An Introduction to Natural Beekeeping

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Description

My intention is to describe the main features that distinguish what has become known as 'natural beekeeping' and suggest ways in which we can create a methodology aimed at renewing and developing our relationship with the honeybee.

What is Natural Beekeeping?

'Natural beekeeping' is a term that has come to be applied to a style of beekeeping that puts the emphasis on the honeybees themselves, rather than their products. It could be characterized as 'beekeeping for the sake of the bees, not the honey'.

This is in contrast to the style of beekeeping that was established in the middle of the 19th century by the invention of the movable frame hive, which was designed to make commercial beekeeping for honey production an economic possibility. Largely due to its inventor's enthusiastic marketing, the Langstroth hive and its variations became established as the standard for both commercial and 'hobby' beekeeping, and few questioned their use, or – at least, publicly - considered alternatives, until late in the 20th century, when it became clear that bees were suffering from disease and infestation on an unprecedented scale.

Beekeeping Without Chemicals

Alongside the use of the Langstroth-style hive has developed the widespread practice of applying synthetic chemical 'medications' as a means of suppressing outbreaks of disesase among bees.

Most people who regularly eat honey probably don't realize that, far from being a pure, healthy and natural food, honey is produced commercially in hives that receive routine applications of antibiotics and pesticides – sometimes including organo-phosphates – just to keep the bees alive. In this respect, commercial beekeeping is similar to other forms of 'factory farming', in that bees are farmed intensively and pushed for maximum production to the very limits of their capacity. Honey itself is subjected to centrifuging, heating and fine filtration, which have been shown to reduce considerably its nutritional value and natural healing qualities.

In contrast, beekeepers who take a more natural approach to beekeeping seek to avoid the use of synthetic chemicals and medications, and put their attention on providing the best conditions possible in which their bees can thrive, while only taking such honey as their bees can afford to lose. Natural beekeepers tend to be small-scale and non-commercial.

A Paradox Unravelled

We have to acknowledge the difficulty inherent in the phrase 'natural beekeeping': as soon as you consider 'keeping' bees, you begin to stray from what is truly 'natural'. In nature, only bees keep bees.

So what do we mean by 'natural beekeeping', and what is 'unnatural' about conventional beekeeping?

To be considered 'natural', our beekeeping must take into account:

- the *natural impulses* and behaviour of bees, including - foraging, swarming, storing food and defending their nest
- how *hive design* affects bees
- the suitability of *hive materials* used, including considerations of sustainability
- the nature and frequency of our *interventions*
- the *local impact* of a big increase in honeybee population on other species of pollinators
- the balance between *honey harvesting* and the bees' own needs
- the nature of any added inputs – *medications and feeding*

Natural impulses

A good deal has been written about swarming - mostly about how to prevent it. Conventional beekeepers spend a good deal of time and effort doing their best to thwart the bees' impulse to swarm. Experienced beekeepers will tell you that preventing swarming is very difficult and time-consuming and – as often as not - unsuccessful: natural beekeepers will tend to focus on ways to work with, rather than against the bees natural reproductive cycle.

Similarly, we have to make allowances for the fact that bees will – to a greater or lesser extent – collectively defend their home, their queen and their food stocks, and adjust our behaviour to cause them minimum stress.

Hive design

There are hundreds of hive designs, and more are added each year. Most of them use frames (for the convenience of the beekeeper) and wax foundation (supposedly to give the bees a 'head start'). To my thinking, both of these items get in the bees' way and cause more problems than they solve: frames create excellent hiding places for pests such as wax moth and small hive beetle, while foundation is simply old wax recycled along with traces of all the chemicals other beekeepers have added to their hives – legally or otherwise – along with their largely unknown breakdown products.

Top bar hives – horizontal or vertical – or some form of log, pipe or basket/skep hive – are preferred by natural beekeepers, as they are designed primarily to suit the needs of the bees, rather than the beekeeper, while still making 'beekeeping' – as opposed to 'bee-having' – a practical possibility.

Hive materials

Plain, untreated wood is the most obvious first choice for hives, as being the closest to the bees' preferred habitat - the hollow tree.

Straw and reed are also practical hive materials, especially where grasses are more freely available than timber, while pottery/clay hives are common and suitable in some climates.

Sustainability should always be a consideration, including the energy content of a hive: framed hives, for example, have to be made using power-hungry machinery due to the close tolerances in their design, while top bar and other simple hives can largely be made using hand tools.

Interventions

Natural beekeepers only open hives when there is a good reason to do so, and tend not to carry out 'routine inspections' just because so many days have passed, unless they suspect a problem following observations at the entrance. We use all our senses, including smell, taste and hearing, to help diagnose the health of the colony. We consider that the *atmosphere* of the hive is important both for the retention of heat and the bees' own control of potential disease and pest problems. Unnecessary interference in the highly organized lives of bees causes them stress, which may well make them more susceptible to disease.

Local impact

There has long been a tendency for beekeepers to assume that their bees can only add to the quality of the local ecology, forgetting that swamping an area with hundreds of thousands or even millions of honeybees may be potentially deleterious to the local bumblebee or mason bee population, for example. The natural beekeeper will consider such environmental factors when planning where to place hives, and in what numbers.

