

NATURAL BEE HUSBANDRY

The International Journal for Bee-Centred Beekeeping

Issue 3 – April 2017

nbh



Inside this issue:

- **Putting a Number on Natural**
Derek Mitchell, UK
- **Darwinian Beekeeping: An
Evolutionary Approach to Apiculture**
Thomas D. Seeley, USA
- **Insulation and Ventilation in Honey
Bee Hives** William Summers
- **The Bienenkiste Hive** Erhard Maria
Klein, Germany
- **Look, Listen and Learn** John Phipps,
Greece
- **Keeping Bees Alive During a Canadian
Winter** Jane Fowler, Canada
- **Book Reviews** David Heaf, UK



The Bienenkiste Hive

Keeping bees – simply and naturally!

Erhard Maria Klein

kontakt@bienenkiste.de

www.bienenkiste.de

For years, there has been a steadily increasing interest in less complex, more natural methods for keeping honey bees, using a simple box hive with natural comb construction and no frames, such as the top-bar and the Warré hive. Thus, we began ten years ago to develop and subsequently introduced the Bienenkiste (beenen-kis-teh, lit. “bee box”) hive. Today it is one of the most popular fixed-comb single-box hives in Germany, and more than ten thousand are in use. It is based on the three-hundred-year-old Krainer Bauernstock (“farmer’s hive”), which offered a good solution to the problem of visual access in the fixed-comb hive. Based on the observation that the underside is the only place where comb is not attached to the hive structure, a flat hive with a removable bottom board was developed that could be turned over for working. The relatively shallow comb depth and the large surface area offered a good view of the colony without the need to remove individual comb. The same approach, of working

the hive from beneath, is used still today with basket hives such as the Lüneberger skep. We have taken this concept and developed it further. The Bienenkiste hive offers a comprehensive, labour-saving approach to beekeeping that is also very suitable for beginners. Because there is normally no need to disturb the comb, the colony of these social insects – in its entirety the so-called *Bien* – remains intact and undisturbed. The Bienenkiste hive is thus considered to be a very natural, species-appropriate (*wesensgemäß*) approach to beekeeping. Its nearest neighbour would be the skep (basket) or log beehive (*Klotzbeute*). The colony in the Bienenkiste hive consists of a small number (max. 12) of very large combs.

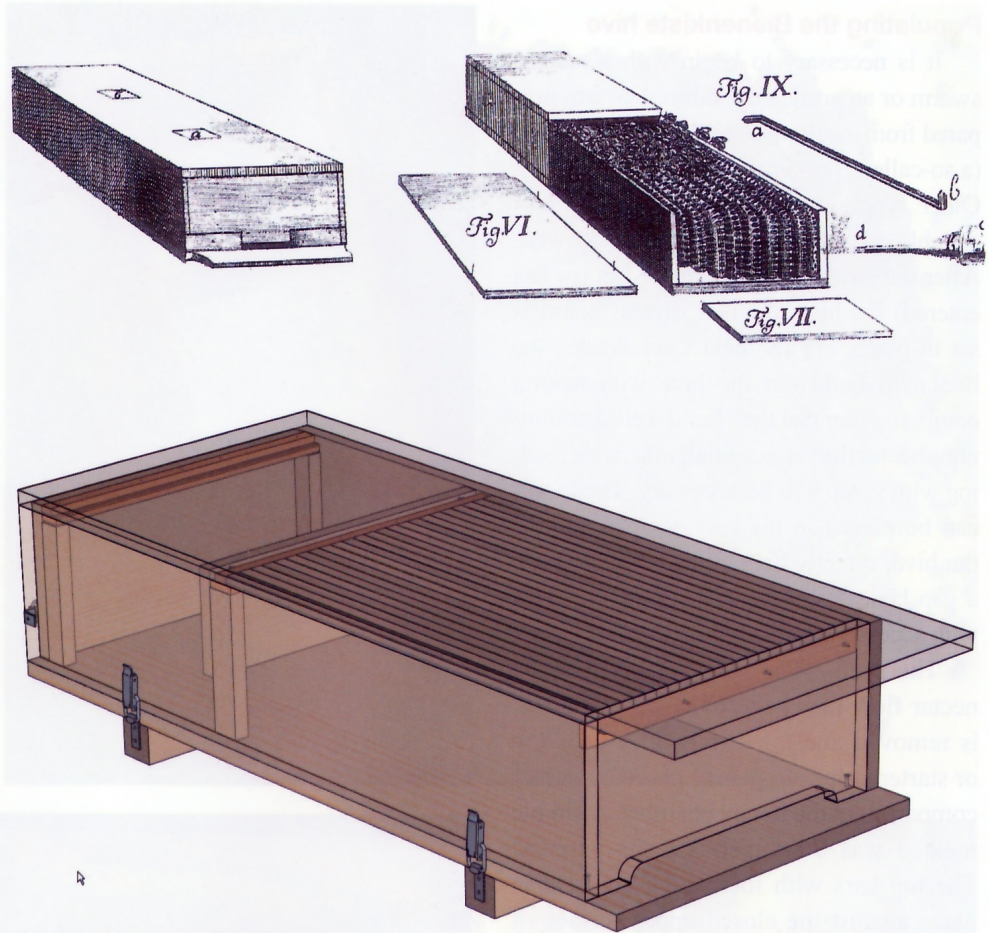
Design and construction of the Bienenkiste hive

