

# *Comblings*

The newsletter of the York and District  
Beekeepers Association.

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“Combings” is the newsletter of the York & District Beekeepers Association. Views expressed in the newsletter are those of the individual contributors and not necessarily those of the Association as a whole or of the editors.

Contributions to, and comments on “Combings” are always welcome. We would particularly appreciate your pictures for “Reader’s Hives”.

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**18<sup>th</sup> August 2013.**

## **Two Eds.**

The debate over neonicotinoids will continue, but in the wake of the announcement of a two year ban in Europe, and with no new group of pesticides on the horizon, farmers will have to fall back on a previous generation of pesticides. Neonicotinoids may or may not deliver a sub-lethal dosage to pollinating insects, but the older pesticide generation is capable of killing a colony in a very short space of time, so please see pages 17-19 for a “what to do” guide, if you suspect one of your colonies has been poisoned by a pesticide. It may be worth a reminder that Fipronil, which is a widely-used pesticide, is also the active ingredient in many pet flea treatments. Fipronil can poison bees; so please be aware when applying this treatment.

Combings HQ is not qualified to make judgement on the pesticide issue, but we can comment on the number one enemy of our bees: make sure you treat your colonies with an

effective Varroa treatment and do it more than once a year. There is a newly licensed treatment available, MAQS®. It would be interesting to hear from any member who has tried it.

Spring has finally arrived after a long and difficult winter. Colonies for sale at both the Lincoln and Beverley auctions realised a premium (£250 - £320); an indication of the significant losses for some experienced beekeepers, as well as those newer to the craft. Think about what may have caused your losses and what you can do to avoid this next year.

### **Health & Safety!**

Make sure that someone knows where any out-apiary sites are and always remember to take your mobile phone with you - accidents do happen.

### **A message from BBKA**

The following was sent to all BKA secretaries from Jane Moseley, Operations Director/General Secretary, BBKA.

The 2013-14 Membership Card has been circulated to all members; however, despite several proof readings it went to print with the wrong date, 2012-13.

We are not in a position to reprint and re-circulate the cards. However the 2012-13 card is valid until 2014.

All benefit providers have been advised of the printing error and when shown the card will honour any benefits offered.

A letter for allotment holders and others in need of confirmation is posted within the Members Area of the BBKA website.

Please be sure to circulate this information to all members and accept my sincere apologies for this error.

## **Queen cells**

A timely look at different types of queen cells

Queens are raised by bees:

- a. Under swarming impulse
- b. To supersede a failing queen
- c. To replace a queen that has been lost (“emergency”)

### **a. Under swarming impulse**

When the colony is expanding in the spring, drone cells are laid up in preparation for swarming. As drones take longer to mature than queens, these cells must be prepared before queen cells. When the drone brood is advanced, and the colony condition and weather is suitable, the queen cells are begun.

Queen cells built under the swarming impulse are usually built on the sides or bottom of the frames. The cell starts as a small “acorn cup”, and when complete it will hang downwards and resemble a peanut shell. Several queen cells are started in succession and another batch is started after a few days. Six to twelve cells are usually built but some colonies build more.

### **b. Supersede queen-replacement cells**

A failing queen will be recognised by the workers and they will

arrange to raise a replacement. A “perfect supersedure” is where the daughter is mated and starts to lay before the old queen is removed by the colony.

**c. Emergency queen-replacement cells**

A queen lost by accident will be replaced by the bees by one raised from young worker larvae, as in supersedure. While such queen bees are maturing, no young brood or eggs will be found in the hive.

**The following table is taken from “A Manual of Beekeeping” by EB Wedmore:**

Period of development (in days) in readiness for outside duties:

	<b>Queen</b>	<b>Worker</b>	<b>Drone</b>
Period prior to emergence	15	21	24
Interval after emergence	5	15	13
Total (days)	20	36	37

**From the Chair**

I did like the comment one of our committee members made recently, “Bees have not been co-operating with the calendar”.

Association business has been affected by the weather too. You will find an insert for your programme card because we have had to alter a number of the meeting dates. The Practical Course for beginners has been put back 4 weeks so that queens can be raised for those wanting colonies. We are doing our best to stay on-course, but to be on the safe side, do

please check the website for dates and times, or telephone a committee member.

