THE CENTRAL REFERENCE INSECT COLLECTION

By J.W. Ismay, Entomologist, D.P.I., Konedobu

INTRODUCTION

The Department of Primary Industry's Central Reference Insect Collection, known as the Kone Collection, is the largest collection of economic insects in Papua New Guinea. It contains about 100,000 specimens. Most of these have been collected since World War Two. There are about 20,000 species (kinds) of insects in the collection.

THE COLLECTION

The Kone Collection consists of both harmful and useful insects, including:

- Agricultural pests which eat or damage growing crops.
- Disease vectors - insects which carry diseases of plants and animals.
- Insects which attack stored products after harvest.
- Parasites and predators - that is insects which feed on and therefore help to control pests.
- Quarantine interceptions - that is, insects which do not occur naturally in Papua New Guinea, but which are found by Quarantine Inspectors in goods being imported into the country.
- Insects which have been deliberately introduced from abroad for biological control purposes.

As well as these economically important species, the collection includes many non-economic insects. These are important to help workers distinguish between pest species and harmless species. There is also a fine butterfly collection.

LOOKING AFTER THE COLLECTION

The Kone Collection is housed at the Entomology Section, D.P.I., Konedobu. It is cared for by one of the Entomologists at Konedobu, together with other members of staff in the Entomology Section.

Most of the specimens are preserved dry and are mounted on a pin. Information about the insect is written on a label and attached to the same pin. This includes:

- Place of collection
- Date of collection
- Name of the collector
- Host insect, plant or animal on which the insect was found.

When an insect is identified, the scientific name is written on a label and also added to

the pin. The mounted, labelled and identified insects are stored in drawers in specially-made cabinets. Insects belonging to the same family are arranged together.

Some very fragile insects, and the early stages of insects are kept in tubes of preserving fluids.

The whole collection is kept in a cool, dry storage room. All the information about each identified insect is stored in a card index system. At intervals, this information is extracted and published in the form of records in the Crop Insect Survey.

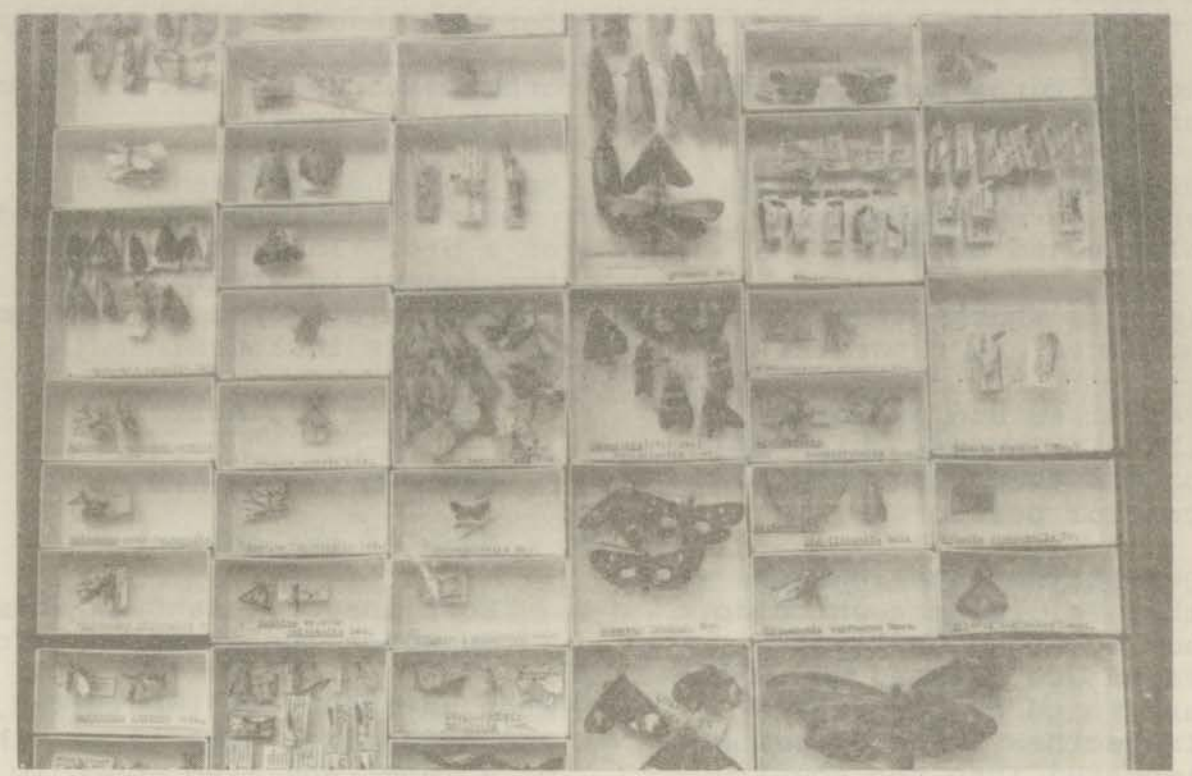
WHY HAVE A CENTRAL REFERENCE INSECT COLLECTION?

