Eva Crane Trust

ECTD_269

TITLE: Beekeeping with *Apis florea* in the Indus basin and some other areas.

SOURCE: *Typescript of article which was published in:*

Bee World 78(2): 62-66

DATE: 1997

Beekeeping with *Apis florea* in the Indus basin and some other areas

Introduction

Traditional beekeeping with *Apis dorsata,* the large Asian honey bee which nests on a single comb built in the open, has recently been described in localities in Vietnam and Borneo[1]. Traditional beekeeping in Oman with *Apis florea,* a small Asian honey bee which nests in the open, has been well described by Dutton and Simpson[2], Whitcombe[9] and others. Figure 1 shows the structure of the single comb. I found that traditional beekeeping with *A florea,* was also practised in part of the middle Indus basin in Pakistan. The rather scanty details I learned about it during visits in May 1989 and April 1993 are published here, in the hope that one or more readers can make a more complete study, at different seasons. The beekeeping was carried out on both sides of a 250 km stretch of the Indus river downstream from Attock to Dera Ismail Khan, and on both sides of tributaries entering the Indus from the west, as far as Bannu (Fig.2). *A florea* is the only honey bee in the area, which is surrounded by desert. In some areas the bees do not abscond from their nest sites, so colonies can be kept permanently[7].

Khalid Khan of Peshawar introduced me to several beekeepers - all young - in the small bazaar of Khair-a-Abad, in the North West Frontier Province on the west side of the Indus opposite Attock fort. Two booths were devoted to selling *A. florea* honey, and they had a hundred or more honey combs such as that in Figure 3, each in a plastic bag and weighing about 1kg.

When a beekeeper first found a nest, built on a branch of a bush or small tree, he cut a fairly straight stick (5-10 mm in diameter) about twice as long as the width of the comb where it contained brood. He slit the stick along almost the whole length, leaving both ends intact, and inserted a small stone to keep the slit open. Or he left one end intact and later tied the two halves of the open end together. He clamped the comb between the two halves of the stick, above the brood area and below the wider honey area (see Fig. 1).

After brushing bees off the honey comb so that they moved down to the brood comb, now supported by the slit stick, the beekeeper cut the comb just above the stick. The original branch supporting the honey storage part of the comb (containing honey) was also cut free from the bush, and this gave the beekeeper his first harvest.

If the nest was within say 6 km of the beekeeper's home, he might fix the stick now supporting the brood comb at the original site, and return later to harvest more honey. If the nest was farther away, he carefully carried the brood part held in the split stick, and the bees, to a suitable shady tree near his house. Since he had harvested the bees' honey store, he fed them by spreading honey on top of the stick. The above operations were done in the evening or early morning or on a cloudy day, as the bees were then less inclined to fly away.

The bees stored further honey in the upper part of the new nest, and built comb below in which they reared brood. In May and October the beekeeper cut off the upper part of the comb containing honey, and repeated the process described above. His final harvest was taken well before the end of the honey flow (10 days before if the flow lasted a month), so that the bees could store honey for their own use.

At Khair-a-Abad I was also told about *A. florea* 'apiaries' for about 200 colonies. In October, at the start of the honey flow from jujube (probably *Ziziphus Mauritania)* in a nearby forest, the beekeepers collected combs built by recently arrived swarms and set them up in a stockyard from which goats, sheep and other animals were evacuated for the duration of the flow. The combs were placed facing south-east, in rows about a metre apart, the ends of the slit sticks supported on piles of stones. The bees worked the jujube for two to two and a half months and then absconded, and the honey comb was harvested only once from this flow. The whole procedure was repeated in May or June when swarms returned to the area and worked the *Acacia modesta* flow.

What may also be traditional beekeeping, and is at any rate sustainable use of *Apis florea* nests, has been reported in widely separated areas, and other examples can probably be found. In Madina, north-west of Calcutta in Bengal[5], only part of an *A. florea* comb was harvested, and the brood area left intact. A photograph shows a colony on such a comb, but not how it was supported. According to Hoekman in 1929[3], beekeeping was done with *A. florea* in Sri Lanka. In Long An, an acid phosphate area in the north of the Mekong delta (Vietnam), *A. florea* is the only honey bee that can survive; introduced colonies of *A. cerana* failed because of the lack of sweet (non-acid) water. Some farmers collected complete combs of *A. florea* for their honey, and others harvested part of the honey comb two or three times in the season, leaving some for the bees[6]. In several parts of Bangladesh, including one in Narail district in the southwest, people managed to harvest a little honey when the bees nested inside or outside a dwelling house, round one of the wooden poles that formed part of the roof structure. They scraped off some honey comb above the pole and at the sides without disturbing the bees, but did nothing more to the nests nests[4].

None of the areas mentioned above is within the known range of *A. andreniformis*, a honey bee very similar to *A. florea*, and it would be interesting to know whether that bee is amenable to a similar type of beekeeping.

