

Surgeon, U. S. Army Forces, Southern Command: *L. cruciata* (Coquillett), *L. dysponeta* (Fairchild and Hertig) and *L. trinidadensis* (Newstead). In Panama, *L. cruciata* and *L. dysponeta* were previously known to feed on man and on rodents, respectively (Chaniotis et al. 1971; Christensen and Herrer 1973). *L. trinidadensis* was known to have a wider host range, including geckos, anteaters, rodents, dogs and man (Thatcher and Hertig 1966; Christensen and Herrer 1973).

**DISCUSSION.** A few of the Panamanian sand fly species are thought to be narrowly restrictive in host preference. For example, *L. vespertilionis* (Fairchild and Hertig) and *L. isovespertilionis* (Fairchild and Hertig) apparently feed preferentially on bats (Thatcher and Hertig 1966; Tesh et al. 1971, 1972). The majority of species, however, appear to have much wider host ranges. Certain species in this category, such as *L. panamensis*, feed freely on humans, while others, such as *L. trinidadensis*, do not. The precise role that a given species plays in the transmission of leishmaniasis among animals and from animals to man undoubtedly depends to a large extent on its particular spectrum of host preferences. The authors believe that detailed studies of sand fly host preferences would contribute greatly to the intelligent control of leishmaniasis in Panama.

#### References Cited

- Chaniotis, B. N., M. A. Correa, A. B. Tesh and K. M. Johnson. 1971. Daily and seasonal man-biting activity of phlebotomine sandflies in Panama. *J. Med. Entomol.* 8:415-20.
- Christensen, H. A., A. Herrer and S. R. Telford. 1972. Enzootic cutaneous leishmaniasis in eastern Panama. II. Entomological investigations. *Ann. Trop. Med. Parasitol.* 66:55-66.
- Christensen, H. A. and Herrer. 1973. Attractiveness of sentinel animals to vectors of leishmaniasis in Panama. *Amer. J. Trop. Med. Hyg.* 22:578-84.
- Tesh, R. B., B. N. Chaniotis, M. D. Aronson and K. M. Johnson. 1971. Natural host preferences of Panamanian phlebotomine sandflies as determined by precipitin test. *Ibid.* 20: 150-6.
- Tesh, R. B., B. N. Chaniotis, B. R. Carrera and K. M. Johnson. 1972. Further studies on the natural host preferences of Panamanian phlebotomine sandflies. *Amer. J. Epidemiol.* 95: 88-93.
- Thatcher, V. E., and M. Hertig. 1966. Field studies on the feeding habits and diurnal shelters of some *Phlebotomus* sandflies (Diptera: Psychodidae) in Panama. *Ann. Entomol. Soc. Amer.* 59:46-52.
- Young, D. G., and G. B. Fairchild. 1974. Studies of phlebotomine sand flies. Annual report of contract DADA-17-72-C-2139, U. S. Army Medical Research and Development Command, Washington, D.C. Available from Defense Document Center, Cameron Station, Alexandria, VA 33214. 152 pp.

#### USES OF THE RING-TAB OF CANS IN THE ENTOMOLOGY LABORATORY

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A number of uses have been found in the entomology laboratory for the aluminum ring-tab which is pulled away in order to open the top of a can or tin of beer, or other beverage. The tab, which is invariably thrown away, has a rounded strip of aluminum attached to it. The ring is usually a rounded oval. The metal strip usually curls when the ring is pulled away. The following uses have been found for them:

1. *Mounting cell.* The metal strip is removed by bending it at the riveted end several times. The metal portion bearing the rivet is trimmed away so that the ring has an even edge all around. The ring is then gently tapped with a hammer so as to remove any irregularity. It is then cemented permanently to a clean slide with any waterproof cement, such as Duco, contact cement, or cyanoacrylate Super-Glue. It may be mounted right side up or upside down. When the cement is dry, any insect specimen of suitable height is mounted in the center of the ring, using a mounting medium of choice. A round or square cover glass may be applied. To cut a square or rectangular cover glass to any size, place it on a hard surface, and holding it firmly with a slide or thin metal rule, make a fine scratch in the cover glass with a tungsten-tipped metal scribe. The cover glass can then be broken without shattering. The glued-on cell can also be used to hold water containing mosquito larvae or pupae.

