Provost, 1969).

A quick and inexpensive method was needed to demonstrate the presence and abundance of *nigripalpus* in relatively isolated woodland areas where possible control trials could be made by inundative releases of chemosterilized specimens, and to supply field strains for introduction into laboratory colonies.

The well known use of ovitraps to discover the presence of *Aedes aegypti* suggested the possibility of supplying artificial oviposition sites for *nigripalpus*. Small pools were constructed by stapling black plastic (Visqueen®) cloth to wooden frames 30 inches long, 18 inches wide, and 3 inches deep. These were embedded in the soil so that the top of the frame was even with the ground surface. Placements of the pools were made in shady situations near large bodies of water which had failed to show larvae present in extensive dipping surveys.

Three pools were placed side by side in each of four different locations. At each location, one pool contained tap water alone, one contained hay infusion, and one contained water to which crushed Purina® hog supplement 40 percent had been added at about 8 g per gallon. The positions of the pools were changed randomly each week during a 10-week period from August 31 to November 5, 1971. Newly prepared solutions were supplied to each pool on Mondays and discarded the following Friday. Egg rafts were collected daily from Tuesday through Friday of each week. They were brought to the insectary and

[1] This research was supported by Public Health Service research grant CC 00366, from the Center for Disease Control, Atlanta, Georgia. Fla. Agricultural Experiment Station Journal Series No. 4265.

[2] Associate Professor of Entomology, Dept. Entomology and Nematology, University of Florida, Gainesville.

[3] Graduate Assistant in Entomology, Dept. Entomology and Nematology, University of Florida, Gainesville.