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Cover photo: Jemma Liggett, winner of the 2025 Photographic Competition.

Contents

Editorial

The winter magazine is often rather thin. However, this edition has been well supported by members and I was pleased to receive a good range of articles, with three from young beekeepers who are making their mark. Rydal Penrhos School shows how beekeeping can be used to educate and enthuse; at eleven years old Awen Thau has set her sights on winning in the honey shows and Dafydd Pett of Bridgend BKA describes his pathway to become a finalist in the BBC Young Countryside Champion Awards.

Winter is a time for reflection on the problems and successes of the previous season, time to plan for the year ahead and an opportunity to read about beekeeping and learn something new. Ceri Joyner outlines the format of the Basic Assessment and will follow this up with more detail in the spring edition. If you are a new beekeeper with a year of experience this is a good way to improve your knowledge and reinforce good practice in the apiary.

I found a lot of interesting detail in Elizabeth Knight's article about how bees make and use wax. Elsewhere, Phil Regan (who encouraged me in my early years of beekeeping) describes how refining wax led to an expensive accident and how he found a cheap solution. On the other hand, Lynfa Davies describes her visit to Apimondia in Copenhagen and reports on the lessons she learned about hive products other than wax and honey. There's a world of opportunity out there.

Many beekeepers use their knowledge in voluntary work for the good of their communities. Merthyr Nats were delighted to mark their efforts with a royal visit, and Stori Brymbo explains how bees can be used to help rejuvenate a community after industrial decline. The photographs tell a story of the joy experienced by people of all ages.

Finally, my thanks to all who have contributed to the magazine this year and best wishes for 2026. And if you feel inspired to put pen to paper...

Flint and District BKA

Flint & District BKA invite you to their monthly meetings, please see website for directions www.flintbeekeepers.co.uk or contact the secretary at secretary.fdbka@gmail.com for more details.

17th January: Yellow Legged Hornet, John Bowles

21st March: Lynfa Davies, 'Beekeeping when the weather doesn't play ball'

18th April: Beekeepers Q & A with a disease quiz

Doors open at 1.30 p. m. at the Edith Banks Memorial Hall, Northop

News Items

WBKA Council: The WBKA Council met virtually on Saturday November 1st to hear reports from the Trustees and for Association Representatives to provide guidance for the future. There was also a report by the Regional Bee Inspector, Dan Baxter on the health of honey bees in Wales. Draft minutes of the Meeting are available from Association Secretaries for those who want to know more. The next Council meeting is the AGM on Saturday March 7th, 2026.

Hive Side Training: DEFRA, on behalf of the Welsh Government, has launched an invitation to tender for hive-side training for intermediate beekeepers in Wales. The WBKA has, with the Council's approval, endorsed the bid of a Welsh based not-for-profit training company that has previously provided online bee health training. The bid will work with a selection of WBKA Associations to deliver training as locally as possible.

WBKA AGM 2026: The WBKA AGM will be held on Saturday, March 7th, 2026, and will be a hybrid meeting (face to face and virtual). Associations are invited to propose any changes that they would like the WBKA to make by January 9th. The WBKA Management Team & Trustees will also be seeking new Trustees and nominations should be with the WBKA secretary by January 30th. To find out more about being a WBKA Trustee please contact secretary@wbka.com.

WBKA Insurance: WBKA Insurance Note for 2025/2 has been sent to Association Secretaries. They can provide you with a copy if you need one.

Obituary: Tom Rowlands

It was with great sadness that the WBKA heard of the passing of Tom Rowlands on October 24th, aged 90 years. Tom was a past Chair and President of the WBKA and for many years the secretary of the WBKA Convention Committee. Along with his wife Mary he was a stalwart of the RWAS Honey Show for some fifteen years. They would come with their caravan and act as stewards at the honey show from the set up day until everything was tidied away at the end of the show.

Tom was also an active member of Anglesey BKA where he was secretary and treasurer for many years as well as doing a spell as chair person. Unfortunately failing health meant that he had to give up beekeeping several years ago. We express our gratitude for all that he did in the service of beekeepers and send our condolences to Mary and the rest of his family and many friends.

WBKA ADVICE

WBKA strongly discourages the importation of queen bees and colonies of bees from outside the UK. We encourage readers to source locally adapted bees and/or make their own increase (as described in the booklet *A Simple Guide to Making Increase,* which can be downloaded from the WBKA website: https://tinyurl.com/yrtzbhcu). All prospective purchasers should satisfy themselves of the origin of bees offered for sale..

WBKA Events

WBKA AGM & Council meeting
Saturday 7th March

WBKA Convention & Workshops, Royal Welsh Showground - Saturday 28th March

WBKA Webinars

See the WBKA website for details: https://wbka.com/wbka-webinars/

Courses & Exams

Bee Health Certificate: closing date for entries 31st May-

Junior & Basic Husbandry Assessments: closing date for entries - 1st April

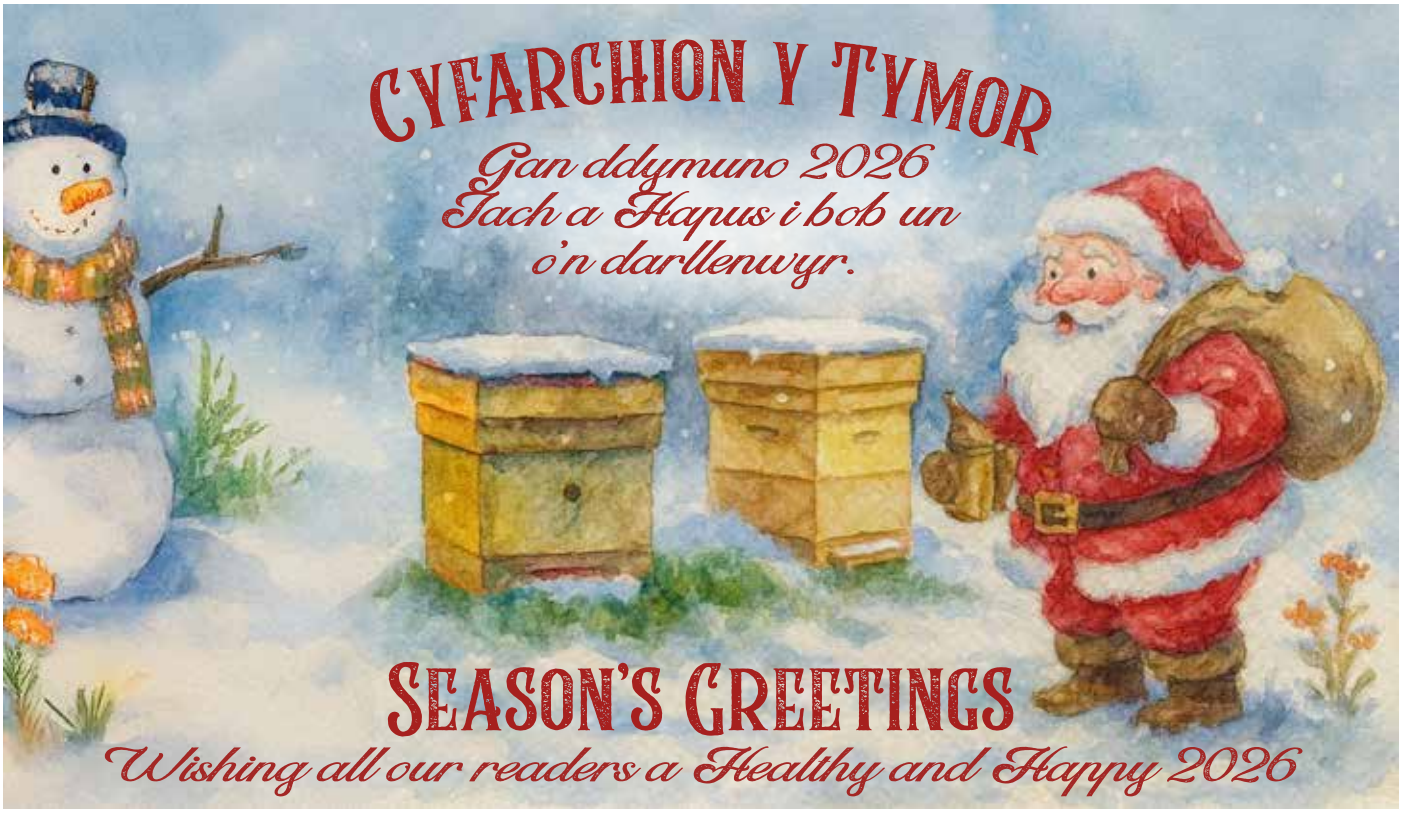
Yellow Legged Hornet

The YLH monitoring season has drawn to a close as nests die off and mated queens seek places to hibernate. Over 500 credible YLH sightings have been reported and over 150 nests found and destroyed this year. A male YLH was sighted near Crosby on Merseyside on the 1st of November and a YLH has been sighted in Nether Edge, Sheffield. There is a risk that if we have another mild winter a number of Yellow Legged Hornet queens from nests that have not been found may survive to set up their own nests next year. It is important that Associations spend the next few months preparing to monitor for live queens from the end of February onwards.

Associations should:

- Identify people prepared to use traps/bait stations
- Purchase or make selective traps or bait stations (a honey jar with an absorbent wick through the lid into a sweet liquid makes a good bait station).
- Identify the most appropriate sites for the traps/ bait stations.

