

Medicine by John Grauerholz, M.D.

Evidence heard on insects and AIDS

An Office of Technology Assessment workshop heard 16 scientists review the evidence about this mode of transmission.

On Wednesday, July 8, an all-day workshop on insect transmission of AIDS was held at the Office of Technology Assessment. A total of 16 scientists participated on the program.

Dr. Caroline MacLeod, of the Institute of Tropical Medicine in Miami, Florida, was among the scientists on the panel, which included Jean-Claude Chermann of the Pasteur Institute and Peter Jupp of South Africa. Dr. Chermann had conducted widely reported studies on the presence of integrated HIV provirus DNA in the cells of lion ants, tse-tse flies, mosquitoes, and cockroaches from AIDS endemic areas of Africa. Dr. Jupp was one of the authors of a South African study which demonstrated that HIV could survive for extended periods in bedbugs.

Dr. Thomas Monath, of the CDC Vector Diseases Laboratory in Fort Collins, Colorado, backed down from his claim in the July 7 *Washington Post* that it would take 2,800 bites to transmit HIV because of the high number of virus particles needed to establish infection, when Dr. Philip Markham, from Robert Gallo's laboratory, confronted him with the fact, mentioned in last week's column here, that no one knows how much virus is necessary to transmit infection.

Dr. Markham and Dr. Carl Saxinger were the scientists conducting the studies in Dr. Robert Gallo's laboratory, the preliminary reports of which had resulted in the convening of the OTA conference.

Dr. Greg Tigner of Yale refuted the argument that lack of childhood cases eliminated the possibility of in-

sect transmission by pointing out that such a pattern is characteristic of other insect transmitted viruses. Dr. Tigner works in the laboratory of Dr. Robert Shope, one of the world's foremost experts on insect-transmitted viruses, otherwise known as *arthropod borne*, or arboviruses.

Dr. Baruch Blumberg, who won the Nobel Prize for the discovery of hepatitis B virus, supported the possibility of insect transmission and called for more studies. Dr. Blumberg referenced the evidence for insect transmission of hepatitis B virus, which is also a blood-borne virus like HIV.

Dr. Leon Rosen, an arbovirus specialist from Hawaii, who had worked at the Pasteur Institute, said the data indicate "something is going on" and raised the question of biological transmission of a virulent African variant of HIV.

Drs. Issel and Foyle of Louisiana State University supported the possibility of insect transmission based on their work with the insect-transmitted retrovirus, equine infectious anemia. Equine infectious anemia virus is mechanically transmitted from horse to horse through biting stable flies. The disease is characterized by intermittent high levels of virus in the blood (viremia) and when a horse in the viremic stage is bitten, a single bite from that fly can transmit the infection. At other times, when the levels of virus are low, it may take hundreds of bites to transmit infection.

This is pertinent to the situation with AIDS, since it has now been doc-

umented that HIV-infected patients, who normally have low levels of virus in the blood, develop a viremia in the period immediately preceding the development of disease.

Dr. Ken Castro of CDC presented his irrelevant study on Belle Glade, Florida. This study consisted of doing a cross-section screening of the entire town of Belle Glade, which statistically "washed out" the 10-square-block poverty pocket which has 76 official, and over 200 unofficial, cases of AIDS, while the rest of the city has none. The high number of no identifiable risk cases were eliminated by simply classifying them as heterosexual contacts, and the question of insect transmission was simply dismissed in a population which has one of the highest levels of exposure to insect-transmitted viruses in the world.

Dr. Caroline MacLeod presented her very relevant work on the same area, extensively documenting the appalling filth and levels of insect infestation in the areas. In the course of these presentations, it became clear that the studies that showed no levels of exposure in children, examined only children who lived at home and went to school, and had totally avoided examining children who worked in the cane fields—the ones actually exposed to large numbers of mosquitoes and other biting insects.

Interestingly, the strongest opposition to the possibility of insect transmission of HIV came from Dr. Donald Burke of the U.S. Army, who categorically denied the possibility of insect transmission on the basis of little, if any, data, and said that studies would be a waste of money.

It would appear that the budget may be a little tight and he was concerned about his funds. A formal report and recommendations from OTA are expected within a month.