Still on Association business, it was suggested that in future we shall ask members who wish to ask questions at either the A.G.M. or the half-yearly meeting to do so in advance of the meeting. This will enable your question to be put up on the screen and for your committee to give a considered response. The suggestion was agreed to unanimously and we hope that this will meet with members' approval.

Whilst on the subject of the committee, there will be re-elections at the A.G.M. on the 16<sup>th</sup> October and I do urge you to consider getting involved. We are all volunteers and the more helpers there are, the more we can share the work around. Both the Beginners Course and the Programme with its various events do require time but they also have their rewards.

We received a grant from the Co-operative a few years ago and were able to construct the netting for our Murton Apiary, buy bee suits for children, a TV and DVD player for the entrance hall at Murton, and DVDs on bee related subjects. There is still money left over and it is our intention to construct and manage a demonstration hive similar to the one at Harlow Carr Gardens in Harrogate. Further research has suggested that though we have the funds, we need to have at least 3 volunteer beekeepers to manage it. If you live not too far from Murton and would like to get involved, please contact me or one of the committee. An empty demonstration hive is not a good image but a working one is.

I am always on the lookout for interesting photos to put onto the website so if you have your camera with you on holiday and see something unusual, (bee related please!) please take a picture and send it to me. You can also submit it at our Honey Show and earn the admiration of others!

Paul Taylor, Chairman.

**Date for your diary:**

**Saturday 22nd of June – YDBKA Auction, at Murton.**

It's time to start dusting off that old piece of equipment that you no longer really use and submit it to the auction.

As usual, no rusty tin-ware, old comb, or items which have not been thoroughly cleaned and sterilised will be accepted.

Any bees must be inspected by a seasonal bee inspector prior to being brought to the auction.

I need to be notified before the date of the auction if you intend to bring bees.

Colonies with suitable ventilation can remain captive, which may result in a higher price paid by people who don't want to wait until late in the evening when all the bees have returned to the hive.

Nigel Davies

**The Reader's Hives** feature is absent from this edition as there were no pictures forthcoming – please send us your pictures!

**Alan's top beekeepers:**

In the second of the occasional series of famous beekeepers, we look at the life and work of the Swiss scientist Francis Huber (1750-1831).

Herbert Mace, in his book "Bee Matters and Bee Masters" (1930) rightly divides the history of beekeeping into that which is pre - and that which is post- Huber. Other writers had held forth about what did or did not happen in the depths of the hive, but their observations were greatly hampered by inflexible hive designs, which did not lend themselves to any accurate

assessment. Additionally, there was the practice of simply “re-hashing” previous works (especially if the previous authors were of “high status”) with little or no scientific scrutiny of their own. Huber, however, was no respecter of reputations and set about, from first principles, to record what actually happened inside the hive.

Huber’s main tool for this was the invention of the “leaf-hive”, a multi-leafed, glass-covered, observation hive, which allowed bees to behave normally but enabled close scrutiny of each frame – there was no further need to guess. What he saw, however, contradicted the existing wisdom to such an extent that Huber almost abandoned the project, completely overwhelmed by new data. Thankfully, he did not.

He reviewed every subject then under debate, and devised experiment after experiment to find the truth of it and moved from subject to subject. It took years and covered such subjects as queen mating, egg laying, royal jelly, drone laying queens, larval development, wax production, cell use, propolis – the list goes on and on. Virtually everything he recorded turned out to be correct, although he was lambasted by some reactionary authors at the time.

The astonishing thing, however, was that Huber had been blind from the age of 15. Aided by his wife and by laboratory assistant, Francois Burnens, he devised, remembered and constructed theories in total darkness (actually, for me, it’s Burnens who is the hero!) and then eventually wrote up his findings in the famous work “Nouvelle observations sur les abeilles” (1792). It was published in England in an abridged form in 1806: a complete English translation of “New observations” was only available (in America) in the mid 1920s.

Reprint copies are still available and it repays reading; it reminds one that there is a great deal of science behind our craft and that knowledge of it is essential before we go artfully fiddling about in a box of bees!

