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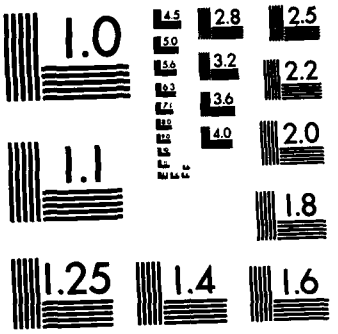

STUDIES OF PHLEBOTOMINE SAND FLIES

ANNUAL REPORT

By

D. G. YOUNG

31 AUGUST 1979

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The Technical Bulletin on the bloodsucking psychodid flies of Colombia was made available in June, 1979. Two other papers, based on field work near Manaus, Brazil in 1979, are in press. A proven vector of leishmaniasis, *Lutzomyia wellcomei*, and 39 other species, some of which are undescribed, were collected during this trip. Other specimens given to the Principal Investigator from various countries have appreciably added to the reference collection, now ranked as the most comprehensive in the New World. A laboratory colony of an undescribed species from Florida, an autogenous strain, was established. A critical

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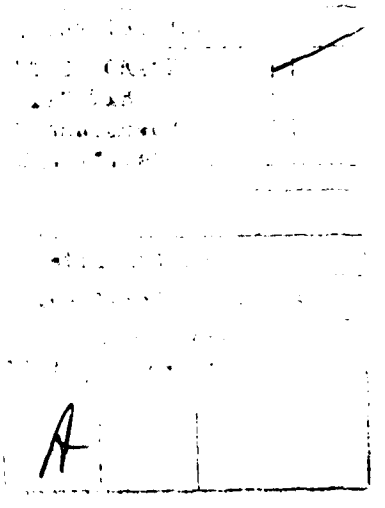

ABSTRACT

1. Preparing Institution: University of Florida

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3. Principal Investigator: D.G. Young, Ph.D., Assistant Research Scientist

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7. Key Words: Sand fly

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Introduction

The report of the first meeting of the Scientific Working Group on Leishmaniasis (World Health Org., 1977) included research objectives considered important in studying the epidemiology of the leishmanias. "Identification of responsible vector species [phlebotomine sand flies] and studies on their biology are essential to control. . . . Certain geographical areas were selected to receive high priority for vector studies in view of the paucity of information available on the *Leishmania* vectors. . . . Development of control campaigns will require an individual approach to each endemic area and must be based upon intensive epidemiological studies . . . studies to obtain better understanding of the life cycle would be facilitated by the establishment of colonies of vector species in a greater number of laboratories, while taxonomic studies of these vectors are of fundamental importance due to the difficulty in identifying them."

Objectives

Under this contract, the objectives are similar to those outlined by the W.H.O. Scientific Working Group on leishmaniasis. These include:

1. Preparing keys, illustrations, and other aids to identification both by geographic areas and by taxonomic groups.
2. Arriving at a more satisfactory classification of the subfamily Phlebotominae.

3. Building an American reference collection.

4. Establishing a sand fly colony for experimental purposes (the W.H.O. working group stated that "Genetic studies, in particular, should receive high priority").

Results

The large paper on the bloodsucking psychodid flies of Colombia appeared in print in June, 1979. A copy is included with this report.

A field trip to Manaus, Brazil in March, 1979 was quite successful in terms of diversity and numbers of phlebotomines collected--so far over 40 species and 1200+ specimens. Significantly, *Lutzomyia wellcomei*, a proven vector of leishmaniasis elsewhere in Brazil, was found by the Principal Investigator and colleagues in rainforest north of the Amazon River at Río Urubu. We discovered a new anthropophilic species and the females of *L. claustrei*, all of which and *L. davisi* form the *Lutzomyia davisi* complex, a group of widespread neotropical species. A manuscript on this group including a description of the new species was completed and will be sent to press shortly. The authors include the PI and E. Abonnenc who is presently studying the French Guiana fauna. Other new species and unknown sexes of phlebotominae were collected and added to our reference collection. These include 2 new *Trichophoromyia* species, the descriptions of which are in press, and 4 others related to *L. gomezi*, *L. flaviscutellata* (both incriminated vectors of cutaneous leishmaniasis), *L. fluviatilis* and *L. nordestina*. Taxonomic clarifications related to the phylogenetic placement of other species such as *L. spathotrichia*, *L. bacula* and *L. melloi* became apparent after studying fresh material collected during this trip.

The phlebotomine reference collection, now the most complete in the New World, continued to grow as a result of this collective trip and gifts from colleagues in Trinidad, Bolivia, Colombia, Malaysia and Brazil. We obtained 35 species from Kenya and the Middle East and are now in a position to develop identification keys for these areas.

