

THE ESSEX BEEKEEPER



Plum trees ... waiting for spring ... waiting for bees

Monthly Magazine of the E.B.K.A

No. 530

EBKA website www.ebka.org

**February
2009**

Registered Charity number 1031419

Essex Beekeeper's Association

The Essex Beekeepers' Association is a registered charity whose object is to further the craft of beekeeping in Essex.

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Please ensure that all material for publication is received by the Editor before the 10th of the preceding month to publication.

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February and March 2009

- Braintree *27 Feb Friday* 8pm. "Speaker TBA" Constitutional Club, Great Square, Braintree.
7 March Saturday Provisional 2.00pm. Wax Day at Easterford Mill, Swan Street, Kelvedon. Contact Mairead Colborn 01376 571778
28 March Saturday 7.30pm. Annual Dinner at Constitutional Club £16. Applications to Stuart Mitson tel. 01376 340683.
- Chelmsford *16 Feb Monday* 7.30pm. Candle-making with Martin Buckle (BBKA judge)
- Colchester *8 Feb. Sunday* 2.30pm Snowdrop tea at the gardens of Sally and Julian Hephher, tel 01206 251970.
- DH & Maldon No events submitted
- Epping Forest *19 Feb Thursday* 7.30pm. Opening Hives in Spring.
19 Mar Thursday 7.30pm. Open Evening
- Harlow *5 Feb Thursday* 7.30pm Exam briefing on disease with M. Thomas
5 Mar Thursday 7.30pm Spring Preparations with Robert Pickford
- Romford *6 Feb Friday* 8pm. "What's in Your Tool Box?" Led by Jim McNeill
6 Mar Friday 8pm. Making Beeswax Foundation with Roy Cropley.
- Saffron Walden *23 Feb Monday* 7.30pm. Workshop: "After the Basic Assessment?" with Margaret Thomas at Thaxted Guildhall CM6 2LA
24 Mar Tuesday, 31 Mar Tuesday and 7 Apr Tuesday 7.15pm Theory classes for Beginners Parts 1, 2 and 3 at Thaxted Guildhall CM6 2LA.
- Southend *25 Feb Wednesday* 7.30pm. Wax cleaning and candle-making with Margaret Thomas.
25 Mar Wednesday 7.30pm. From Blossom to Jar with John Hendrie. Both to be held The WI Hall, Bellingham Lane, Rayleigh

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ESSEX BEEKEEPERS ASSOCIATION

Report from the CEC Chairman

It has proved interesting for me to look back at my report on 2007 and compare this with the 2008 season. We have now had two poor seasons, with bad weather at crucial times. One difference in 2008, making it even worse than 2007 in my view, is that it began badly. Although I did not have bees disappear or colonies die out, three queens became drone layers during the spring, presumably due to the difficult queen mating conditions in 2007. At one apiary, none of the three hives there built up well and they had to be united down to one unit. Thus I effectively lost five colonies out of the 12 I put into winter. I hope you all fared better.

The cold spring meant that the bees could not take advantage of the oil seed rape (at least in my Division's area) and as a consequence there was a dismal spring yield of honey. With a bad summer following, my honey yield for 2008 has been one of the lowest in my 28 years of beekeeping.

However, I again prepared 12 colonies for winter and they looked good and healthy during the period of feeding and treating with Apiguard. Then on the last autumn inspection I found one hive completely empty – no bees, no stores, small patch of sealed brood. This is a first for me, with no obvious reason for it. All the other colonies looked good with plenty of bees and stores (especially the one nearest to the abandoned one!).

My Division got together as last year to dose hives with oxalic acid in December because varroa is still around, although in low numbers thankfully. I feel strongly that the low varroa counts reflect our good efforts at integrated varroa management but that this is not enough. We desperately need a good summer to help the bees; it is much healthier for the bees, as it is for us, to get out more. Meanwhile we must continue to support the BBKA in their campaign for funding for bee research.

This, my second year as Chair of the CEC, has been as busy as the first, and I have continued to cover the post of General Secretary. The CEC 'team' has worked well together and I would like to thank all of them for their efforts and support. In fact I would like to thank everybody who has worked for the EBKA, whether on the CEC or elsewhere.