Over the world there are about a million described species of insects, plus an unknown number that have not yet been described by entomologists. If a species is described, it means that the insect has been studied, it has been placed in a group of similar insects, and that it has been given a name.

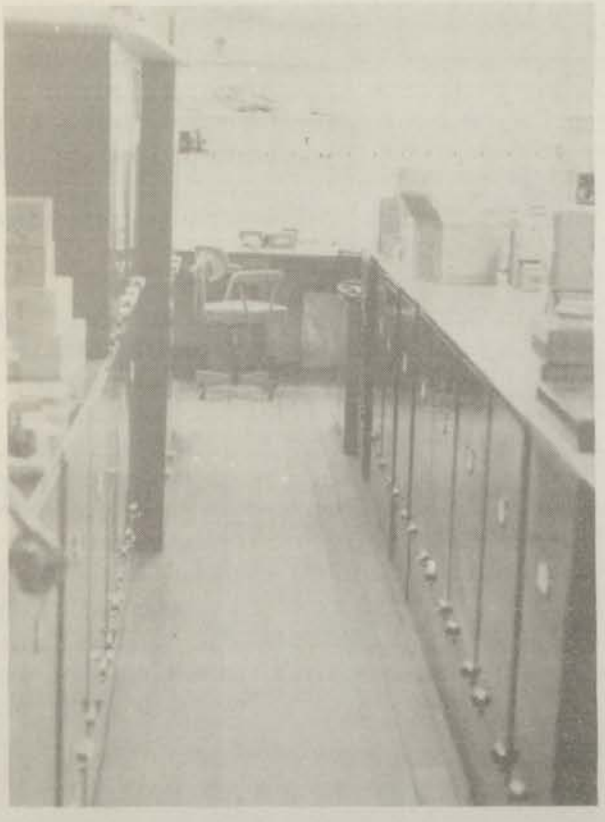
The insects of Papua New Guinea are among the most interesting and colourful in the world. However, there are many groups of insects where many of the species are not yet described. It is estimated that there are tens of thousands of species of insects in Papua New Guinea. It is probable that several thousand of these will be associated with crops.

Many of these economic insects have already been described by entomologists. As it is not always possible to find the written description needed to identify an insect, the next best method is to compare it with another one that has already been identified.

This is the reason for the existence of the Kone Collection.