Likewise, all beekeepers should be aware of the potential impact of the proximity of hives on other people and animals such as horses, which are notoriously sensitive to bee stings.

Honey harvesting

Of course, most people keep bees for their honey, and commercial beekeepers manage their bees to maximize honey yields. Natural beekeepers may prefer to keep bees for their own sake, or take only the honey they judge the bees can spare, ensuring that bees have enough to carry them through the winter or dearth period.

Medications and feeding

The abuse of medications is almost certainly a causal factor in the recent crisis in bee health, particularly in the USA. Both amateur and commercial beekeepers have for years been advised by their 'professional bodies' that it is essential to apply prophylactic antibiotics, anti-tracheal mite and – most notoriously – anti-*Varroa* treatments on a regular basis, despite the growing evidence that they were accelerating the evolution of treatment-resistant bacteria and parasites by so doing.

Adding *any* foreign substance to a hive causes the bees extra work by diverting some of their energy towards dealing with the intrusion. The natural beekeeper prefers not to use any medications, and if any treatment proves necessary, will opt for herbal, homoeopathic or bio-mechanical remedies with the minimum disruptive effect.

Likewise, the natural beekeeper regards feeding sugar as a last resort rather than a routine procedure, preferring to leave bees to overwinter on their own honey and harvesting the surplus in the spring, when it is no longer needed.

So we are engaged in a constant process of working towards the ultimately unattainable notion of completely 'natural' beekeeping, while acknowledging that the bees will go their own way regardless of our wishes. Our relationship with them is that of facilitator or minder rather than 'keeper'. We could say that the role of the natural beekeeper is to enable our bees to attain the fullest possible expression of their 'bee-ness' while in our care.

Natural Beekeeping and Sustainability

Our overall goal in natural beekeeping is to achieve a state of sustainability - balancing inputs and outputs such that our activities enhance rather than damage the health of our bees, other species and the planet.

To be truly sustainable, a system must be as close to carbon-neutral as it can be, requiring no synthetic inputs and having no detrimental impact on the natural environment. So if we are to continue to have a relationship with honeybees, we have to consider what impact current beekeeping practices have and how our 'natural' approach seeks to improve on this state of affairs.

A typical commercial beekeeping operation is a real energy hog. Lumber – which may or may not come from sustainable sources – is felled, sliced and milled by powered machinery prior to assembly into hive boxes, which are transported by road, sea or rail to be further distributed by road to their apiary sites. Regular visits by beekeepers require oil-derived fuel, and more is needed to fire the boilers to heat the considerable quantities of water needed for sterilizing woodwork and washing down de-cappers, extractors, tanks and floors. More power is needed to retrieve the crop, to extract it and to mix and distribute the sugar syrup needed for the bees' survival following the removal of their stores. Honey must then be filtered, bottled and distributed to wholesalers and thence to retail outlets. Meanwhile, beeswax is recovered by means of steam or boiling water, cleaned and filtered and sent off to be re-melted and turned into sheets of foundation, which are then sold back to the beekeepers for insertion into frames for next season.

Migratory beekeepers in the USA truck hives by the thousands clear across the country for the almond pollination, and north for the blueberry crop. In the UK this type of activity is nowadays largely restricted to taking hives up to the moors in August for the heather crop, although a certain amount of smaller-scale, migratory fruit pollination work is still done.

Due to the Langstroth hegemony, this whole scenario is also enacted in miniature by amateur beekeepers, who largely mimic the activities of their commercial brethren. They may only have a few hives at the bottom of their gardens, but in most cases they have not considered any alternative to the expensive, energy-hungry equipment available from the glossy catalogues of the beekeeper's suppliers, so many of them end up with a garage full of woodwork and stainless steel.

We know that bees need nothing much more than a dry, ventilated cavity in which to build their nest. Instead, 'modern' beekeepers supply them with a box full of wooden frames, in which are mounted sheets of wax, helpfully imprinted with oversized 'worker-bee' hexagonal cell bases. A newly-hived swarm of bees must be surprised indeed to find so much done for them: ready-made comb bases hung in neat rows, with spaces all around them for access – what a boon for a busy bee colony!

But what may at first sight appear to be a great convenience, also has some significant drawbacks. All these imprinted cells are the same size, yet anyone who has observed natural comb knows that cell sizes vary considerably, and not just between workers and drones: worker cells themselves vary in diameter according to rules only bees are aware of. All those dead-straight frames may look neat, but bees don't build dead-straight comb – they like a gentle curve here and there. And if you watch bees building natural comb in an unrestricted space, they hang in chains, legs linked, as if laying out the dimensions of the comb in space as they work above their own heads – something they cannot do on foundation.

So a good deal of so-called 'modern' beekeeping is unsustainable from our point of view. In terms of honey yield, it is clearly an improvement on logs and skeps, but in terms of bee health and energy efficiency, it has proven to be a disaster.

The work of the progressive, natural beekeeper is to find ways of interacting with bees that are truly supportive and sustainable, both for the bees themselves, for ourselves and for the planet.

