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247

Asian honey bees

Asian honey bees are attracting considerable scientific interest nowadays. In the past, very much less research was done on them than on European *Apis mellifera*, and publications about Asian species represent only a few percent of those on the European bee. The *Bibliography of tropical apiculture*¹ cited about 1050 publications on them in 1978. But a new *Bibliography on Asian honey bees, 1979-1991*⁶, together with a 1990 bibliography on their pollination², list about 580 additional publications, so there are now over half as many again as 13 years ago³. The International Conference on Asian Honey Bees and Bee Mites, held at Chulalongkorn University in Thailand in February 1992, brought the account up to date.

In 1988 some of the *Apis cerana* in the island of Borneo were found to belong to a species previously given the name *Apis koschevnikovi*; these two species build a multiple-comb nest in a cavity, and can therefore be kept in hives. In 1987 it had been shown that some of the populations regarded as *Apis florea* belong to a different species, *Apis andreniformis*. Both these small bees build a single-comb nest in the open, and usually live at altitudes up to about 500 m. *Apis dorsata*, which can live at high altitudes, had been regarded as the world's largest honey bee. But it is now known to have an even larger counterpart — *laboriosa*, whose workers are twice as long as *A. cerana* — found as high as 3500 m in some Himalayan regions. The species status of *laboriosa* is still not clear. So at least five Asian honey bee species are now recognized, in addition to *A. mellifera* in western Asia (Turkey, Iran, Yemen, etc.).

In many parts of tropical Asia two or more honey bee species are present, and this can create a difficulty in mating. The pheromone that attracts a drone to a nubile queen is the same for all species, and drones of all species are attracted to any queen in flight. In fact there are morphological differences between the male genitalia of the various species that usually prevent a drone mating with a queen of another species. But the presence of many other drones can impede access to a queen by drones of her own species. In several areas, it has been found that the queen and drones of each species fly at a different time of day from that of any other species, and thus avoid competition.

In 1989 I saw several interesting traditional systems of management for Asian honey bees. In forested north Vietnam, some *A. cerana* colonies were kept in upright logs fitted with top-bars, and this was recorded as early as 1907⁴. In submerged forests of the Mekong delta in south Vietnam, *A. dorsata* colonies have been managed for honey production since the last century or earlier, and these managed colonies produced most of the honey exported from Indochina around 1900⁵. Thirdly, in part of the lower Indus valley in Pakistan, I found a traditional management system for *A. florea* colonies, similar in some ways to that known in Oman.

After visiting Vietnam, I was able to understand a rather obscure passage in a Chinese manuscript written by Chang Hwa about AD 265-290, which had been translated for a book I am writing on the world history of beekeeping. The passage described an operation which must have been similar to one still carried out by beekeepers of the Nung tribe in north Vietnam. At swarming time, they set out bait hives in the forest, and keep watch by them. When a scout bee flies near one

of the hives, the owner catches it, confines it in his hive and releases it after 20–30 minutes. A swarm is then likely to come to the hive and settle in it during the same afternoon. The fact that bait hives were used in the 200s suggests that hive beekeeping in Asia started earlier than had been thought.

In many parts of the Indian subcontinent there was no hive beekeeping until the last century. Detailed reports about the various honey bees and stingless bees were written in 1882, thanks to the enthusiasm and initiative of a beekeeper, John C Douglas of the Indian Government Telegraph Department. While on leave in London at the end of September 1881, he wrote to the Secretary of State for India, asking for information about In^d an beekeeping so that he could promote its expansion. Surprisingly, in Decem... r the Officiating Secretary — also on leave — sent a questionnaire to Governments in the various parts of India, including what are now Bangladesh, Myanmar and Pakistan. Detailed replies, received during 1882, described the different bees, and their exploitation by collection from wild nests and also by traditional hive beekeeping where this existed. Replies also recorded early introductions of movable-frame hives. They were printed verbatim by the Government of India in 1883⁷.

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