

## LITERATURE REFERENCES TO MOSQUITOES AND MOSQUITO-BORNE DISEASES

HELEN SOLLERS-RIEDEL<sup>1</sup>

Plant Protection Division, Agricultural Research Service, United States Department of Agriculture

### ADULTICIDES AND LARVICIDES

ABDULCADER, M. H. M. 1970. Control of *Culex fatigans* the vector of bancroftian filariasis in the Kemmendine area of Rangoon, Burma 1966-69. *J. Parasitol.* 56(4) sect. 2, pt. 1:1.

AMONKAR, S. V. and REEVES, E. L. 1970. Mosquito control with active principle of garlic, *Allium sativum*. *J. Econ. Ent.* 63(4):1172-1175.

BAILEY, D. L., LABRECQUE, G. C. and WHITFIELD, T. L. 1970. Slow-release and emulsifiable formulations of Dursban® and Abate® for controlling larvae of *Culex pipiens quinquefasciatus* Say. *Mosquito News* 30(3):465-467.

BURGOYNE, W. E., COLLETT, G. C., NIELSEN, L. T. and GOLD, R. E. 1970. Ecologic factors affecting mosquito control by aircraft in the Great Basin. *Mosquito News* 30(3):361-369.

ELIASON, D. A., KILPATRICK, J. W. and BABBITT, M. F. 1970. Evaluation of the effectiveness of the ultra low volume aerial application of insecticides against *Aedes aegypti* (L.) in Florida. *Mosquito News* 30(3):430-436.

GAHAN, J. B. and WILSON, H. G. 1970. Seven insecticides as residual sprays in buildings naturally infested with *Anopheles quadrimaculatus*. *Mosquito News* 30(3):410-416.

GAYAR, F. and SHAZLI, A. 1969. Toxicity of certain plants to *Culex pipiens* L. larvae [Diptera: Culicidae]. *Soc. Ent. Egypte Bul.* 52:467-475.

HIRST, J. M. 1970. United States Navy. Water Resources Res. Inst. (Univ. N. Car.) Rpt. 36:49-53. [In connection with workshop on mosquito control. Repellents and control included.]

KRIVTSOVA, E. N. and COAUTHORS. 1970. Metathion in the control of bloodsucking arthropods. Communication II. *Med. Parazit. i Parazit. Boleznii* 39(3):338-345. In Rus., Engl. Sum.

MAW, M. G. 1970. Capric acid as a larvicide and an oviposition stimulant for mosquitoes. *Nature* (London) 227(5263):1154-1155.

MICKS, D. W. 1970. Mosquito control agents derived from petroleum hydrocarbons IV. Further larval abnormalities produced by FLIT® MLO. *J. Econ. Ent.* 63(4):1118-1121.

MOUNT, G. A. and COAUTHORS. 1970. Ultra-low volume aerial sprays of promising insecticides for mosquito control. *Mosquito News* 30(3):342-346.

MULLA, M. S., DARWAZEH, H. A. and PETERS, D. R. 1970. Mosquito control in sewage oxidation

ponds with drip and pour-in larvicides. *Mosquito News* 39(3):456-460.

NASIR, A. S. and LATIF, M. 1969. A lesson in mosquito control. "Baytex" (a new organophosphorus insecticide) on test. *Pakistan J. Health* 18(1/4):187-206. [Date for vol. 18 is given as 1968-1969.]

— and —. 1969. A note on evaluation of two formulations of Abate against *Culex fatigans* and *Anopheles subpictus* larvae, in Lahore, Pakistan. *J. Health* 18(1/4):207-212.

NOVAK, D. 1968. Several volatile oils toxicity to mosquito larvae. *Arch Roumaines Path. Expt. et Microbiol.* 27(4):721-723.

PALMER, D. 1970. United States Army. Water Resources Res. Inst. (Univ. N. Car.) Rpt. 36: 43-47. [In connection with workshop on mosquito control. Mosquito control and malaria mentioned.]

SUBRA, R., BOUCHITE, B. and COZ, J. 1969. Evaluation sur le terrain de l'efficacité de deux insecticides organo-phosphorés, l'Abate et le Dursban, contre les larves de *Culex pipiens fatigans* Wiedemann, 1828. *Med. Trop. (Marseille)* 29(5):607-614. Engl. Sum.

TAWFIK, M. S. and GOODING, R. H. 1970. Dursban and Abate clay granules for larval mosquito control in Alberta. *Mosquito News* 39(3):461-464.

TAYLOR, D. J. and RATHBURN, C. B., JR. 1970. Large area tests of ultra low volume naled for control of adult mosquitoes. *Mosquito News* 30(3):383-387.

### OVICIDES

MILLER, S. and MADDOCK, D. R. 1970. Ovicidal effect of selected compounds on eggs of *Anopheles albimanus*. *J. Econ. Ent.* 63(4):1151-1154.

### VARIOUS TYPES OF CONTROL

ASHTON, D. F. 1970. Fresh water mosquito control program. *Water Resources Res. Inst. (Univ. N. Car.) Rpt.* 36:25-31.

CRITCHER, T. S. 1970. North Carolina Wildlife Resources Commission. *Water Resources Res. Inst. (Univ. N. Car.) Rpt.* 36:101-108. [Several types of control.]

DORER, R. E. 1970. How mosquito control works in Virginia. *Water Resources Res. Inst. (Univ. N. Car.) Rpt.* 36:115-120.

HAMON, J. 1970. Ecological factors important in insecticidal and alternative means of mosquito control. WHO/VBC/70.205, 23 pp.

<sup>1</sup> Complete mailing address: P.O. Box 19009, Washington, D.C. 20036, USA.

HARRIS, A. C. 1970. Carolina Power and Light Company. Water Resources Res. Inst. (Univ. N. Car.) Rpt. 36:39-41. [In connection with workshop on mosquito control. Various types of control mentioned.]

KNIGHT, K. L. 1970. Effectiveness of ditching in estuarine marshes for mosquito control. Water Resources Res. Inst. (Univ. N. Car.) Rpt. 36:113.

—. 1970. Overview of mosquito control problems. Water Resources Res. Inst. (Univ. N. Car.) Rpt. 36:5-13.

KUENZLER, E. 1970. Effects of mosquito control ditching on estuarine ecosystems. Water Resources Res. Inst. (Univ. N. Car.) Rpt. 36:109-112.

LAYDEN, J. E., JR. 1970. Soil Conservation Service. Water Resources Res. Inst. (Univ. N. Car.) Rpt. 36:89-94. [In connection with workshop on mosquito control. Water management included.]

LINTON, T. L. 1970. Division of Commercial and Sports Fisheries. North Carolina Department of Conservation and Development. Water Resources Res. Inst. (Univ. N. Car.) Rpt. 36:95-100. [Several types of control.]

MACE, E. F. 1969. Biological test method for mosquito coils. Pyrethrum Post 10(1):41-43.

MCCOTTER, C. J. 1970. Local interests in mosquito control. Water Resources Res. Inst. (Univ. N. Car.) Rpt. 36:55-59.

McDANIEL, I. 1970. Can we control mosquitoes and black flies without harming our birds and other wildlife? Maine Agr. Expt. Sta. Res. in Life Sciences 17(4):23-27.

MIDKIFF, J. W. 1970. Implications of mosquito control to other facets of water resources management. Water Resources Res. Inst. (Univ. N. Car.) Rpt. 36:83-87.

MULRENNAN, J. A. 1970. Florida's mosquito control system. Water Resources Res. Inst. (Univ. N. Car.) Rpt. 36:121-132.

MURRAY, W. D. 1969. Mosquito control with weed control. Calif. Weed Conf. Proc. 21:40-42. Fresno.

OATES, N. K. 1970. Salt marsh mosquito control program. Water Resources Res. Inst. (Univ. N. Car.) Rpt. 36:15-24.

SCHOOF, H. F. 1970. Present and potential techniques for the control of mosquitoes. Water Resources Res. Inst. (Univ. N. Car.) Rpt. 36:61-81.

SWEARINGEN, G. T. 1970. Duke Power Company. Water Resources Res. Inst. (Univ. N. Car.) Rpt. 36:33-37. [In connection with workshop on mosquito control. Various types of control discussed.]

WINNEY, R. and WEBLEY, D. J. 1969. The biological activity of mosquito coils of different "pyrethrins" composition. Pyrethrum Post 10(1):44-48.

#### STERILIZATION METHODS

CUELLAR, C. B. 1970. Seasonal decline of a mosquito population producing sample distortion.

Roy. Soc. Trop. Med. and Hyg. Trans. 64(4): 475-476.

GROVER, K. K. and PILLAI, M. K. K. 1970. The mating ability of males of *Culex pipiens fatigans* Wiedemann sterilized with apholate or tepla. WHO Bul. 42(5):807-815.

HAFIZ, M., ABOUL-NASR, A. E. and SALAMA, H. S. 1970. Studies on the control of mosquitoes in Egypt by means of chemosterilants. III. Sterilization of *Anopheles pharoensis* and *Culex pipiens* by metepa. J. Econ. Ent. 63(4):1169-1172.

#### MOSQUITO CONTROL AGENCY PROBLEMS

CARMICHAEL, G. T. 1970. 1969 annual report. Mosquito Control, City of New Orleans Dept. Health. 34 pp. unnumbered. [Mimeographed.]

#### PARASITES, PREDATORS, VIRUSES AND RELATED AGENTS

LAIRD, M. 1969. Recent advances of biological control in medical entomology. Accad. Nazionale dei Lincei Quaderno N. 128:155-164. [Mosquitoes.]

MATTA, J. F. 1970. The characterization of a mosquito iridescent virus. II. Physicochemical characterization. J. Invert. Path. 16(2):157-164.

— and LOWE, R. E. 1970. The characterization of a mosquito iridescent virus (MIV). I. Biological characteristics, infectivity, and pathology. J. Invert. Path. 16(1):38-41.

MCCRAY, E. M., JR., FAY, R. W. and SCHOOF, H. F. 1970. The bionomics of *Lankesteria culicis* and *Aedes aegypti*. J. Invert. Path. 16(1):42-53.

PETERSEN, J. J. and CHAPMAN, H. C. 1970. Parasitism of *Anopheles* mosquitoes by a *Gastromermis* sp. (Nematoda:Mermithidae) in southwestern Louisiana. Mosquito News 30(3):420-424.

RAJAK, R. L. and PERTI, S. L. 1968. Toxicity of bacterial spores to fly and mosquito larvae. Pesticides (Bombay) 1(9):45.

SCHMITTNER, S. M. and MCGHEE, R. B. 1970. Host specificity of various species of *Crithidia* Léger. J. Parasitol. 56(4):684-693. [Mosquitoes included.]

ZUBERI, R. I., HAFIZ, S. and ASHRAFI, S. H. 1969. Bacterial and fungal isolates from laboratory-reared *Aedes aegypti* (Linnaeus), *Musca domestica* (Linnaeus) and *Periplaneta americana* (Linnaeus). Pakistan J. Sci. and Indus. Res. 12(1/2):77-82.

#### EQUIPMENT

HAYDEN, D. L., MULRENNAN, J. A. and WEEKS, W. V. 1970. Low volume concentrate equipment for fixed wing aircraft. Mosquito News 30(3): 335-338.

SCHERAGO, E. J. and SHEFFER, B. J. 1970. Guide to scientific instruments. Science 169A (3951A):9-172.

THOMPSON, G. A. 1970. Jet-type spray nozzle characteristics. Mosquito News 30(3):477.

