



May NEWSLETTER 2018

Ormskirk & Croston Beekeepers Branch

Website: <https://www.ormskirkbeekeepers.org.uk>
News Articles: <https://blog.ormskirkbeekeepers.org.uk>

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A letter from the Chair, Margaret Wilson



Dear Members

It seems winter is still with us although I am told that tomorrow Wednesday 18th it is going to be summer, I will not hold my breath on that one.

Last weekend the Spring Convention took place at Harper Adams and if you didn't manage to get there, you missed some very good workshops and lectures. The BBKA stand had all the special edition books including a new one on Swarming and Advanced Husbandry. Burt's Bees were giving away very large packets of wildflower seeds and promoting "Adopt a Beehive" The whole area was very, very busy.

There is continued concern about the Asian Hornet especially as one has been seen in Bury, which is not that far away. Apparently it arrived in a cauliflower from Lincoln.

The experts are revising their advice; they now do not want you to use Hornet Traps, as it is said they are destroying more good insects than bad ones. The latest advice is to place a saucer like container on the window sill or on a bird table and put in it some food for the Hornets. If you see them taking the food, watch the direction in which they fly. Apparently they fly in a straight line from food to colony so the direction is a good guide to their source. If you do see Asian Hornets it is important that you keep feeding and report it your bee inspector. They need carbohydrates in spring and protein in August, beyond which is when they are looking at pollinating insects as a feast. Just remember not to put something that the bees will eat in the

Carbohydrate feed; beer or jam would be suitable. Later in the year I believe that prawns or fish are good, they even like it if it is rotting! Always be aware that it is only with constant vigilance that we can prevent them becoming a devastating problem.

Best wishes to you all,

Margaret Wilson.



WHAT'S HAPPENING?

Eddie's report on the Out Apiary.

We are still struggling to get in to the bees due to the poor weather, but finally managed to get in to the colonies on the 18th April, to see how they were and to inspect for disease. Things looked really good, but some colonies are being fed with syrup in the hope of strengthening them to take advantage of the O.S.R. fields.

Some colonies are very strong, some with mature drones and play cups, so we are expecting these to get up to the usual spring shenanigans very soon. Sadly, hive G needed to be merged as it came out of winter queenless and also the WBC colony has died out.

We are planning to get the oddball hives (anything that's not a national hive) up and running soon. Ian Hinde is leading this with a little help from his friends. (No doubt "he'll get by" as anyone my age (Vicki) will remember.)

The next club meeting, on the 19th May will focus on **Swarm Control**, and will demonstrate all the ways this can be managed. Hopefully the weather will have improved and some colonies will be in swarming mode. It will also be good opportunity to catch up with other beekeepers, passing on your own knowledge and/or picking someone else's brains on the day.

Beginners have begun Prac.sessions.

These are taking place at the Out Apiary on Sunday afternoons for the next 6 weeks or so, depending on how the weather allows progress to be made.

Basic Assessment is ongoing on Thursday evenings from 19.00 to 21.00hrs. at Fir tree farm. Please contact **Paul Roberts** for further details. (quickly!)

Bees to sell or you want to buy. If you have bees to sell or would like to purchase bees, please contact **Ray Dowson**, as he is the committee member responsible for coordinating sellers and buyers and always does an excellent job.

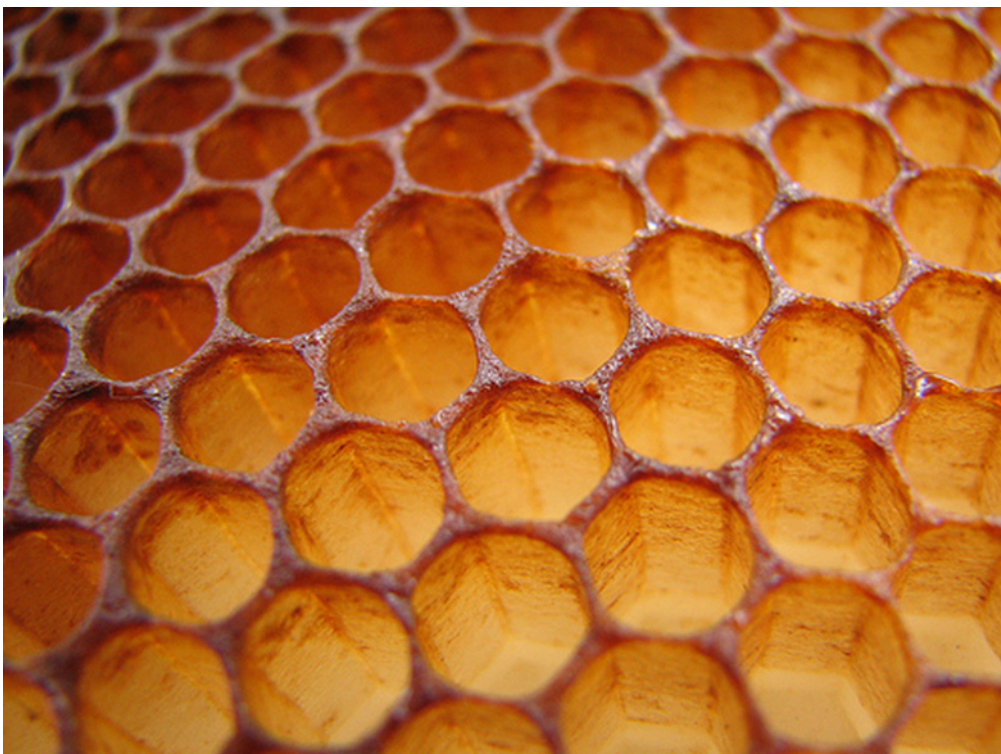
Outside events. These are beginning to take place now. If you can help in any way then please contact **Susan Webster**, as she is the committee member who coordinates these activities.