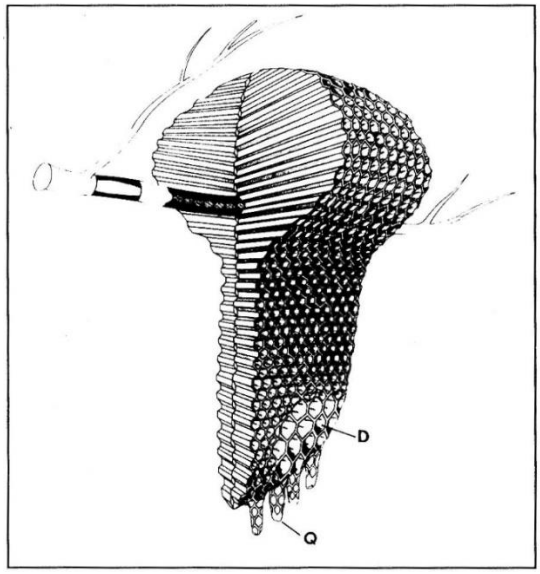

Fig. 1. Comb of *Apis florea*, showing the thick honey-storage area, built round the supporting stick, and the thinner brood area below. At the bottom are protruding queen cells (Q) and (shown white, D) drone cells (Ruttner[8]).

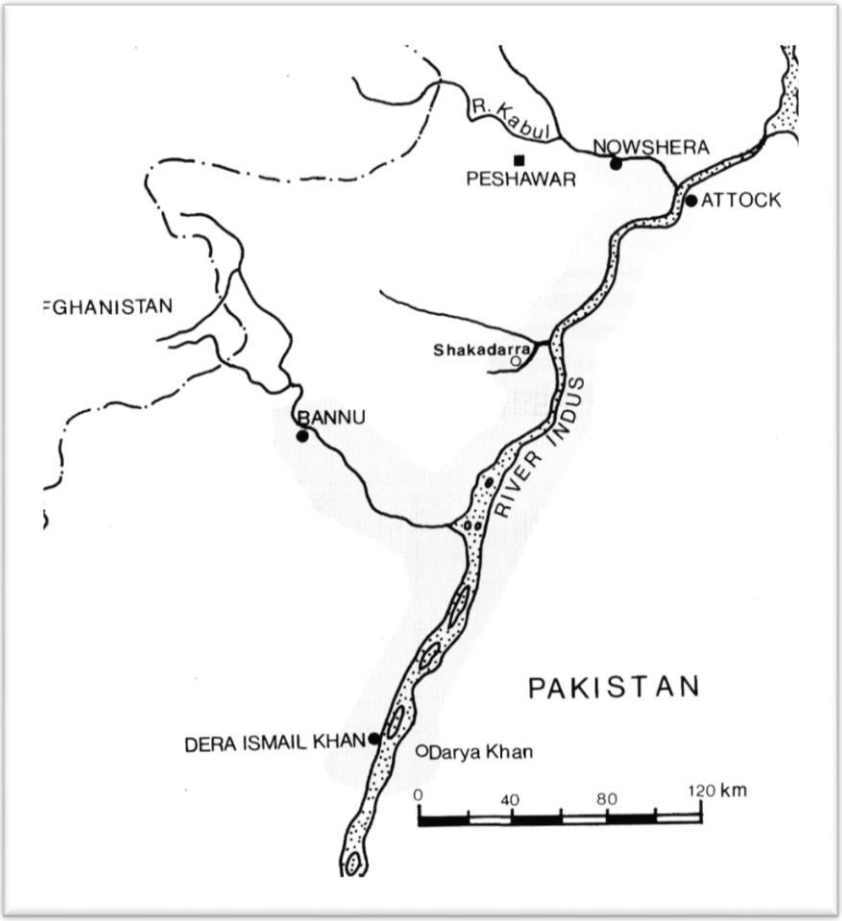

Fig. 2. Map showing the part of the Indus basin (shaded) where *Apis florea* beekeeping is practised (information from Khalid Khan).

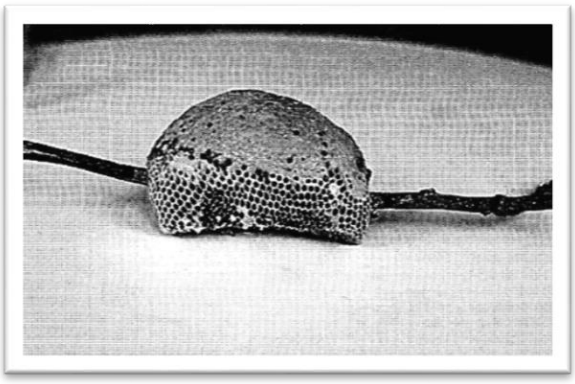

Fig. 3. *Apis florea* honeycomb sold in the Indus valley, Pakistan, May 1989. The split stick was inserted by the beekeeper when he took the previous honey harvest.

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