## ATTRACTANTS AND REPELLENTS

- GARSON, L. R. and COAUTHORS. 1970. Insect repellency of *N,N*-diethyl-*m*-toluamidine—a nitrogen isostere of deet. *J. Econ. Ent.* 63(4):1116-1117.
- GILBERT, I. H., GOUCK, H. K. and SCHRECK, C. E. 1970. Comparison of four cinchoninates, an oxetanone, and two standard skin repellents against *Aedes aegypti* and *Stomoxys calcitrans*. *Fla. Ent.* 53(2):89-92.
- GILBERT, I. H., SCANLON, J. E. and BAILEY, D. L. 1970. Repellents against mosquitoes in Thailand. *J. Econ. Ent.* 63(4):1207-1209.
- GILBERT, I. H., SMITH, N. and GOUCK, H. K. 1970. Skin repellents against *Aedes aegypti*. *J. Econ. Ent.* 63(4):1203-1204.
- IKESHIOJI, T. and MULLA, M. S. 1970. Oviposition attractants for four species of mosquitoes in natural breeding waters. *Ent. Soc. Amer. Ann.* 63(5):1322-1327. [*Culex* and *Aedes*.]
- QUINTANA, R. P. and COAUTHORS. 1970. Mosquito-repellent dihydroxyacetone monoesters. *J. Econ. Ent.* 63(4):1128-1131.
- SCHRECK, C. E., GILBERT, I. H., WEIDHAAS, D. E. and POSEY, K. H. 1970. Spatial action of mosquito repellents. *J. Econ. Ent.* 63(5):1576-1578.
- SKINNER, W. A., TONG, H. C., MAIBACH, H. I. and SKIDMORE, D. 1970. Human skin-surface lipid fatty acids—mosquito repellents. *Experientia* 26(7):728-730.
- SNOW, W. F. 1970. The effect of a reduction in expired carbon dioxide on the attractiveness of human subjects to mosquitoes. *Bul. Ent. Res.* 60(1):43-48.
- WINNEY, R. 1969. The biological activity of mosquito coils based on pyrethrum and coils based on other active ingredients. *Pyrethrum Post* 10(1):3-6.
- See also Hirst in Adulcicides and Larvicides Section.
- RESISTANCE AND SUSCEPTIBILITY**
- BROWN, A. W. A. 1969. Insect resistance. Part I. Nature and prevalence of resistance. *Farm Chem.* 132(9):50-68. [Mosquitoes included.]
- GAABOUB, I. A. 1970. Susceptibility of adult *Anopheles (Myzomyia) pharoensis* Theobald, the principal malaria vector in Egypt, in the surroundings of Alexandria City, U.A.R. to DDT and dieldrin. *Z. f. Angewandte Ent.* 66(2):178-183.
- HAMON, J. and SALES, S. 1970. Étude de la relation existante, chez les moustiques adultes, entre la durée d'exposition à un insecticide et la mortalité résultante. WHO/VBC/70.206, 9 pp. Engl. Sum.
- KALRA, R. L. 1970. Studies on the mechanism of DDT resistance in *Culex pipiens fatigans*. Lipids of susceptible and resistant strains. *WHO Bul.* 42(4):623-629.
- MULLA, M. S., DARWAZEH, H. A. and GILLIES, P. A. 1970. Evaluation of aliphatic amines against larvae and pupae of mosquitoes. *J. Econ. Ent.* 63(5):1472-1475.
- SCHAEFER, C. H. and WILDER, W. H. 1970. Insecticide resistance and cross-resistance in *Aedes nigromaculatus*. *J. Econ. Ent.* 63(4):1224-1226.
- TADANO, T. 1970. Genetics of cross-resistance to organophosphates, Abate, Fenitrothion and malathion in larvae of *Culex pipiens pallens* Coquillett. *Jap. J. Expt. Med.* 40(1):59-66.
- WOMELDORF, D. J., WASHINO, R. K., WHITE, K. E. and GIEKE, P. A. 1970. Insecticide susceptibility of mosquitoes in California: response of *Anopheles freeborni* Aitken larvae to organophosphorus compounds. *Mosquito News* 30(3):375-382.
- WORLD HEALTH ORGANIZATION. 1970. Information circular on insecticide resistance insect behaviour and vector genetics. WHO/IRG/70.10, 45 pp.
- See also Gerold in Books Section.
- INSECTICIDES AND CHEMICALS**
- BREELAND, S. G. 1970. The effect of test cage materials on ULV malathion evaluations. *Mosquito News* 30(3):338-342.
- FROST, K. R. and WARE, G. W. 1970. Pesticide drift from aerial and ground applications. *Agr. Chem.* 51(8):460-464.
- HADAWAY, A. B., BARLOW, F. and TURNER, C. R. 1970. The effect of particle size on the contact toxicity of insecticides to adult mosquitoes, *Anopheles stephensi* List. *Bul. Ent. Res.* 60(1):17-21.
- HADAWAY, A. B., BARLOW, F. and TURNER, C. R. 1970. The effect of particle size on the contact toxicity of insecticides to adult mosquitoes. WHO/VBC/70.213, 6 pp.
- MOUNT, G. A., LOFGREN, C. S., BALDWIN, K. F. and PIERCE, N. W. 1970. Droplet size and mosquito kill with ultralow volume aerial sprays dispersed from a rotary-disc nozzle. *Mosquito News* 30(3):331-334.
- TOXICOLOGY**
- LUDWIG, P. D., KILIAN, D. J., DISBURGER, H. J. and EDWARDS, H. N. 1970. Results of human exposure to thermal aerosols containing Dursban® insecticide. *Mosquito News* 30(3):346-354.
- MACIVER, D. R. 1969. Mosquito coil smoke. *Austral. J. Sci.* 32(1):23-24. [Comments on paper by McWilliam and Henderson on their studies of possible carcinogens in mosquito coil smoke. Author refutes this idea. D. C. McWilliam answers that their studies were only preliminary.]
- WORLD HEALTH ORGANIZATION. 1970. Information circular on the toxicity of pesticides to man. WHO/TOX/70.5, 49 pp.

## BEHAVIOR, BIOLOGY AND ECOLOGY

- ABUL-HAB, J. 1969. Overwintering of *Anopheles superpictus* Grassi in Sulaimanyah and Kirkuk Liwas in Northern Iraq (Diptera:Culicidae). Soc. Ent. Egypte Bul. 51:243-250.
- BOND, H. A., CRAIG, G. B., JR. and FAY, R. W. 1970. Field mating and movement of *Aedes aegypti*. Mosquito News 30(3):394-402.
- CHAO, J. 1970. The biological change of *Culex tarsalis* and the alteration of *Plasmodium relictum* infectivity to pigeons. J. Parasitol. 56(4) sect. 2, pt. 1:51.
- CHAUVET, G. 1969. Répartition et écologie du complexe *Anopheles gambiae* à Madagascar. Ent. Med. et Parasitol. Cah. 7(3):235-278. Engl. Sum.
- CRANS, W. J. 1970. The blood feeding habits of *Culex territans* Walker. Mosquito News 30(3):445-447.
- CUELLAR, C. B., SAWYER, B. and DAVIDSON, G. 1970. Upper limit in male multiple mating in *Anopheles gambiae* species A. Roy Soc. Trop. Med. and Hyg. Trans. 64(4):476.
- DELHEZ, F. and HOUSSA, M. 1969. L'Araine de Richeronfontaine à Liège. Étude écologique de la faune cavernicole d'un réseau souterrain artificiel. Naturlistes Belges 50(4):194-212. [Includes *Culex pipiens*.]
- GILOT, B. 1969. Répartition altitudinale des moustiques (Dipt. Culicidae): exemple du Dauphiné du Nord (Alpes françaises). Ent. Med. et Parasitol. Cah. 7(3):213-233. Engl. Sum.
- GWADZ, R. W. and CRAIG, G. B., JR. 1970. Female polygamy due to inadequate semen transfer in *Aedes aegypti*. Mosquito News 30(3):355-360.
- HÁJKOVÁ, Z. and MINÁŘ, J. 1970. Bionomy of mosquitoes (Diptera, Culicidae) in the inundated region of southern Moravia. Folia Parasitol. 17(3):239-256.
- HARTBERG, W. K. 1970. Observations on the mating behaviour of *Aedes aegypti* in nature. WHO/VBC/70.217, 6 pp., 2 figs.
- NAYAR, J. K. and SAUERMAN, D. M., JR. 1969. Flight behavior and phase polymorphism in the mosquito *Aedes taeniorhynchus*. Ent. Expt. et Applicata 12(3):365-375.
- O'MEARA, G. F. and CRAIG, G. B., JR. 1970. Geographical variation in *Aedes atropalpus* (Diptera:Culicidae). Ent. Soc. Amer. Ann. 63(5):1392-1400.
- PETERSEN, J. J. and WILLIS, O. R. 1970. Oviposition responses of *Culex pipiens quinquefasciatus* and *Culex salinarius* in the laboratory. Mosquito News 30(3):438-444.
- SEHGAL, S. S. and PILLAI, M. K. K. 1970. Preliminary studies on the chemical nature of mosquito-breeding waters in Delhi. WHO Bul. 42(4):647-650.
- SERVICE, M. W. 1970. Ecological notes on species A and B of the *Anopheles gambiae* complex in the Kisumu area of Kenya. Bul. Ent. Res. 60(1):105-108.
- SNOW, W. F. 1970. An observation on the effect of vegetation on the flight pattern of *Anopheles melas* and *Aedes chamboni* in The Gambia, West Africa. Roy. Soc. Trop. Med. and Hyg. Trans. 64(4):477.
- and WILKES, T. J. 1970. The height and direction of non-host oriented flight, and the age, of *Anopheles melas* in relation to wind direction in The Gambia, West Africa. Roy. Soc. Trop. Med. and Hyg. Trans. 64(4):477.
- SOMAN, R. S. and REUBEN, R. 1970. Studies on the preference shown by ovipositing females of *Aedes aegypti* for water containing immature stages of the same species. J. Med. Ent. 7(4):485-489.
- WHITE, G. B. 1970. Evidence for *Anopheles squamosus* migration? Nature (London) 227 (5259):739-740.
- See also Salama in Anatomy, Morphology and Physiology and Mahdi et al. in Filariasis Sections.
- GENETICS
- AMIRHANIAN, J. D. 1970. Thalidomide as a mutagenic agent in the mosquito (*Culex pipiens molestus*). Experientia 26(7):796-799.
- BAKER, R. H. and RABBANI, M. G. 1970. Complete linkage in females of *Culex tritaeniorhynchus*. J. Heredity 61(2):59-61.
- BHALLA, S. C. 1970. Cross-over suppressors and sterility in the yellow fever mosquito, *Aedes aegypti*. Mosquito News 30(3):452-456.
- COLUZZI, M. and SABATINI, A. 1969. Cytogenetic observations on the salt water species, *Anopheles merus* and *Anopheles melas* of the *gambiae* complex. Parassitologia 11(3):177-187.
- DAVIDSON, G. 1970. Triple and quadruple hybridization in the *Anopheles gambiae* complex. Roy. Soc. Trop. Med. and Hyg. Trans. 64(4):474-475.
- HAEGER, J. S. and O'MEARA, G. F. 1970. Rapid incorporation of wild genotypes of *Culex nigripalpus* (Diptera:Culicidae) into laboratory-adapted strains. Ent. Soc. Amer. Ann. 63(5):1390-1391.
- HARTBERG, W. K. 1970. Hybridization between *Aedes simpsoni* and *Aedes woodi* with observations on the genetic basis of morphological differences. WHO/VBC/70.216, 12 pp.
- KITZMILLER, J. B. 1970. Mosquito cyt taxonomy. J. Parasitol. 56(4) sect. 2, pt. 1:188-189.
- See also Tadano in Resistance and Susceptibility, Mukherjee et al. in Anatomy, Morphology and Physiology, Craig and Service in Taxonomy, Bond et al. and Gwadz et al. in Behavior, Biology and Ecology Sections.
- ANATOMY, MORPHOLOGY AND PHYSIOLOGY
- FUCHS, M. S. and HISS, E. A. 1970. The partial purification and separation of the protein components of matrone from *Aedes aegypti*. J. Insect Physiol. 16(5):931-939.
- HINTON, H. E. 1970. Functional morphology