Given the rapid increase in the numbers of nests found in 2025, this may be our last opportunity.



The WBKA Basic Assessment

Ceri Joyner

A practical qualification for new beekeepers

Are you thinking of taking the WBKA basic assessment or helping an association member work towards it? Hopefully the article in this edition and a second article in the spring edition will provide information to help you plan and prepare.

The basic assessment is a chance to work towards a foundation level of proficiency in beekeeping. It is enabling in nature and designed help improve beekeeping standards. You can take the basic if you have kept your own bees for at least 12 months, but it can be taken any time after that. To qualify for application, you need to be a member of WBKA. It is a practical exam, held at an association apiary followed by oral questions.

You can apply by completing the application form on the education pages of the WBKA website. The education secretary will then liaise with your association and assessors to plan suitable dates for assessments which are held in the summer months. The last date for taking exams is August 31st. The closing date for applications is April 1st and the cost is £30.00. The syllabus can also be found on the website https://tinyurl.com/78dvtm4w. Time should be taken to thoroughly prepare for the assessment.

The assessment consists of four parts, and the candidate must achieve the 50% pass mark in all four parts individually in order to gain an overall pass. A credit will be awarded if the total mark is 75% or greater and a distinction if the mark is 90% or greater. The parts are:

1. Manipulation and equipment – a practical assessment of your ability to handle bees and equipment, oral questioning to assess your knowledge and to interpret what you observe.
2. Natural History and Beekeeping – oral questioning to assess your knowledge.
3. Swarming, swarm control and effects – oral questioning to assess your knowledge.
4. Diseases and pests – oral questioning to assess your knowledge.

The Day of the Assessment - What to Expect

You will need to arrive and have a clean suit, gloves (not leather) and boots. You will also need to bring your own container to collect a sample of bees, you may be asked to do this as part of the assessment. The association apiary will provide smokers, smoker fuel, hive tools, soda bucket, and wax debris bucket. They will also provide frame making equipment, parts and wax for your frame building task. The assessment will last approximately an hour. You will be given a time slot and should aim to turn up 10-15 minutes before. If there are several candidates being assessed, you may be asked to wait until the previous candidate has completely finished.

Initially you will be introduced to your assessor. They will aim to put you at ease and will appreciate that you may be nervous. You will start by lighting a smoker. Ensure that whilst doing this your veil and gloves are not on. Make sure you are happy that your smoker is going well as you will be required to keep it burning for the duration of the time in the apiary. Take spare smoker fuel to the apiary in case you need it. Once lit, place some grass on the top to help cool the smoke. Put your veil and gloves on, check your own zips and you will be ready to start. Ensure you have everything you need with you, hive tool, soda bucket, wax debris bucket and container for collecting a sample of bees.

You will not need any hive records and will not be expected to have any prior knowledge of the hive you are inspecting. You will enter the apiary with the assessor and be taken to a hive, you may be asked to discuss the configuration of the hive, and you should use some light smoke at the entrance. Remove the roof and place it upside down in a convenient place close by, allowing yourself enough working space. If there is a super on the colony you will not be expected to open it, go straight to the brood box and use your hive tool to cut the hive below the super. Gently smoke the cut and lift the super off complete with crown board taking care not to crush

any bees and place it on the diagonal on top of the upturned roof. Your assessor will be very happy to help you with lifting if required. Remove the queen excluder using your hive tool and twist it gently to release, check the underside for the queen, then shake the bees into the hive and place it either onto the crown board or on its edge in front of the hive.

It will now be time to start removing frames to begin the assessment. Your handling skills will be part of the assessment. Use smoke where appropriate, the purpose of the smoke is to maintain control of bees, for example, to move them off lugs and hive parts to avoid crushing them. Do not over smoke. If either you or your assessor is stung remember to smoke the area of the sting.

Removing the first frame: use your J tool to lever it out, be very gentle, lift the frames straight out of the hive slowly and do not 'roll the bees'. Maintain gentle handing of the bees throughout. Removal of the following frames is done by releasing them using the other curved end of the tool. Check the first frame to ensure the queen is not on it, shake the bees into the hive and place it either by hanging it on the stand or placing it on an end in front of the hive. This creates working space for the remainder of your inspection. Check each frame you remove for the queen. Always hold the frames over the brood box. All subsequent frames need to be replaced in the hive in the same order and closed up as you inspect. As you go through the colony you will be asked questions by the assessor. Typical questions will be about the lifecycle of the different castes, identifying what you are looking at, commenting on available stores, space etc.

Be prepared to check for the queen, describe healthy larvae and brood, and discuss the signs of disease.

You will need to be aware of Ted Hoopers five reasons to open a hive. Simply:

1. Is the colony queenright?
2. Is there enough space?
3. Is there enough food?
4. What is the disease status - are they healthy?
5. Is everything as you would expect to be since your last inspection?

You will be asked to shake a frame clear of bees and carry out a disease check. Be prepared to describe healthy larvae and brood and to discuss the potential issues that you are looking for when you carry out a disease check, the signs of disease, the causative agents, the remedial action required and potential methods of prevention. The syllabus outlines the level of detail you should know for this assessment. In addition, you may be asked to demonstrate how to collect a sample of bees. You will need to know the sample size and explain why that is important. You should be able to list the diseases that can be diagnosed using the bees collected and what are the methods of diagnosis.

Once the assessor has finished in the apiary, you will head somewhere quiet to have a conversation about topics on the syllabus that have not been covered while you were handling the bees. Your assessor will complete the necessary paperwork and return it to the exam secretary who will confirm your result shortly afterwards. The whole experience should be enjoyable and a learning experience as your assessor will also give you hints and tips along the way.

Next Time: A more in-depth look at some of the topics covered in the syllabus.

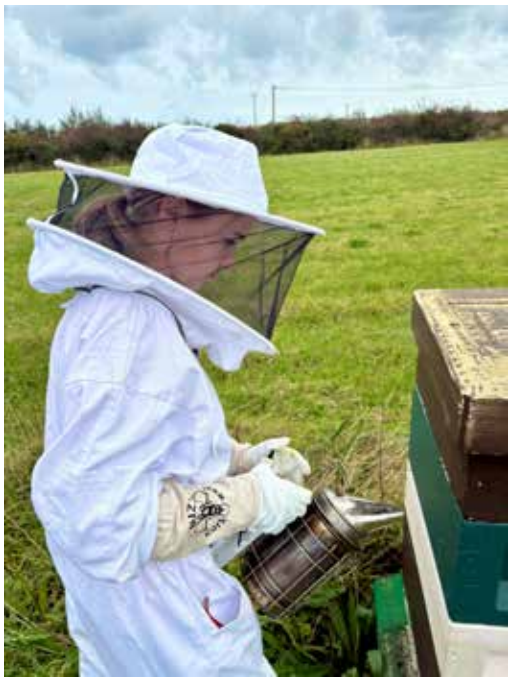
My first season competing in honey shows

Awen Thau

From hive to show, Awen is addicted to beekeeping.

My name is Awen Thau, I am eleven years old and have been beekeeping for two years. I am lucky to have my own apiary at home with some more hives in my friend's fields nearby. After my first full harvest, I sold some honey at my school Christmas Fair and was invited to take my bees to school and give a presentation to my fellow pupils and teachers so that they could see for themselves how amazing the bees are, learn more about them and taste some honey.

At the beginning of this year, I set myself the challenge to enter a show with my honey and wax products. I have always been interested in the honey section at the bigger shows when I have been competing with my ponies.



In April, Anglesey Beekeepers Association held a fun evening with Paul Boyle on how to present honey for showing. I took lots of notes, there's so much to learn and remember! Off we went home and online to see which local shows had honey in the produce tent and what we could enter. It was agreed that we'd better have a trial run before the Royal Welsh: aim high and dream big (got to be in it to win it!). Llanrwst Rural Show was first on the calendar at the end of June. I entered every eligible class to get some feedback and learn how to do better – honey, wax blocks, candles and even mead! What a day! Beginner's luck or not I came home with some prize money and the cup for the most points! I learnt a lot and had fun preparing my entries!

The Royal Welsh was next on the calendar. I have always attended the show and it's something I look forward to at the start of the school holidays every year. Mam figured I may as well enter the open classes as well as the WBKA and Junior Classes because we would already be taking entries to the tent. That was a lot of honey and wax to prepare! I harvested a little from two hives to get different coloured honey (light/medium). I think Mam was glad to have her kitchen table back, though I've gained a slow cooker for melting wax. Oops! I also entered the drawing and photography classes to lend my support. My honey and candles were placed in the open classes and WBKA and junior classes as were my drawings! Not bad for a novice first attempt and only my second show!

After the Royal Welsh came my two local county shows: Anglesey, and the following week Denbigh and Flint. There were a number of red cards from both shows (phew!) and great feedback from the judges and stewards, not only on the entries themselves but also how they were presented and how I can improve.

I am already looking forward to next year and seeing what my bees produce and how I can present it for competition. However, first to harvest this year's haul and prepare for winter with some Christmas Fairs thrown in to fund new candle moulds and such.

