

# The Beekeeping Program In Burma

By ROGER A. MORSE  
Department of Entomology  
Cornell University  
Ithaca, New York 14853

OVER ABOUT THE last three centuries hundreds of colonies of European honeybees have been introduced into tropical and temperate Asia. These introductions have always failed in tropical Asia, but have been partially successful in temperate Asia. No Asian country, however, contributed any honey to the world market until the late 1960's, when China became a major exporter. Today China produces between fifteen and twenty per cent of the world supply, but little honey is seen from other Asian countries.

Only in 1962 was it suggested that mites that attack honeybee larvae when the brood cells are being capped might be responsible for the death of introduced colonies of European honeybees. The native Asian honeybee species are the natural hosts for these mites. Still, almost no mite research was undertaken in the 1960's; meanwhile, modern methods of transportation were enabling men to move bees around the world more rapidly than ever before. Men carrying queen honeybees from Asia in small cages — Asian species as well as European honeybees that had earlier been introduced into Asia — managed also to carry their mite pests to Europe, North Africa, and South America. But about 1975 beekeepers outside of Asia were alerted to the fact that there was a serious threat to world beekeeping. The full impact of what was happening did not become apparent until the late 1970's. At the same time there was still no practical beekeeping in Tropical Asia.

The first United Nations Food and Agricultural Organization Program on honeybees in Tropical Asia was started in Burma in 1979. Dr. Cyprian Zmarlicki, from Poland, has been the Chief Advisor for the program. When he arrived in June 1979 he found five colonies of European honeybees that had been sent from Australia. In August 1979 one nucleus colony was sent from the United States. The people responsible for bringing these bees into Burma were well intentioned but were ignorant of what they were doing. The bees were brought in on drawn brood combs. When Dr. Zmarlicki inspected the colonies he found one was infected with American foulbrood and the disease has been a minor problem ever since. Bees that are to be transferred from

one country to another should never be moved on combs that might harbor disease.

During the first year of the program, 590 packages of Italian bees were brought to Burma from Australia and the U.S. Unfortunately many of these colonies died before they arrived. There are nearly 1,000 colonies of European bees in Burma at present.

Since 1979, fifty persons from Burma have travelled abroad to study beekeeping; seven of these are women. Twelve of these students worked under Dr. James Tew at the Ohio State University Agricultural Technical Institute at Wooster, Ohio, in two groups, one in 1980 and the other in 1981, and an additional eight are there now. A delegation of eight individuals visited Washington, Cornell University, and Wooster, and attended the International Beekeeping Meeting in Acapulco, Mexico in the fall of 1981. In addition, ten persons have studied in Israel, six in Australia, four in England, and two each in Japan and France; two of these individuals have made two trips each. Most of these international beekeeping students are members of the army or police force, some of whom have had considerable combat experience in Burma against anti-government insurgents or those in the drug business. In fact, the area of Burma with the most honey plants and the greatest potential for beekeeping is the state that has had the most serious problems with insurgents.

The study program at Wooster has been financed by the Drug Abuse Control Program of the U.S. State Department, in coordination with the Food and Agriculture Organization of the United Nations. A major source of illegal heroin in the world market is the so-called Golden Triangle, the area where Burma, Thailand, and Laos join. Obviously, over the borders of three mutually unfriendly countries it is difficult to control the movement of legal or illegal goods. From the poppies grown here opium, morphine, and heroin are derived. The poppy farmers make only a bare living from their crops; the real profits are made

by the processors, smugglers, and drug traffickers.

The U.S. State Department hopes that by encouraging beekeeping they can convince at least some poppy growers that they can do just as well, or possibly better, by keeping bees. If this could be done, additional substitution programs might be initiated, perhaps using crops that require pollination, like sunflowers and melons.

I have been asked, in Burma and in Washington, whether or not beekeeping technology can be transferred to poppy growers. That question is, of course, critical and difficult to answer. When I answer it, I say that if it can be proved to a poppy grower, or anyone for that matter, that he can do better financially with bees, he will do so. There are several places around the world where people with no formal training or education have become good beekeepers. In Kenya, and surrounding countries in East Africa, beekeeping has been a way of life for hundreds of years and great quantities of beeswax are exported every year. The honey is used to make the local beer. Another example is the Yucatan Peninsula of Mexico where beekeepers owning only 25 to 100 colonies each produce millions of pounds of honey. In Mexico the government runs a honey collection station at Merida from which the honey is shipped.

However, the attempt to control or reduce poppy growing is not the only force the beekeeping program in Burma. Agriculture in Burma is changing, much as it is in many parts of the world. As diets and nutrition improve we see a shift toward plants that require pollination. The twelve plants that now provide ninety per cent of the world's food supply — rice, corn, wheat, potatoes, etc. — do not require pollination. However, the variety and distribution of food crops is changing. In Burma watermelons have become a common crop in the past few years. Today there is a great need for bees to pollinate sunflowers grown for oil, which were introduced only recently. All over, the list of crops that need or benefit from bees is growing each year.

Burma's four-year beekeeping pro-

ject is now in its third year. A renewal for three years is under consideration and will probably be approved.

One of the first obstacles faced by Dr. Zmarlicki in Burma was to determine where in the country the bees would do best. As is true everywhere in the world some locations have many more natural nectar and pollen plants than others. No one has ever written about the nectar and pollen plants or practical beekeeping in Burma. In Rangoon, where much of the teaching is done, there are too few pollen plants to support large apiaries.