- of mosquito eggs. *J. Parasitol.* 56(4) sect. 2, pt. 1:147.
- HORSFALL, W. R. and RONQUILLO, M. C. 1970. Genesis of the reproductive system of mosquitoes. II. Male of *Aedes stimulans* (Walker). *J. Morphol.* 31(3):329-357.
- LEA, A. O. 1970. Endocrinology of egg maturation in autogenous and anautogenous *Aedes taeniorhynchus*. *J. Insect Physiol.* 16(9):1689-1696.
- MCLIVER, S. and CHARLTON, C. 1970. Studies on the sense organs on the palps of selected culicine mosquitoes. *Canad. J. Zool.* 48(2):293-295.
- MUKHERJEE, A. E. and REES, D. M. 1969. Duration of mitotic cycle in brain cells of the mosquito, *Aedes dorsalis*. *Canad. J. Genet. and Cytol.* 11(3):673-676.
- SALAMA, H. S. 1969. Factors affecting taste sensitivity in *Aedes aegypti* L. (Diptera:Culicidae). *Soc. Ent. Egypte Bul.* 51:343-346.
- SCHAFFER, C. H. and WASHINO, R. K. 1970. Synthesis of energy for overwintering in natural populations of the mosquito *Culex tarsalis*. *Compar. Biochem. and Physiol.* 35(2):503-506.
- WANG, C. M., MATSUMURA, F. and BOUSH, G. M. 1970. Induction *in vitro* of proteins in the cultured tissue cells of *Aedes aegypti*. *J. Insect. Physiol.* 16(7):1283-1291.
- ZHUCHIKOV, D. P. 1970. Permeability of the peritrophic membrane in the larvae of *Aedes aegypti*. *J. Insect Physiol.* 16(6):1193-1202.
- See also Mattingly in Taxonomy Section.
- ### TECHNIQUES
- BENNETT, G. F. 1970. Simple techniques for making avian blood smears. *Canad. J. Zool.* 48(3):585-586.
- CORBET, P. S. 1970. The use of parasitic watermites for age-grading female mosquitoes. *Mosquito News* 30(3):436-438.
- DENNELL, D. P., KELLY, M. W., DE SMET, M. A. and DALGARNO, L. 1970. The growth of Kunjin, a group B arbovirus, in cultured vertebrate and mosquito cells. *Austral. Biochem. Soc. Proc.* 3:46.
- GRANZ, W. and EKUÉ, S. 1970. The value of Boroviczény's rapid hematological staining method for the routine diagnosis of Protozoa infections. *Z. f. Tropenmed. u. Parasitol.* 21(3):261-266. In Ger., Engl. Sum. [*Plasmodium berghei* included.]
- HAGSTRUM, D. W. 1970. Simultaneous measurement of aerial and aquatic respiration and study of mode of action of petroleum oils. *Ent. Soc. Amer. Ann.* 63(5):1466-1467. [*Anopheles*, *Culex*, *Aedes*.]
- HAWKING, F. 1970. Cultivation of malaria parasites and trypanosomes under semi *in vitro*/*in vivo* conditions. *J. Parasitol.* 56(4) sect. 2, pt. 1:139-140.
- HARDEN, F. W., POOLSON, B. J., BENNETT, L. W. and GASKIN, R. C. 1970. Analysis of CO<sub>2</sub> supplemented mosquito adult landing rate counts. *Mosquito News* 30(3):369-374.
- HSU, S. H., LAI, P. Y. and CROSS, J. H. 1969. Susceptibility of *Culex quinquefasciatus* Say cell line to infection with arboviruses. *Formosan Med. Assoc. J.* 68(11):643-644. [Pages also numbered 111-112.]
- KRIEGER, R. I. and WILKINSON, C. F. 1970. Stabilization of insect microsomal preparations by freezing. *J. Econ. Ent.* 63(4):1343-1344.
- MARAMOROSCH, K. and JERNBERG, N. 1970. An adjustable multiple-insect holder for microinjection. *J. Econ. Ent.* 63(4):1216-1218.
- MUURA, T. 1970. A simple scum-free rearing technique for mosquito larvae. *Ent. Soc. Amer. Ann.* 63(5):1476-1477.
- , HUSBANDS, R. C. and REED, D. E. 1970. Field evaluation of the concentrator-dipper technique for sampling mosquito larvae. *Mosquito News* 30(3):448-452.
- NUSSENZWEIG, R. S., VANDERBERG, J. and MOST, H. 1970. The clearance rate of sporozoites of *P. berghei* from the blood of immune and normal mice. *J. Parasitol.* 56(4) sect. 2, pt. 1:251-252.
- PREISS, F. J., BAREFOOT, H. L., STRYKER, R. G. and YOUNG, W. W. 1970. Effectiveness of DDVP as a killing agent in mosquito killing jars. *Mosquito News* 30(3):417-419.
- SERVICE, M. W. 1970. Insect mortality. *Nature (London)* 227(5256):421. [Mortality of *Anopheles gambiae* from contamination of insecticides in rearing and other laboratory rooms.]
- STEVENS, T. M. 1970. Arbovirus replication in mosquito cell lines (Singh) grown in monolayer or suspension culture. *Soc. Expt. Biol. and Med. Proc.* 134(1):356-361.
- SWEET, B. H. and McHALE, J. S. 1970. Characterization of cell lines derived from *Culiseta inornata* and *Aedes vexans* mosquitoes. *Expt. Cell Res.* 61(1):51-63.
- TOWNSON, H. and MOORE, G. A. 1970. Scanning electron micrographs of some mosquito structures. *Roy. Soc. Trop. Med. and Hyg. Trans.* 64(4):478.
- TRPIŠ, M. 1970. A new bleaching and decalifying method for general use in zoology. *Canad. J. Zool.* 48(4):892-893. [*Aedes vexans* and *A. sticticus*.]
- VIRUS RESEARCH CENTRE (POONA). 1970. Annual report 1968, 144 pp. [Arboviruses and techniques of mosquito tissue culture included.]
- WALLIS, R. C. and LITE, S. W. 1970. Axenic rearing of *Culex salinarius*. *Mosquito News* 30(3):427-429.
- WARE, G. W. and COAUTHORS. 1970. Pesticide drift III. Drift reduction with spray thickeners. *J. Econ. Ent.* 63(4):1314-1316.
- WEARNE, G. R. and WHITTEN, M. J. 1970. A low-cost collapsible modular cage. *J. Econ. Ent.* 63(5):1685-1686.
- WILSON, G. R. 1970. A chamber for management of circadian rhythms of light for small insects. *J. Econ. Ent.* 63(5):1676-1677.
- See also Beaudoin and Strome in Malaria and Hitchcock in Filariasis Sections.

## TAXONOMY

- BELKIN, J. N., HEINEMANN, S. J. and PAGE, W. A. 1970. Mosquito studies (Diptera, Culicidae). XXI. The Culicidae of Jamaica. Amer. Ent. Inst. Contrib. 6(1):1-458. [*Mansonia dyari*, *Aedes calunnior*, *Wyeomyia luna*, *W. stellata*, *W. corona*, *W. juxtahiruta*, *W. atra* n. spp.]
- BRUNHES, J. 1969. Culicidés de Madagascar: IV. Description des imagos, de la nymphe et de la larve de *Culex (Culiciomyia) pandani* sp. n. Ent. Med. et Parasitol. Cah. 7(3):175-180. [n. sp.]
- CAMIN, J. H. 1970. Numerical taxonomy. J. Parasitol. 56(4) sect. 2, pt. 1:45-46.
- CLASTRIER, J. 1970. *Culex (Eubonnea) guyanensis* n. sp. (Diptera, Culicidae) nouveau moustique de la Guyane Française. Ann. de Parasitol. Humaine et Compar. 45(1):115-118. Engl. Sum. [n. sp.]
- CORREIA, M. G. 1968. IV-Contribuição para o conhecimento dos "Culicidae" da Guiné Portuguesa (Ilha de Bissau). Estudo morfológico das larvas dos gêneros *Ficalbia* e *Uranotaenia*. Bol. Cultural da Guiné Portug. 23(89/90):163-180. Engl. Sum.
- CRAIG, G. B., JR. 1970. Genetical and experimental taxonomy of mosquitoes. J. Parasitol. 56(4) sect. 2, pt. 1:63-64.
- CUPP, E. W., IBRAHIM, A. N., GILOTRA, S. K. and SWEET, B. H. 1970. Application of immunodiffusion methods for identification of mosquitoes. J. Parasitol. 56(4) sect. 2, pt. 1:64.
- DE MEILLON, B. 1970. Supply and exchange of material. J. Parasitol. 56(4) sect. 2, pt. 1:71-72.
- EOUZAN, J. P. 1969. Description du mâle de *Culex (Culiciomyia) grenieri* sp. n. (Diptera, Culicidae). Ent. Med. et Parasitol. Cah. 7(3):163-166. [n. sp.]
- HUANG, Y. M. 1970. A note on *Aedes aurotaeniatus* Edwards (Diptera:Culicidae). Ent. Soc. Wash. Proc. 72(3):281-288.
- JOHNSTON, D. E. 1970. Numerical taxonomy: problems and promise. J. Parasitol. 56(4) sect. 2, pt. 2:431-432.
- KNIGHT, K. L. and LAFFOON, J. L. 1970. A mosquito taxonomic glossary. III. Adult thorax. Mosquito Systematics Newslet. 2(3):132-146.
- MARKS, E. N. and BROWN, P. 1970. *Culex albirostris* Macquart, 1851 (Diptera, Culicidae): request for suppression under the plenary powers. Z.N.(S.) 1889. Bul. Zool. Nomen. 26(5/6):227-229.
- MATTINGLY, P. F. 1970. Contributions to the mosquito fauna of Southeast Asia. VI. The genus *Heizmannia* Ludlow in Southeast Asia. Amer. Ent. Inst. Contrib. 5(7):1-104. [*H. demeilloni*, *persimilis*, *propinqua*, *proxima*, *scanloni* and *thelmae* n. spp.]
- . 1970. Mosquito eggs VIII. Genus *Aedes*, subgenus *Mucidus* Theobald. IX. Genus *Opifex* Hutton. Mosquito Systematics Newslet. 2(3):87-91, 92-97.
- . 1970. The mosquito egg, a neglected element in medical ecology. J. Parasitol. 56(4) sect. 2, pt. 1:228-229.
- NIELSEN, L. T. 1970. The use of numerical taxonomy as an aid to the identification and analysis of mosquito taxons. J. Parasitol. 56(4) sect. 2, pt. 1:250.
- PAO, B. and KNIGHT, K. L. 1970. The fourth instar larval mandible and maxilla of selected *Aedes (Aedimorphus)* species (Diptera, Culicidae). Mosquito Systematics Newslet. 2(3):98-131.
- PATERSON, H. E. 1970. The need for and importance of precise identification of taxa: the potential contribution of classical morphological taxonomy. J. Parasitol. 56(4) sect. 2, pt. 1:259-260.
- PEUS, F. 1970. Bemerkenswerte Mücken am Tegeler Fließ. Berline Naturschutzblätter. Special Number (May):18-26. [*Aedes geminus* n. sp.]
- PEYTON, E. L. and RATTANARITHIKUL, R. 1970. Five additional new species of *Uranotaenia* from Southeast Asia (Diptera:Culicidae). Ent. Soc. Wash. Proc. 72(3):403-413. [*U. demeilloni*, *prajimi*, *pseudomaculipileura*, *spiculosa* and *sumethi* n. spp.]
- REINERT, J. F. 1970. Description of the pupa of *Aedes (Ochlerotatus) mitchellae* (Diptera:Culicidae). Fla. Ent. 53(2):73-77.
- . 1970. Description of the pupae of *Wyeomyia (Wyeomyia) vanduzeei* and *W. (W.) mitchellii* (Diptera, Culicidae). Fla. Ent. 53(3):163-169.
- . 1970. Description of the pupa of *Aedes (Ochlerotatus) infirmatus* (Diptera:Culicidae). Fla. Ent. 53(3):147-151.
- SCHICK, R. X. 1970. Mosquito studies (Diptera, Culicidae). XXIII. Additions and corrections to the revision of the *Aedes terrens* group. Amer. Ent. Inst. Contrib. 7(1):13-40. [*Aedes casali* n. sp.]
- SERVICE, M. W. 1970. Identification of the *Anopheles gambiae* complex in Nigeria by larval and adult chromosomes. Ann. Trop. Med. and Parasitol. 64(2):131-136.
- TYSON, W. H. 1970. Contributions to the mosquito fauna of Southeast Asia. VII. Genus *Aedeomyia* Theobald in Southeast Asia. VIII. Genus *Aedes*, subgenus *Mucidus* Theobald in Southeast Asia. Amer. Ent. Inst. Contrib. 6(2):1-28; 29-80.
- ZAVORTINK, T. J. 1970. Mosquito studies (Diptera, Culicidae). XXII. A new subgenus and species of *Aedes* from Arizona. Amer. Ent. Inst. Contrib. 7(1):1-11. [*Abraedes* n. sg., *A. papago* n. sp.]
- See also O'Meara et al. in Behavior, Biology and Ecology and Tuxen in Books Sections.

## DISTRIBUTION

- MARKS, E. N. 1968. Mosquitoes (Culicidae) of Fraser Island, Queensland Natur. 19(1/3):47-50.