The hive is a simple, flat wooden box with inside dimensions of 100 cm x 45 cm x 21 cm. The top, the side walls, and the front board are permanently attached to

one another. The bottom board and the rear board are removable and are attached with quick-release fasteners. When working the hive, the beekeeper lifts the rear end up and tilts the hive forward over the front board. A stand holds the hive in a comfortable, stable position with the removable bottom board now facing the beekeeper. The interior is divided into two compartments. The front section, roughly two-thirds of the entire hive, is the brood chamber. The empty brood chamber is initially outfitted with wax starter strips oriented lengthwise to the hive entrance. After the swarm has been hived, the brood chamber is for the time being closed off from the rear compartment by means of a divider board. The bees immediately begin to build natural comb. At the start of the spring nectar flow in the following year, the divider board is removed and top bars with foundation are likewise set into the rear compartment, the honey chamber.

Where the Bienenkiste decisively differs from the old Krainer hive is in our use

of what we call “mobile fixed-comb” construction. Originally the bees were allowed to build fixed comb directly onto the underside of the Krainer box. In the Bienenkiste hive we use a removable composite top bar with wax starter strips. This simplifies the handling considerably, as working with fixed comb can be very challenging. Thanks to the top bars, the honey harvest in the Bienenkiste is not all that different from more traditional frame-based hives. The bars are held in place against the top-board of the hive by means of rabbeted cross braces. Under normal circumstances the brood comb does not need to be disturbed. A check for swarm cells is carried out by means of the tilt method. The single honey harvest, near the end of the season, is the only time when comb is pulled. The honey (and precious bees wax) is harvested by means of cut-and-crush. The honey reserves remaining in the larger front compartment are generally sufficient to overwinter the colony. After the honey harvest, a late-summer varroa treatment with formic acid vapour by means of a Nassenheider evaporator placed in the rear compartment is possible, as is feeding, if needed. The winter treatment for varroa is based on oxalic acid, applied by means of either a syringe (drip method) or vaporizer.



Above 1: the Krainer Bauernstock Hive (The Farmer's Hive).

Above 2: diagram to show the inner parts of the Bienenkiste Hive.

Below: group making the hive.



Populating the Bienenkiste hive

It is necessary to begin with a natural swarm or an artificially induced swarm prepared from a colony already in swarm mood (a so-called “pre-emptive artificial swarm”). Other types of artificial swarms are less suitable, as they tend not to build as well. After the swarm has been placed in (or has entered) the hive, the rear divider board is set in place. For the next three weeks, the bees will build out the hive with natural comb. In order that they build well, a continuous nectar flow is essential; otherwise feeding with syrup will be necessary. The feeder can be placed in the rear compartment of the hive, directly behind the divider board; a gap beneath the board provides the bees with access to the rear compartment.