Shan State, the largest state in Burma, is the chief poppy growing area. Zmarlicki soon discovered that Shan State has the greatest potential for beekeeping with a great number of natural honey plants. This, of course, fits well with the State Department's program on drug control.

Chin State, on the western side of Burma, bordering Bangladesh, also has suitable honey plants and together with Sagaing Division and Kachin State represents more beekeeping potential. However, with

fewer than 1,000 colonies in the whole country (Burma covers 261,000 square miles, which is almost the size of the state of Texas) it is still too early to determine the full potential.

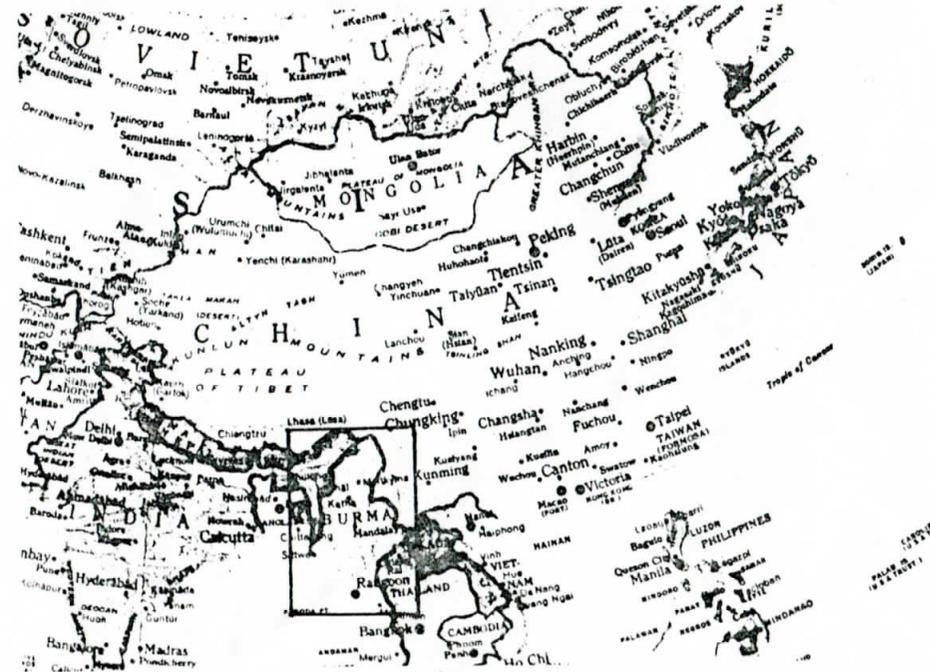
A second problem, which has been solved, though it requires much labor, is the problem of parasitic mites. We are just beginning to understand the biology of one of the two mite species that cause damage, but little is known about the second. Both feed on, and are apparently dependent upon, developing honeybee brood, which they often kill or maim.

To reduce the mite populations the queen is caged for 21 days. During this time the colony is fumigated several times with phenothiazine, which dislodges mites from adult bees and kills them. The colony is also fed as much sugar syrup as it will take, to stimulate cell cleaning. At the end of the 21 day period any dead brood is uncapped by hand. It is an interesting fact that while honeybees are able to cope with many problems they usually cannot uncapped cells that contain dead brood no matter what killed the brood. Once the brood cells are open the continu-

ing feeding stimulates cell cleaning. Following uncapping and a final fumigation the queen is released and returns to egg laying and the colony recovers. In the colonies I have checked, the results have been good. No one knows precisely how long the treatment will remain effective, but we hope it will not be necessary more than once a year.

It is difficult to determine the beekeeping potential of Burma. Burma's neighbor, Thailand, now has about 6,000 colonies of European honeybees and the industry in Thailand is growing rapidly. It is estimated that bee hunters now harvest 500 tons of honey from the native Asian rock bee each year in Burma. This bee is the largest of the world's four species of honeybees. It is found throughout tropical Asia and often nests 50 to 100 feet in the air on cliffs and under tree limbs. The honey is used locally in medicines and to give variety to the diet; it is a well-known commodity in Burma. Beeswax from the native rock bee is readily available. At present it is being used to make foundation on a

(Continued on page 467)



---

## The Beekeeping Program In Burma

*(Continued from page 455)*

---

hand mill that was brought to Burma from Poland. The European honeybees accept the wax from the rock bees with no apparent problems.

It is hoped that Burma might someday support as many as 100,000 colonies of European honeybees. Today honey sells for \$3.50 a pound; much of it goes to the tourist trade. Honey is a prominent article in the tourist hotels and the duty-free shop in the Rangoon Airport. Honey packing equipment has been ordered and plans are being made to market the honey locally as production increases.

Beekeeping in Burma faces some other problems, too. Ants are a very serious problem, and for protection colonies must be kept on platforms with their supporting legs in water. During the hot season colonies must be shaded to protect against the sun. Temperatures often go above 100°F in the spring. Protection is also needed in the rainy season; some parts of the country get over 100 inches of rain in a year. However, these are all problems that can be overcome with good management. In the brief five weeks I spent in Burma I was very much impressed with the progress and changes that have been made in a short period of time. As Burma diversifies its agriculture the bees will be badly needed. [1]

---