- . 1969. Mosquitoes (Culicidae) on Queensland's coral cays. *Queensland Natur.* 19(4/6):94-98.
- PICKAVANCE, J. R., BENNETT, G. F. and PHIPPS, J. 1970. Some mosquitoes and blackflies from Newfoundland. *Canad. J. Zool.* 48(4):621-624.
- WILLS, W. and WHITMYRE, G. JR. 1970. New Pennsylvania record for *Orthopodomyia alba* Baker. *Mosquito News* 30(3):472.
- WOLFF, T. A. 1970. The presence of *Aedes fitchii* (Felt and Young) in New Mexico. *Mosquito News* 30(3):472.
- See also Gilot in Behavior, Biology and Ecology, Belkin et al. and Correia in Taxonomy Sections.
- ### ARBOVIRUSES
- ACHESON, N. H. and TAMM, I. 1970. Purification and properties of Semliki Forest virus and its nucleocapsids. *Virology* 41(2):306-320.
- and —. 1970. Ribonuclease sensitivity of Semliki Forest virus nucleocapsid. *J. Virology* 5(6):714-717.
- and —. 1970. Structural proteins of Semliki Forest virus and its nucleocapsid. *Virology* 41(2):321-329.
- ARRIGHI, M. F. 1969. Deux cas de mégaléry-thème infectieux épidémique d'origine virale vraisemblable (arbovirose à Tahyna). *Soc. Fr. de Dermatol. et de Syphil. Bul.* 76(3):477-479.
- ASPÖCK, H. 1970. The synecological system of arboviruses and the possible influence of man on it. *Zentrbl. Bakteriol., Parasit., Infektionskr. u. Hyg.* 213(4):434-454. In Ger., Engl. Sum.
- and CHRISTIAN, K. 1970. Field investigations on the importance of hedgehogs in the circulation of Tahyna virus. *Zentrbl. Bakteriol. Parasit. Infektionskr. u. Hyg.* 213(3):304-310. In Ger., Engl. Sum.
- and —. 1970. Überwinterung des Calovo-Virus in experimentell infizierten Weibchen von *Anopheles maculipennis messeae* Fall. *Zentrbl. Bakteriol., Parasit., Infektionskr. u. Hyg.* 213(4):429-433. Engl. Sum.
- CARDIFF, R. D., MCLOUD, T. G., BRANDT, W. E. and RUSSELL, P. K. 1970. Molecular size and charge relationships of the soluble complement-fixing antigens of dengue viruses. *Virology* 41(3):569-572.
- CHAKRAVARTY, M. S. and SARKAR, J. K. 1969. Haemagglutination-inhibition test against arbovirus antigens with contaminated sera. *Calcutta Schl. Trop. Med. Bul.* 17(3):75-76.
- CHIAPPAX-HYPOLITE, C., CHOUX, R., OLMER, H. and TAMALET, M. J. 1970. Multiplication du virus West-Nile dans les cultures cellulaires d'embryon de poulet, observée en microscopie électronique. *Comptes Rendus Sect. D* 270(25):3162-3165.
- DANIELOVÁ, V., MINÁŘ, J. and RYBA, J. 1970. Isolation of Tahyna virus from mosquitoes *Culex annulata* (Schrk. 1776). *Folia Parasitol.* 17(3):281-284.
- DE MARTINEZ SEGOVIA, Z. M. 1970. Effect of dimethylsulfoxide on the infectivity of Aura virus ribonucleic acid. *Brief report. Arch. f. d. Gesamte Virusforsch.* 30(4):397-400.
- DOBOS, P. and FAULKNER, P. 1970. Molecular weight of Sindbis virus ribonucleic acid as measured by polyacrylamide gel electrophoresis. *J. Virology* 61(1):145-147.
- ENJALBERT, L. and COAUTHORS. 1969. Enquête sérologique sur les arbovirus dans les Pyrénées centrales. *Rev. Med. Toulouse* 5(8):655-662. Engl. Sum.
- GAIMADOVICH, S. YA., KRECHETOVA, N. A., Lvova, A. I. and MELNIKOVA, E. E. 1970. Precipitating antigen in the blood of mice infected with arboviruses. *Voprosy Virusologii* 15(3):337-341. In Rus., Engl. Sum.
- GAVRILOV, V. I., LEONTIEVA, N. A. and FADEEVA, L. L. 1970. Chronic infection of continuous cell cultures (RES) caused by Getah arbovirus. *Voprosy Virusologii* 15(3):270-274. In Rus., Engl. Sum.
- GORDON SMITH, C. E. 1970. Studies on arbovirus epidemiology associated with established and developing rice culture. Introduction. *Roy. Soc. Trop. Med. and Hyg. Trans.* 64(4):481-482.
- and COAUTHORS. 1970. Conclusions. *Roy. Soc. Trop. Med. and Hyg. Trans.* 64(4):519-522. [Discussion of five previous papers.]
- GOULD, D. J. and COAUTHORS. 1970. Ecology and control of dengue vectors on an island in the Gulf of Thailand. *J. Med. Ent.* 7(4):499-508.
- HANNOUN, C. 1969. L'actualité des infections à arbovirus. *Gaz. Méd. France* 30:6065-6076. [Includes mosquito-borne viruses.]
- HENDERSON, B. E., KIRYA, G. B. and HEWITT, L. E. 1970. Serological survey for arboviruses in Uganda, 1967-69. *WHO Bul.* 42(5):797-805.
- HERMON, Y., ANANDARAJAH, M. and PAVRI, K. M. 1970. Isolation of dengue type I virus. *Indian J. Med. Res.* 58(2):168-173.
- IGARASHI, A. 1970. Ribonuclease-sensitive infectivity of chikungunya virus from BHK21 cells infected with the virus. *Biken J.* 13(1):39-42.
- , FUKUOKA, T. and FUKAI, K. 1969. Nucleoid structure from BHK21 cells infected with chikungunya virus. *Biken J.* 12(4):245-250.
- JANZEN, H. G., RHODES, A. J. and DOANE, F. W. 1970. Chikungunya virus in salivary glands of *Aedes aegypti* (L.): an electron microscope study. *Canad. J. Microbiol.* 16(7):581-586.
- JIROVEC, O. 1970. Les foyers naturels des maladies parasitaires de l'homme en Europe centrale. *Ann. de Parasitol. Humaine et Compar.* 45(1):147-166. [Includes arboviruses.]
- JOUBERT, J. and COAUTHORS. 1970. Épidémiologie du virus West Nile: étude d'un foyer en Camargue. IV. La méningo-encéphalomyélite du cheval. *Inst. Pasteur Ann.* 118(2):239-247.
- JOUBERT, J. and OUDAR, J. 1969. Les zoonoses arbovirales. Leur présence en France. *Rev. Med. Vet. Toulouse* 120, n.s. 32, (8/9):737-764.

- LIM, L. E., TAN, E. C., CHIACO, M. C. and CASTRO, C. S. 1970. Haemorrhagic fever and cardiac infections. *Far East Med. J.* 6(3):68-71.
- LOMINCZI, B. and BURKE, D. C. 1970. Interferon production by temperature-sensitive mutants of Semliki Forest virus. *J. General Virol.* 8(1): 55-68.
- LVOV, D. K. and LEBEDEV, A. D. 1970. On the evolution of arboviruses. *Voprosy Virusologii* 15 (3):372-376. In Russ., Engl. Sum.
- MÁLKOVÁ, D. 1970. The development of viremia and neutralizing antibodies in the European suslik, fat dormouse and common vole, experimentally infected with the virus Čáhyňa. *Folia Parasitol.* 17(1):85-88.
- MATUMOTO, M. 1969. Mechanism of perpetuation of animal viruses in nature. *Bacteriol. Rev.* 33(3):404-418.
- MOUCHET, J. and COAUTHORS. 1970. Epidemiologie du virus West Nile: étude d'un foyer en Camargue. V. Le vecteur: *Culex modestus* Ficalbi Diptera; Culicidae. *Inst. Pasteur Ann.* 118(6): 839-855.
- NAFICY, K. and SAIDI, S. 1970. Serological survey on viral antibodies in Iran. *Trop. and Geog. Med.* 22(2):183-188.
- NII, S., NAITO, T. and TUCHINDA, P. 1970. Crystalline and lamellar structures in LLCMK2 cell cultures persistently infected with dengue viruses. *Biken J.* 13(1):43-51.
- ROBIN, Y. and BRÈS, P. 1969. Les arbovirus au Sénégal—état actuel. *Soc. Méd. Afr. Noire Lang. Fr. Bul.* 14(4):722-728. Engl. Sum. [Includes mosquito-borne viruses.]
- SARKAR, J. K., GHOSH, J. M., CHATTERJEE, S. N. and CHAKRAVARTY, S. K. 1970. Clinical and virological studies on an outbreak of dengue-like fever. *Indian J. Med. Res.* 58(2):151-154.
- SCHERER, W. F., DICKERMANN, R. W. and ZÁRATE, M. L. 1969. Descubrimiento e identificación en Mexico, del virus Nepuyo, arbovirus del grupo C. *Salud Púb. México* 11(1):39-51.
- SIMPSON, D. I. H. and COAUTHORS. 1970. Arbovirus infections in Sarawak: virus isolations from mosquitoes. *Ann. Trop. Med. and Parasitol.* 64 (2):137-151.
- SURTEES, G., SIMPSON, D. I. H., BOWEN, E. T. W. and GRAINGER, W. E. 1970. Ricefield development and arbovirus epidemiology, Kano Plain, Kenya. *Roy. Soc. Trop. Med. and Hyg. Trans.* 64(4):511-518.
- TAN, K. B. 1970. Electron microscopy of cells infected with Semliki Forest virus temperature-sensitive mutants: correlation of ultrastructural and physiological observations. *J. Virol.* 5(5): 632-638.
- TESH, R. B., PERALTA, P. H. and JOHNSON, K. M. 1970. Ecologic studies of vesicular stomatitis virus. II. Results of experimental infection in Panamanian wild animals. *Amer. J. Epidemiol.* 91(2):216-224. [Under experimental conditions, mosquitoes such as *Aedes aegypti* suspected as possible vectors.]
- WAY, H. J. and GARWES, D. G. 1970. Serum accessory factors in the measurement of arbovirus neutralization reactions. *J. General Virol.* 7(3):211-223.
- See also Dennett et al., Hsu et al. and Virus Research Centre in Techniques Section.
- ### ENCEPHALITIS
- ALLEN, R., TAYLOR, S. K. and SULKIN, S. E. 1970. Studies of arthropod-borne virus infections in Chiroptera. VIII. Evidence of natural St. Louis encephalitis virus infection in bats. *Amer. J. Trop. Med. and Hyg.* 19(5):851-859.
- BENDELL, P. J. E. 1970. Japanese encephalitis in Sarawak: studies on mosquito behaviour in a Land Dayak village. *Roy. Soc. Trop. Med. and Hyg. Trans.* 64(4):497-502.
- CAREY, D. E., MYERS, R. M., REUBEN, R. and WEBB, J. K. G. 1969. Japanese encephalitis in South India. A summary of recent knowledge. *Indian Med. Assoc. J.* 52(1):10-15.
- ERSHOF, F. I., URYVAEV, L. V. and ZHDANOV, V. M. 1970. Synthesis of infectious ribonucleoprotein of arbovirus in subcellular structures. *Voprosy Virusologii* 15(3):322-330. In Russ., Engl. Sum.
- FRANCK, P. T. and JOHNSON, K. M. 1970. An outbreak of Venezuelan encephalitis in man in the Panama Canal Zone. *Amer. J. Trop. Med. and Hyg.* 19(5):860-865.
- HEATHCOTE, O. H. U. 1970. Japanese encephalitis in Sarawak: studies on juvenile mosquito populations. *Roy. Soc. Trop. Med. and Hyg. Trans.* 64(4):483-488.
- HIGGINS, D. A. 1970. A serological survey of pigs in Hong Kong for antibodies to Japanese encephalitis virus. *Trop. Animal Health and Product.* 2(1):23-27.
- HILL, M. N. 1970. Japanese encephalitis in Sarawak: studies on adult mosquito populations. *Roy. Soc. Trop. Med. and Hyg. Trans.* 64(4):489-496.
- HRUSKOVÁ, J., DANĚK, L. and KLIMENT, V. 1970. Influence of the host system on the properties of Venezuelan equine encephalomyelitis virus. *Acta Virol.* 14(4):272-278.
- LIU, C. and COAUTHORS. 1970. A comparative study of the pathogenesis of western and eastern equine encephalomyelitis viral infections in mice by intracerebral and subcutaneous inoculations. *J. Infect. Dis.* 122(1/2):53-63.
- MCINTOCK, J. and COAUTHORS. 1970. Known mosquito hosts of western encephalitis virus in Saskatchewan. *J. Med. Ent.* 7(4):446-454.
- NOVOKHATSKY, A. S. and ERSHOF, F. I. 1970. The factors determining the reproduction of the virus. Report 1. The influence of the infection multiplicity on the reproduction of Venezuelan encephalomyelitis virus. *Voprosy Virusologii* 15 (3):265-269. In Russ., Engl. Sum.
- PATTANAYAK, S. and COAUTHORS. 1969. Epidemics of encephalitis due to unknown aetiology in India and the problem during non-epidemic period. *J. Commun. Diseases* 1(1):1-17. [Mosquito-borne?]