Principles of Natural Beekeeping

In *The Barefoot Beekeeper*, I proposed the following three, simple principles for the 'natural' beekeeper to consider:

1. *Interference in the natural lives of the bees is kept to a minimum.*

2. *Nothing is put into the hive that is known to be, or likely to be harmful either to the bees, to us or to the wider environment and nothing is taken out that the bees cannot afford to lose.*

3. *The bees know what they are doing: our job is to listen to them and provide the optimum conditions for their well-being, both inside and outside the hive.*

These principles seem to me to form a solid foundation for our thinking about how we approach bees and beekeeping. As soon as we attempt further to define the parameters, we find ourselves in danger of beginning to create a 'book of rules'. And it doesn't take much looking around the world today to see how divisive and destructive other 'books of rules' have been.

'Natural', 'balanced' or 'sustainable' beekeeping – whatever name we give it – is a *process*, not a single destination. We have to remain flexible and always be on the lookout for ways to improve our techniques. We must be alert to indications of what seems to work, always with the possibility that there are even better ways yet to be discovered, or – more likely – re-discovered, as there is really nothing new in beekeeping.

Toxic Agriculture

Of course, not all of the bees' problems can be attributed to hive design or beekeeping methods. Our 'modern' agricultural system must carry a great deal of the blame: for many years, pesticides, fungicides and herbicides have been poured, dusted and sprayed onto our food crops with scarcely a thought for the consequences to wildlife and the health of the soil. Genetically mutated crops are hurried onto the market in the name of profit, with virtually no testing for long-term safety. Vast swathes of land are put down to chemical-dependent monocrops, with an inevitable impact on biodiversity.

Within my lifetime, a great deal of effort has been put into cleaning up atmospheric pollution in our cities, to the point where beekeepers in London are routinely getting honey yields well in excess of their country cousins. If we are to save the bees – and arguably ourselves – from cumulative health problems, we must now start a similar clean-up of our countryside, and rid it of the poisins that are undermining the very basis of life on Earth: the living structure of the soil.

The Future of Natural Beekeeping

Historically, we began our relationship with bees when somebody discovered that the taste of honey was worth the pain it cost to harvest. We became honey-hunters, and while there were few of us and many of them, this was sustainable.

When somebody discovered that it was possible to offer shelter to honeybees while they made their honey, and then kill them off to raid their stores, we became bee keepers, and while there were few bee keepers and many honeybees, that too was sustainable.

Then someone invented a way to house bees that did not require them to be killed, but instead allowed people to manage and control them to some extent, arranging things so as to trick them into producing more honey for their masters than for themselves, and we became bee farmers. And that was sustainable for a while because there were still many of them and although there were also many of us, we could manipulate their reproduction so as to make more of them as we needed.

Now it has become clear that we have gone too far, for bees began to suffer from diseases that had been virtually unknown during the old days, and they had to be given medicines in order to keep them alive. And because a whole industry had grown up around the farming of these bees, and there was a lot of money at stake, beekeepers were slow to change their ways and many could not do so for fear of bankruptcy, and so the health of the honeybees became worse and they became subject to parasites and viruses that had never troubled them in the past.

Meanwhile, we forgot how to grow food in the way that we once had done because we were no longer inclined to labour in the fields, and instead devised clever ways to make the soil support more crops. We poured fertilizers onto our fields and killed off inconvenient creatures with 'pesticides' – defining a whole class of living organisms as our enemies and therefore dispensable. This was never sustainable, and never can be: we are constantly withdrawing more than we deposit.

And that is where we find ourselves today, and this is the problem we face: bees that have become weakened through exploitation and a toxic agricultural system, allied to the impossible expectation of continuous economic growth.

As 'natural beekeepers', our most pressing work is to restore bees to their original, healthy state. We need to think of ourselves as 'keepers' in the sense of 'nurturing and supporting' rather than 'enslaving', which is the old way. We must seek to protect and conserve the honeybee by working within their natural capacity, and not constantly urge them towards ever greater production. We must challenge the whole agricultural and economic system that has caused us to arrive at this point, because without change at that level, the future for both us and the bees is bleak.

We can make a start by establishing new and more natural ways of working with bees: neither we nor they have any need of unnatural 'treatments' with synthetic antibiotics, fungicides or miticides. We don't need to operate 'honey factories' – we can content ourselves with providing accommodation for bees in return for whatever they can afford to give us. In some years, this may be nothing at all, while in others there may be an abundant harvest.

Such is nature: bees depend on honey for their survival; we do not.

If the price of returning bees to a state of natural, robust health is a little less honey on our toast, is it not a worthwhile sacrifice?

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The Barefoot Beekeeper is available from booksellers using ISBN 978-1-4092-7114-7 and from the author's web site – www.biobees.com

The author's podcast can be found on iTunes and at http://biobees.libsyn.com

The Natural Beekeeping Network is an informal, worldwide network of beekeepers who are developing more natural beekeeping methods. Their web site is – www.naturalbeekeeping.org

Friends of the Bees is a UK-based charity that aims to promote natural beekeeping alongside conservation of all bee species. Their web site is – www.friendsofthebees.org