

## NEWS AND NOTES

DUKE UNIVERSITY SUMMER SESSION announces a course in Acarology. Zoology S231. Acarology—An introductory study of the Acarina or mites and ticks with special emphasis on those of economic and medical importance. Lectures, recitations and laboratory daily, 8:00–12:00, 2:00–4:00. August 20–September 7, 1951. Associate Professor G. W. Wharton.

During recent years research on the Acarina at Duke University and elsewhere has greatly expanded as a more complete recognition of the economic and medical importance of the mites has been realized. With the advance in knowledge there has been an increasing number of requests for information concerning this group.

The course, designed for students, professional entomologists, and zoologists, will present a survey of the knowledge of the Acarina that embraces structure, systematics, biology, literature, and techniques. The course will be limited to twenty students and will not be offered for fewer than ten students.

Fees and expenses for the three weeks (August 20–September 7) the course is in session will be: University fee, \$36.00; Dormitory, \$10.50–\$20.00; Meals, \$35.00 (estimate based on prices in University cafeterias).

For additional information, application blanks, and a copy of the Bulletin of the Summer Session write to The Director of the Summer Session, Duke University, Durham, North Carolina.

### CANNIBAL MOSQUITOES IN HAWAII

Mr. C. E. Pemiberton, entomologist of the Hawaiian Sugar Planters Association has arranged with D. J. Muspratt, entomologist of the South African Institute for Medical Research in Johannesburg, to ship specimens of the cannibal mosquito *Megarhinus brevipalpis* to the Hawaiian Health Department. Three shipments were received by November 1950, one containing full grown larvae shipped on moist blotting paper. Adults have been reared, these laid viable eggs, and laboratory breeding is proceeding. We wish Drs. Bonnet and Hu, who are handling this project better luck in establishing this line of attack on their pest mosquitoes than was experienced by Mr. Pemiberton in a previous attempt. In that instance *M. inornatus*, introduced from New Britain in 1929 was temporarily established but died out in a few months.

F. C. Bishopp

EXCERPT from letter from Fernando M. de Bustamante to H. L. T., in response to her request for reviews and abstracts from Brazil:

"I would like very much to be an assistant of the Reviews and Abstracts Department of Mosquito News in Brazil. . . . There are two official

Services working on malaria control in Brazil: The National Malaria Service of the National Department of Health and the Malaria Service of the Public Health Department of the State of São Paulo. The Special Service of Public Health (SESP), which worked on malaria in the Amazon Valley up to 1949, transferred to the National Malaria Service the responsibility of making malaria control in that large area. Dr. Leonidas Deane, who was in charge of the Malaria Division of the Special Service of Public Health is now engaged in the National Malaria Service. There is also a private malaria control Service in the water reservoir of Rio de Janeiro and São Paulo Cities Light and Power Company Limited. Dr. Abel Vargas is in charge of this private service.

"Most of the papers dealing with malaria, anophelines and malaria control in Brazil are published now in 'Revista Brasileira de Malariologia (Brazilian Journal of Malariology), that is printed by the National Malaria Service. This journal makes English summaries of all the papers. . . ." Sincerely yours, Fernando M. de Bustamante.



From a letter from R. F. Peters, Nov. 14, 1950: "Enclosed is a photograph prepared by Tommy Mulhern of one light trap collection in a mosquito control area in California, which trap operated continuously for three days and nights. See the October 15 issue of *Mosquito Buzz*. Seated before the 345,000 plus or minus mosquitoes is Bettina Rosay, Junior Entomologist of our California Central Valley Mosquito Ecology study."

BILL PERRY has sent in an interesting letter from London, where he is Assistant Scientific Liaison Officer for the Medical Sciences between the United States, Great Britain and Western Europe. He writes:

"Have just returned from a month's trip through Italy, Switzerland and France visiting the various medical schools, research laboratories and hospitals. Didn't have much of an opportunity to do extensive, specific investigations in entomology although I did enjoy making a number of personal contacts in Italy and Amsterdam.

"I was particularly interested in the work of Pavan in Italy on his isolation of an active compound that he has demonstrated to be actively bactericidal and insecticidal. I have been doubly interested because I had picked up a similar thing in some of my later studies at Lejeune, just before getting orders over here to this new post.

"I have picked out three items from my official reports and had them mimeographed. I thought maybe you would be interested in publishing these at intervals in reviews and abstracts or as you see fit in MOSQUITO NEWS. In any case they will probably be of interest to you. I shall keep you posted on my entomologic findings in this area.

"Am leaving for Spain and Portugal on the 15th of March."

*Editor's Note:* The "items of interest" are as follows:

MISCELLANEOUS NOTES ON ENTOMOLOGICAL STUDIES IN ITALY: IRIDOMYRMECIN, A NEW BACTERICIDAL AND INSECTICIDAL AGENT. For the past four years, Dr. Mario Pavan, working in collaboration with Dr. Attilia Nascimbene at the Istituto di Anatomia Comparata dell' Università di Pavia, Italy, has been attempting to isolate antibiotic substances from many species of insects and arachnids.