- SIMPSON, D. I. H. and COAUTHORS. 1970. Japanese encephalitis in Sarawak: virus isolation and serology in a Land Dyak village. *Roy. Soc. Trop. Med. and Hyg. Trans.* 64(4):503-510. [Dayak.]
- TOWN, R. J., REE, H. I., LEE, K. W. and SHIN, H. K. 1970. Annual report for 1969 of the Japanese Encephalitis Vector Research Unit. WHO/VBC/70.211, 39 pp.
- UNITA, T. 1969. Ecological studies of Japanese encephalitis virus in Mie Prefecture. I. Viremia in naturally infected pigs and viremic mosquitoes. *Mic Med. J.* 19(1):81-87.
- URYVAEV, L. V. and COAUTHORS. 1970. Sedimentation characteristics of Venezuelan equine encephalomyelitis virus. *Voprosy Virusologii* 15(3):330-336. In Rus., Engl. Sum.
- VENTURA, A. K. and SCHERER, W. F. 1970. Infectivity of nucleic acid and adsorptive properties of Venezuelan encephalitis virions inactivated by lipid solvents. *Soc. Expt. Biol. and Med. Proc.* 134(3):583-590.
- YAMAMOTO, H. A. and COAUTHORS. 1970. Epidemiological analyses of Japanese encephalitis virus spread from mosquitoes to pigs through 5 years. *Jap. J. Med. Sci. and Biol.* 23(2):75-85.
- YAMASHITA, T. and COAUTHORS. 1970. Japanese encephalitis purified vaccine. II. Purity of the mouse brain vaccine purified by ultracentrifugation. *Biken J.* 13(1):25-38.
- ZEBOVITZ, E. and BROWN, A. 1970. Altered viral ribonucleic acid synthesis by a temperature-sensitive mutant of eastern equine encephalitis virus. *J. Molecular Biol.* 50(1):185-198.
- ### FILARIASIS
- ASH, L. R. and RILEY, J. M. 1970. Studies on the successful transmission of *Brugia pahangi* and subperiodic *B. malayi* to the jird, *Meriones unguiculatus*. *J. Parasitol.* 56(4) sect. 2, pt. 1:11.
- BAIN, O. 1969. Developpement larvaire de *Sauvages agamiae hamoni* n. ssp., Eufiliariinae parasite d'agame en Haute-Volta, chez *Anopheles stephensi*. Ann. de Parasitol. Humaine et Compar. 44(5):581-594. Engl. Sum.
- BRENGUES, J., SUBRA, R. and BOUCHITE, B. 1969. Etude parasitologique, clinique et entomologique sur la filariose de Bancroft dans le sud du Dahomey et du Togo. *Ent. Med. et Parasitol. Cah.* 7(4):279-305.
- BUTTS, D. W. 1970. *Dirofilaria immitis* in military dogs—diagnosis, incidence and treatment. *Vet. Med. and Small Animal Clinician* 65(1):48-53.
- CARLISLE, C. H. 1970. The experimental production of heartworm disease in the dog. *Austral. Vet. J.* 46(5):190-194.
- . 1970. Observations on the treatment of *Dirofilaria immitis* infection in dogs in Brisbane. *Austral. Vet. J.* 46(5):185-189.
- DESWITZ, R. S., CHULARERK, P. and PALUMBO, N. E. 1970. Evaluation of a simplified membrane filtration technique for the diagnosis of canine filariasis. *Southeast Asian J. Trop. Med. and Pub. Health* 1(2):231-232.
- EDESON, J. F. B., RIZK, G., SULAHIAN, A. and SCHACHER, J. F. 1970. Lymphangiographic studies on dogs infected with *Brugia pahangi*. *J. Parasitol.* 56(4) sect. 2, pt. 1:89.
- EL-DINE, K. Z. and HABIB, E. 1969. Preliminary studies on filariasis in U. A. R. I. The effect of temperature on the development of *Wuchereria bancrofti* in *Culex pipiens*. *Egypt. Pub. Health Assoc. J.* 44(5):481-485.
- GOONERATNE, B. W. M. 1970. The behaviour of sub-periodic *Brugia malayi*, Buckley and Edeson, in *Anopheles gambiae* Giles and *Aedes aegypti*, Linnaeus. *J. Trop. Med. and Hyg. (London)* 73(7):174-176.
- HARINASUTA, C. and COAUTHORS. 1970. Bancroftian filariasis in Thailand, a new endemic area. *Southeast Asian J. Trop. Med. and Pub. Health* 1(2):233-245.
- and —. 1970. Observations on the six year results of the pilot project for the control of Malayan filariasis in Thailand. *Southeast Asian J. Trop. Med. and Pub. Health* 1(2):205-211.
- HITCHCOCK, J. C., JR. 1970. Evaluation of filariasis mosquito surveys based on the physiological age of the vector. *J. Parasitol.* 56(4) sect. 2, pt. 1:149.
- HUTCHINSON, W. F. and MCNEILL, K. M. 1970. Glycolysis in the adult dog heartworm, *Dirofilaria immitis*. *Compar. Biochem. and Physiol.* 35(3):721-727.
- JACHOWSKI, L. A., JR. 1970. The biology of filarial parasites. *J. Parasitol.* 56(4) sect. 2, pt. 1:165.
- KATAMINE, D., AOKI, Y. and IWAMOTO, I. 1970. Analysis of microfilarial rhythm. *J. Parasitol.* 56(4) sect. 2, pt. 1:181.
- KESSEL, J. F., SILIGA, N., TOMPKINS, H., JR. and JONES, K. 1970. Recent studies on the control of filariasis in American Samoa. *J. Parasitol.* 56(4) sect. 2, pt. 1:185-186.
- KOZEK, W. J. 1970. Ultrastructure of the microfilaria of *Dirofilaria immitis*. *J. Parasitol.* 56(4) sect. 2, pt. 1:192-193.
- KUME, S. and OISHI, I. 1970. Periodicity of microfilariae of *Dirofilaria immitis*. *J. Parasitol.* 56(4) sect. 2, pt. 1:195-196.
- MAEDA, T. and COAUTHORS. 1970. Studies on the fine structures of generative cells and the fertilization mechanism in *Dirofilaria immitis*. *J. Parasitol.* 56(4) sect. 2, pt. 1:223-224.
- MAHDI, A. H. and COAUTHORS. 1969. Bancroftian filariasis in U. A. R., natural, versus differentially restrained dynamics of microfilarial rate patterns, field trial areas, Qualyobiya Governorate, U. A. R. 1963-1966. *Egypt. Pub. Health Assoc. J.* 44(1):47-55.
- MAHDI, A. H., WASSIF, S. F. and GAD, A. M. 1969. Biological studies of *Culex pipiens* in the Nile-Delta. Part I. Screening to filarial infection. *Egypt. Pub. Health Assoc. J.* 44(3):189-192.
- MCGREEVY, P. B., CONRAD, R. D., BULGIN, M. S. and STITZEL, K. A. 1970. Canine filariasis in northern California. *Amer. J. Vet. Res.* 31(7):1325-1328.

- NAIR, C. P. 1969. Filariasis survey of Vaikom municipality in Kerala State. *J. Commun. Diseases* 1(1):59-70.
- PATTANAYAK, S., ARORA, D. D. and DAS, M. 1969. Clinical manifestations, pathogenesis and chemotherapy in filariasis. *J. Commun. Diseases* 1(1):45-53.
- PRICE, D. L. 1970. Evaluation of filariasis control. *J. Parasitol.* 56(4) sect. 2, pt. 2:459-460.
- RIFAAT, M. A., MAHDI, A. H., WASSIF, S. F. and ABO, TALIB, M. I. 1969. Certain studies on *Culex univittatus* in relation to filariasis in the Nile-Delta, U. A. R. Egypt. *Pub. Health Assoc. J.* 44(1):43-46.
- SAWADA, T. and SATO, K. 1969. Studies on skin test antigen FST for immunodiagnosis of filariasis. III. Separation and characterization of FST3-x by isoelectric focusing technique. *Jap. J. Expt. Med.* 39(6):533-539.
- TANAKA, H. and COAUTHORS. 1970. Cross-reactions in complement fixation test among filaria species. *Jap. J. Expt. Med.* 40(1):47-58.
- VILLAVASCO, E. J. and STEELMAN, C. D. 1970. Laboratory and field studies of the southern house mosquito, *Culex pipiens quinquefasciatus* Say, infected with the dog heartworm, *Dirofilaria immitis* (Leidy), in Louisiana. *J. Med. Ent.* 7(4):471-476.
- See also Abdulcader in Adulcicides and Larvicides Section, Intermill et al. and Weiner et al. in Experimental Hosts or Vectors Section.
- ### MALARIA
- AMBROISE-THOMAS, P. 1970. Intérêt de l'immunofluorescence dans le diagnostic, le contrôle post-thérapeutique et la surveillance épidémiologique des parasites. *J. Parasitol.* 56(4) sect. 2, pt. 1:4-5. [Includes malaria.]
- APPLEGATE, J. E. and BEAUDOIN, R. L. 1970. A population approach to the study of relapse of malaria. *J. Parasitol.* 56(4) sect. 2, pt. 1:8-9.
- BEAUDOIN, R. L., APPLEGATE, J. E., DAVIS, D. E. and MCLEAN, R. G. 1970. A model for the ecology of avian malaria. *J. Parasitol.* 56(4) sect. 2, pt. 1:25.
- BEAUDOIN, R. L., KOCAN, R. M. and APPLEGATE, J. E. 1970. A hierarchy of host susceptibility in the epizootiology of malaria. *J. Parasitol.* 56(4) sect. 2, pt. 1:26.
- BEAUDOIN, R. L. and STROME, C. P. A. 1970. Cultivation of exoerythrocytic stages of malaria. *J. Parasitol.* 56(4) sect. 2, pt. 1:26-27.
- BROWN, R. E., WILKS, N. E. and ALLEN, D. M. 1970. Health survey of primary schoolchildren in Uganda: incidence of anaemia, splenomegaly, hookworm and malaria. *East Afr. Med. J.* 47(6): 302-318.
- BRUCE-CHWATT, L. J. 1970. Acute malaria in newborn infants. *Brit. Med. J.* 5717:283.
- . 1970. Seroepidemiology of malaria. *J. Parasitol.* 56(4) sect. 2, pt. 3:552-555.
- COLWELL, E. J., LEGTERS, L. J. and FIFE, E. H., JR. 1970. Splenomegaly and malaria in the Central Highlands of South Vietnam. *Amer. J. Trop. Med. and Hyg.* 19(5):741-746.
- DESCHIENS, R. 1970. Les lacs de retenue des grands barrages dans les régions chaudes et tropicales, leur incidence sur les endémies parasitaires. *Soc. de Path. Exot. Bul.* 63(1):35-51. Engl. Sum. [Malaria included.]
- DESOWITZ, R. S. 1970. Some aspects of immunodiagnosis of parasitic infections as an epidemiological tool. *J. Parasitol.* 56(4) sect. 2, pt. 1:75-76. [Malaria included.]
- DIKE, A. E. 1970. Two cases of transfusion malaria. *Lancet* 7663:72-73.
- EZELO, G. C. 1970. Sickle-cell trait frequency in Zambia. *Trop. and Geog. Med.* 22(2):189-197. [In connection with malaria.]
- FASAN, P. O. 1969. Malaria in the school children of Lagos City and Lagos State. *West Afr. Med. J.* 18(5):176-180.
- GARNHAM, P. C. C. 1970. The role of the spleen in protozoal infections with special reference to splenectomy. *Acta Tropica* 27(1):1-14.
- GILROY, A. B. 1970. Increasing malaria during an eradication programme. A study on the tea estates in Assam, 1964-68. *Roy. Soc. Trop. Med. and Hyg. Trans.* 64(4):555-561.
- ITAGAKI, K. 1970. On avian malaria in Japan. *J. Parasitol.* 56(4) sect. 2, pt. 1:164.
- KAGAN, I. G. and MATHEWS, H. M. 1970. Application of the indirect hemagglutination test for the study of the epidemiology of malaria. *J. Parasitol.* 56(4) sect. 2, pt. 2:433-434.
- KAGWA-NYANZI, J. A. 1970. Causes of death among sickle cell anaemia patients at Mulago Hospital, Kampala, Uganda. *East Afr. Med. J.* 47(6):337-343. [Malaria included.]
- KIBUKAMUSOKE, J. W. and VOLLMER, A. 1970. Serological studies on nephrotic syndrome of quartan malaria in Uganda. *Brit. Med. J.* 5693: 406-407.
- KRUTRACHUE, M. and HARINASUTA, T. 1970. Erythrocyte morphology in blackwater fever. *Ann. Trop. Med. and Parasitol.* 64(1):73-77.
- KRUTRACHUE, M., SADUDEE, N. and SRIRIPANICH, B. 1970. Glucose-6-phosphate-dehydrogenase-deficiency and malaria in Thailand: the comparison of parasite densities and mortality rates. *Ann. Trop. Med. and Parasitol.* 64(1):11-14.
- MCCARTHY, J. S., FURNER, R. L., VAN DYKE, K. and STITZEL, R. E. 1970. Effects of malarial infection on host microsomal drug-metabolizing enzymes. *Biochem. Pharmacol.* 19(4):1341-1349.
- MERCADO, T. I. 1970. Does stress influence artificially-induced metastatic calcification in experimental malaria and trypanosomiasis? *J. Parasitol.* 56(4) sect. 2, pt. 1:236.
- OGLIVIE, B. M. 1970. Immunoglobulin responses in parasitic infections. *J. Parasitol.* 56(4) sect. 2, pt. 3:525-534. [Includes malaria.]