The year has been very successful in many ways. For instance, most Divisions have enjoyed increased membership and found that courses have been fully- (even over-) subscribed. The CEC has implemented further measures to help Divisions and once again we've had many members braving the BBKA examinations with success. Work has been done on the Book of Commemoration, and towards a new website. Remember though, that success of the new website will depend upon Divisions making the effort to provide timely information for it. EBKA funds are pretty healthy, thus there is scope for further measures and projects in 2009 – put on your thinking caps for ways that you believe the EBKA can help beekeeping and beekeepers further.

Finally, I have enjoyed working with all the members of the CEC and I am willing to continue as its Chairman for a further year, if the membership wishes me to do so.

I hope 2009 will turn out to be a bumper year – for bees, for honey, for recruitment of new members, everything beekeeping (except varroa!).

Pat Allen
CEC Chairman
January 2009

ESSEX BEEKEEPERS ASSOCIATION

General Treasurers Report for 2008

I'm pleased to say that the EBKA and its finances were not affected by the worldwide financial traumas of 2008. Indeed I'd predict that the recession will further increase interest in beekeeping as people search for pastimes that don't cost anything...or even pay a dividend!

Our membership has grown by almost 10% since last year. Providing good quality training for new members is essential but time consuming and costly. This is the first full year where the CEC has paid half of the subscription for each new member to subsidise divisional costs for new member courses.

The CEC bought a virtual hive for every division in 2008 to support educational and promotional activities. In my division ours has been used time and time again and proven invaluable, I trust yours has too.

A new book of commemoration was a significant item of expenditure. It's the second one the EBKA has bought in its history, the first one now being full after over 100 years. It was handmade and bound in leather to be like the original. When Penny Learmonth has finished collating and entering our more recent history into it do take a look.

The honey show was a huge success again, we sold 60% more honey by value than last year. I worry about where the honey for next year's show will come from if we don't have some better conditions in 2009.

We made a landmark decision in 2008 by agreeing to part sponsor a PhD student to do research into the chemical interactions between Varroa and the honey bee. This is going to cost each of you about a pound for each of the next three years (less than 1lb of honey!). Whilst it would be nice if the Government paid for more research we must realistic and I think our bees deserve this investment.

I'm delighted to say that payments to those who passed EBKA exams in 2008 were over 60% more than in 2007. Like the increase in membership this is an excellent direct measure of our success in achieving EBKA's objective which is to promote and further the craft of beekeeping.

It's too soon to tell you about our yearend financial position in detail but we have, as intended, slightly reduced the reserve held by the county. I hope you though it was well spent. By the time of the AGM the full details will be ready for you.

Finally I must thank all of the divisional treasurers for their excellent work. During the year we have introduced new policies for asset accounting and for making our divisional accounts easier to understand which they have had to cope with.

Richard Ridler

ESSEX BEEKEEPERS ASSOCIATION

Report from the Show Committee

The Essex Show at Barleylands was well supported by the public who seemed to appreciate the displays. The honey sales were so good that honey from the 12 jars labelled honey class had, with permission of the producer, to be called upon. One large producer provided extra honey for Sunday, so there will be a need to encourage more beekeepers to provide honey in 2009. The displays of various honeys of different colours, waxes, children's drawings, cakes, sweets and mead were enhanced by the display vases of flowers. The marquee looked a picture. Outside were some Divisional gardens and hopefully more Divisions will enter this class in 2009.

We had just enough beekeepers manning the various stalls. We provided candle rolling, display of beekeeping kit old and new, bumblebee nests, wasp nests, made solitary bee nests with children, gave information, had a honey tasting table, sales table with honey, comb, cosmetics, candles, polish and honey jams and marmalade, and last but not least the two observation hives and the two demonstration hives in the bee screen. Lunch and refreshments were provided by the Romford team, giving all volunteers a welcome break and time to chat to old friends and make new ones. We will need to recruit someone to lead this activity for 2009.

Many of the public were concerned about the fate of bees and we had enquiries about joining the Association and attending beekeeping classes.

Thanks go to **all the volunteers** who helped to make the days a success and promote beekeeping. Thank you all.