The following year, once the early nectar flow has started, the divider board is removed and top bars with foundation or starter strips are placed in the open rear compartment the honey chamber. A simple method was developed for this purpose: The top bars with foundation are held in place against the closed upper surface of the hive by means of two rabbeted wooden cross bars. The top bars, whether using wax starter strips or foundation sheet, are easily assembled. The wax is sandwiched between two narrow strips of wood held together with several small finish nails such that the resulting composite top bar has a width of 35 mm.

We recommend that beginners use foundation in the honey chamber as the resulting (frameless) honey comb is less fragile and thus easier to handle when harvesting. The use of foundation also has a yield-increasing and swarm-suppressing effect and minimises the risk of cross comb. Of course, for the more experienced or adventurous beekeeper, the use of starter strips in the honey compartment is not a problem. If you wish to entirely avoid the use of foreign wax in the hive, triangular or splined top bars can be used throughout the hive.

The beekeeping season with the Bienenkiste hive:

The start of the honey flow

In mid-April or early May (northern hemisphere), when the orchards come into bloom, the divider board is removed to provide full access to the rear compartment, and the previously prepared top bars are set in place.



Top left: main carcass.

Top right: brood area with frames and starter strips.

Bottom: brood area detail.

Swarm season

In the Bienenkiste hive, the impulse to swarm generally arises every other year or so. To avoid surprises, it is advisable during the swarm season to inspect the hive every nine days to check for queen cells. These are easily recognized, as the entire underside of the colony's comb structure is

visible for inspection, as in the skep hive. The larger surface area of the Bienenkiste hive, however, makes this even easier. Our purpose here is to ascertain the earliest possible day on which the bees might swarm and thus improve our chances of capturing the swarm. Once the prime swarm has departed, all of the queen cells except for

one are destroyed in order to avoid after-swarms. Should the swarm depart unnoticed, this is not a serious problem. The remaining bees in the parent colony will raise a new queen, and there is still hope for a honey harvest. The beekeeper who cannot or does not want to catch swarms can prepare an artificial swarm from a colony in swarm mood by means of drumming.

Since the Bienenkiste beekeeper cannot necessarily use every swarm he or she is presented with, we make use in Germany of an automated online “swarm exchange” to initiate contact with other beekeepers in need of bees. The demand for swarms, both by new Bienenkiste beekeepers and others, is more than sufficient to counter the available supply on the exchange.

Honey harvest – crush and strain

There is usually only one harvest per season, after the last major nectar flow. The evening before the harvest, the beekeeper uses a sharp knife to slice through the comb at the point where it leaves the honey chamber and continues into the brood compartment. Overnight the bees will clean up and repair the incision, but will not refill the damaged cells with honey. When we lift out the top bars with honey comb the next morning, the comb will separate easily along this “dotted-line,” so to speak, with a minimum of honey loss; the bees on the comb are then swept off and the harvested comb is placed in a container for transport to the kitchen. This easy method offers significant advantages over traditional fixed-comb systems such as the skep hive, where the honey comb has to be cut out of the occupied hive.

The harvested comb is then processed using the “crush-and-strain” method. First, the honeycomb is mashed, using whatever kitchen tool is to hand. The thoroughly crushed mixture of comb and beeswax is then poured through a filter. Such a filter is easily assembled from two large buckets and screen material, or a commercial honey strainer can be procured (detailed instructions for the “crush-and-strain” method are easily found online). Depending on the ambient temperature, it can take any time from several hours to two or three days for the honey to fully drain. If desired, the honey can then be filtered through a finer mesh, such as nylon or cheesecloth, before being transferred to clean, dry glass jars.



Top: a swarm readily builds comb on the starter strips.

Bottom: Sheets of foundation are recommended for the honey combs.