- OKEKE, N. E. 1970. Acute malaria in newborn infants. *Brit. Med. J.* 5714:108.
- PRESTON, P. G. 1970. Acute malaria in newborn infants. *Brit. Med. J.* 5717:283.
- RAHMAN, M. and COAUTHORS. 1968. A detailed study of malaria situation in Karachi during September and October 1966. *Pakistan J. Health* 17(1/4):85-104. [Date on volume 17 is 1967-1968.]
- SHERMAN, I. W. 1970. Carbohydrate metabolism in malaria: investigations using  $^{14}\text{C}$ -organic acids. *J. Parasitol.* 56(4) sect. 2, pt. 2:471.
- SRICHAIKUL, T. and COAUTHORS. 1969. Ferrokinetic studies and erythropoiesis in malaria. *Arch. Internal Med.* 124(5):623-628.
- WANG, C. C. 1970. Preservation of unstained blood films. *Roy. Soc. Trop. Med. and Hyg. Trans.* 64(4):648-649.
- Malaria—Cerebral**
- BEALE, P. J. and CONI, N. K. 1970. Cerebral malaria. *Ann. Trop. Med. and Parasitol.* 64(2):243-247.
- MILLER, L. H., CHIEN, S., LUSE, S. A. and FREMONT, H. N. 1970. Red-cell disease in the pathogenesis of cerebral malaria. *J. Parasitol.* 56(4) sect. 2, pt. 1:238.
- Malaria—Eradication**
- BRUCE-CHWATT, L. J. 1969. La recherche scientifique au service de l'éradiation du paludisme. *Méd. Trop. (Marseille)* 29(2):129-150.
- . 1970. Malaria eradication and chemotherapy in tropical Africa. *J. Parasitol.* 56(4) sect. 2, pt. 2:405.
- DRANGA, A. C., MARINOV, R. P. and MIHAI, M. V. 1970. Considérations sur les aspects particuliers de la phase d'entretien de l'éradiation du paludisme en Roumanie: II. Les porteurs d'anticorps fluorescents et leur signification. *J. Parasitol.* 56(4) sect. 2, pt. 2:418.
- DRANGA, A. C., MARINOV, R. P., SMOLINSCHI, M. I. and MIHAI, M. V. 1970. Considérations sur les aspects particuliers de la phase d'entretien de l'éradiation du paludisme en Roumanie: I. L'état d'immunité au plaudisme de la population. *J. Parasitol.* 56(4) sect. 2, pt. 2:417-418.
- LAZZARA, A. and PRILO, A. 1969. Considerazioni circa il futuro assetto dei Comitati Provinciali Antimalarici in fase di mantenimento della eradicazione ed in relazione alla lotta control gli insetti di interesse medico-igienistico. Igiene e Sanita Pubblica (Rome) 25(7/8):344-354. Engl. Sum.
- See also Gilroy in Malaria Section.
- Malaria—Immunology**
- AMBROISE-THOMAS, P., KIEN TRUONG, T. and SALIOU, P. 1970. Evolution des anticorps fluorescents au cours du paludisme expérimental des singes à *Plasmodium cynomolgi bastianellii*. WHO/MAL/70.724, 17 pp.
- BARKER, L. R. 1970. Increased production of heterophile antibody during a malaria infection. *J. Parasitol.* 56(4) sect. 2, pt. 1:21.
- BRIGGS, N. T., WELLDE, B. T. and SADUN, E. H. 1970. Treatment of malarial infections with homologous and heterologous antisera. *J. Parasitol.* 56(4) sect. 2, pt. 1:35.
- BROWN, K. N. 1970. Cell mediated protective immunity in trypanosomiasis and malaria. *J. Parasitol.* 56(4) sect. 2, pt. 1:36-37.
- , BROWN, I. N. and PHILLIPS, R. S. 1970. Immunity to chronic malaria infection: studies with *Plasmodium knowlesi*. *J. Parasitol.* 56(4) sect. 2, pt. 1:37.
- BROWN, K. N., PHILLIPS, R. S., BROWN, I. N. and TRIGG, P. I. 1970. Immunity to malaria: a sterilising immune response in monkeys vaccinated against *P. knowlesi* infection. *J. Parasitol.* 56(4) sect. 2, pt. 1:37-38.
- CAPRON, A. R. 1970. L'antigène parasitaire structure et fonction. *J. Parasitol.* 56(4) sect. 2, pt. 3:515-521. [Includes *Plasmodium*.]
- COX, F. E. G. and TURNER, S. A. 1970. Antibody levels in mice infected with *Plasmodium berghei yoelii*. *Ann. Trop. Med. and Parasitol.* 64(2):175-180.
- and —. 1970. Serological changes during the acquisition of immunity to *Plasmodium vinckei* in mice. *Ann. Trop. Med. and Parasitol.* 64(1):53-61.
- DESOWITZ, R. S. 1970. Antiparasitic mechanisms in parasitic infections. *J. Parasitol.* 56(4) sect. 2, pt. 3:521-525. [Includes *Plasmodium*.]
- FINERTY, J. F., EVANS, C. B. and TOBIE, J. E. 1970. Immunoglobulin and antibody synthesis in BALB/c, C57BL/6, and NIH-white mice infected with *Plasmodium berghei*. *J. Parasitol.* 56(4) sect. 2, pt. 1:99.
- GARIN, J. P., AMBROISE-THOMAS, P., KIEN TRUONG, T. and SALIOU, P. 1970. Evaluation des anticorps fluorescents au cours du paludisme humain par malaritherapie à *Plasmodium vivax*. WHO/MAL/70.725, 19 pp. Engl. Sum.
- GRAHAM, H. A., STAUBER, L. A. and PALCZUK, N. C. 1970. Studies on immunity to exoerythrocytic and erythrocytic stages of *Plasmodium fallax* in turkeys. *J. Parasitol.* 56(4) sect. 2, pt. 1:123-124.
- JAHIEL, R. I., VILCEK, J. and NUSSENZWEIG, R. S. 1970. Exogenous interferon protects mice against *Plasmodium berghei* malaria. *Nature (London)* 227(5265):1350-1351.
- KRETSCHMAR, W. 1970. Acquired protective immunity in rodent malaria after interference with the lymphatic system. *J. Parasitol.* 56(4) sect. 2, pt. 2:437-438.
- LOURIE, S. H. 1970. Studies on immunosuppression in rodent malaria. *J. Parasitol.* 56(4) sect. 2, pt. 2:443.
- LUPASCU, GH. and COAUTHORS. 1970. Variation of lysosomal enzymes activity in the course of administration of purified *Plasmodium berghei* antigen. *J. Parasitol.* 56(4) sect. 2, pt. 2:444.
- MATHEWS, H. M., FISHER, G. U. and KAGAN, I. G. 1970. The persistence of malaria antibody

in Tobago, West Indies, following eradication as measured by the indirect haemagglutination test. WHO/MAL/70.722, 9 pp.

McFARLANE, H., WILLIAMS, A. I. O., ADESHINA, H. A. and AKENE, J. 1970. Development of immunoglobulins and malarial antibodies in Nigerians. *Trop. and Geog. Med.* 22(2):198-200.

MCGHEE, R. B. 1970. The role of erythrocyte immunity in distribution of *Plasmodium* of birds. *J. Parasitol.* 56(4) sect. 2, pt. 1:230-231.

SCHINDLER, R., SCHRÖDER, G. and STIEGER, R. 1970. Studies on immunity and serological reactions in monkeys infected with *Plasmodium cynomolgi* *bastianelli*. *Z. f. Tropenmed. u. Parasitol.* 21(3):239-245. In Ger., Engl. Sum.

SOULSBY, E. J. L. 1970. Cell mediated immunity in parasitic infections. *J. Parasitol.* 56(4) sect. 2, pt. 3:534-547. [Includes malaria.]

STECHSCHULTE, D. J., WELLDE, B. T. and BRIGGS, N. T. 1970. Acquired immunity in rats infected with *Plasmodium berghei*. *J. Parasitol.* 56(4) sect. 2, pt. 2:473.

VAN DIJCK, P. J., CLAESSEN, M. and DE SOMER, P. 1970. Effect of polyacrylic acid on experimental malaria and trypanosomiasis in mice. *Ann. Trop. Med. and Parasitol.* 64(1):5-9.

WELLS, J. V. 1970. Immunological studies in tropical splenomegaly syndrome. *Roy. Soc. Trop. Med. and Hyg. Trans.* 64(4):531-546. [In connection with malaria.]

WILSON, M. and COAUTHORS. 1970. Comparison of the indirect fluorescent antibody and indirect haemagglutination tests for malarial antibody. WHO/MAL/70.707, 6 pp.

WILSON, R. J. M. 1970. Antigens and antibodies associated with *Plasmodium falciparum* infections in West Africa. *Roy. Soc. Trop. Med. and Hyg. Trans.* 64(4):547-554.

#### *Malaria—Plasmodia*

ADAM, J. P. and LANDAU, I. 1970. *Plasmodium voltaicum* au Congo-Brazzaville. *J. Parasitol.* 56(4) sect. 2, pt. 2:391-392.

AIKAWA, M. 1970. Fine structure of *Plasmodium* spp. *J. Parasitol.* 56(4) sect. 2, pt. 1:2-3.

\_\_\_\_\_. 1970. Fine structure of the pellicle of *Plasmodium* and related organisms. *J. Parasitol.* 56(4) sect. 2, pt. 1:3.

ARCAY-DE-PERAZA, L. and ERCOLI, N. 1970. Influence of nonspecific agents on *P. berghei* infection. *J. Parasitol.* 56(4) sect. 2, pt. 2:393.

ARNOLD, J. D. 1970. Some mechanisms of entrainment of *P. berghei* to the photoperiodic rhythm. *J. Parasitol.* 56(4) sect. 2, pt. 1:10.

BAFORT, J. 1970. The variability of *Plasmodium berghei* Vincke and Lips 1948. *Soc. Belges de Med. Trop. Ann.* 50(2):247-262.

BAFORT, J. M. 1970. On the fine structure of *Plasmodium v. vincke*. *J. Parasitol.* 56(4) sect. 2, pt. 1:15.

\_\_\_\_\_. 1970. *P. berghei* and *P. vincke* in the

field and in the laboratory. *J. Parasitol.* 56(4) sect. 2, pt. 1:14.

\_\_\_\_\_. and HOWELLS, R. E. 1970. Electron microscope studies on the pre-erythrocytic stages of rodent malaria. *Roy. Soc. Trop. Med. and Hyg. Trans.* 64(4):467.