The next Show Committee meeting will be on the 3rd March 2009. If you have any ideas on how to improve the show please let your Divisional representative know.

The next Honey Show at Barleyland will be on the 12th and 13th September 2009. Mark the date in your diaries.

Margaret Thomas (Chair Show Committee)

ESSEX BEEKEEPERS ASSOCIATION

Education Report

This year has been very active regarding education and this has been reflected in the number of BBKA examination and assessment passes, all detailed in previous the Essex Beekeeper. Classes on the Basic assessment were held in Chelmsford/ Maldon, Colchester, Epping, Romford, Saffron Walden and Harlow. Theory classes aimed at instruction for the Modular examinations were held in Colchester and Southend.

The result was that we had 32 passes in the Basic Assessment, 1 passed the General Husbandry Assessment, the next practical assessment, and 4 members passed various Modules.

Well done the successful candidates.

We will unfortunately not be winning the BBKA Shield for the most passes in the Basic Assessment, maybe 2009?

Margaret Thomas (Education)

Essex Beekeepers' Association
129th Annual General Meeting to be held
on Saturday 28th February 2009
starting at 2pm
at Room E06 of Writtle College, Chelmsford

A G E N D A

- 1 Apologies for absence
- 2 Minutes of the 128th AGM
- 3 Minutes of the EGM held on 27th November 2008
- 4 Report from the Chairman of the Central Executive Committee
- 5 General Treasurer's Report & Approval of the 2008 Accounts
- 6 Written reports from other members of the Central Executive Committee
- 7 Election of President
- 8 Election of County Officers
 - Chairman
 - Secretary
 - Treasurer
- 9 Notification of the 2009 Divisional Voting Members and 2010 Presiding Officer
- 10 Election of remaining CEC post-holders *Nomination:*
 - Advertising Secretary
 - BBKA Delegate
 - CPRE Delegate
 - Distribution Secretary (*The Essex Beekeeper*)
 - Editor (*The Essex Beekeeper*) Howard Gilbert
 - Examinations Secretary
 - FWAG Delegate
 - Membership Register Secretary
 - Deputy Membership Register Secretary
 - Minutes Secretary
 - NHS Delegates
 - Show Committee Delegate
 - Spray & Disease Committee Delegate
- 11 Website 2009
- 12 Confirmation of Accounts Examiner
- 13 Propositions put forward by the Central Executive Committee
- 13.1 Subscriptions 2010
 - The EBKA Trustees propose...

“...that the County portion of capitation be increased, with effect from 1st January 2010. The single member contribution to be increased by £0.50, to £6.50; the dual members contribution to be increased by £0.34, to £6.76.”

The BBKA portion of capitation has been increased, with effect from 1st October 2008, by £1 to £14 (registered member), £9.24 (partner member). However, the CEC agreed that EBKA would postpone this increase to 1st January 2010 for our members. The shortfall in 2009 will be funded out of central EBKA funds.

If this proposition is passed, and there is no further increase to BBKA capitation, the EBKA subscription for 2010 (excluding BDI as we do not know what that will be for 2010) will be £28 (single member), £44 (dual members).
- 14 2008 Conference Report: Chairman of Colchester Division
- 15 2009 Conference Preview: Chairman of Braintree Division
- 16 Installation of 2009 Presiding Officer & Reading from the Book of Commemoration

Topical Tips for February 2009

By Margaret Thomas

February is a slow season for beekeeping, a time for reflection, reading and attending lectures. Kent (thank you Kent), sent out a general invitation to hear an American beekeeper who was doing a European tour. Frank Pendell, from California, has worked with bees since 1970. After trying various jobs, such as the fire service, he started with CF Conan in California. This outfit had 10,000 acres of orchards, mainly almonds, and around 19,000 colonies worked by 6 staff. They raise their own queens, grafting 300 cells a day from 60 breeder queens for transfer into 60 cell building colonies.

The almond industry of California covers about 700,000 acres. Almonds come into bloom on the 20th February and go over by the 7th March. They require pollination by honeybees at about 1-3 hives an acre and therefore need 1½ million hives to get full pollination and a good crop. As this is early in the season, the bees are stimulated using pollen patties from early January to produce a colony covering 8 frames. Since the problems with CCD (from whatever causes), the 6 million hives in the US have dwindled to 3 million. In his opinion losses due to CCD are multi-factorial, with viruses as the major culprits.

