observed in only 4 of 147 samples. Continual scrutiny of the contents of the outer chamber, after the inner chamber had been removed and the water had cleared, revealed that all larvae entered the inner chamber. They had either been pumped into the inner chamber as it was forced to the bottom or else they had migrated through the funnel during the 15–20 minute waiting time.

In quantitative studies it is usually preferable, on a statistical basis, to collect a large number of small samples, as opposed to a small number of large samples. Thus, the relatively small dimensions of the sampler and low fabrication cost (approximately $10/sampler) were considered noteworthy merits. Additionally, in contrast to many reported sampling methods, the shallowness of water was not a limiting factor in the collection of samples. The outer chamber could be pushed firmly into the mud substrate, forming an almost water-tight seal, and water could be added to the inner chamber until the water level was higher than the top of the inverted funnel. Samples were frequently collected from pools with less than one inch of standing water.

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A MODIFIED CDC TRAP USING CARBON DIOXIDE FOR TRAPPING BLACKFLIES (SIMULIIDAE: DIPTERA) [1]

R. L. FROMMER,[2] R. R. CARESTIA,[2] R. W. VAVRA, JR.[2]

Snoddy and Hayes (1966), reported the trapping of 11 species of adult blackflies in Alabama over a 6 months period with an average of 34 specimens being trapped per hour, using a modified New Jersey light trap with CO_2 as the attractant. The optimum CO_2 flow rate for attractancy, using a 20 lb (net) cylinder, was 1 pound of CO_2 per hour.

A similar technique in trapping blackflies was conducted at Camp Drum, New York from 24 May to 5 July 1974. However, instead of the New Jersey light trap, a portable 6 volt battery-operated miniature CDC light trap, with light bulb removed, was used. A 20 pound (net) CO_2 cylinder was the source of attractant. A Matheson Gas

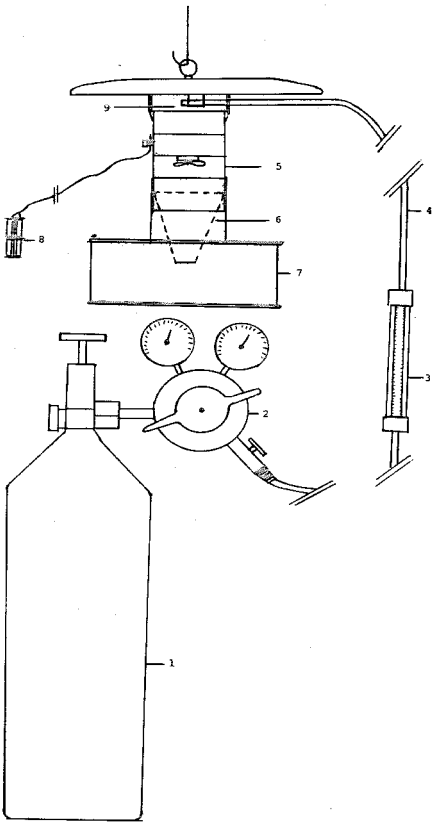

FIG. 1. CDC Miniature Light Trap Modified for Collecting Simuliidae, 1, 20 lb (net Cylinder of CO_2; 2, Regulator Valve; 3, Flowmeter; 4, Tygon Tubing (hose); 5, CDC Trap; 6, Acetate Funnel; 7, Collecting Net; 8, Batteries; 9, Hose Outlet for CO_2.

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[2] U. S. Army, US Army Medical Laboratory, Ft George G. Meade, MD 20755.

Product, 150 mm glass flow meter enclosed in a protective plastic tube and attached at both ends with a ½-inch diameter Tygon tube, 4 ft long regulated the correct amount of CO_2. One end of the tubing was attached to the CO_2 regulator valve outlet while the other end was under the cover plate of the CDC trap (Fig. 1).

A flow rate of 2 liters per minute was found to be the most desirable rate with respect to the frequency of replacing emptied CO_2 cylinders. CO_2 cylinders were replaced on an average of every 5 days. Using Snoddy's technique of one lb CO_2 per hr., replacement would occur approximately every 2 days. The optimum flow rate was not statistically determined. However, the authors feel that the flow of 2 liters of CO_2 per minute is sufficient for trapping adequate numbers of blackflies for tabulating indices.

Each of the 2 traps was constructed with an acetate funnel fused to the plastic sides of the CDC trap. The bottom of the funnel extended about half way down into the cloth trap bag. (Fig. 1. The purpose of the funnel was to prevent loss of specimens due to possible power failure; however, none occurred. The 2 traps were placed 5 ft above ground approximately 150 yards apart in new secondary vegetative growth which is typical of the local fauna and operated for 32 continuous days from 0900 to 1800.

The mean trap index for both traps, over the 32 day test period was 1282. The range of specimens trapped was from a low of 12 to a high of 14,800 with the overall total for both traps being 82,042. See Fig. 2. Identification of species has not been completed.

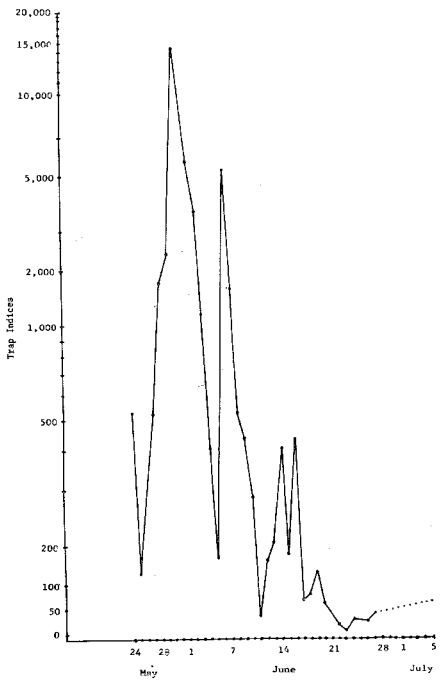

FIG. 2. Adult blackfly trap indices. Indices obtained using 2 modified CDC traps with CO_2 as attractant.

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LABORATORY *VS* FIELD RESULTS WITH PHOXIM AS A MOSQUITO LARVICIDE

D. P. WILTON [1]

Laboratory tests of Phoxim [Bay 77488, OMS 1170 (Phenylglyoxylonitrile oxime O,O,-diethyl phosphorothioate)] have indicated it to be a very effective mosquito larvicide. McDuffie and Weidhaas (1967) obtained 100% kill of 4th stage *Anopheles quadrimaculatus* larvae at a concentration of 0.025 p.p.m. Tests with *A. albimanus* showed Phoxim to be highly effective also in the form of a floating insecticidal bait. Wheat flour treated with 0.025% technical Phoxim and applied to the water surface of test dishes at a rate of 0.012 mg/cm² (equivalent to .03 mg technical insecticide/M²) caused 94% mortality of the 3rd stage, larvae feeding on it (Wilton *et al.*, 1973).

In the field, however, Phoxim has sometimes proven far less effective than would be expected on the basis of laboratory results. It was one of the least effective of 22 insecticides applied outdoors in Georgia to dry grassy plots as "prehatch or preflood" larvicides (Taylor and Schoof, 1971). It was disappointing in field trials of larvicidal baits in El Salvador; applications of 920 mg/M² of 0.05% bait (.46 mg technical/M²)

[1] Central America Research Station, Bureau of Tropical Diseases, Center for Disease Control, Public Health Service, U. S. Department of Health, Education, and Welfare, San Salvador, El Salvador, C.A.