BAKER, J. R. 1970. Fine structure of *Plasmodium* in relation to locomotion. *J. Parasitol.* 56(4) sect. 2, pt. 1:16-17.

BENNETT, G. F. 1970. Gallinaceous species of *Plasmodium*. *J. Parasitol.* 56(4) sect. 2, pt. 1:27.

BLACKBURN, W. R. and VINIJCHAUK, K. 1970. Experimental mammalian malaria. I. The asexual development of *Plasmodium berghei* trophozoites in inbred mice. *Lab. Investig.* 22(5): 417-431.

CORRADETTI, A. 1970. Lines of experimental selection in plasmodia and their relation to spontaneous speciation in nature. *J. Parasitol.* 56(4) sect. 2, pt. 2:411-412.

\_\_\_\_\_. 1970. *Plasmodium* species of wild birds in Italy. *J. Parasitol.* 56(4) sect. 2, pt. 2:412-413.

DESSER, S. S., FALLIS, A. M. and KHAN, R. A. 1970. Blood parasites of birds in Algonquin Park. *J. Parasitol.* 56(4) sect. 2, pt. 1:78. [Includes *Plasmodium*.]

EBERT, F. 1970. Effects of *Leishmania donovani* infection on the course of *Plasmodium vincke* infection in the mouse. *Z. f. Tropenmed. u. Parasitol.* 21(3):252-260. In Ger., Engl. Sum.

EICHLER, W. 1970. Outline of Egyptian medical parasitology. *Inst. Marine Med. Gdańsk Bul.* 21(1/2):83-88. [Includes *Plasmodium vivax*.]

GARNHAM, P. C. C. 1970. Taxonomic problems in the Haemosporidia. *J. Parasitol.* 56(4) sect. 2, pt. 1:113-114.

HAWKING, F. 1970. Circadian and other rhythms of parasites. *J. Parasitol.* 56(4) sect. 2, pt. 1:138-139. [Includes *Plasmodium*.]

\_\_\_\_\_. and GAMMAGE, K. 1970. Propagation of *Plasmodium berghei* and *P. vincke* in mouse erythrocytes injected into chick embryos. *Parasitology* 61(1):65-70.

HOWELLS, R. E. 1970. Mitochondrial changes during the life cycle of *Plasmodium berghei*. *Ann. Trop. Med. and Parasitol.* 64(2):181-187.

KATZ, F. F., DOORIS, G. M., KOVER, A. J. and DE PROSPY, N. D. 1970. The effects of a combination of a progestin and estrogen (Enovid<sup>R</sup>) on *Plasmodium berghei* parasitemias in male and female rats. *J. Parasitol.* 56(4) sect. 2, pt. 1:182-183.

KILICK-KENDRICK, R. 1970. The life-cycles of two murine malaria parasites from Nigeria. *J. Parasitol.* 56(4) sect. 2, pt. 2:435-436.

KRETSCHMAR, W. 1970. The role of dietary factors in *Plasmodium berghei* and *P. vincke* infections of the mouse. *J. Parasitol.* 56(4) sect. 2, pt. 2:437.

LAINSON, R., SHAW, J. J. and HUMPHREY, P. S. 1970. Preliminary survey of blood-parasites of birds of the area de pesquisas ecológicas do

Guamá, Belém, Pará, Brasil. J. Parasitol. 56(4) sect. 2, pt. 1:197-198. [Plasmodium included.]

MANWELL, R. D. 1970. Human factors in the epizootiology of avian blood parasites. J. Parasitol. 56(4) sect. 2, pt. 1:225-226. [Includes Plasmodium.]

MESZOELY, C. A. M. and BAHR, G. F. 1970. Ultrastructural studies of *Plasmodium gallinaceum*. J. Parasitol. 56(4) sect. 2, pt. 1:236-237.

ONABANJO, A. O. and MAEGRAITH, B. G. 1970. Inflammatory changes in small blood vessels induced by kallikrein (kininogenase) in the blood of *Macaca mulatta* infected with *Plasmodium knowlesi*. Ann. Trop. Med. and Parasitol. 64(2): 227-236.

ORFILA, J., AMBROISE-THOMAS, P., DECAUDAVINE, E. and KINE TRUONG, T. 1970. Paludisme de la souris blanche à *Plasmodium berghei* influence de la splenectomie et du régime lacté sur les anticorps. J. Parasitol. 56(4) sect. 2, pt. 1:254.

READ, C. P. 1970. Some physiological and biochemical aspects of host-parasite relations. J. Parasitol. 56(4):643-652. [Includes Plasmodium.]

SALAMAN, M. H. and WEDDERBURN, N. 1970. The interaction of *P. berghei* *yoolii* infection in mice with murine oncogenic viruses. Roy. Soc. Trop. Med. and Hyg. Trans. 64(4):469.

SCORZA, J. V. 1970. Unpigmented gametocytes of *Plasmodium (Sauramoeba) tropiduri* in thrombocytes of *Tropidurus torquatus* (Iguanidae). J. Parasitol. 56(4) sect. 2, pt. 2:470.

SKELTON, F. S., RIETZ, R. J. and FOLKERS, K. 1970. Coenzyme Q. CXXII. Identification of ubiquinone-8 biosynthesized by *Plasmodium knowlesi*, *P. cynomolgi*, and *P. berghei*. J. Medicinal Chem. 13(4):602-606.

SODEMAN, T., SCHNITZER, B., DURKEE, T. and CONTACOS, P. 1970. Fine structure of the exocytotoxic stage of *Plasmodium cynomolgi*. Science 170(3955):340-341.

THEAKSTON, R. D. G., FLETCHER, K. A. and MAEGRAITH, B. G. 1970. The use of electron microscope autoradiography for examining the uptake and degradation of haemoglobin by *Plasmodium berghei*. Ann. Trop. Med. and Parasitol. 64(1):63-71.

TRAGER, W. 1970. Recent progress in some aspects of the physiology of parasitic Protozoa. J. Parasitol. 56(4):627-633. [Includes Plasmodium.]

YOUNG, M. D., BAERG, D. C. and ROSSAN, R. N. 1970. Observations on *Plasmodium falciparum* infections in new world monkeys. J. Parasitol. 56(4) sect. 2, pt. 2:485-486.

See also Chao in Behavior, Biology and Ecology Section, Granz et al. and Nussenzweig et al. in Techniques Section.

#### Malaria—Simian

DEANE, L. M., D'ANDRETTA, C., JR. and KAMEYAMA, I. 1970. Malária simiana no Brasil central: encontro do *Plasmodium brasiliense* em Guariba

do Estado de Mato Grosso. Inst. Med. Trop. São Paulo Rev. 12(2):144-148. Engl. Sum.

DISSANIKE, A. S. 1970. Life cycles of simian malaria parasites in Ceylon and India. J. Parasitol. 56(4) sect. 2, pt. 1:81.

FERREIRA-NETO, J. A., DEANE, L. M. and CARNEIRO, W. B. 1970. Natural infection of rufous-handed howler-monkeys, *Alouatta belzebul belzebul* (L., 1766), with *Plasmodium brasiliense* Gonder and Berenberg-Gossler, 1908, in the State of Maranhão, Brazil. Inst. Med. Trop. São Paulo Rev. 12(3):169-174. In Por., Engl. Sum.

NUSSENZWEIG, R. S., VANDERBERG, J., MOST, H. and ORTON, C. 1970. Immunity in simian malaria induced by irradiated sporozoites. J. Parasitol. 56(4) sect. 2, pt. 1:252.

ONABANJO, A. O. and MAEGRAITH, B. G. 1970. Pathological lesions produced in the brain by kallikrein (kininogenase) in *Macaca mulatta* infected with *Plasmodium knowlesi*. Ann. Trop. Med. and Parasitol. 64(2):237-242.

#### Malaria—Therapeutics and Antimalarials

ANDERSEN, K. K., BHATTACHARYYA, J. and MUKHOPADHYAY, S. K. 1970. Antimalarial sulfilimines and sulfoximines related to diaminodiphenyl sulfoxide and sulfone. J. Medicinal Chem. 13(4):759-766.

AVIADO, D. M., SADAVONGVIVAD, C. and CAMPBELL, P. 1970. Cardiopulmonary effects of antimalarial drugs. I. 4-aminoquinolines: chloroquine quinetholate. Toxicol. and Appl. Pharmacol. 17(1):107-117.

CENEDELLA, R. J., SAXE, L. H. and VAN DYKE, K. 1970. An automated method of mass drug testing applied to screening for antimalarial activity. Chemotherapy 15(3):158-176.

CLYDE, D. F. and COAUTHORS. 1970. Diformyl diaminodiphenyl sulfone (DFD) as an antimalarial in man. Military Med. 135(7):527-536.

DANN, O. and FINK, E. 1970. New antimalarial 6-aminoquinolines: results of screening for schizontocidal and causal prophylactic activity against rodent and avian malaria (*P. vinckei*, *P. berghei*, and *P. cathemerium*). J. Parasitol. 56(4) sect. 2, pt. 2:414.

FINK, E. and KRETSCHMAR, W. 1970. Chemotherapy of *Plasmodium vinckei* infection in mice: a simplified test for primary drug screening. J. Parasitol. 56(4) sect. 2, pt. 1:99-100.

GREGORY, K. G. and PETERS, W. 1970. The chemotherapy of rodent malaria, IX. Causal prophylaxis, part 1: a method for demonstrating drug action on exo-erythrocytic stages. Ann. Trop. Med. and Parasitol. 64(1):15-24.

GUTTERIDGE, W. E. and TRIGG, P. I. 1970. Presence of dihydrofolate reductase in *Plasmodium knowlesi* and effects of pyrimethamine and related drugs against the enzyme in a cell-free system and against the intact organism in culture. J. Parasitol. 56(4) sect. 2, pt. 1:132.

HEINDEL, N. D. and FINE, S. A. 1970. Syn-

thesis and antimalarial activity of 4-amino-benzo[*b*]-1,5-naphthyridines. *J. Medicinal Chem.* 13(4):760-762.

HOWELLS, R. E., PETERS, W. and FULLARD, J. 1970. The chemotherapy of rodent malaria, XIII. Fine structural changes observed in the erythrocytic stages of *Plasmodium berghei* following exposure to primaquine and me noc tone. *Ann. Trop. Med. and Parasitol.* 64(2):203-207.

KUSNECOV, R., STOREY, J. and LIETAERT, P. 1970. Study on the effect of four different types of single dose administration with chloroquine and with chloroquine and pyrimethamine on *Plasmodium falciparum* infections in a semi-immune population in Northern Nigeria. WHO/MAL/70. 723, 8 pp.

LAING, A. B. G. 1970. Studies on the chemotherapy of malaria. I. The treatment of overt *falciparum* malaria with potentiating combinations of pyrimethamine and sulphormethoxine or dapsone in The Gambia. II. Pyrimethamine resistance in The Gambia. *Roy. Soc. Trop. Med. and Hyg. Trans.* 64(4):562-568; 569-580.

LANTZ, C. and VAN DYKE, K. 1970. A new system for studying anti-nucleic-acid effects of drugs on biochemically active erythrocyte free malarial parasites. *J. Parasitol.* 56(4) sect. 2, pt. 1:200.

MATSUO, S., RUIZ, R., SMITH, J., JR. and AVIADO, D. M. 1970. Cardiopulmonary effects of antimalarial drugs. III. Diaminopyrimidines: trimethoprim (WR 5949) and 5-piperonyl-2,4-diaminopyrimidine (WR 40,070). *Toxicol. and Appl. Pharmacol.* 17(1):130-150.

NEUMAYER, J. L. and WEINHARDT, K. K. 1970. Isoquinolines. I. 3-amino and 3-fluoroisoquinoline derivatives as potential antimalarials. *J. Medicinal Chem.* 13(4):613-616.

PETERS, W. 1970. The chemotherapy of rodent malaria, XII. Substituted tetrahydrofurans, a new chemical family of antimalarials. The action of 2-(*p*-chlorophenyl)-2-(4-piperidyl)-tetrahydrofuran against *Plasmodium berghei* and *Plasmodium chabaudi*. *Ann. Trop. Med. and Parasitol.* 64(2):189-202.

RUIZ, R., BELEJ, M. and AVIADO, D. M. 1970. Cardiopulmonary effects of antimalarial drugs. II. Phenanthrenemethanols. *Toxicol. and Appl. Pharmacol.* 17(1):118-129.