On the east coast of the US beekeeping is similar to UK beekeeping with many apiarists keeping less than 10 colonies. Commercial beekeepers manage 1,000 colonies on their own; numbers up to 2,000 require the input of an extra beekeeper and so on. The Adei family are the largest operators with over 60,000 colonies. All large commercial beekeepers bring colonies into California for almond pollination, and follow on by other seed pollination. Commercial beekeepers use mechanical aids to move colonies and honey boxes.

In 1991 Frank started his own business on a ranch in Stonycreek, which is very dry and provides very little in the way of a honey crop. His main business is managing 1,200 hives mainly for queen rearing, and some honey. He has 6,000 mating nucs, using stand-alone nucs and aims to get 3 – 4 queens through each mating nuc. He starts grafting on the 1st of March and stops on the 30th June. He has worked closely with Sue Cobey, who was the guest lecturer at the Gormanston week's conference in Ireland last year.

His breeder queens are selected from his 200 best hives and he then selects the 20 best out of those 200. He grafts twice a week and has 60 queenless cell building colonies. His main problem when grafting is the low humidity (as low as 10%, not something the UK suffers from), so the grafters are fast to prevent the larvae drying out. He uses plastic cell cups and a Chinese grafting tool.

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The queens are confined so that he knows the age of the larvae, and grafts them at 3 – 6 hours old with just enough royal jelly to enable them to be lifted out of the cell. Sealed cells are moved from the cell building colonies into mating nucs on day 12, ie day 15 from the time the egg is laid. He does most of the grafting himself, with about 80% take. His wife and other help put out the cells and later catch and cage the queens for shipment to the purchasers. Queens sell for \$17.50 each for 100 or over.

Varroa has removed most feral bee colonies, thereby reducing the number of drones available in the general population, so he has had to produce drone mother colonies for each mating yard.

Swarming is reduced by the constant removal of bees and brood to use for the for the queen rearing colonies.

Honey crops are restricted to May/June and a second crop in September. Most honey is bottled on site. All hives/supers are moved mechanically. As he has not worked out a way to protect screened floors from damage by fork lifts, he does not use them.

His main predator is the brown bear, so all yards are surrounded by electric fencing. Skunks are also a problem.

The trait Frank is working on is producing 'hygienic' bees. He has not treated for Foul Brood and uses only 'soft' chemicals (Apiguard) against varroa. Both chalk brood and wax moth are less of a problem with his bees. He has no personal experience of Small hive beetle. The test used for hygienic bees is as follows. A pipe, about baked bean tin size, is inserted over brood and liquid nitrogen squirted onto the brood to kill it. This test can be done without liquid nitrogen, all brood within the circle has to be damaged by a pin prick through the capping. After 24 hours the comb is inspected and the number of dead brood removed by the bees is counted. Removal of 80% or above is good. It takes time to get these results, using the most hygienic to breed from. Grooming behaviour is another trait to look for.

So to this month's task. Divisions could get together and find a source of liquid nitrogen and be ready to test their colonies sometime in May. We can aim for hygienic bees with other traits such as docility, steadiness on the comb, good honey gathering, and good wintering ability.

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Technical topics

Richard Alabone has offered to write a series of articles focusing on the technical aspects of beekeeping. As you will read, his article is exploratory and so he would welcome comments. Please write to the editor on this.

Frames

By Richard Alabone (Mr Beesy)

Although Dr Langstroth patented the use of movable frames surrounded by a bee space it was only the logical result of hundreds of years of beekeeping experience. Nobody knows when we started to keep bees on movable combs, hanging from a top bar, but written records go back over 350 years and there is some evidence that goes back much further than that. Bees were kept in bucket shaped hives, with top bars, so that each comb could be lifted out; if necessary with a knife that would cut the comb braced to the tapered sides. By 1792 bees were being kept in frame hives but with the same problems we have today of propolis sticking the frames together. By 1806 movable frames were used for honey but in 1851 Langstroth used the same ideas in the brood box. All Langstroth did was to use the established method for movable frames in the brood area. In his own words he had hit upon *'the almost self evident idea of using the SAME bee space as in the shallow chambers'*. Hardly any advance at all I suggest, but in publicizing his patent he achieved fame, so that now most of the world uses the Langstroth frame.