Varroa monitoring

Due to the nature of its construction, it is not possible to use a sticky board in the Bienenkiste hive to monitor for varroa mites, but the powdered-sugar method can be used. In the summertime, a sufficient number of bees can easily be swept or shaken off the bottom board after the hive

has been opened. Thus it is not too difficult to acquire the necessary number of bees for a diagnosis. The sample of bees is placed in a shaker along with a tablespoon or two of powdered sugar; after shaking, the powdered sugar and any mites are dropped into a suitable container, and the mites can then be counted (detailed instructions for the

powdered-sugar method of varroa monitoring can likewise be found online).

Varroa treatment

After the honey harvest, a varroa treatment with formic acid is possible using a (Nassenheider) vaporizer placed in the now empty rear compartment of the hive. The divider board is then set back in place and remains there until the following spring.

Treatment for residual varroa in the brood-free period

Oxalic acid is well suited for use as a residual mite treatment and is particularly effective when the colony is brood-free. Both the drip (trickle) and vapour methods of application are possible.

Preparation for winter

An estimate of the colony's honey reserves is made by weighing the hive. If necessary, the bees can be fed with syrup in the rear compartment.

Comb renewal

Comb replacement can be initiated by removing brood comb from a colony that has swarmed once the remaining worker brood has emerged. The "naked" colony remaining in the hive – comparable to an artificial swarm – will then begin to build new comb. As with the honey harvest, it is not necessary to cut out the old comb. Instead it is removed, one top bar at a time and the bees swept off.

Swarm pre-emption and finding the queen

In theory it is certainly possible to individually pull out each of the top bars with brood comb. But the effort required is considerably more than in a traditional frame-based hive and as a rule is usually not necessary. To extract the queen and a portion of the bees from the hive, we recommend drumming – the creation of a "drummed swarm." The Bienenkiste hive is opened in the usual manner, by tilting it up on end and removing the bottom board; a suitably-sized swarm box is then set into the empty rear compartment with the open end facing the brood nest. The beekeeper then begins a light drumming of the fingers along and across the edges of the comb: three minutes on the lower-third (closest to the hive entrance),





three minutes on the middle section, and three minutes in the upper section. The queen and a substantial portion of the bees (approx. 2 kg) will work their way up and off the comb into the swarm box, which is then removed. In this manner it is possible to pre-empt the natural swarm process and thus prepare an artificial swarm, or replace a queen, without removing the brood comb.

Costs and time requirement

Once established, the average time commitment is approx. 12 hours per year for a single hive. Very little equipment is required. In addition to the hive, only a minimal selection of basic items (smoker, veil, hive tool, brush) is necessary. The hive itself is easily constructed by anyone familiar with basic carpentry.

Information and contact

The Bienenkiste hive is an initiative of the non-profit organization Mellifera e.V. Detailed instructions, both for building the hive and for its use, photos, and videos, are available online at www.bienenkiste.de.

The Bienenkiste Initiative, Erhard Maria Klein, Kielkamp 35, D-22761 Hamburg, Germany. kontakt@bienenkiste.de

1: a removable pole supports the hive in an almost vertical position so that the combs can be inspected when the floorboard is removed.

2: Queen cells can easily be seen as they are usually built at the bottom of the combs.

3 / 4: the honey area of the hive has almost been filled with honeycombs.

5: a top bar makes the removal of honeycombs much easier.

6: a top bar honeycomb being removed from the hive.

7: the mashed up honeycomb is left to drain.

Northern Bee Books

Browse the worlds largest range of English language beekeeping books!

www.northernbeebooks.co.uk
 e: jerry@northernbeebooks.co.uk
 t: +44 (0) 1422 882751

THE ZEST HIVE

Doing more with less

- Healthier, better tempered bees
- Nosema, Acarine and Varroa free bees
- Warm, dry, easily thermoregulated hives
- Light Maintenance, let-alone beekeeping
- No need for wax foundation sheets or extractor
- Load lift of 4kg - complies with H&S regulations



Day Courses starting 22/04/17

For more information visit: thezesthive.com

To book **THE ZEST HIVE** speaker contact:

williamfsummers@btinternet.com

thezesthive.com