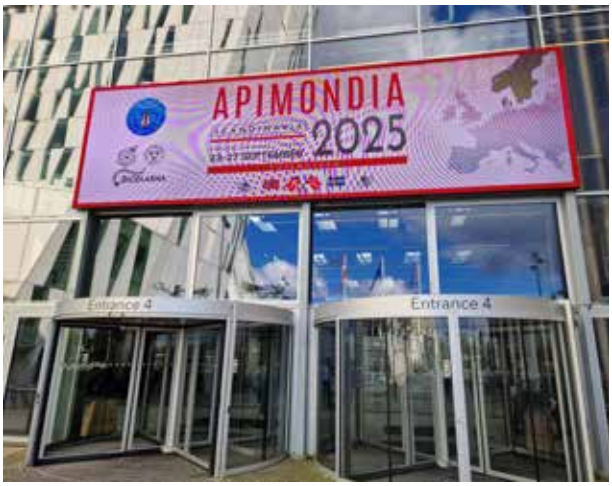
Beekeeping is so interesting and I am learning lots, not only hands on with the bees themselves but also designing my jar label 'Mêl Pant y Gro Honey', budgeting and managing my 'business' and negotiating deals with local retailers to sell my produce to fund my (addiction) hobby.

Whether you compete or not I'll see you at a show in 2026 – come and say "Hello".

A quick guide to beekeeping tasks: January to March

Jill Hill

Task	Rationale	Links to useful information
Heft hives regularly	Assess food resources so fondant can be given to prevent starvation	See: WBKA Feeding Bees https://tinyurl.com/48ccyubw Video: https://tinyurl.com/uy69s3zm
Monitor and treat varroa with oxalic acid early January as required if not completed in December	There will be very little or no brood so mites will be on adult bees. Keep levels low before queen starts laying and the mites multiply	'Varroa management' by Kirsty Stainton and 'Healthy bees are happy bees' by Pam Gregory Video: https://tinyurl.com/6njhhhax
Check apiary regularly for storm damage and hive entrances are not blocked	Colony is safe, warm and dry	'The Beekeeping Year' by Lynfa Davies
Check hive entrances and identify hives with no activity on a warm, sunny day	Seal up dead hives to prevent robbing and possible transfer of disease	
Check frames of drawn comb and sterilise with acetic acid	Drawn comb is a valuable resource and if in good condition and free from wax moth infestation, can be used in the new season	'The Beekeeping Year' by Lynfa Davies Fumigating comb https://tinyurl.com/3pcek7j4
Check, clean and repair equipment and make a list of kit needed for the following season	You are well-prepared for the new season!	'Apiary hygiene and quarantine' and 'Hive cleaning and sterilisation' https://tinyurl.com/3pcek7j4
Book your place at the WBKA Spring Convention	To buy what you need from the Trade Exhibition	Tickets are £8 if preordered at: https://wbka.sumup.link/
Render old wax	Ready to trade in for new foundation at the WBKA Convention	Video: https://tinyurl.com/mpva7w4v
Review your notes from last season and prepare your records for Spring	Reflect on what went well and what did not and plan to manage your bees more successfully. Identify which colonies are suitable to make increase	See: WBKA Making Increase https://tinyurl.com/yrtzbhcu
Think about methods of swarm prevention to use in the new season	Forewarned is forearmed! The swarming impulse can arrive early if there is a warm spring	See: WBKA Guide to Swarm Control https://tinyurl.com/2zte88um
Catch up with reading and revise for the Basic Assessment or module	You won't have time when the new beekeeping season starts!	See: WBKA Learning web pages https://tinyurl.com/4bza7jar
No rush to inspect the bees!	If the bees have sufficient stores, there is little to gain by opening up the hive until the weather is warm and you can address any queen issues.	



Apimondia Scandinavia 2025

Lynfa Davies, Master Beekeeper, NDB

Lessons from an international beekeeping event.

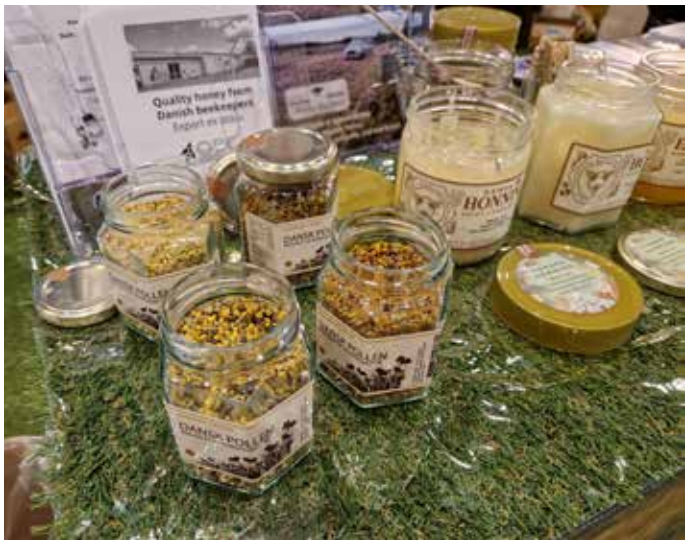
Well, what a week! Now I'm home and I've had chance to reflect, I can appreciate just how much I enjoyed the event. This was my second visit to Apimondia, the first being to Montpellier in France in 2009 when I was relatively new to beekeeping. That experience was an eyeopener but this event, with a bit more experience under my belt, took things to a whole new level!

Apimondia is the International Federation of Beekeeping organisations and every two years they hold a congress. This is a huge meeting that includes a scientific conference, trade stands, the World Bee Awards plus a whole host of activities all related to the craft of beekeeping. What makes it so special is that it brings together scientists, trade companies, commercial beekeepers and hobby beekeepers, creating a real buzz!

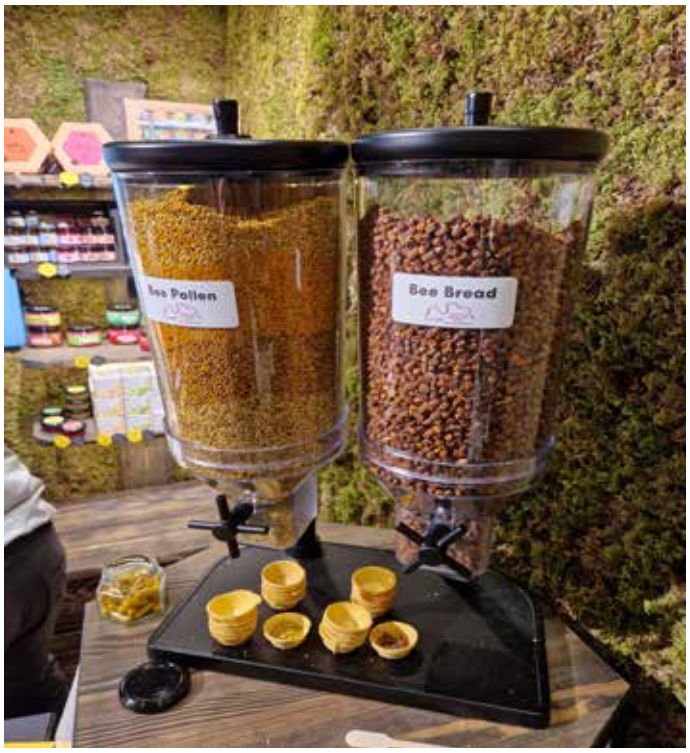
There were many highlights and different topics that I enjoyed investigating but for this article I'll focus on hive products other than honey and wax. We are notoriously unambitious in the UK, and I put myself firmly in this camp, so seeing how other countries, particularly the eastern European countries, market other products from the hive gave me plenty of food for thought.

Pollen is the obvious one and apart from showing off the finished product looking colourful in well labelled jars there were also collection receptacles and cleaning gadgets to view. Drying the pollen is also a necessity and it appears that it can easily be done at small scale in a fruit dryer (annoyingly I recently got rid of one of these). Apart from selling pollen loose in jars as shown in the picture, it was also common to see it sold packaged in pill form.

Bee bread was a new one for me and coated in chocolate was delicious! Even without the chocolate it had a chewy texture and sweet, pleasant flavour. This required a bit more processing to extract it from the frames. The frames were frozen for 24-48 hours before being smashed up through a coarse grinder that removed the wax but left the bee bread still in its hexagonal shaped cylinders. Once again, this required drying to prevent moulds. If you use it for personal use, you could store it in the freezer and avoid the drying step, but it would require drying before sale. Gadgets were available for removing the bee bread from the combs and removing any debris, but a Latvian beekeeper helpfully told us you could do this more cheaply using a drill with chains attached – sounds dangerous to me!

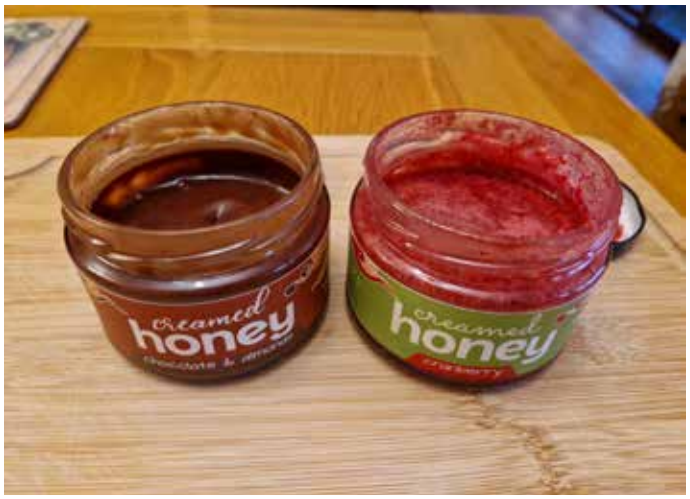


Danish pollen and honey on the Danish Beekeepers' stand.