2. *Specimen-holder.* The entire unit of ring plus strip is used for this purpose, the curled strip being used as a handle. The ring is cemented to a white piece of cardboard cut to the same dimensions as the ring; this is used for holding adult insects. If the floor is, instead, made from rigid, clear plastic or a piece of microscope slide, the resulting holder can be used to transmit light when examining aquatic specimens, such as mosquito larvae and pupae, under the microscope. If two rings are cemented one over the other, so that the incurled strips diametrically oppose each other, a more stable unit results, and either handle can be used to lift up the specimen-holder.

3. *Spatula.* The flat metal strip can be used

as a spatula for transferring small amounts of chemical, or even larvae, by using the ring itself as a handle; or else the strip is broken away and is taped or otherwise fixed to a long handle made from a swab stick, pencil, or other rod.

4. *Support for micro-net.* A piece of nylon or metal screen netting is sewn to the ring, with a shallow pocket pushed out. The metal strip is then attached to a swab stick or other narrow rod. This unit is useful for netting larvae or pupae of mosquitoes. Also, the ring portion can be fixed directly to a wooden rod by bending up the riveted portion and hammering a fine nail through the rivet and into the rod.

5. *Tool and apparatus holder.* The strip is removed and a hole is punched through the aluminum rivet with a nail or sharp center-punch. Only the ring is used here. Using very small screws or nails, rings are fixed in succession along the edge of a shelf, so that the full openings protrude beyond the shelf. This makes a convenient rack for holding various laboratory implements, such as aspirators, small pliers, scissors, forceps, etc.

6. *Dissecting needle holder.* To make a support for dissecting needles, only the strips are used. They are removed from the rings, and nailed at 2-inch intervals along the edge of a shelf or rectangular wooden block, so that the upward-curved strips project beyond the edge of the board. The dissecting instruments are then laid horizontally upon the strips, which form a firm support.

7. *Retractor.* The curled strip is fixed to a thin metal rod, and is used as a small retractor during dissections of large insects.

8. *Support for small insects.* Only the ring is used for this purpose. Using a pair of pliers, an ordinary straight pin is pushed through the rivet, then withdrawn. A support is cut from a sheet of clear, stiff plastic or a piece of microscope slide. The support is cemented either above or below the ring. Very small insects are then mounted upon the support in a few drops of mounting medium. A heavy-gauge entomological pin is then pushed through the hole in the rivet, and the mounted insect is put in place into an entomological storage box.

Many other uses can undoubtedly be found for the ring-tabs, depending on the specific needs of the entomologist.

## OCURRENCE OF *Aedes hendersoni* AND *Aedes dorsalis* IN MARYLAND

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Bickley et al. (1971) reported that 53 species of mosquitoes were known to occur in Maryland. Zavortink (1972) reported that *Aedes (Protonotocleaya) hendersoni* Cockerell had been collected in Baltimore City and in Montgomery and Prince George's Counties, Maryland. Thus the number of species known to occur in Maryland was increased to 54.

Collections of *A. hendersoni* larvae were made by the author in 1973 at Union Bridge, Carroll County, and North Laurel, Howard County, thus extending the known distribution and providing 2 new county records.

One female *Aedes (Ochlerotatus) dorsalis* (Meigen), a new record for Maryland, was collected by the author on May 21, 1975 in Cumberland, Allegany County during a landing rate count. The identification was confirmed as a new state record by Dr. John F. Burger, Medical Entomology Project, Smithsonian Institution, United States National Museum. *A. vexans* (Meigen) and *A. sticticus* (Meigen) were collected simultaneously with the *A. dorsalis* female.

Six *A. dorsalis* females were also collected in a New Jersey mosquito light trap in Cumberland on June 1, 1975. On June 10, 1975 subsequent landing rate counts were made in two other Allegany County areas. A 10-minute count in Mexico Farm yielded 2 *A. dorsalis* and a 20-minute count produced 14 *A. dorsalis* in North Branch. The number of mosquito species known to occur in Maryland is now 55.

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### Literature Cited

- Bickley, W. E., Joseph, S. R., Mallack, J. and Berry, R. A. 1971. An annotated list of the mosquitoes of Maryland. *Mosq. News* 31(2): 186-190.
- Zavortink, T. J. 1972. Mosquito studies (Diptera, Culicidae) XXVIII. The new world species formerly placed in *Aedes (Finlaya)*. *Contrib. Amer. Entomol. Inst.* 8(3):1-206.