In England we found his frame too large so used a smaller National frame, which for many is now too small, but more on that another time. The point I get steamed up about is the actual bee space between the frame and hive. If you look carefully at the BBKA hive plans, you will see that they thought about this, and quote a bee space of 6-9mm. This is a theoretical consideration of manufacturing tolerances which in practice is much worse. With some manufacturers we are lucky if the hive parts even fit, let alone achieve this theoretical bee space. Also what is not considered is the shrinkage and warp of the wood and also, more importantly, the squareness of the assembled hive parts.

Then it comes to the frames themselves, these are subject to tolerances. The foundation is not a good fit in the frame but is the only thing that gives the frame any chance of squareness unless the beekeeper glues the frame square, which is difficult to do and rarely done. The upshot of all this is that the 6-9mm bee space, quoted on the National hive drawing, is pie in the sky; we all too often get a frame that is glued to the hive with propolis.

As an exasperated beekeeper once said 'beekeeping is a practical subject'. So what is the answer? We have, for the last 150 years, tried to stick to Langstroth's bee space idea, which was all very fine, but the practical implications must be considered.

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In practice a much larger gap between frame and hive will still avoid brace comb, so it is no good pretending that we get a 6mm minimum bee space; we should, I suggest, go for a 10mm minimum and try much harder to tighten up the manufacturing tolerances, which include the squareness of frames and hive. Even with a theoretical 10mm minimum bee space the manufacturing tolerances of brood boxes and frames need to be tight, especially this elusive aspect of squareness. We would still be allowing ourselves only a 2mm out of squareness tolerance on frame and hive to achieve Langstroth's bee space of 6mm.

As far as I'm aware this aspect of beekeeping has never been properly addressed even though we have suffered the consequences for 150 years. I would much like to hear, from beekeepers, what they think of all this. Have I got it wrong or am I making a mountain out of a little propolis?

Letters to the Editor

I have received the first formal letter to the Editor.

Letter to the Editor, Howard Gilbert

I thought I would type this letter as I have now completely read the January 2009 issue of The Essex Beekeeper. Since our new editor, Howard took over the editorship from Ann Tillbrook last October, no one has in this magazine, thanked Ann for her period of editorship. Although someone from the CEC may have thanked Ann personally, which I am not aware of. Therefore I wish to record my personal thanks to her for taking over the editorship of our journal from Pat Allen in August 2006. When Ann took over she confessed that she did not have any journalistic experience, let alone experience of editorship but Ann did her best. In her editorial of August 2006 she thanked Pat for all her encouragement and time given to her during the preceding three months which built up her confidence and knowledge in what the job entailed. As a very new beekeeper, she volunteered to take on the job so that the divisions would not lose contact with each other, but would have a source of information of what was going on in the beekeeping world.

In the October 2008 issue the final one that Ann had a hand in she thanked us for our support, comments and articles during her time as Editor. Perhaps some of us did not support her enough, but she was willing to step down when another, it would appear more qualified to take her place turned up. It was a pity that Howard Gilbert was not available way back in 2006, it might have saved Ann a certain amount of heartache and sleepless nights.

Now that we have a new editor, it is up to us to support him by providing articles, photographs and items of news. An editor can only publish what his readers require and although he will no doubt provide an editorial page the rest is up to us, his readers.

David J. Blackwood

Southend Division

Inscentinel Ltd: The Sniffer Bee Technology

Talk on Friday, 24 April 2009 at the Constitutional Club, Braintree at 8pm by Mathilde Briens. Ms Briens is the Research and Development Manager of Inscentinel Ltd. She is an environmental scientist with a master's degree in business and administration and grew up in a family of amateur beekeepers in Normandy. She has worked in a bee research lab in France collaborating with Rothamsted Research. From this collaboration came the idea of using honey bees as sniffer bees and the company, which is based at Rothamsted, was set up, in 2003.