These investigators have reported (*La Ricerca Scientifica* 20, 1853 (1950)), the isolation of a highly active crystalline compound, which they call "iridomyrmecin," from extracts of the Argentine ant, *Iridomyrmex pruinosus humilis*. The active principle obtained from these ants does not owe its activity to formic acid, which according to Pavan is not formed by members of this group.

Specific details on the tedious and lengthy isolation of iridomyrmecin are not yet available. At present, the time required for production of the crystalline product is about four months after the initial extraction. The most active materials have been obtained from an ether insoluble residue. Dr. Pavan believes that within six months chemical, physiologic, and toxicologic studies will be complete.

Tests *in vitro* have shown *iridomyrmecin* to be effective against *Vibrio comma*, *Staphylococcus aureus*, *Bacillus anthracis*, *Brucella melitensis*, *Br. abortus*, *Br. suis*, *Escherichia coli*, *Proteus vulgaris*, *Salmonella paratyphi B*, *Eberthella typhosa*, *Mycobacterium phlei*, *Mycobacterium avium*, *Shigella paradyserteriae* and *Micrococcus lisodeikticus*.

Of special interest in the report of Pavan is that this bactericidal substance has been demonstrated to possess insecticidal powers, and laboratory tests have shown it to be effective against DDT resistant houseflies (see the following item).

STUDIES ON DDT RESISTANT INSECTS IN ITALY. With the introduction of DDT in 1944 for the control of insect vectors of malaria and typhus in Italy, there has been a gradual increase in the number of species exhibiting resistance to the action of this insecticide. In particular, the house fly, *Musca domestica*, has become markedly resistant to DDT and there are indications that within a year, flies resistant to Octa-Klor will also appear. This resistance of "filth" flies to these two important commercial insecticides has resulted in a significant rise in the incidence of fly-borne bacillary dysentery in the rural areas with prominent and alarming peaks occurring in the summer months.

In view of these trends, work is being conducted by Professor A. Missiroli, chief of the Istituto Superiore di Sanita at Rome to separate pure lines within the species *Musca domestica*, to study the heredity of character resistance to insecticides by crossing resistant with non-resistant strains of *Musca domestica*, and to study the taxonomic relations existing between *Musca domestica*, *vicina* and *nebulosa*.

The laboratory in Rome, and a field station located in the Province of Latina, Italy, are well equipped to conduct experimental studies on new insecticides and on the physiology and biology of *Musca domestica* and its resistant strains. Professor Missiroli has given the name *Musca domestica* var. *tiberina* to the variety of housefly which has within the last two years occupied all regions treated with DDT.

At the Istituto di Anatomia Comparata dell' Università di Pavia, Dr. Mario Pavan has demonstrated his newly named "iridomyrmecin" to be effective against DDT resistant houseflies.

Fortunately, the control of anophelines in the highly malarious areas of the Pontine Marshes near Rome had been accomplished before a noticeable resistance appeared in the genus *Anopheles*. Autochthonous malaria, therefore, has practically disappeared from Italy and during 1950 only about 350 cases were reported. The most highly endemic areas were Sicily and Sardinia.

IDENTIFICATION OF ANOPHELES BY SALIVARY GLAND CHROMOSOME PATTERNS. Early in 1947, Dr. Guido Frizzi of the Istituti di Zoologia e Genetica, Università di Pavia, Italy, reported (*Nature*, 160, 226 (1947)) considerable success in "mapping" salivary gland chromosome patterns in fourth instar anopheline larvae. Since that time he has continued his investigations to evaluate the degree of variation within natural mosquito populations and to determine whether comparative karyology might not provide an

additional tool in the study and identification of geographic, ecologic, and physiologic variants within the genus *Anopheles*. Such a method of identification will be important in the difficult separation of malaria vectors in the *maculipennis* complex of anophelines in Europe. Dr. Frizzi has completed studies on *Anopheles maculipennis* var. *atoparvus* and has made direct comparisons of the salivary gland patterns of *clutus*, *typicus* and *messeoe*. It appears that his techniques, once the general patterns are recognized and identified, can be used to facilitate identification of this group of mosquitoes.

In hybrids obtained from crosses with female *typicus* and male *atoparvus*, the salivary gland chromosomes show a heterozygous inversion in the III chromosome's "right" arm. The three chromosome pairs are incompletely paired and unpaired segments are more numerous and more extended. It would appear that the total or partial sterility of hybrids within the *maculipennis* species is correlated with chromosomal rearrangements.

Studies are planned to "map" and compare the patterns of representatives of the *maculipennis* stock known to occur in the United States.

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