## **Citizen scientists wanted!**

The Editor went to a talk about the OPAL survey recently and I wondered if our readers might like to take part. The results are plotted on a map on the website [www.OPALexplorenature.org](http://www.OPALexplorenature.org), so we can see how many people in our area are taking part and their findings. Hard copy survey packs are available through the mail, or you can download from the website, or there is an App, if you prefer that method. Please see the website for all details.

“Spring into action and discover more about our trees by taking part in the OPAL Tree Health survey. OPAL researchers, together with experts from Fera and Forest Research, are asking everyone to examine the trees in their local area and keep a special eye out for pests and diseases, particularly those affecting Oak, Ash and Horse Chestnut.

Survey activities are fun and include identifying trees, measuring their girth and height, examining the trunk, branches and leaves for signs of poor health and recording the presence of pests and diseases.

You can download or request your free survey pack, including tree identification guide, field notebook, field guide and Six Most Unwanted card from [www.OPALexplorenature.org](http://www.OPALexplorenature.org)”

## **Noted from the BBC website recently – it may be worth stocking up now for autumn feeding:**

Farmers are counting the cost of "mystery" symptoms affecting sugar beet crops across parts of England. In some areas more than 50% of the beet, grown to be made in to refined sugar, has failed.

## **From the Inspector**

Due to the slow start, cold weather and lack of brood in many hives there is very little to report from the world of bee health that most beekeepers don't already know by now, but with this change in the weather things should start to pick up. It may be worth reminding people that just because the sun is shining that doesn't necessarily mean the bees have everything they need, a little syrup can go a long way in giving weak colonies a boost.

Dhonn Atkinson, Seasonal Bee Inspector.

NB. In the York area we usually have two inspectors. At the time of going to print, the recruitment process is ongoing for Dhonn's opposite number.

**Its swarm time, so there has got to be a picture....just a little one!**



### **First, find your queen....**

At this time of year, all instruction begins with that phrase, sometimes it's easier said than done!

It helps if the queen is marked but sometimes it seems impossible to find her.

First, make sure that your colony is showing signs of recent queen activity i.e. that there are eggs: if the queen has been lost through swarming or "operator error" (it does happen), there is no point in searching for something that isn't there!

NB.If this has happened to you and you are unsure of what to do next, call an experienced beekeeper for advice.

There are various search methods which can be employed but a good one to try if the queen is elusive, is to remove a couple

of frames (ensuring the queen is not on any of these) and then space the remaining frames in pairs evenly throughout the brood box. The queen will tend to hide in the middle of a pair where it is dark; so take out a pair of frames together and carefully open them, looking for her movement as you do so.

No method is infallible, as the editors found out recently... and just when we thought we'd got the hang of it!

Two unusual methods which I saw in the Shropshire BKA Newsletter April 2007 - has anyone tried these?

1. When you have to get rid of an unsatisfactory queen, don't put your foot on her\* but put her in a matchbox and place her in the freezer. Whenever you want to find a queen in a colony, take this old dead queen out of the box and pin her to the top bar of a centre frame. Close the hive. Wait 10 minutes and open up quietly. The queen you want to find will be there, busily trying to get rid of her (dead) opponent.

\*Attempting to squash a queen underfoot may result in her flying off, or you not completing the job properly, leaving an injured queen. When dispatching a queen, do it quickly and efficiently between thumb and forefinger.

2. For this method you need two queen-right hives. To find the queen in hive one, take a frame of emerging brood from hive two and shake off all the bees. Exchange it for a similar frame from hive one. Close the hives and wait twenty minutes. Open hive one and carefully examine the frame you exchanged from hive two. The queen will be on that frame (because it smells different to her).

## **Did you know?**

Queen larvae are fed much more often than worker larvae. It has been estimated that each queen larva receives a total of 1200-1600 feeds of up to 17 hours duration.

(From The Social Organization of Honey Bees. John B. Free)

## **An invitation from the Committee:**

YORK and DISTRICT BEEKEEPERS ASSOCIATION  
INVITES ALL MEMBERS AND FAMILIES TO THE ANNUAL  
'BRING AND ENJOY' BBQ AT MURTON, ON THE UNDOUBTEDLY  
GLORIOUS EVENING OF SATURDAY 29 JUNE FROM 6PM.