Although it is hoped that everyone interested can attend please notify names to Nobby Clark on 01277 220561 because of an accommodation limit on numbers.

For those who have not been to Braintree meetings previously parking is available in Sainsbury's car park, a matter of yards from the meeting place.



Tales from the Hive

by Richard Alabone (Mr Beesy)

Our editor's suggestion, of Essex beekeepers sharing beekeepers tales, has prompted me to put pen to paper: so here goes.

Twenty three years ago I took over loads of old WBCs, some with bees, some not, but eventually ended up with 40 colonies on brood and a half. Nowadays I have about half that number. So I have a few tales to tell.

As my methods of beekeeping are not always to the book, I have had swarming problems on and off. But on one occasion, on a hot summer's day when going to see if some colonies needed more supers, I heard a strange squeaking coming from a hive.

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Fascinating, and perfectly audible, from the depths of a WBC – queens piping - and I wondered how a queen in its cell could possibly make all that noise, just by buzzing its wings. I've never heard it again and I've never heard of another beekeeper who says he has heard it. How commonly do we hear piping, I ask? But the books do mention it as a result of having several queen cells in one hive.

Another thing noted in the books, is an unwelcome visitor; the Death Head hawk moth that enters the hive to steal honey. Having been a butterfly chaser in my youth I was aware of our largest moth which has a skull on its back – hence the name. And there, in the back of a WBC hive, I once found one; death head and all. It was dead, but the body was about the size of my index finger. My WBCs were very leaky so I suppose there is no chance of seeing one today with the controlled entrances of National hives.

I have a theory, that when several colonies on a remote site are left alone, and interbreed for generations, they become a single strain which then allows easy robbing and hence very bad temper, which they vent on the beekeeper. I recently read that Dr. Mendel, when he made his genetic discoveries, interbred bees which got so wild they all had to be destroyed. But before I heard this I already had a similar experience where four colonies, I had inherited in a remote place, became so impossible that I was afraid to go near them, let alone look for queens to bump off. So one evening I piled the four brood boxes on top of one another: and ran! A few weeks later the single colony was perfectly docile, so it is not necessarily the inheritance of the bees that controls temper but the circumstances of the colony: hence my theory. It is said that a bad colony will calm down if moved.

Another interesting experience I have had is concerning bees and horses. A farmer, who bred horses, made an enclosure for my bees in the corner of a field in which horses were sometimes put. I could go into details about horses mating, but I think the editor would not approve. But that's not the point I wanted to make.

One day a huge stallion was in the field, while I was opening a lively colony, and I tried to shoo him away. Unfortunately, he took it as an invitation, and came right up, whereupon the bees had him. The result was spectacular. For a moment he froze: then shied up, and kicked out his back legs, which forced a loud fart, before bolting away: poor thing. Clearly, horses and bees don't mix.

One last one. I was putting on my gear to inspect some bees when a friendly dog came up, which took my attention for a few moments. Having opened up a hive, with bees buzzing around, I realized one was inside my veil – I hadn't done up the zip! A quick retirement was too late, so I had a painful face for a day or so. Motto! Always check your veil zipper.

How do bees choose a new nest-site?

Summary by Howard Gilbert

In the journal *Apidologie* (35, 2004, p. 101-116) Seeley and Visscher evaluated how bees choose a new nest site in their article 'Group decision making in nest-site selection by honey bees'. They reviewed previously published research by Lindauer in the 1950's which focused on scout bees performing waggle dances on the surface of the swarm cluster advertising potential nest sites; this was followed by discussion on research from the 1970's which focused on how scout bees judge the quality of potential nest sites. 'A swarm of honey bees choosing its future home is one of the most impressive examples known of an animal group functioning as an adaptive decision maker.' The authors argued that there are three requirements a swarm need to fulfil to succeed in choosing a home: 1) it must be an accurate decision inasmuch as the home must be the right size and offer sufficient protection; 2) the decision must be reached speedily; and 3) it must be a unified decision.

