

This Week's Citation Classic

Sudia W D & Chamberlain R W. Battery-operated light trap, an improved model. *Mosq. News* 22:126-9, 1962.
[Centers for Disease Control, US Public Health Service,
Dept. Health and Human Services, Atlanta, GA]

Field studies indicated the need for a portable light trap to capture live mosquitoes for arbovirus isolation attempts. A new trap was designed that weighs only 1¾ pounds and is easily repaired in the field. To aid others in constructing the trap, the major components are shown in a detailed drawing. [The SCI® indicates that this paper has been cited over 130 times since 1962.]

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"The New Jersey light trap is generally used to measure the effectiveness of mosquito control in populated areas. Its weight and dependence on 110-volt current limit its usefulness in the wilds. Arbovirus studies conducted in remote areas indicated the need for a reliable, portable trap, effective in capturing alive a variety of mosquitoes. In fact, Roy Chamberlain suddenly realized this need after he slipped on a trestle and bruised his ribs while carrying out of the Manchac Swamp in Louisiana two lead-acid car batteries used to operate New Jersey light traps. A portable light trap developed by Donald Nelson and Chamberlain of the Centers for Disease Control (CDC) Virus Vector Laboratory (VVL) in Montgomery, Alabama, was of limited effectiveness because it was complicated and difficult to repair in the field.

"I joined the VVL in 1954 and became involved in the problem. During a discussion of basic trap requirements with Chamberlain, I suggested a totally new design of a motor mount, lid assembly, and collecting bag. One person could carry a

dozen of the 1¾-pound traps and easily repair them in the field. In 1960, our laboratory moved to Atlanta where we had access to the equipment development shop. Robert Osgood, James Moore, Charles Smith, and James Weaver assisted in further refining the trap and produced the great number we needed for field studies.

"Several factors increased the use of the CDC light trap and resulted in citations for our paper. We published a manual on the application of the trap in field studies.¹ Hausherr's Machine Works, Toms River, New Jersey, manufactured and sold several thousand traps worldwide. This stimulated other companies to enter the market. Verne Newhouse and others of our staff² reported on the use of dry ice as a supplement to the light trap; mosquito catches increased by four- to ten-fold and the variety of species increased as well.

"The virus field research conducted by CDC entomologists generated many scientific reports on Eastern, Western, St. Louis, California, and Venezuelan encephalitis (VE). A Florida Everglades study resulted in the discovery of Everglades-VE, Mahogany Hammock, Gumbo Limbo, Shark River, and Pahayokee viruses, all new to science.³ In California,⁴ we used 40 CDC light traps to collect mosquitoes for arbovirus studies over a 400-mile stretch of the central valley; this study was aided by the conversion to flashlight-battery operation of the trap by J. Gibson Johnston, Jr., of our staff. The traps served particularly well during the VE epidemic, which began in 1969 in Ecuador—where, incidentally, our traps were fired upon by local police who thought they were being invaded from outer space. When VE reached Texas and Northern Mexico in 1971, about 215,000 mosquitoes were collected; they yielded nearly 1,000 virus isolates.⁵ These findings permitted positive definition of the epidemic vectors of VE in the US. Without the CDC light trap, these highly mobile studies could not have been done.

"In 1972, I was awarded the USPHS Meritorious Service Medal for developing and applying standard methods for large-scale investigations of arbovirus outbreaks in the US; the CDC light trap played a vital part in these investigations."

1. **Sudia W D & Chamberlain R W.** *Collection and processing of medically important arthropods for arbovirus isolation.* Atlanta, GA: Communicable Disease Center, 1967. 29 p.
2. **Newhouse V F, Chamberlain R W, Johnston J G, Jr. & Sudia W D.** Use of dry ice to increase mosquito catches of the CDC miniature light trap. *Mosq. News* 26:30-5, 1966.
3. **Chamberlain R W, Sudia W D, Work T H, Coleman P H, Newhouse V F & Iohiuton J G, Jr.** Arbovirus studies in south Florida, with emphasis on Venezuelan equine encephalomyelitis. *Amer. J. Epidemiol.* 89:197-210, 1969.
4. **Sudia W D, Emmons R W, Newhouse V F & Peters R F.** Arbovirus-vector studies in the central valley of California, 1969. *Mosq. News* 31:160-8, 1971.
5. **Sudia W D, Newhouse V F, Beadle L D, Miller D L, Johnston J G, Jr., Young R, Calisher C H & Manness K.** Epidemic Venezuelan equine encephalitis in North America in 1971: vector studies. *Amer. J. Epidemiol.* 101:17-35, 1975.

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