Pollen and bee bread displayed on the Latvian beekeepers stand. Note also the small jar of pollen pills in the bottom left corner.

It transpired that the Latvians had really thought about how they could maximize products using their honey, wax and pollen. They had an amazing display of flavoured honeys including chocolate, cranberry and other berries. These were delicious and very simple to do. The fruit flavours were created by adding freeze dried fruit powders. Now I know what to do with that annual glut of blackcurrants!



Needless to say, the pot of chocolate honey is being eaten faster than the cranberry honey!

Propolis was commonly used in creams and salves and as expected, this was featured heavily in the apitherapy lecture stream. I saw companies selling plastic mesh screens for collecting it and having taken part in the research project with Jenny Roberts from Lancaster University, I've had a taste for how easy it is to collect. So maybe this is something I need to investigate further.

Breathing hive air is also becoming a thing! It's said to have immune boosting properties and is particularly good for asthmatics. You connect a face mask via a tube to an active hive and breathe in the air. There were even photos of sheds with multiple stations where clients could go and sit for a while with a mask linked to a hive. They were charging €25 per session.

Judges Sue Carter and Claire O'Brien from the UK.

It was fascinating to see all the different products and uses. I haven't even mentioned royal jelly and bee venom, which still appears to be firmly rooted in Asia, and of course, all the soaps, cosmetics, balms and creams that we are more familiar with. I've returned home with lots of ideas and inspiration; I just need to persuade my customers it's exactly what they need!

Dafydd Pett
Bridgend BKA

BBC Young Countryside Champion Awards finalist.

My name is Dafydd Pett, I'm 22 years old and from Bridgend, South Wales. I'm the founder of The Welsh Honey Company, which I started back in 2020 when I was 17. What began as just a couple of hives in my grandparents' garden has now grown into a thriving small business with hives dotted around South Wales. We produce a range of Welsh honey products that are stocked in independent farm shops, delis, and butchers across Wales and parts of England.

Earlier this year, I was nominated for the BBC Young Countryside Champion Awards for 2025. I was proud and honoured to be chosen as one of three finalists out of thousands of nominees. The award celebrates young people making a difference in rural life, whether that's through farming, conservation, or community work, and the results will be announced in mid-November.

My journey into beekeeping started much earlier, though. In 2014, my late grandfather, Michael Pett, invited my primary school class to visit the family's hives. I was instantly fascinated by the bees and their world and to see how organised and purposeful they are. From then on, I spent every weekend learning the ropes with my grandfather. When he passed away from sarcoma cancer in 2017, I made a promise to continue what he started. By that point, I was only 14 but already looking after 30 hives and selling jars of honey at local markets.

In 2019, I had the incredible opportunity to represent Wales at the International Meeting of Young Beekeepers in Slovakia. Meeting other young beekeepers from around the world really opened my eyes to the global importance of protecting pollinators. Later that year, I began creating YouTube videos and social media content to help inspire and mentor other young people interested in beekeeping. That online community has grown far more than I ever expected and has connected me with beekeepers of all ages across the UK.

Launching The Welsh Honey Company officially in 2020 was both exciting and terrifying, but it's been an amazing experience. Since then, our honey has gone on to win several awards, including The Great Taste Awards and, most recently, Produce of the Year at the Food Awards Wales 2025, which was held in Cardiff on 6th October. I'm passionate about ensuring our honey is always 100% pure, Welsh, and sustainably produced.

Alongside running the business, I've stayed closely involved with the Bridgend Beekeepers Association – first as a Youth Representative and now as one of its trustees. I also built and maintain the Association's website and work with local schools to run beekeeping workshops. With the average UK beekeeper now around 65 years old, I believe it's vital that more young people are encouraged to get involved. I often say that bees are small creatures with a huge impact: if they disappeared, we'd only have about four years left to live. So, raising awareness really does matter.

The Countryfile episode featuring the finalists was aired in early November, with the winner announced shortly afterwards. During the broadcast, I talked about what inspired me to become a beekeeper, and the importance of pollinators for future generations.

THE BEE KEEPING SHOW 2026

Special event:

An Evening with Ian Steppler

Friday 20 February 2026
Telford International Centre, UK

Doors open 19.00

Trade show:

The Beekeeping Show

Saturday 21 February 2026
Telford International Centre, UK

09.30–16.00*
(*Premium ticket entry 08.30)

Tickets available via the website:
www.thebeekeepingshow.co.uk

Join the conversation about
The Beekeeping Show:

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A Bee Inspector's First Season: it's not all tea and cake!

Holly Pinkney

Inspecting bees and advising beekeepers, the SBI plays an essential role in maintaining the health of our colonies.

When I joined the National Bee Unit as a Seasonal Bee Inspector, I had a bad case of impostor syndrome. Even though I'd kept my own colonies for years and knew I had the basics covered (the recruitment process is very thorough), I quickly discovered that inspecting professionally is a whole different kind of beekeeping: one that blends science, communication, and a fair bit of detective work.

At its heart, a bee inspector's role is about safeguarding bee health. Our main focus is monitoring for notifiable diseases (American and European foulbrood) and exotic pests, as well as supporting beekeepers with advice about best practice. My job is seasonal, from April to September, and covers a defined area. In my case, that's Northwest Wales from Gwynedd to Anglesey, Conwy to Harlech, which means miles of rural lanes and postcodes that can sometimes cover an entire village.

No two days are alike. One morning I might be in a quiet garden apiary; the next I'm visiting a commercial beekeeper, and the next I could be helping to track Yellow-legged hornets in Kent. Much of the job is about building relationships: introducing yourself to new beekeepers, explaining the purpose of inspections, and building trust. For many, it's reassuring to know someone is keeping an eye on regional bee health; for others, especially newer beekeepers, it can be a bit daunting to get a call from 'the Bee Inspector'. In all cases, it's a chance to learn for both the inspector and the beekeeper.

The training was outstanding, thorough and practical. We learned how to recognise every stage of brood disease, how to take samples, and how to communicate findings clearly. But nothing replaces field experience. I'm lucky to be part of an amazing team, and I can't thank the rest of the Welsh inspectors enough for all their support this first year.

My first confirmed case of European foulbrood was sobering. Seeing it in a real colony rather than on combs in the lab drives home how important early detection is. It also highlights the delicate role we play in enforcing legislation while supporting a beekeeper through a difficult situation.

I've also learned that you must leave your expectations at the apiary gate. Disease can, and does, appear when you least expect it. Early in the season I inspected an apiary where the first colony just looked a bit off: patchy brood, larvae not quite right and sure enough, it tested positive. That experience taught me to trust my instinct and what I had been taught. I would rather send in a sample and be proved wrong than drive home wondering if I missed something.

Beyond disease work, inspections are also a chance to promote good husbandry and provide an opportunity to discuss apiary and beekeeper hygiene, record keeping, apiary layout, swarm control and varroa management. Many problems can be prevented simply through greater awareness and small changes in management. I see the improvement of the overall standard of beekeeping in my area as a fundamental part of the job.

There are practical challenges too. Weather can derail a carefully planned day, and organising your inspection diary takes a lot longer than you might imagine. There is also far more travelling than I expected, and I have been sent all over the country this year to gain as much

experience as possible. But the job is incredibly enjoyable and it's rewarding to work outdoors, contribute to pollinator/apiculture health, and be part of a dedicated team that genuinely cares about the vital work we do.

Now, at the end of my first season, I am reflecting on everything I have learned and thinking about what I would like to achieve next year. I definitely want to get to know my area and 'my' beekeepers better, so expect to see me at BKA events, and don't be shy about giving me a call or requesting a visit if I'm your inspector. You can check this using Bee base.

For anyone considering applying to be a Seasonal Bee Inspector, I can't recommend it highly enough. It's challenging, yes, but incredibly rewarding. You'll learn more in one season than in years of hobby beekeeping, and you'll gain a unique perspective on the health of our national bee population.

As I prepare for another season, I'm grateful for the chance to serve the beekeeping community and to keep learning. The bees never stop teaching us, and neither does this job.

BOOK REVIEW

Beekeeping in Harmony with Nature: The evolutionary solution to the Varroa problem

by Bartłomiej Maleta (Translated by Stephen Martin)

"This is a very important publication and relevant to every beekeeper whether or not they intend to pursue treatment-free beekeeping ..." – Ann Chilcott

Beekeeping in Harmony with Nature: The Evolutionary Solution to the Varroa Problem by Bartołomiej Maleta is a well-argued perspicuous treatise on why we should stop using chemicals and instead allow the bees to combat *Varroa* themselves. This is research-based science communication at its best and written in an engaging style. The translator is to be commended for making this work not only accessible to English speaking readers, but in a form that reads smoothly and clearly.

The author is a Polish beekeeper dedicated to cooperating with others to promote sustainable beekeeping and develop varroa resistant bees. He is the co-founder of several groups focusing on nature-based beekeeping that endeavour to manage apiaries as close to how honey bees would function in the wild without our assistance. Maleta also highlights the need to promote and rebuild colonies of free-living honey bees in our environments.

There are six chapters which are long but relate to particular themes and their subheadings are signposted in the content pages. The generous footnotes are particularly useful and help the reader keep easily on track without having to search an index at the end of the book.