Salads, breads, desserts and soft drinks will be provided, but please bring: burgers, sausages, half-cows and stronger beverages as you require.

Pleasant company and a good time guaranteed, so there is no reason not to "bee" there!

## **Characteristics of In-breeding.**

Thank-you to experienced queen-breeder and BIBBA member, YDBKA's Tom Robinson, who sent me this article.

"When queen bees are too closely related to the drones in a honeybee stock, the colonies display a 'spotty' characteristic in their brood pattern. This spottiness results because a certain percentage of eggs are not viable and will not develop into worker brood. Nurse bees remove these larvae soon after

hatching and the empty cells must await another visit from the queen.

How does this process take place? The sex of the honeybee is determined by more than just whether the egg is fertilised. What is also important is a single gene called the sex gene. Genes are incorporated in long strands in each cell called chromosomes, and the sex gene is found on a particular part of just one chromosome in the set. In a population of honeybees, several different forms (called sex alleles) of the sex gene can be found.

Normal Haploid drones develop from the unfertilised eggs of a queen and thus can only have one set of chromosomes and one sex gene, (haploid = half).

However for a honeybee to be female, (diploid) more is needed than just a fertilised egg. A diploid individual must have two different forms of the sex gene (one for each set of the chromosome). Individuals having the same form of the sex gene on both sets of chromosomes develop into abnormal diploid males which are effectively unviable, workers will detect and consume them shortly after they hatch from the egg. How common these diploid drones are depends on how many different forms of the sex gene are present in the population. The number of different sex genes found in a breeding population is affected by the size of the breeding population and by the rate of introduction of new alleles into the population usually from new breeding individuals (out crossing).

When the queen mates with one drone which has a sex allele different from both of hers; all offspring have two different sex alleles and can develop normally. The viability is 100%.

A queen with sex alleles A and B mated to a single male with type A sex alleles will result in half of the queen's eggs containing type A and half type B. As all the sperm have type

A, 50% of the diploid offspring will be AB (female) and 50% will be AA (diploid drone and non-viable) thus the overall brood viability is 50%.

Of course, the queen does not normally mate with only one drone. If the drones she mates with have a range of different sex alleles, the chance of inbreeding is correspondingly reduced.

A queen mating with two drones; one with a sex allele the same as hers (B) and one different (C). Assuming the queen used the sperm of each male equally, 25% of the offspring are diploid drones (BB). The brood viability is 75%.

With more matings, the picture becomes more complex. The brood viability of a colony depends on the number and frequency of sex alleles in the drone population available to mate with the queen and the number of times the queen has mated.

The first of these two factors can be controlled to some extent by the beekeeper; it is important not to use one or two breeder queens over a long period, even two or three years. When second generation queens are mated in out-apiaries, there is quite a high probability of mating with drones produced by queens reared from the same breeder queen. As these drones must have one of the same sex alleles as their mothers, there is more chance of diploid drones being produced.

Increased inbreeding leads to lower brood viability and Dr J Woyke of Poland has produced evidence that inbreeding has a marked effect on honey production. Woyke and his associates conducted detailed studies of both brood production and hive population in colonies headed by queens with 25% and 50% inbreeding. An analysis of weight gain during the honey flow and colony surplus was also made. The results showed that even in colonies with 25% inbreeding, almost one fifth of the total honey crop was lost. Colonies with 50% inbreeding

produced less than one third of the normal yield. The honey production also displayed an interesting seasonal variation with 25% inbred colonies falling off sharply in autumn flows while 50% inbred colonies did poorly throughout.

### **Did you know?**

Brood cells are polished with a thin layer of propolis before the queen lays eggs in them.

### **Fuller's Earth**

Organised as ever - John is thinking ahead.

An apiary can sometimes get untidy during the summer – putting swarms or nucs being put down where-ever there is space. Moving them three feet at a time becomes a long-winded chore, so winter is an ideal time to re-arrange things.

The ideal time is at the same time as you would do your oxalic acid treatment – during a prolonged cold spell. You can then move a colony any distance you like. When temperatures rise and bees start flying again, they will re-orientate to their new site.

The only proviso to moving them in the winter is not to bounce them about so as not to accidentally break the cluster.

