

A tale of three cut-outs and of the bees that read some of the books

Stephen Fleming, co-editor



Last year, a few of us were involved in three cut-outs – removing established honey bee colonies from odd places. Typical of beekeeping, little went quite as expected. One was a precarious operation, one experimental and the other downright baffling.

Chimney bees

I cannot give great detail about the precarious cut-out because I was firmly rooted to the ground, as Steve Smith, of Mr Smith's Honey, gamely took on the challenge of removing a nest from a chimney in a renovated cottage near Basingstoke. The owner had undertaken a beautiful conversion of the two-story building but mysterious debris arriving down the chimney had revealed that honey bees had taken up residence at the top of the stack. The bee-conscious owner wanted the colony removed – but alive if at all possible.

As the photograph shows, the chimney wasn't very accessible. After consultation with Steve Smith, the homeowner offered to hire a cherry picker that would enable Steve to reach the colony. Precision siting of the cherry picker proved quite a challenge too, but one Sunday afternoon Steve was to be seen strapped in by a safety harness and expertly driving the onboard platform controls of the vehicle into the best place from which he could perform the cut-out.

While we trembled below, Steve removed the chimney pot to reveal what turned out to be a disappointingly small nest. I'm not sure that Steve was necessarily disappointed that it was so small, since he was on the front line – as the wannabe generals offered ill-informed advice from the safety of the garden. Fortunately, the bees were very well behaved, even though the summer nectar flow had ended and they would have been preparing for winter.

Having removed some of the brickwork around the pots, Steve could reach some of the comb which he fitted into the frames of a nucleus polyhive.

Although he removed all the comb, some bees remained inside the chimney – quite possibly with the queen. Steve then produced his secret weapon – a bee vacuum. Although it seemed brutal at the time, the bees were sucked into a bee box with only a very few fatalities. They were then unceremoniously dumped into the polyhive which was then put on the chimney stack to collect returning bees.

That evening, the colony, now in the hive, was lowered to the ground and driven to its new less-lofty location. It sounds simple, but of course a lot of preparation, thought, effort and expense went into the operation. As a result, it was very satisfying exercise – even for the garden-chair generals.



Steve Smith preparing the bee vacuum

Experimental hive bees

Many readers will already know of Derek Mitchell who is undertaking research into the thermal characteristics of beehives and trees. With his beekeeping wife, Elaine, he has installed several experimental pseudo-tree hives in apiaries in Berkshire and Hampshire.

An experimental hive was located in one of my apiaries (see June 2018) and Derek was keen to examine the comb architecture in his surrogate tree. I had watched the hive with great interest throughout two summers and one winter, intrigued but unable to see what was happening within. In the winter the hive had fallen during a gale, but the bees survived and redesigned the interior of their home in their tower block. As we were later to discover, they built new comb at the top of the hive and created passageways through the fallen comb at the bottom of the hive.

The tell-tale mark of speckled wax on the outside of the base of the tower showed that the bees had attempted to swarm in late spring of their second season, but whether they made off with the queen or whether she was somehow damaged and unable to fly we will never know. The wax suggested that they had remained at the base of the tower for some days.

However, by the time Derek and Elaine arrived in August to dismantle the hive, the colony was small and queenless. Nonetheless, the colony had built sufficient comb over the preceding 18 months for them to take the now-empty nest off for analysis. Derek promises an article for *Bee Craft* telling of his results.



The experimental hive



The nest cavity was a narrow slit about one metre long, barely able to hold more than three vertical parallel combs at its widest. Realistically we couldn't measure the original volume, but we would estimate that it was between 15 and 30 litres. These estimates concur with Seeley's findings of preferences.



The JCB telehandler provided safe access to the nest, enabling us to work in comfort. Clearly it should be on the Christmas list of every beekeeper.

Baffling bees

On the longest day of 2019, we were called out to rescue a colony that had been exposed when a branch snapped from a cherry tree on the Wasing Estate in Berkshire. The estate is managed in an environmentally sensitive way and fortunately the maintenance manager is none other than the intrepid Steve Smith of chimney-rescue fame. He was alerted, called up the beekeeping reserves in the form of Richard Rickitt and me, and we went to inspect the nest.

The tree was on the edge of a mixed woodland and the nest was far above head height. Fortunately, we had access to equipment that bee removal teams can usually only dream of. The vehicle, a JCB telehandler (a Gentleman's JCB might be a more apt name), was superb to use and quite a contrast to narrow, wobbly ladders. It gave us plenty of time to inspect the bees at close quarters and to perform the cut-out in comfort. For me, the timing was perfect – I was part way through reading

Tom Seeley's *The Lives of Bees*, his latest book, about wild bees in trees in New England. I was able to compare what he found with what we were dealing with. As it turned out, for once the bees seemed to have been reading Tom Seeley's book and following it as best they could. The photographs and the captions tell the story best. The summary table (page 32) from Tom Seeley's book shows the preferences of bees in his New England trees for comparison with our discovery.