The information flows in a logical order which I read from cover to cover in almost one sitting because the content was so captivating, but one could also dip into this book for specific information. It is well illustrated with clear photographs, diagrams and tables. However, if there is to be a revised version, numbering chapters and using a different colour scheme for the contents pages would make navigation easier. White on an orange background is not easy for some people to read, especially with a small font size. Otherwise, the orange headings and page numbers stand out attractively in the body of the book. The front cover immediately attracts attention with the profile of Charles Darwin setting the scene for what follows.

Chapter 1 addresses bee health encompassing Darwinian beekeeping and highlighting the work by Professor Seeley on how honey bees live and survive in the wild without human intervention. We learn so much here about the evolutionary perspective and the differences between the environments of wild and managed colonies.

Chapter 2 deals with honey bee homes and how beekeepers can provide similar accommodation to what our colonies would choose themselves if they could. It is quite alarming to realise how much we unwittingly alter the hive environment and interfere with the natural defences of its microbiome when we use harsh natural acids such as oxalic acid. Oxalic acid not only kills *Varroa* but also good bacteria and fungi crucial for healthy natural immunity to disease.

Chapter 3 covers the internal hive structure and discusses all aspects of foundation and foundation-free beekeeping, highlighting the advantages and disadvantages of each method.

In Chapter 4 we discover what inspired Maleta's journey into beekeeping without chemicals and we learn from the accounts of his own beekeeping challenges.

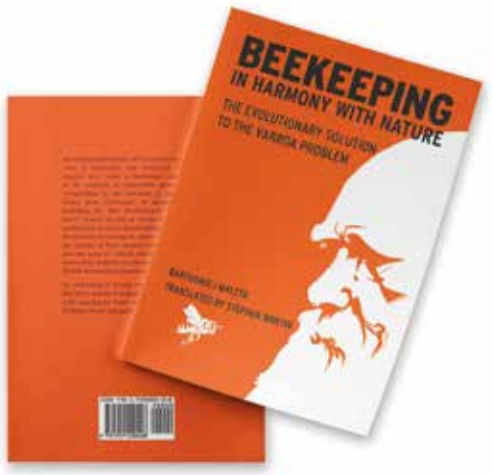
Chapter 5 is a journey across the world examining populations of honey bees living without varroa treatments and why they do. We discover the influencing

dynamics and the differences and similarities between these populations. It also features some of the pioneering beekeepers who have impressed the author by their successes in varied settings.

The final chapter explains what varroa resistant traits are and how we can transition to treatment-free beekeeping. Maleta draws on research and the experiences of many other beekeepers to inform us in a helpful non-prescriptive way. He raises awareness, presents the facts, and encourages the individual beekeeper to choose for themselves the best way forward.

Maleta has reached beyond his aim; "My goal is to popularize knowledge about natural methods of keeping and breeding bees and to show a different perspective". This is a very important publication and relevant to every beekeeper whether or not they intend to pursue treatment-free beekeeping.

Reviewed by Ann Chilcott (Scottish Expert Beemaster) and author of https://www.beelistener.co.uk



Beekeeping in Harmony with Nature: The evolutionary solution to the Varroa problem
Bartłomiej Maleta (Translated by Stephen Martin)
Northern Bee Books (1st Eng. transl. 2025)
ISBN 978-1-9192004-0-8
Softback, 394 Pages, £55

Black bees at Stori Brymbo

Julian Hunter

A community project rises from a derelict industrial site.

Brymbo is a village and community in Wrexham County Borough, Wales, largely surrounded by farmland, and reported to have a population, including the surrounding villages, of 4,836 at the 2011 Census. Brymbo Steelworks, a major employer in the area, closed in 1990 with the loss of 1,100 jobs. The closure was part of a wider decline in the UK steel industry and devastated the local community, impacting local businesses and the lives of many families who had generations working at the site. A large area of the site became derelict, but with time new local housing was built on parts of the land. However, the main buildings soon fell into disrepair and are now being redeveloped as a heritage attraction called Stori Brymbo. This is primarily focusing on the site's history, including its 300-million-year-old fossil forest, with plans to offer community and educational spaces in the renovated buildings. There is far more than this to the project, and lots of information is available on the website: https://www.storibrymbo.co.uk

An artist's impression of the renovated machine shop.

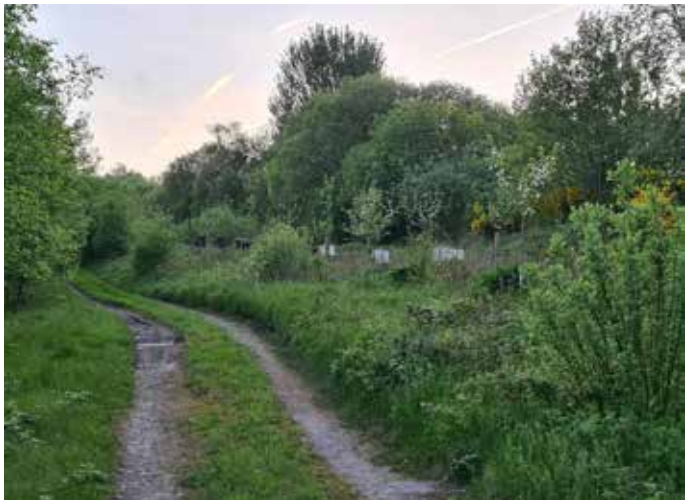
How does the black bee fit into this? Well back in 2018, I was one of the beekeepers who responded to a request from the organising committee of a local Brymbo summer show. They wanted someone to bring bees, a display hive, and any available produce and to set up a stall at the show. On arrival we were allocated a space adjacent to a stall selling Brymbo Heritage Orchard Cider. To be neighbourly we sampled each other's products, and by the end of the day I had discovered that several orchards containing heritage Welsh apple trees had been planted in and around the old steel and ironwork site. Additionally, a cider mill had been established to process the produce. A plan was immediately hatched to bring some colonies of locally adapted black bees to the orchard areas where the benefits of forage and pollination would be shared.

It took some time to persuade the trustees, but once the first colonies were established, interest quickly grew, and a small group of volunteers were trained to tend the bees. I first introduced two colonies from my home apiary to the site. These bees had not been treated with chemicals for 5 years or so, and I planned to continue a non-chemical treatment regime with these colonies for as long as they remained on site (more of that later). These bees were from stock that had previously been DNA tested for *Apis mellifera mellifera* genes, showing results of 80% - 90%.

I was quickly amazed at the large amount of nectar these bees collected compared to my home colonies, which were probably only 3 to 4 miles away as the crow flies. The variety of forage in and around the site was truly amazing, probably due to the fact that much of the land had remained untouched for years and large areas of wildflowers, trees and scrub had established.

The queen rearers of South Clwyd BKA had been looking for some time for a local area to host a mating site, and although close to Wrexham, which we know to have many non-native colonies, I strongly believed this site was worth a shot. I had been involved with the DNA testing project run from Bangor University, where along with Steve Rose (a fellow queen rearer and a member of the Bee Improvement and Bee Breeders Association, BIBBA)

Credit for all photographs in this article: Jane Helen Evans Photographer: https://janehelenphotography.co.uk/



Some of the hives in the Brymbo orchards.

I had met and befriended Dylan Elen who was leading the DNA testing project. I arranged a meeting on the Brymbo site with several of the trustees, Steve, Dylan and myself and we agreed that although the site was not isolated, if we could flood the area with quality AMM drones, then we should be able to obtain good results. The presence of these bees in large numbers should also help improve the genetics of the local population. Funding from the Stori Brymbo project was to be used to test and retest the DNA of stock bred onsite from any queens which met our selection criteria. The results were then to be analysed and used to determine the success and possible continuation of the project.

Unfortunately, in early 2020 COVID-19 arrived in the UK and lockdowns were put in place. All meetings of Brymbo volunteers were stopped, and later all onsite activities and projects were shut down. As the bees were covered by DEFRA a small group of people were allowed on site to look after the welfare of the bees. During this time, I was able to increase from 2 colonies to over 20 colonies using the bees on site and bees sourced from several different locations. This enabled the addition of new genetics to the apiary. Post COVID-19, the project is now steadily getting back on track with a new drive for additional volunteers to join the team who are looking after the bees, and hopefully to continue the breeding project.

Back to the non-chemical treatment regime. This is a contentious subject, and something I have supported for 10 years or so. Initially the large majority of beekeepers were very pro chemical treatment often citing the fact you would almost certainly lose your bees without treatment. More recently attitudes have changed. There are lots of interesting articles on natural resistance by people like Professor Stephen Martin, and now BIBBA have produced an excellent series on 'Starting the Varroa Resistance Journey'. These articles are well worth a read and it is certainly worth considering whether this would work for you. All I wish to add is to say that when I went with the volunteers at the start of this year to check the hives, all 17 of the overwintered colonies had survived. Some were bursting at the seams with bees whilst we only found a couple of weak hives, and these quickly picked up. All colonies showed low counts of *Varroa*.

In August 2025 the Stori Brymbo Artisan Group was created in a drive to build up more volunteers, and to support improved connections among local volunteer groups and micro-businesses. Several small local businesses joined, more are following and relationships are forming among them. There are bakers, artists, distillers, fermenters, foragers etc., but interestingly for me, the Stone Circle Mead Company - a company of mead makers of national renown, based in Wrexham and with a customer base including among others the Senedd and the Houses of Parliament.