### **Spray poisoning**

At a time when the effect of agricultural spraying and its impact on insect life continues to generate much debate, it may be timely to remind ourselves about the signs of spray poisoning in honeybee colonies.

Spray damage is rarely the result of a “direct hit” by spray droplets on bees, but tends to be a result of the bees collecting pollen, nectar or water that has been affected by toxic chemicals. Generally, the death of the insect is caused by either by the failure of the alimentary system (resulting in starvation) or of the nervous system (causing lack of co-ordination, again resulting in starvation).

The following list (taken from Yates & Yates) covers the tell-tale signs:

- Bees die quickly, the number obviously depending on the number affected.
- Fewer foragers at the entrance than usual.
- Poisoned bees from the inside removed to outside the hive.
- Suspiciously large numbers of dead bees outside the hive during good foraging weather.
- Dead bees with their proboscis extended.
- Affected bees crawling/trembling/spinning outside the hive, having been refused entry.
- Increase in aggressive colony behaviour.

### **After the event:**

- If only the foragers, rather than brood and house bees have been affected, the colony may survive and pick up again in a few weeks.
- If house bees have been affected, there will be evidence of larval and pupal neglect and death. Such a colony is unlikely to survive.

### **What to do:**

- Although the honey is unlikely to be affected, don't use it or process it until you've made contact with the Bee Inspector, which you should do ASAP.

- In the meantime, gather as much evidence material as possible – photos of the hive/dead bees, time/date/place, wind speed and direction, nearby field usage, spraying machinery and activity etc.
- Inform the Association Spray Liaison Officer and inform neighbouring beekeepers.

Prevention being better than cure, it's useful to have made prior contact with local farmers who can inform you in advance of their spraying plans. You can temporarily lock-in your bees, ensuring adequate ventilation and food, if you believe the spray may be a risk to bee health.

**On an equally cheerful (!) note: Stonebrood – *Aspergillus flavus*.**

Purely for the sake of academic interest, rather than in the expectation that anyone's bees will ever suffer from it, we take a look at the rarity that is known as Stonebrood.

We have all heard of and most of us regularly see, the fungal disease of Chalkbrood, *Ascosphaera apis*, in developing honeybee larvae. It is rarely fatal to a colony and it is often resolved by colony expansion, good ventilation and the safe disposal of mummified larvae which may be found on the hive floor. But it is far from being the only fungal disease of the honeybee.

Stonebrood, *Aspergillus flavus*, is one of several members of the aspergillus family which may cause bees a problem, but thankfully it is most uncommon. The Aspergillus family is general widespread and one of its number causes respiratory problems, or aspergillosis, in humans and other animals.

In bees, the fungus is filamentous, and these thread-like filaments grow through sealed and unsealed larvae, as well as pupae, killing them. Unlike Chalkbrood fungus, they also kill a

proportion of adult bees, particularly in mid-summer. It is possible for the disease to show only in the adult bee stage.

Larvae, pupae and adult bees thus invaded turn hard and die. Damaged brood turns green-ish and mouldy, as do pupal cell cappings.

There is no known treatment for Stonebrood, but thankfully it is exceedingly rare, with only a handful of cases ever recorded in the UK.

As with all bee disease recognition the “trick” is to get to know healthy larval/pupal development at all stages; by seeing healthy as often as possible, anything unusual or unhealthy should jump out of the picture, like a proof reader spotting spelling mistakes (sic).

### **A reminder: granulation of OSR honey.**

Granulation is a perfectly normal progression for all honey types. The rate of granulation varies with the moisture content and the source of the honey.

Honey produced from brassica crops and in particular oil seed rape, will granulate very rapidly. Hence it must be removed from the hive and extracted as soon as it is sealed - so get those supers off and spun out as soon as they are sealed, once it sets in the comb it is no use to you or the bees.

### **Did you know?**

The ideal temperature for storage of honey is below 10°C

### **Top tip**

The forage timing is not running as usual this year, so the “June gap”, the period that usually falls (in June!) after the

OSR and before the true summer forage is available, may occur later –or not at all. Remember to monitor the stores your bees have available and be ready to feed syrup if necessary.

