



Eva Crane Trust

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## Beekeeping techniques

### Bee houses

In many German-speaking areas of Europe it has been usual to keep hives in wooden bee houses. This is now changing fast, partly because of the increased cost of the wood needed to construct a bee house, and partly because of the spread of information about use of hives in the open, which is usual in most other countries.

It is somewhat curious that there seems to be an increased interest nowadays in bee houses among English-speaking beekeepers, for they too would be faced with high costs of construction. But in view of the interest, some information about bee houses is given, together with details of publications where descriptions and construction plans may be found.

There is no space to deal with the interesting history of bee houses. As currently understood, a bee house is a building, usually specially constructed, of wood or more rarely of stone or brick, inside which (along one or more walls) hives are placed, usually rather close together to make best use of the space. Hives may be along one long wall (or two opposite walls, or more rarely along all four walls), with flight entrances to the outside. There is usually a single row of hives, but a second or even third row could be wintered in the house, on shelves inserted for the purpose above the hives permanently in place. (If any hive entrances open into the bee house, this must be kept dark). With German rear-opening hives, upper rows are sometimes sited on upper shelves all the year round.

Provision is made for bees to fly outside by a tunnel-like entrance to each hive, through the wall, so that bees cannot enter the house itself.\* This is high enough for the beekeeper to walk behind the hives; he opens them while standing inside, and bees that fly off the comb are attracted by the light outside and quickly leave the building (see later); this therefore remains relatively bee-free. The house is sometimes large enough to accommodate a honey extractor, stores, a work bench, and so on.

A bee house should be in a fairly open position, not hidden under trees; in general, principles that govern the choice of a site for an open apiary would apply.

Advantages of a bee house are :

- A1. Hives are secure against theft, and against damage by human vandals and by animals.
- A2. A building is less obvious as containing bees than separate hives, so neighbours are less likely to be alerted to their presence.
- A3. The hive temperature is more equable inside a bee house than in the open.
- A4. Bees are consistently reported to be better tempered than in hives in the open, especially in hot weather. This may be due to A3 and A5, to the smaller amount

\* Alternatively the wall may be left rather open, in which case no special flight holes are needed, but the bee house would then not be safe against robber bees.

of disturbance when the hive is opened, and to the fact that the beekeeper is under less stress (A6, A7).

- A5. There is less chance of robbing from an opened hive, since few bees are flying, and these are attracted to the daylight outside.
- A6. The beekeeper can manipulate colonies at his ease, in the shade and under shelter (wet or fine), and with few flying bees round him.
- A7. The beekeeper needs much less protective clothing than when working outside, and is therefore cooler and more comfortable.
- A8. A bee house provides convenient facilities for many queen rearing operations.
- A9. It is ideal for teaching and demonstrations that must be done to a fixed timetable, whatever the weather.
- A10. The hives remain dry, and sheltered from the sun, and therefore last longer.

Disadvantages of a bee house are :

- D1. The capital cost is high (but the hives themselves need not be as substantial as those used outside).
- D2. A bee house is often best built as a permanent structure, and then cannot easily be moved, whereas an open apiary site can be moved with relatively little financial loss.
- D3. Restriction on space makes it rather unsuitable for hives whose height varies greatly at different times of year, i.e. where many honey supers are put on.
- D4. If smoke is used on the bees, it will not be dissipated as in the open air, so a forced draught may be necessary.
- D5. Natural light is restricted in a bee house, so close examination for eggs, *Braula*, *Varroa*, etc., must be done outside or with artificial light which needs a source of power.
- D6. To many people, one of the attractions of beekeeping is that it is an outdoor pursuit.
- D7. In some places, erection of a bee house may need permission from local authorities, or it may increase the rateable value of the dwelling house.
- D8. Close proximity of hives can encourage drifting of bees, with the likelihood of transmitting disease from one colony to others. (Drifting can be reduced by placing different orientation signs outside each flight entrance.)
- D9. In cool conditions, bees may not start to forage as early as from hives in the open.

A convenient plan for a bee house<sup>8</sup> is a long building with hives along both long walls, the hives being placed in pairs with a hive width between adjacent pairs, so that they can be worked from the side. A length of 9.5 m accommodates 24 hives. A total internal width of 2.5 m leaves a central passage 1.2 - 1.5 m, and the internal height should be at least 2 m. A door (at least 0.9 m wide) is in the centre at one end. For ease of working the hive entrances should be about 0.5 m above the floor. An alternative plan published in the USA in 1980<sup>11</sup> is 6.3 m long and just over 2 m wide, housing 14 hives close together on one long wall, with 2 additional hives at each end and a further 18 hives above these. F. C. Pellett discussed the use of bee houses in the USA in 1917<sup>7</sup>

In order to make the bee house secure against bees entering, glass windows can be fitted, or alternatively inner sheets of wire gauze protected by outer sheets of expanded metal. The latter are necessary in hot climates, and they can run along the whole length of the house. They are included in recommendations by F. G. Smith<sup>8</sup>, who gives 6 pages of description and diagrams of bee houses for tropical Africa; many of the advantages listed above are even more beneficial there — especially in view of the 'aggressiveness' of tropical African bees<sup>3, 6</sup>.

There must also be outlets for any flying bees inside the house to get out. John Spiller<sup>10</sup> suggests various designs for bee escapes, using suitably louvred windows or an outer sheet of glass (fixed at the bottom) overlapping an inner sheet of wood or metal (fixed at the top), and separated by 15-20 mm from it. He also describes different types of flight entrances for the hives; nowadays plastic tubes can be used. An enclosed bee house must have ventilation—windows, screens, a fan, or some other system<sup>11</sup>.

Bee houses can also be used as workshops, storage sheds and so on. Conversely, an existing outbuilding, wooden shed or caravan can be converted into a bee house, or to accommodate a few hives leaving the rest of the space for other purposes.

One small book has been published on bee houses, by John Spiller in 1952<sup>10</sup>; it is now out of print. He had used bee houses since 1913, and published other articles on them<sup>5,9</sup>. A few general books on beekeeping provide a section on bee houses<sup>2, 4, 8</sup>, and two German books<sup>1, 3a</sup> give scale diagrams for many types of them; these can be followed in general without a knowledge of German.

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