After several discussions it was agreed that we would join forces and make a special batch of black mead using the honey produced by the Brymbo bees. All the supers were taken to Stone Circle premises which of course has all the required food certification. We then invited the volunteers who had been helping with the bees to assist in the extraction. This was the first time any of the volunteers had been involved in the extraction process. It was a long educational weekend, but fun was had by all. Some of the helpers brought their children and they took to the process more quickly than some of the adults. It was also fascinating to see how much the children knew about where food comes from and the value of the pollinators to food production.

Interestingly, the majority of the honey was very thixotropic and difficult to extract. This has been the case with all the Brymbo honey in previous years and to my knowledge there is no heather growing near the site. However, there are extensive pockets of knotweed which the bees love, and my research shows this can produce very thixotropic honey. As knotweed is one of the UK's most invasive species, Stori Brymbo is working on a pioneering trial of a chemical free method of control

known as Roots Reset which unlike chemical treatments avoids any harm to the bees.

During the extraction process we took three honey samples, wax and all, from one sealed comb of honey. These were packaged up and sent off for DNA analysis to the National Honey Monitoring scheme. The results from these samples will provide information about the flowers the bees have been foraging on and should confirm if knotweed is one of the constituents of the honey. The data is also used to update a national database enabling further research into areas across the UK. Every sample helps build a better picture of the condition of the landscape and the environmental pressures pollinators are being exposed to on a national scale. As such, the honey samples can provide key evidence to help inform more effective and sustainable land management strategies for the future.

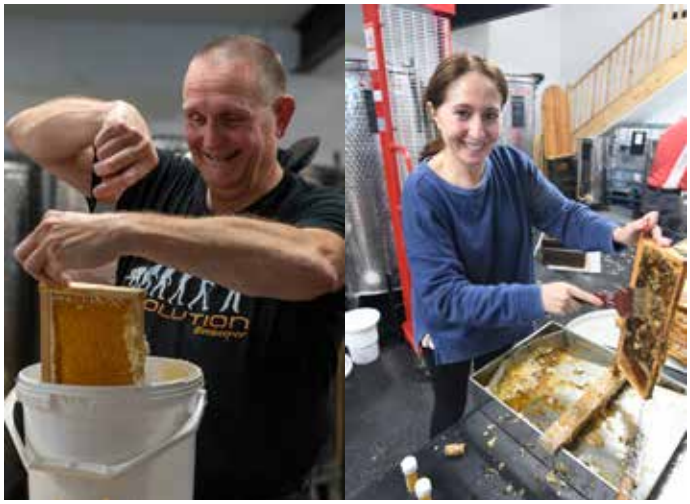
Over 200 lb of honey was processed and all the washings from the equipment along with any warmed (baker's) honey was set aside for the 'special' black mead starter. The Stone Circle Mead Company (www.stonecirclemeadcompany.co.uk) specialise in revisiting historic mead-making methods, particularly from medieval times. This new project, working with Stori Brymbo, is to recreate a version of the 'French Black' mead, or 'bochet' using the wonderful honey gleaned from Stori Brymbo colonies of Welsh Black bees.

In olden times, once the honey had been retrieved from the skep, the prime free-flowing honey ('life-honey' according to Pliny the Elder, 23/24 – 79 AD), would be reserved for food, the 'pressings' would be set aside for the creation of mead and the 'washings' for beer and ale making.

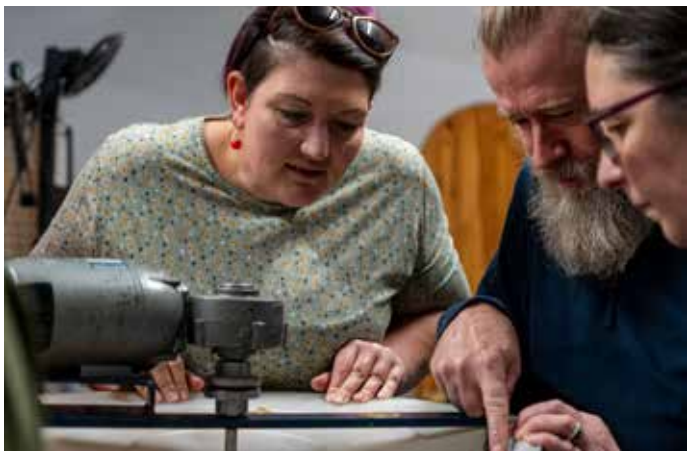
Inspired by a reference in a translation of the 13th century 'The Good Wife's Guide', an alternative method for using the capping's would be to heat the honey/wax mixture and then set the liquid aside to slowly cool.

The wax would rise to the surface and be retrieved and the honey returned to the heat to follow a recipe to make 'French Black' mead, or bochet. The honey would be boiled, mixed with water, re-heated, reduced, skimmed, spices added and then fermented. The assumption is that the honey would be caramelised to achieve the dark colour associated with a good bochet. For those anxious about elevating the content of Hydroxymethylfurfural via superheating, (HMF - Hydroxymethylfurfural is an organic compound found in heated foods like honey which can have negative effects on health) worry not: Stone Circle's research in association with Aberystwyth

Volunteers of all ages were involved in uncapping the honey combs.



All photos by : Jane Helen Evans Photography



Watching the honey extractor at work.

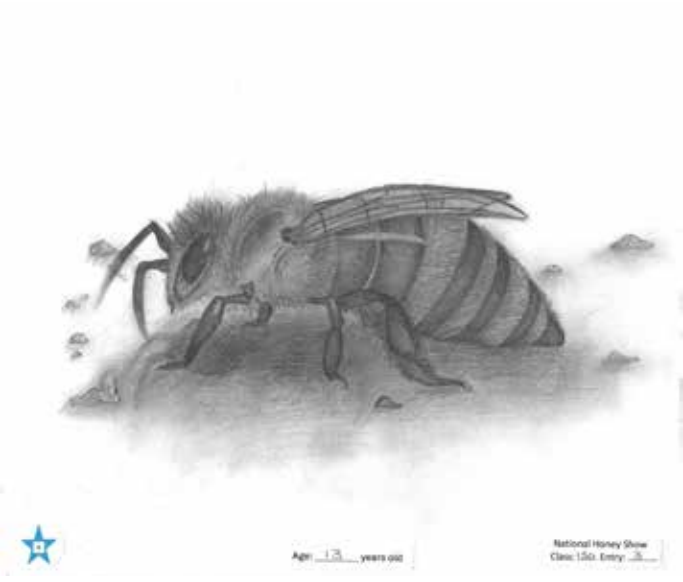
University has established that their fermentation processes remove HMF.

And there you have it: a taste of our medieval past brought into the present or at least that is the theory! By the time this article is published we hope to be well into the process of the manufacture of the SPECIAL BLACK mead production - an update will follow.

And there was more interaction from this relationship in the artisan group. Anthony Cornish, the proprietor of Stone Circle is putting forward a plan to plant Myrtle in the proposed new location for the Brymbo bees. Myrtle is a herb traditionally used in brewing and the making of mead. I was interested to read the article by Barry Griffiths in the autumn Welsh Beekeeper about keeping bees in the Kimmel Bay solar farm. An opportunity to share information and learning between these two solar farm / bee projects would be a very worthwhile exercise.

The Brymbo bees will soon be moving a short distance to their new location near the solar farm, which is currently under development. This area will hopefully be planted with bee friendly plants including the myrtle referenced above.

Now all that awaits is the first tasting of the new mead and to see what new collaborations the future holds for the artisan group.



A drawing of a bee by Izzy, one of our young volunteers, was entered into the National Honey Show

Euvarroa: *Varroa's* less famous cousin.

Damson Tregaskis

With *Tropilaelaps* becoming more talked about as it creeps ever closer (imports from Ukraine have been restricted as of 7/10/25 because of concerns over *Tropilaelaps)* and *Varroa*, something most of us have been living with one way or another for over 30 years, I found myself asked recently to give a short presentaion on *Euvarroa*. This wasn't a pest I'd ever come across before, and I found there wasn't a huge amount of information available online.

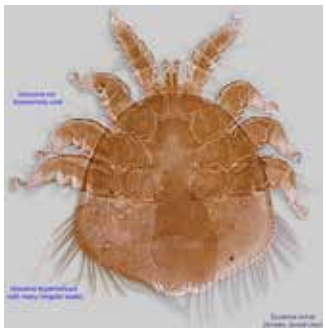


Photo: USDA

There are two species of *Euvarroa*: *E. sinhai* (left) and *E. wongsirii*, which parasitise the dwarf honey bee *A. florea* (red dwarf) and *A. andreniformis* (black dwarf) respectively. As with *Varroa* and *Tropilaelaps*, *Euvarroa* has been shown to have the ability to jump species into the western honeybee *A. mellifera* and so has the potential to pose a threat to managed honeybee colonies. Their reproduction is very similar to *Varroa* when on their natural hosts and they can survive on adult bees for a significant period of time, so brood breaks don't appear to inhibit their survival. There is limited evidence that *E. sinhai* can reproduce on western honeybee larvae, although I understand this has only been observed in a laboratory setting and not in their natural environment. Currently they are located from Iran to Malaysia and in the 51 years since they were first observed the only occasion I can find where they've left their native range is an excursion to north western Australia where they've been found in invasive red dwarf honeybee colonies.

In conclusion I think *Euvarroa* poses a very low risk to UK bees and beekeeping, but as with all tropical pests it will be up to beekeepers to stay vigilant, not only in spotting anything untoward in our hives but also using best practice in sourcing our bees by raising our own queens or, if we need to buy bees or queens, making sure they're as local as possible.