### **From the Guardian 22 May 2013**



A bumblebee infested with mites, 7 May 2013. Photograph: Phil Gates

“Bumblebees still foraged on the blackcurrant blossom, even though the afterglow of sunset was beginning to fade. One, a queen, *Bombus pratorum*, fell from a truss of flowers and landed almost at my feet, brushing her legs over her furry back as if to rid herself of some irritation.

When I knelt to look closely I could see the source of her apparent torment – dense clusters of pink mites, clinging to her fur in crevices that were beyond the reach of grooming. I've often seen bees infested with mites like this, but rarely one so heavily laden. It is impossible not to feel sorrow at the sight of such industrious, valued insects afflicted in this way and there was a time when I might have contemplated catching them to try to relieve them of their burden with a fine paintbrush.

But perhaps that would be a mistake. Unlike Varroa mites that devastate honeybee colonies, there's little evidence that these bumblebee mites transmit disease or inflict significant direct harm; they may be little more than hitchhikers that are minor irritations for their host. They are commensals in bumblebee nests, and studies in Switzerland have revealed that they feed on the sticky coatings of pollen rather than on the bees to which they often cling. They may, in a mutually advantageous evolutionary pact, even be of some benefit to the colony by eating detritus and moulds that might harm the brood. Hitching a ride on their hosts is their method of dispersing throughout the bee population, detaching themselves to crawl into a flower during a pollination visit then boarding the next bee for a ride to its nest.

I watched the queen climb on to a leaf, buzz to warm up her flight muscles and then disappear over the hedge, carrying her passengers to her nest. Perhaps she had just been weary at the end of another day of dawn-to-dusk foraging."

### **A strange thing happened in Alan's apiary...**

A strange thing happened about a month or so ago, at the time that the first proper weekly inspections started: I came across a queen-less colony. "Nothing particularly strange about that" you chorus; but the colony had seven frames of adult bees, yet no trace of brood at all. It had clearly had a queen over winter, but she had gone just at the time one would have expected her to begin laying in earnest. What could have happened??

Mr Darwin tells us that organisms (or super-organisms in the case of honeybees) adopt behaviours which best enable them to survive and reproduce. (Those of us who have experienced the killing of expensive new queens in failed, autumn introductions, at a time when it's too late for the bees to successfully raise their own replacement can only wonder how

Darwin would explain that.) Quirky behaviour aside, however, I wondered how the absence/deliberate removal/deliberate killing of a queen might assist colony survival – and then it dawned! It could only assist if the queen's presence and egg-laying activities would have a negative rather than a positive impact. Certainly colonies do keep failing queens, resulting in weak colonies or drone laying queens, but queenless-ness does occur sufficiently often for it to be (one of a range of) deliberate survival strategies. If the bees had sensed a failing queen, it would make perfect sense to prevent sub-standard egg laying, and an increased rate of depletion of stores, just at a time when there was little natural forage about.

And so, I surmised, the colony had deliberately killed or driven out the queen, but to what end? There was no sign of laying workers (and that's hardly a recipe for survival) but swarming season was fast approaching. Last year I witnessed a swarm bully its way into an occupied, queen-right hive (usurpation). My queen-less colony would be an attractive proposition to swarm scout bees from another hive – drawn comb, stores and a work-force looking for leadership – the perfect bait hive! I've also heard of, but never seen, a queen-less colony flying out to join an existing swarm.

As it was, I united a small queen-right colony to my queen-less one and they are working well.

Perhaps going queen-less can be a deliberate, statistically-sensible way to behave. Make yourself as attractive as possible to another colony and keep all six legs crossed!

Any thoughts, anyone?

### **A history of York & District Beekeepers.**

Kate Wallace & Alan Johnston are intending to put together a history of the Association and we would be grateful for any memories or images you would like to share with us.

We are happy to meet with you to take notes (after the beekeeping season) if you would prefer to do it that way.

email: [Combings@gmail.com](mailto:Combings@gmail.com)

We look forward to hearing from you.

Combing's very own roving photographer, Chris Swift, has been on holiday again and took some more beehive pictures. Chris visited the National Trust's Polesden Lacey in Surrey.

Their hives are said to be yielding well, and they hope soon to market their own honey at Polesden.

**BUT....** Has anyone got any idea what is going on with this queen excluder?