A laboratory colony of an apparent new species of *Lutzomyia* from Florida was established from a single wild-caught female. This colony, one of the two existing colonies in the United States, will provide a basis for studying genetics, improved rearing techniques, and parasite development. It is noteworthy to mention that this strain of *Lutzomyia* is autogenous--a condition noted in only two other phlebotomine species.

Work on the handbook of sand flies of the New World progressed rapidly. We have cataloged the species, critically brought together references to each taxon for the first time in 35 years and have begun the task of illustrating 200 species not treated in the Colombian paper. It is believed that this general approach, instead of faunal studies of individual countries, will in the end be more useful to a greater number of people. The phlebotomine fauna of Trinidad and Ecuador was included in the Colombian study; however, additional Ecuadorian records are being published separately.

LIST OF PUBLICATIONS RESULTING FROM THIS RESEARCH

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15. Arias, J. and D.G. Young. 1980. Sand flies of the central Amazon of Brazil. 2. *Lutzomyia (Trichophoromyia)* n. sp. Acta Amazonica (in press).

PERSONNEL SUPPORTED ON PROJECT

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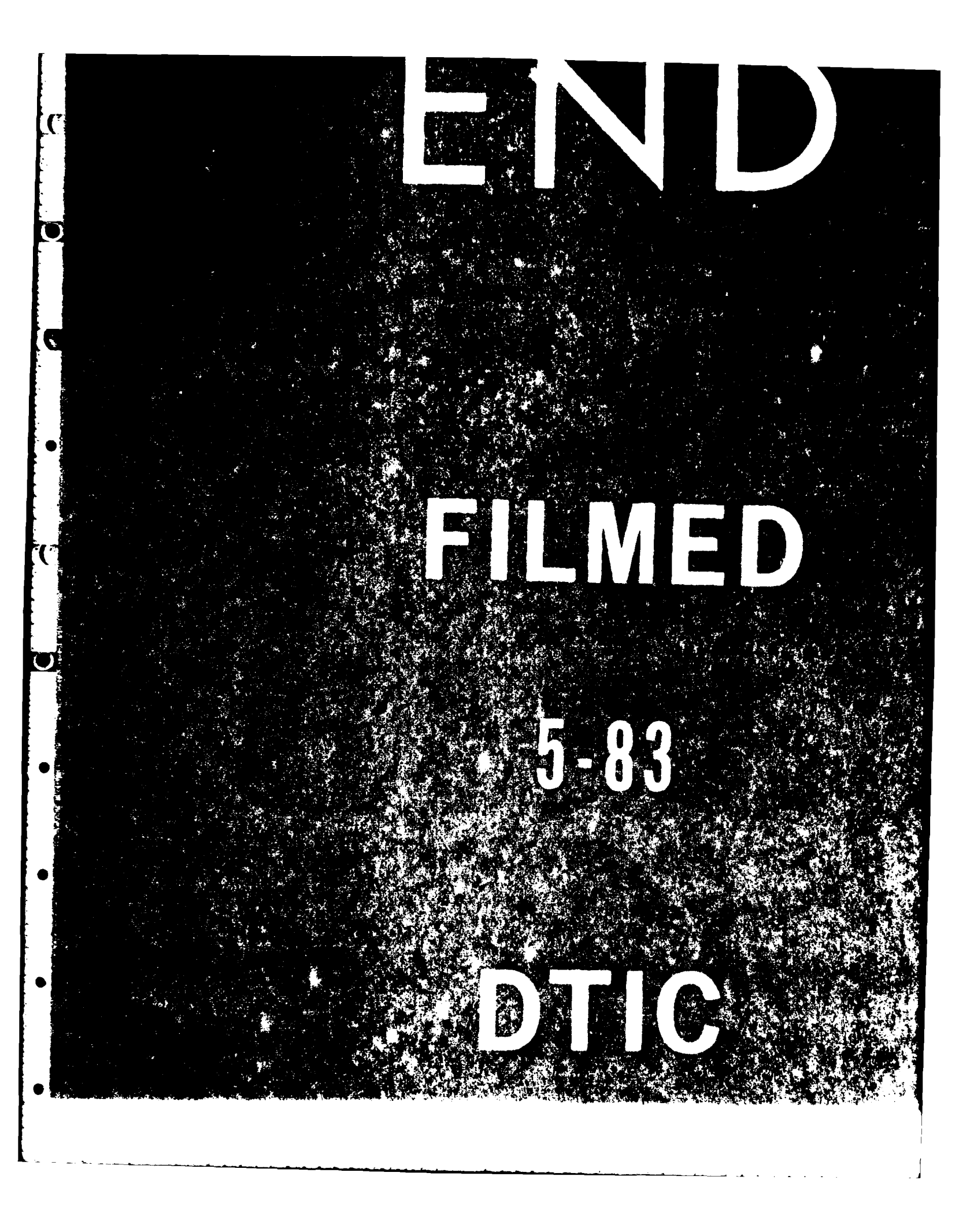
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