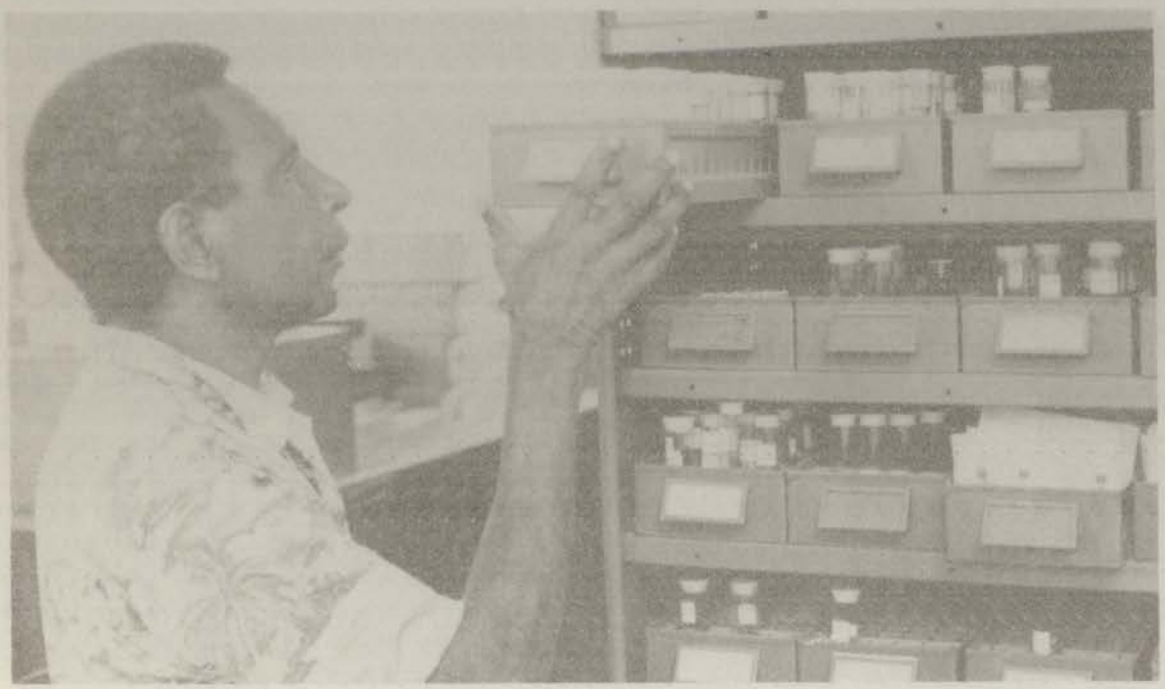


Part of the Kone Collection - a drawer of mounted and labelled insects. These are all pyralid moths.



The room at Entomology Section, Konedobu, where the Central Reference Insect Collection is kept. The cabinets on the right and left hold many drawers of insects.

Consulting the card index system where all the information about each identified insect in the Collection is stored.



Some very fragile insects, and the young stages of insects are kept in tubes of preserving fluid in these special drawers.

Most of the insects in it have been identified by experts. Over the years the Kone Collection has been built up with identified insects so that insects sent in can be compared with those in the collection and so identified. To help entomologists distinguish between pests and harmless species, a reference collection should contain as many species as possible. However, in the Kone Collection there are still insect groups that are not well represented.

Specimens for identification are sent in by D.P.I. entomologists and other researchers, didimen, and people interested in agriculture. The number of specimens in the Collection is increased mainly by staff collecting.

The author at work on identifying insects at the Entomology Laboratory at Konedobu.

Sometimes specimens cannot be identified from the collection. These are then passed on to specialists. The Commonwealth Institute of Entomology in London carries out most of our identifications, but there are many more specialists around the world who help to identify our insect pests.

Insects are sometimes sent to taxonomists (specialists who give names to insects) when they are studying the same type of insect in other parts of the world. These specimens are later returned to us, sometimes with new names.

Some insects have been deliberately introduced into Papua New Guinea. These introductions, which are strictly controlled by Quarantine, are beneficial. They are often to control insect pests. For example, parasites have recently been introduced to help control pests of sugarcane; and a weevil from Africa has been released to pollinate oil palms. This previously was a time-consuming task which had to be done by hand. Specimens of these and all other insects introduced into Papua New Guinea are kept in the collection so that they can be easily recognised.

It is interesting to note that some parasites and predators of insect pests in Papua New Guinea have been exported to other countries to assist in pest control there. The Kone collection contains specimens of these insects.

CONCLUSION

The aim of keeping the Central Reference Insect Collection (Kone Collection), and expanding it, is to provide a pool of information which can be used by local entomologists and agriculturalists. A thorough knowledge of these insects will enable us to obtain rapid identification of insects which would otherwise have to be sent overseas.

The Kone Collection is an asset which cannot be valued, and would take more than 50 years to replace.