The article primarily focused upon how scout bees behave to produce agreement to adopt one nest-site as their new home. Their research confirmed that of Lindauer's, namely, 1) scout bees locate potential nest sites in all directions and up to several kilometres from the swarm; 2) scout bees initially advertise several sites but eventually advertise just one; 3) the chosen site is not always the first to be advertised.

Did the scout bees choose the best nest site? In an experiment Seeley had four 15 litre spaced boxes and a 40 litre based box. In four out of the five swarms the bees flew to the 40 litre box even though this was not the first box found by the scout bees.

How do the scout bees reach a unified decision? The authors produced 'solid evidence that scouts do adjust their behaviour in relation to site quality so that the best site has the highest per capita rate of recruitment and the lowest rate of abandonment.' Seeley considers how bees are recruited to potential sites and how scout bees abandon a site.

Recruitment to better sites elicited longer and livelier dances than those elicited from poorer sites. The number of waggle dances were adjusted by changing the duration and rate of the waggle dance. So how does this lead to an increase in scout bees visiting a site? If scout bees who have already visited the site are performing such dances then the greater amount of waggle dances for this site will mean that an uncommitted scout bee will be more likely to follow this scout bee rather than another because there is greater likelihood of such a site being advertised rather than an inferior one.

Seeley and Visscher then assessed the manner in which bees abandon a potential nest site. They considered whether bees abandon a site due to some internal stimulus or whether an external stimulus causes her to abandon a site. They concluded that it is an internal stimulus (he call this *Tanzlust*).

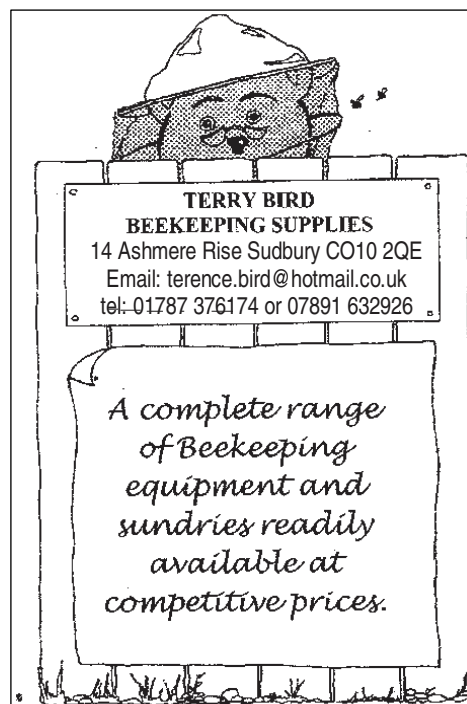
Cont. page 15

They found that bees will abandon a site even before they have experienced the dances of other scout bees. In other words scouts would lose interest in one site even before they learn about a second site. In his experiment he found, 'a total of 37 scout bees were observed, and 33 of them abandoned (ceased dancing for) the sites that they originally advertised with their dances. ... Only one of these 33 abandoners ceased dancing for her initial site *after* she began following dances for other sites. Most (32 out of 33) of these scouts lost interest in their sites without being influenced by the dances of other scouts ...' (Seeley describes this as the 'endogenously programmed extinction of *Tanzlust*').

The authors also found that the rate of abandonment was linked to the quality of the site advertised by the bee. This observation suggests that each scout bee can decide independently, in an objective manner, the suitability of her advertised site. Bees that advertised the 'best' site produced strong initial dances and produced many dances over many returns (5-6) to the swarm. Bees who danced for the non-chosen site had weaker initial dances and danced fewer (1-5) times on returning to the swarm.

A unified decision is reached through scout bees being able to independently determine the suitability of their advertised site and then produce a waggle dance on the swarm which reflects the potential site's suitability. Strong positive feedback produced by a dancing scout bee is checked inasmuch that another bee will imitate such a dance only after she has visited the site and decides it is a worthy site. The authors conclude, 'the "smarts" of a swarm derives from a combination of many individuals working in parallel, each one making sophisticated assessments of nest-site properties, and a group process of feedback in recruitment, modulated by these quality assessments and amplified by the house-hunting-specific decay of *Tanzlust*.'

Next month I will summarise the findings from the rest of the article in which the authors assesses what prompts the swarm to lift off within an hour of unanimity through a large increase in dancing.



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