1997 Annual Report Summary - CSE62C

The major aims of this trip were to attend three international conferences in areas of entomology, insect pathology and virology relevant to the long-term biological control of major cotton pests like *Helicoverpa armigera*. A further major aim was to attend a Management Committee Meeting, hosted by Zeneca Agrochemicals/Seeds (UK), to review progress on the collaborative *Helicoverpa armigera* stunt virus (HaSV) project aimed at exploiting HaSV genes for control of heliothine pests on cotton. This work is partly funded by the CRDC under CSE55C and described in reports concerning that project.

Work reported at the three conferences covered many key areas of insect molecular biology relevant to our use of insect viruses for pest control, including research into animal, plant and insect viruses and into the host responses observed upon virus infection. These responses are important both in determining the limits to a virus infection - can the host contain the pathogen, or does the pathogen win the battle to grow? - and how does the virus cause disease? Our understanding of the disease process is growing rapidly due to studies on the interaction between viruses and the host cells within which they grow, and of the functions of both virus genes and of host genes required for virus growth.

The genetic engineering of viruses as either vectors for foreign genes or in order to alter their pathological properties was another subject covered at these meetings. These reports gave insights into strategies for the engineering of DNA viruses (e.g. the baculoviruses) or RNA viruses (resembling HaSV), as well as for the production of viruses in cells other than those of their normal hosts by a variety of recombinant means. The latter makes feasible the economic production of viruses like HaSV which are otherwise difficult or impossible to make outside their natural hosts.

Reports on our work with HaSV were presented at all three meetings. These allowed critical discussion of the HaSV work with international experts in relevant disciplines and attracted the attention of other workers interested in control of insect pests. A significant outcome was to raise the interest of other scientists in studying the response of major, bnt little studied pests like the heliothis complex to pathogens, especially viral pathogens, with the aim of developing future generations of safe and specific biological control agents.