Why honeycomb is hexagonal?

Derrick Harris.

Have a coffee reading this.....you will need to concentrate!



One of the beauties of attending public events as a beekeeper is not knowing where all the questions will lead.

A good example of this was an event at Martin Mere last year. I attended armed with some teaching aids, namely foam shapes, to show how much better hexagons were than circles, all very standard and typical of such teaching sessions over many years.

Then one child asked: “So why not squares or triangles?” My honest answer at the time was “I don’t know, but there must be a good reason for the bees to prefer a hexagon over a square or triangle.”

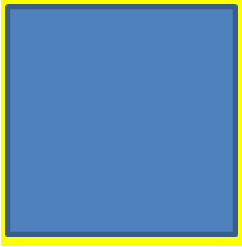
Some research online produced a geometry-based answer, but this then raised a whole new question: Precisely *how* do the bees make the hexagons? The answer to this was fascinating, even if it all seems to be down to physics.

So why is honeycomb hexagonal? (The Geometry Bit....)

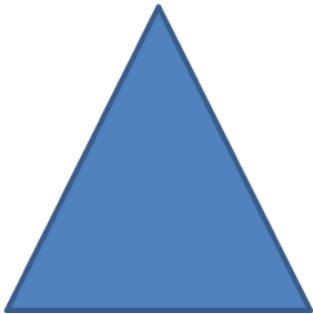
1. Circles don’t fit together without leaving gaps. This means:
 - a. Each gap represents a weak point, so the honeycomb would be less-strong.
 - b. Each gap has 3 separate walls which use up extra wax. This is a waste of resources, and inefficient.
 - c. Fewer circles will fit into an equal area, compared to hexagons of the same size. If each one is regarded as a single new bee, this means that fewer bees could be produced from the same area of circular honeycomb.
2. If all sides on each cell were not identical in length, the bees would have to construct cells sequentially, waiting for one to be completed, before fitting the next one against it. This would be very wasteful, with many bees standing around idle waiting for a cell to be constructed.
3. The only 3 shapes with equal sides that can fit together on a flat surface without leaving gaps are: equilateral triangles, squares and hexagons. So no dodecahedrons, then.
4. Apparently a Roman scholar and beekeeper, Marcus Terentius Varro, made a “conjecture”. His mathematical guess was to propose that a hexagonal honeycomb would be more-compact. It would have the “smallest total perimeter”. He was unable to prove it; but Thomas Hales, a mathematician at the University of Michigan finally did so in 1999.

5. The relevance of the “smallest total perimeter”/compactness is all to do with efficiency. In other words, containing the largest area within the least amount of (expensive to produce) wax walls. By way of example (and with scale drawings):

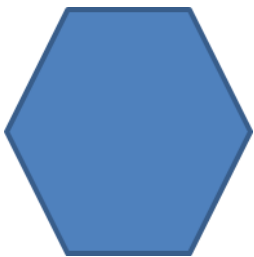
- a. A *square* with an area of 9cm^2 has 4 sides each of 3 cm (i.e. total wall length of **12 cm**).



- b. An *equilateral triangle* with an area of 9cm^2 has 3 sides each of 4.56cm (i.e. total wall length of **13.68cm**).



- c. A *hexagon* with an area of 9cm^2 has 6 sides, but each is only 1.86cm (i.e. total wall length of **11.16cm**).



- d. A *circle* with an area of 9cm^2 has a single side (circumference) of **10.63cm**.



6. So a circle would be most compact, but this advantage clearly does not outweigh the disadvantages of a circle (ie see para 1, above). In effect, a hexagon represents the least-worst shape.

The Pub Quiz Aside....

Incidentally, apparently our friend *Varroa* is named after the same Roman scholar and beekeeper, Marcus Terentius Varro. Useful to know at the next beekeeping pub quiz.

So are honeybees experts in geometry?

Well, the answer to this one was particularly fascinating. It challenged me to think precisely *how* did the bees actually make the cells. Of course, we know the wax glands produce flakes of wax which are manipulated with the mandibles; but this appears to be only part of the picture.

An article in the Journal of the Royal Society Interface <http://rsif.royalsocietypublishing.org/content/10/86/20130299> says that the cells all start as circles and are then heated by the honeybees. This heating causes them to fuse and circles packed together naturally become hexagons. In other words, this is all down to physics and how wax behaves as a construction material when heated.

One way of describing this is that the hexagons are failed circles; but this is to underestimate the complexities implied by the manipulation, not least in the whole area of “heater bees”, raised by Jurgen Tautz.

I will have to look more carefully at new honeycomb this season. Of course, anything which makes us look more closely at our bees must be a good thing.

And all this from a child asking why not squares or triangles...!

Derrick Harris.

Editor's note

Derrick, this was a fascinating article and I really appreciate, as others will, the work you have put into it. Thank you. You really have answered the question “Why is honeycomb hexagonal?” Maybe you could go on now to work out “how do the bees know this?!) Also, thank

you Margaret and Eddie for your continued contributions to our monthly newsletter. I really appreciate your sustained effort.

I'm sorry everyone, there will be no newsletter in June, but I will be back looking for contributions in the middle of June, for the July edition. In the meantime, happy beekeeping! Vicki Hall.