RYLEY, J. F. and PETERS, W. 1970. The antimalarial activity of some quinolone esters. *Ann. Trop. Med. and Parasitol.* 64(2):209-222.

VAN DYKE, K., SZUSTKIEWICZ, C., CENEDELLA, R. and SAXE, L. H. 1970. A unique antinucleic acid approach to the mass screening of antimalarial drugs. *Cancer Chemotherapy* 15(3):177-188.

WITTELS, B. 1970. Modification of phospholipid metabolism in human red cells by primaquine. A possible mechanism in drug-induced hemolysis. *Biochimica et Biophysica Acta* 210(1):74-85.

mepacrine resistance in rodent malaria. *Roy. Soc. Trop. Med. and Hyg. Trans.* 64(4):467-468.

GREWAL, M. S. 1970. A drug resistant strain of *Plasmodium vivax*. *J. Parasitol.* 56(4) sect. 2, pt. 2:426.

HANSON, W. L., BAYLES, A. and THOMPSON, P. E. 1970. Factors influencing the course of infection of chloroquine-and sulfone-resistant *Plasmodium berghei* in CF-1 albino mice. *J. Parasitol.* 56(4) sect. 2, pt. 1:135-136.

HAWKING, F. 1970. Drug resistance in malaria parasites. *J. Parasitol.* 56(4) sect. 2, pt. 1:140-141.

HOWELLS, R. E. 1970. Cytochrome oxidase activity in a normal and some drug-resistant strains of *Plasmodium berghei*—a cytochemical study. II.—Sporogonic stages of a drug-sensitive strain. *Ann. Trop. Med. and Parasitol.* 64(2):223-225.

JACOBS, R. L. and KOONTZ, L. C. 1970. The stability of chloroquine resistance in *Plasmodium berghei*. *J. Parasitol.* 56(4) sect. 2, pt. 1:165-166.

PETERS, W. 1970. The chemotherapy of rodent malaria, X. Dynamics of drug resistance, part 2: acquisition and loss of chloroquine resistance in *Plasmodium berghei* observed by continuous bioassay. *Ann. Trop. Med. and Parasitol.* 64(1):25-40.

—, BAFTON, J. and RAMKARAN, A. E. 1970. The chemotherapy of rodent malaria, XI. Cyclically transmitted, chloroquine-resistant variants of the Keyberg 173 strain of *Plasmodium berghei*. *Ann. Trop. Med. and Parasitol.* 64(1):41-51.

RABINOVICH, S. A. 1970. Morphological and biological features of *Plasmodium berghei* strains with "acquired" resistance to drugs with various mechanisms of action. *J. Parasitol.* 56(4) sect. 2, pt. 2:460-461.

See also Laing in *Malaria—Therapeutics and Antimalarials* Section.

#### *Malaria—Vectors*

CABRERA, B. D., RAMOS, O. L. and CRUZ, I. T. 1970. Malaria transmission by *Anopheles litoralis* King, a salt-water breeder, in Pangutaran, Sulu, Republic of the Philippines. *Southeast Asian J. Trop. Med. and Pub. Health* 1(2):193-204.

DEANE, L. M., FERREIRA NETO, J. A., DEANE, M. P. and SILVEIRA, I. P. S. 1970. *Anopheles (Kerteszia) cruzi*, a natural vector of the monkey malaria parasites, *Plasmodium simium* and *Plasmodium brasiliense*. *Roy. Soc. Trop. Med. and Hyg. Trans.* 64(4):647.

SPENCER, M. 1969. Sporozoite rate in *Anopheles farauti* Laveran related to types of catch and seasonal conditions. *Linn. Soc. N. S. Wales Proc.* 94(1):100-104.

#### *YELLOW FEVER*

ALVAREZ, GUTIÉRREZ, R. and NERI, R. 1969. Situación sanitaria de America Latina. II. Salud

#### *Malaria—Antimalarials—Resistance*

GREGORY, K. G. 1970. Rapid production of

Pub. México 11(1):11-36. [Includes malaria and yellow fever.]

BRES, P. 1969. Surveillance épidémiologique de la fièvre jaune. Afrique Med. (Dakar) 8(73): 685-686.

HENDERSON, B. E., METSALAAR, D., KIRYA, G. B. and TIMMS, G. L. 1970. Investigations into yellow fever virus and other arboviruses in the northern regions of Kenya. WHO Bul. 42(5): 787-795.

MOUCHET, J. 1970. Survey of the potential vectors of yellow fever in Tanzania. WHO/VBC/70.209, 12 pp.

WOLFF, H. L., CROON, J. J. A. B., PORTERFIELD, J. S. and DE MADRID, A. T. 1970. Yellow fever neutralization tests carried out on blood samples collected on filter paper strips. Roy. Soc. Trop. Med. and Hyg. Trans. 64(4):474.

#### EXPERIMENTAL HOSTS OR VECTORS

AYALA, S. C. 1970. *Plasmodium mexicanum* in California: natural history and development in phlebotomine sandflies (Diptera:Psychodidae). J. Parasitol. 56(4) sect. 2, pt. 1:13.

BAIN, O. 1970. Morphological study of larval evolution of *Foleyella candexei* in *Anopheles stephensi* and *Aedes aegypti*. Ann. de Parasitol. Humaine et Compar. 45(1):21-30.

BOODEN, T., CHAO, J. and BALL, G. H. 1970. Transfer of *Hepatazoon* sp. from *Boa constrictor* to a lizard, *Anolis carolinensis*, by mosquito vectors. J. Parasitol. 56(4):832-833.

BRAM, R. A. and ROBY, T. O. 1970. Attempts to transmit bovine anaplasmosis with *Anopheles quadrimaculatus* Say (Diptera:Culicidae) and *Dermacentor andersoni* Stiles (Acarina:Ixodidae). J. Med. Ent. 7(4):481-484.

BRENGUES, J., GIDEL, R. and RODHAIN, F. 1969. Recherches sur *Setaria labiata-papillosa* (Perroncito, 1882) en Afrique Occidentale. I—Vecteurs naturels et vecteur expérimental, étude des variations de la microfilarémie, infestations d'hôtes anormaux. Ann. de Parasitol. Humaine et Compar. 44(5):625-639. Engl. Sum. [*Aedes aegypti* experimental vector.]

DEGIUSTI, D. L. 1970. Additional studies on the life cycle of *Haemoproteus metchnikovi* from the turtle, *Chrysemys picta marginata*. J. Parasitol. 56(4) sect. 2, pt. 1:70-71. [*Aedes canadensis* involved.]

HERMAN, C. M. and KOCAN, R. M. 1970. Occurrence of *Plasmodium* in Anatidae. J. Parasitol. 56(4) sect. 2, pt. 1:143.

INTERMILL, R. W. and FREDERICK, R. M. 1970. A study of potential mosquito vectors of *Dirofilaria immitis* Leidy, on Okinawa, Ryukyu Islands. J. Med. Ent. 7(4):455-461.

JORDAN, H. B. 1970. Asexual reproduction of *Plasmodium floridense* in *Anolis carolinensis*. J. Parasitol. 56(4) sect. 2, pt. 1:176.

WEINER, D. J. and BRADLEY, R. E. 1970. Ability of some mosquitoes to transmit *Dirofilaria*

*immitis* in Florida. Mosquito News 30(3):406-410.

See also Tesh et al. in Arbovirus Section.

#### LIGHT AND OTHER TRAP STUDIES

FURLOW, B. M. and YOUNG, W. M. 1970. Larval surveys compared to ovitrap surveys for detecting *Aedes aegypti* and *Aedes triseriatus*. Mosquito News 30(3):468-470.

HOLZAPFEL, E. P., TSUDA, D. M. and HARRELL, J. C. 1970. Trapping of airborne insects in the Antarctic area (part 3). Pacific Insects 12(1): 133-156. [Culicidae captured but genera and species not listed.]

MATTHEWS, R. W. and MATTHEWS, J. R. 1970. Malaise trap studies of flying insects in a New York State mesic forest. I. Ordinal composition and seasonal abundance. N. Y. Ent. Soc. J. 78(1): 52-59. [Malaise trap caught only a few mosquitoes.]

MINSON, K. L., GRAHAM, J. E. and COLLETT, G. C. 1970. A comparison of light traps and larval surveys to measure mosquito abundance. Mosquito News 30(3):474-476.

STRYKER, R. B. and YOUNG, W. W. 1970. Effectiveness of carbon dioxide and L(+) lactic acid in mosquito light traps with and without light. Mosquito News 30(3):388-393.

#### LITERATURE REFERENCES AND REVIEWS

CARPENTER, S. J. 1970. Review of recent literature on mosquitoes of North America. Supplement I. Calif. Vector Views 17(6):39-65. [Includes taxonomy, distribution and bionomics, 1967-1969.]

DUKHANINA, N. N. 1970. Soviet literature on problems of medical parasitology and parasitic diseases in 1969. Med. Parazit. i Parazit. Bolezni 39(3):372-377. In Rus. [Includes mosquitoes.]

SOLLERS-RIEDEL, H. 1970. Literature references to mosquitoes and mosquito-borne diseases. Mosquito News 30(3):485-499.

#### BIOGRAPHY AND HISTORY

JANSSENS, P. G. 1970. Nicolaas Hendrik Swelengrebel 1885-1970. Soc. Belges de Med. Trop. Ann. 50(2):263-266.

MOSQUITO NEWS. 1970. Fred C. Bishopp. Mosquito News 30(3):478-479.

#### BOOKS

AULT, P. 1970. Wonders of the mosquito world. 64 pp., New York. Dodd, Mead and Co.

CHAPMAN, R. F. 1969. The insects. Structure and function, 817 pp., London. Engl. Universities Press. [Includes mosquitoes.]

GEROLD, J. L. 1970. Selection and analysis of the disturbed behaviour after contact with DDT of *Anopheles atroparvus*. 95 pp., Leyden. A. W. Sythoff, printer.

HABEL, K. and SALZMAN, N. P. (Editors).

1969. Fundamental techniques in virology. 527 pp., New York and London. Academic Press. [Arboviruses included.]

TUXEN, S. L. (Editor). 1970. Taxonomist's glossary of genitalia in insects. Edition 2. 359 pp., Copenhagen. Munksgaard.

WORLD HEALTH ORGANIZATION. 1970. Control of pesticides. A survey of existing legislation. 150 pp., Geneva.

#### NEW PERIODICALS

Journal of Communicable Diseases is now the official organ of The Indian Society for Malaria and Other Communicable Diseases. Volume 1, number 1, dated March 1969, was published in May 1970. This journal replaces the Bulletin of the Indian Society for Malaria and Other Communicable Diseases.

## BOOK REVIEW

WONDERS OF THE MOSQUITO WORLD by Phil Ault. Dodd, Mead, New York, 1970. 64 pp. with index. \$3.53 hardcover.

One of a large number of "Wonders" books on natural history, this volume is aimed at high school students. The eight chapters are: A Fascinating Villain; Beware the Female; How a Mosquito Grows; The Big Three; Detectives at Work; Men vs. Mosquitoes; Mosquitoes Made to Order; and For Mosquito Watchers.

The author is a veteran newspaper editor and his prose is easy reading. The degree of scien-

tific accuracy is high, surely due in part to AMCA member George B. Craig, to whom the author expresses gratitude. The illustrations are excellent, as are the legends—even if Culicine is misspelled on page 6. A more serious error appears on pp. 37-38 regarding yellow fever during the early days of the construction of the Panama Canal. Urban yellow fever, transmitted by *Aedes aegypti*, was the problem; not jungle yellow fever.

J. AUSTIN KERR  
Chevy Chase, Md.

#### ANNOUNCEMENT OF GRADUATE COURSES IN TROPICAL SCIENCE IN 1971

In 1971 the Organization for Tropical Studies, a consortium of 27 Latin and U.S. universities created to promote an understanding of tropical environments and their intelligent use by man, will offer its ninth consecutive year of graduate courses in tropical science in Central America. A total of eight courses will be distributed through three semesters commencing on February 1, 1971. Graduate credit for eight semester hours may be earned through the University of Costa Rica. Courses will be offered in the following disciplines: Terrestrial Biology and Ecology, Forestry, Geography, Earth Sciences, and Atmospheric Sciences. Most of the courses will be offered in Costa Rica or Guatemala, although the Earth Science course will be concentrated in the islands of the West Indies.

A descriptive catalog of the courses and applications for enrollment may be obtained from:

The Organization for Tropical Studies  
North American Office  
5900 S.W. 73rd St.  
South Miami, Florida 33143