The Rydal Penrhos Apiary: The story continued

Sarah Swift

Learning about bees and enjoying the product.

The Rydal Penrhos Apiary has flourished this year, building beautifully on the strong foundations laid by Tom Hutchinson, Principal, and Gary Pittaway, a parent and the school's consultant beekeeper. Over the past eighteen months, we increased the number of hives to four and it has been exciting for both staff and students in the school to witness the colonies going from strength to strength. This expansion brought the school its very first swarming season, offering a wonderful opportunity for hands-on learning and discovery for a community new to the art of apiculture. The excitement of watching bees on the school campus choosing somewhere new to make their home, kept the world of bees foremost amongst the thoughts of the pupils.

The school apiary team has also doubled in size and now includes Mark Harmsworth, Head of Food Technology, and Sarah Swift, Science Technician. Both enjoyed attending the National Beekeeping Centre Wales training courses in early 2025 and have applied their new found skill to weave the magic of bees into their respective departments of food technology and science, with enthusiasm and flair.

The Principal previously mentioned in an article published in the summer edition of Welsh Beekeeper that the Rydal Penrhos Apiary was officially opened on World Bee Day in May 2025, with pupils embracing this new and exciting opportunity with great enthusiasm.

Weekly apiary visits were conducted during the summer term, with younger pupils whole heartedly grasping the opportunity to observe the bees up close. Each week brought great excitement as the younger pupils waited with bated breath to find out if their name had been chosen to visit the bees. The thrill of putting on the beekeeping suits, gloves and boots along with the privilege of seeing these wonderful creatures at work right before their eyes, really was an experience that kept the students and school buzzing for weeks.

The hard work of staff, and the expansion and care of the apiary culminated in a bountiful spring honey harvest, which meant that pupils and parents were able to purchase their own Rydal Penrhos Honey for the very first time. Not unsurprisingly the jars sold out in record time, some may say quicker than a Taylor Swift ticket! Some of the honey even made its way into the classroom, inspiring delicious creations in food technology lessons from hot chilli honey to honey flapjacks, the most popular being the much-loved honey buns, a recipe we've shared below for everyone to enjoy.

From hive to classroom to kitchen, the bees of Rydal Penrhos have given far more than honey and continue to be an experience that textbooks alone cannot provide. They've offered a living lesson in teamwork, sustainability, and the sweetness of learning by doing — a gift that keeps on giving.

Traditional Welsh Honey Buns Recipe

Ingredients:

500 g unsalted butter
150 ml whole milk
300 g strong white flour
50 g caster sugar
7 g fast active dry yeast
½ teaspoon Rydal Penrhos Honey
½ teaspoon sea salt

Filling:

75 g butter
75 g soft brown sugar
Half a teaspoon of Rydal Penrhos Honey

Method:

1. Preheat oven to 200°C
2. Melt butter, add milk, and warm to about 37°C. In a bowl, mix flour, sugar, salt, and yeast; add the egg and warm milk mixture to form a soft dough.
3. Knead for 10 minutes until smooth, then let rise in a greased bowl for 1 hour or until doubled.
4. Mix butter, sugar and honey for the filling.
5. Divide dough into 8–10 pieces, roll each into a rectangle, add a teaspoon of filling, fold into a triangle twice, pressing corners to seal.
6. Place on lined trays and bake 15–20 minutes until golden. Enjoy!

WBKA Spring Convention

Saturday 28th March 2026

Put the date in your diary.

Opening address

Will Van Blyderveen, a project manager for Bees for Development will talk about work with stingless bees in the Amazon.

The list of speakers are:

Professor Robert Pickard:
Atoms, Nutrition and Life: NDB Sponsored talk

Robert Pickard is Emeritus Professor of Neurobiology at the University of Cardiff, one of his many roles is Patron of the Welsh Beekeepers Association. His talk looks at how over 40 atoms are required to create us and the honey bee and how nutrition plays a role in the outcome of a fertilised female egg in honey bees.

Lynfa Davies:
Managing Colony numbers: Conwy BKA / Schroders Greencoat Sponsored talk

Lynfa is a Master Beekeeper and in 2019 was awarded the National Diploma in Beekeeping. Her talk considers how we can keep colony numbers under control while maintaining healthy colonies. A talk for both the newer beekeeper and those who have more experience and ever-expanding numbers of colonies!

Richard Rickett:
Bees and Trees: An Ancient Partnership

Richard Rickitt is co-editor of BeeCraft magazine. He is the beekeeper at Westonbirt, the National Arboretum, and has apiaries in woodlands that are Sites of Special Scientific Interest (SSSI's). He is fascinated by how honey bees interact with the landscape and sources of forage, and the relationship between bees and trees. His talk will consider how trees have affected the evolution and geographic distribution of honey bees.

Stephen Riley:
Varroa Resistance: BDI Sponsored talk

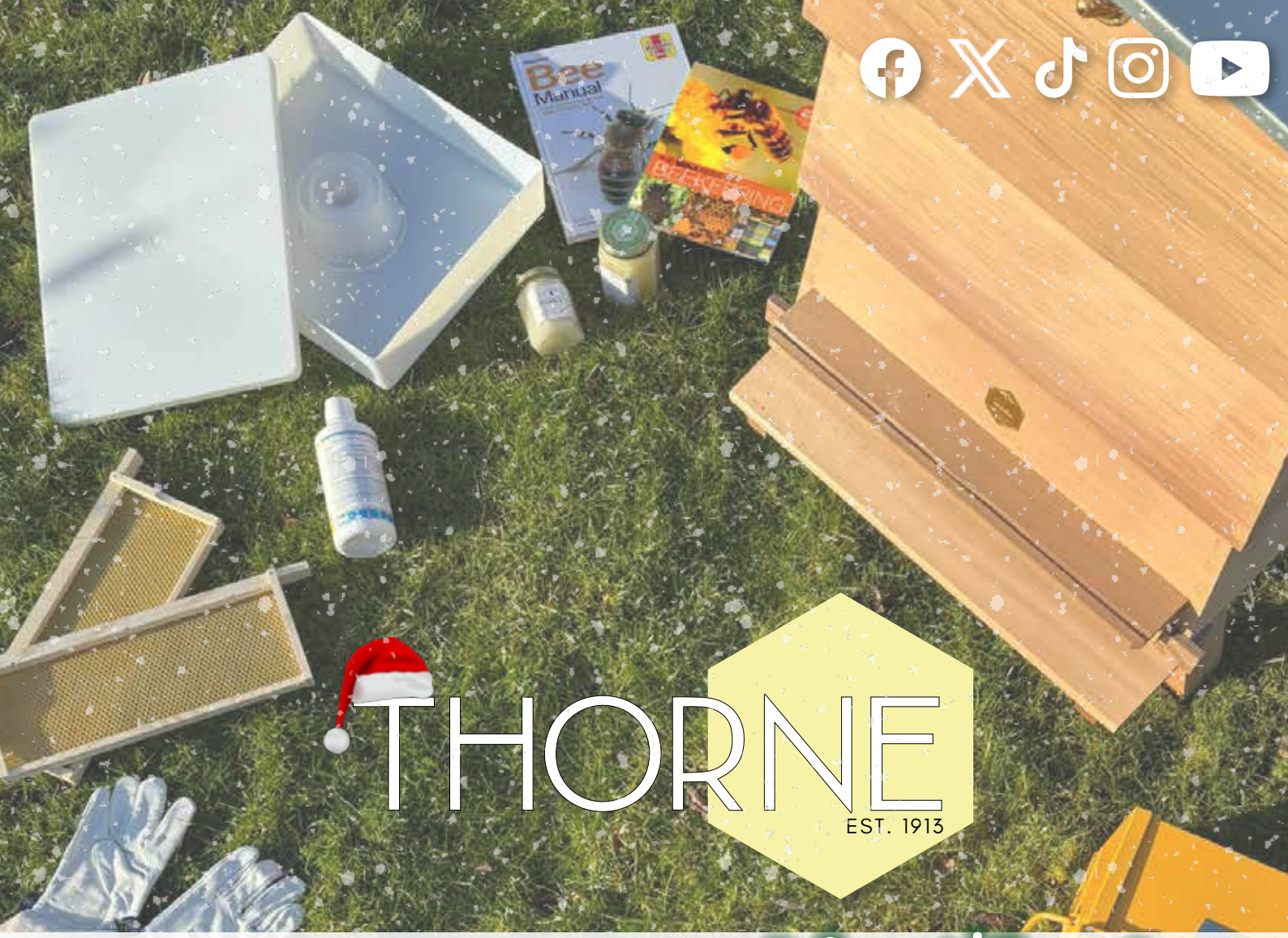
Stephen is the author of The Honey Bee Solution to Varroa and a member of the 'Path to Varroa Resistance in the UK' team. His talk will cover how beekeepers can monitor and select for varroa resistant traits in their colonies, leading to the bees controlling their mite populations without the involvement of the beekeeper.

Ticket prices have been kept at £8 in advance at:

https://wbka.sumup.link/ or £10 on the door.

Volunteering a few hours of your time to act as a steward will get you free admission. We rely on the support of our members to steward at this prestigious event, so please get in touch (by emailing convention@wbka.com) if you can help. Don't forget that by stewarding you will be entered into the stewards draw to win a prize donated by one of the traders.

An ideal stocking filler for the Beekeeper in your life?