As is very common in Britain, the nest was on a tree on the edge of a wood – or perhaps that's where nests tend to be more noticeable. At about five metres above ground, the nest-entrance height was in the range that Seeley suggests is most common – between 4 and 15 metres. The entrance had actually fallen to the ground when the tree snapped, but we

Photos: Stephen Fleming and Richard Rickitt



The cavity was certainly dry, and its most striking feature was the propolis lining (above). Seeley has found that this is a common feature of nests when the interior sides of a nest are not very smooth. The bees seal the cracks and crevices and create a master plasterer's work that, because of the antibacterial qualities of propolis, helps keep the nest fresh and sweet as well as warm and dry.

could see where it had been. This entrance seemed to have been smaller than those used by bees in Tom Seeley's studies. It was about 5cm wide by 4cm high. The entrance faced south east – again, one of the preferred directions. Another otherwise apparently suitable cavity on part of the tree had not been selected, possibly because its entrance was too large or the cavity too small – or just not such a desirable residence.

Piece by piece, we removed as much of the comb from the tree hollow as best we could. Elastic bands held the comb in place securely and we managed to fill almost four frames with brood or stores.

As darkness began to fall, we had extracted most of the comb and tied the brood into the frames that fitted into the nucleus polyhive. Up to that point, the bees had covered the brood and did not seem agitated. The colony looked healthy; there was no obvious sign of varroa and only a little chalkbrood. At first, they contentedly followed the brood into the

polyhive that had been placed quite close to where we thought the original entrance would have been.

After a while we realised that very few bees were following the brood into the polyhive and some must have been departing. We provided a bridge of comb to give easier access and when that seemed to offer no encouragement, we even tried drumming the tree trunk with firstly a hive tool (but any vibrations quickly dissipated in the trunk) and then a hammer (even then the impact was quickly nullified by the tree). Drumming is a traditional technique of moving bees from one skep up and into another (December, 2018).

It was all to no avail. The bees did not want to follow the brood. We guessed they stayed with the queen (although we never caught sight of her) lower down the original nest. The polyhive had held bees before, so it should have had an enticing smell, but the bees ignored it. As night drew in, we left the bees to do what they do best – puzzle beekeepers.



At the bottom of the cavity was a substantial collection of very fine-grained debris – so well mixed that it was difficult to distinguish what exactly it was. It must have contained wood, decomposing bees, brood, probably mites of many sorts, wax, and pollen. It was quite dry and had no unpleasant smell. As is shown in the photo (above), the bees were still interested in it.



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The ideal home for honey bees

Nest site properties for which honey bees do or do not show preferences, based on nest box occupations by swarms – from Table 5.1 in Tom Seeley's *The Lives of Bees*, Princeton, 2019.

A > B means that A is preferred to B; = means no preference.

PROPERTY	PREFERENCE	FUNCTION
Entrance size	12.5cm > 75cm	Colony defence and thermoregulation
Entrance direction	South > north facing	Colony thermoregulation
Entrance height	5m > 1m	Colony defence
Entrance location	Bottom > top of cavity	Colony thermoregulation
Entrance shape	None: circle = slit	Both shapes work well
Cavity volume	10 < 40 > 100 litres	Storage space for honey; colony thermoregulation
Cavity shape	None: cubical = tall	Both shapes work well
Cavity dryness	None: wet = dry	Bees can waterproof a leaky cavity
Cavity draftiness	None: drafty = tight	Bees can caulk cracks and holes
Combs in cavity	With > without	Economy of comb construction

The denouement

None of us was free to return the following day, but the day after that, Sunday, Steve and I went to visit again reasonably confident that we would be preparing to move the colony. But the nucleus box was empty – the bees had flown. Only a few homeless stragglers flew around forlornly. There didn't even seem to be any robbers other than a few bumblebees scavenging the scraps of comb that had fallen to the floor a few days before.

Our best guess is that the bees had felt there had been quite enough disturbance at that site and that it was time to move to a more peaceful neighbourhood. Perhaps they had taken that decision even before we arrived on the Friday. No one knows exactly when the tree had snapped, but it had probably been at least a few days earlier, giving the bees a chance to reorganise and plan.

Since the weather was good and nectar should have been flowing, we went searching around the woodland to see if their might have been a new bee development anywhere, but found nothing. Next year, we may try Tom Seeley's bee-lining technique in the area to try to discover any colonies that might be in the woodland.

Until we made our disappointing empty-nest discovery, we had been impressed that the bees must have been reading at least Tom Seeley's book. But it seems they didn't manage to start any books about how beekeepers might help them.