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01769 573086

Results from the Welsh National Honey Show 2025

HONEY - MÊL

1 COMMERICAL HONEY - Twelve glass containers of Honey of two or more glass sizes 1 Shane Llewelyn Jones 2 Gary Luckhurst 3 Emyr Jenkins 4 Carys Edwards

2 COMMERICAL CLASS - Twelve x 454g jars of one of the following: light, medium, dark, natural granulated 1 Gary Luckhurst 2 Shane Llewelyn Jones 3 Carys Edwards

3 COMMERICAL HONEY - Twelve identical glass jars of one type of honey 1 Gary Luckhurst 2 Shane Llewelyn Jones 3 Emyr Jenkins

4 Six matching 454g jars of any type honey (runny, soft set or heather). 1 Carys Edwards 2 Shane Llewelyn Jones 3 Gary Luckhurst 4 Emyr Jenkins

5 Two 454g jars of light honey. 1 Gary Luckhurst 2 Shane Llewelyn Jones 3 Josephine Anderson 4 Awen Thau

6 Two 454g jars of medium honey. 1 Gary Luckhurst 2 Josephine Anderson 3 Graham Wheeler 4 Martin Davies

7 Two 454g jars of dark honey (excluding heather) 1 Carys Edwards 2 Gary Luckhurst 3 Graham Wheeler

8 Two 454g jars of natural granulated honey 1 Gary Luckhurst 2 Emyr Jenkins 3 Jason Rawbone

9 Two 454g jars of soft set honey 1 Gary Luckhurst 2 Josephine Anderson 3 Emyr Jenkins

10 Two 454g jars of heather honey 1 Josephine Anderson 2 Shane Llewelyn Jones 3 Rhodri Powell

11 Two 454g jars of heather blended honey 1 Emyr Jenkins 2 Josephine Anderson

12 One 454g jar of liquid honey displayed in a jar which will be covered prior to judging 1 Gary Luckhurst 2 Vicky Davies 3 Trista Edwards-Hulme

13 One 454g jar of any honey in its natural form 1 Josephine Anderson 2 Carys Edwards 3 Vicky Davies

14 Two 454g jars of chunk honey 1 Josephine Anderson 2 Shane Llewelyn Jones

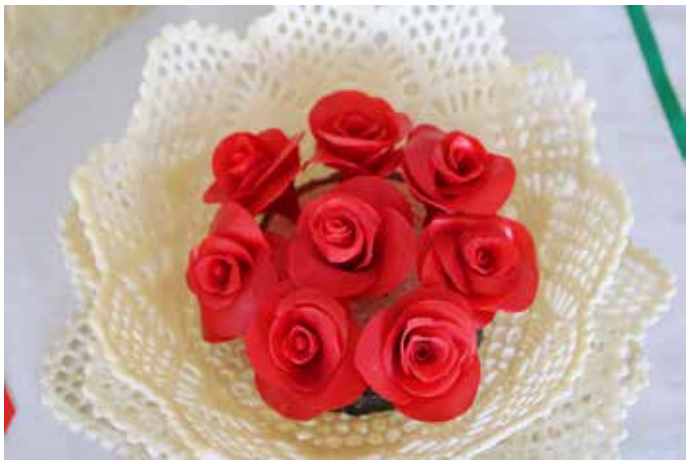
COMB HONEY - MÊL DIL

15 Two standard containers of liquid cut comb honey (minimum 227g). 1 Josephine Anderson 2 Shane Llewelyn Jones 3 Emyr Jenkins

16 Two standard containers of granulated cut comb honey (minimum 227g) 3 Gary Luckhurst

17 Two sections of comb honey round/square. 1 Josephine Anderson 2 Shane Llewelyn Jones

18 One comb of honey, suitable for extracting, exhibited in a plain case. 1 Shane Llewelyn Jones 2 Martin Davies 3 Trista Edwards-Hulme



BEESWAX - CŴYR GWENYN

19 One cake of beeswax, plain mould. To be 250-350g in weight 1 Emyr Jenkins 2 Graham Wheeler 3 Karen Squires

20 Three matching candles other than moulded. 1 Josephine Anderson 2 Graham Wheeler

21 Three matching moulded candles. 1 Graham Wheeler 2 Awen Thau 3 Gary Luckhurst

22 A decorated beeswax exhibit to occupy a space not larger than 450mm x 450mm 1 Karen Squires 2 Martin Davies 3 Josephine Anderson

23 Six x 28g (approximately) moulded blocks of beeswax. 1 Gary Luckhurst 2 Emyr Jenkins 3 Graham Wheeler

24 A tin of hard furniture polish (hazard labels to be used). 1 Josephine Anderson 2 Graham Wheeler 2 Shane Llewelyn Jones

25 One container of furniture cream (hazard labels to be used). 1 Carys Edwards 2 Josephine Anderson

COMPOSITE CLASSES - DOSBARTHIADAU CYMYSG

26 Individual Composite Class 1 Shane Llewelyn Jones 2 Gary Luckhurst 3 Emyr Jenkins

27 Association Composite Class

1 Brecknock & Radnor BKA

MEAD AND HONEY DRINKS - MEDD A DIODYDD MÊL

28 One bottle of mead, sweet. (SG 1.006 – 1.025)

1 Deborah Smith 2 Graham Wheeler 3 Martin Davies

29 One bottle of mead, dry. (SG 0.990 – 1.005)

1 Gary Luckhurst 2 Julian Tanner

30 One bottle of melomel, hyppocras (fruit spices to be named), cyser or pyment 1 Martin Davies 2 Rhodri Powell 3 Shane Llewelyn Jones

31 One bottle of metheglin or sack metheglin (type to be labelled)

1 Martin Davies 2 Carys Edwards 3 Karen Squires

32 A non-alcoholic honey drink - recipe to be provided by the competitor 1 Josephine Anderson 2 Shane Llewelyn Jones 3 Carys Edwards

33 One bottle of honey vinegar, flavoured or plain

1 Elyssa Noble Hook 3 Carys Edwards

34 One bottle of honey beer

2 Julian Tanner 3 Deborah Smith

GENERAL DISPLAYS - ARDDANGOSFEYDD CYFFREDINOL

35 A display of hive products suitable for a show window

1 Shane Llewelyn Jones

EDUCATIONAL - ADDYSGOL

36 Photography - a photograph of a pollinator 1 Trista Edwards-Hulme 2 Deborah Smith 3 Josephine Anderson

37 A drawing/painting of a beekeeper

1 Trista Edwards-Hulme 2 Awen Thau 3 Verity Vater

38 A handmade item for a beekeeper, 1 Yaron Thau

2 Josephine Anderson 3 Trista Edwards-Hulme

HONEY CONFECTIONERY - MELYS FWYDYDD MÊL

39 A Honey cake 1 Gwen Middleton 2 Josephine Anderson 3 Shane Llewelyn Jones

40 Bara Brith

1 Carys Edwards 2 Trista Edwards-Hulme 3 Caleb Vater

41 Five Honey Welsh Cakes 1 Verity Vater 2 Shane Llewelyn Jones 3 Gwen Middleton

42 A box of honey chocolates sweet (max size 8"/200mm)

1 Josephine Anderson 2 Verity Vater 3 David Stratford

HONEY PRESERVES - CYFFAITH MÊL

43 One jar of honey preserves 1 Shane Llewelyn Jones 2 Josephine Anderson 3 Carys Edwards

44 One jar of honey marmalade 1 Shane Llewelyn Jones 2 David Stratford 3 Josephine Anderson

45 One jar of honey chutney 1 Carys Edwards 2 Shane Llewelyn Jones 3 Gwen Middleton

NOVICE CLASSES - DOSBARTHIADAU DECHREUWYR

46 Two 454g jars of honey which can be either light, medium, dark or granulated honey. 1 Gary Luckhurst 2 Elyssa Noble Hook 3 David Stratford

47 Five x 28g (Approx) moulded blocks of beeswax

1 Gary Luckhurst 2 Geraint Griffiths 3 Elyssa Noble Hook

48 A comb of Honey suitable for extracting

1 Gary Luckhurst

YOUNG BEEKEEPERS CLASSES - DOSBARTHIADAU GWENYNWYR IFANC

UNDER 16 YEARS

49 Two 254g jars of honey which can be either light, medium, dark or granulated 1 Awen Thau

UNDER 11 YEARS

50 A miniature beekeepers garden 1 Gwynfor Elis ap Bryn 2 Dafydd Guto

51 A drawing/painting of a pollinator 1 Awen Thau 2 Dafydd Guto 3 Gwynfor Elis ap Bryn

52 Three decorated shortbread biscuits 'Bee' theme

1 Gwynfor Elis ap Bryn

OPEN GIFT CLASSES - DOSBARTHIADAU RHODD AGORED

53 One jar of light honey

1 Shane Llewelyn Jones 2 Emyr Jenkins

54 One jar of medium

1 Shane Llewelyn Jones 2 Emyr Jenkins

56 One jar of natural granulated honey

1 Shane Llewelyn Jones 2 Emyr Jenkins

57 One jar of soft set honey 1 Emyr Jenkins

58 One container of cut comb honey

1 Shane Llewelyn Jones 2 Emyr Jenkins

CLOSED CLASSES - DOSBARTHIADAU CYFYNGEDIG

HONEY - MÊL

59 Two 454g jars of light honey 1 Graham Wheeler 2 Trista Edwards-Hulme 3 Gary Luckhurst

60 Two 454g jars of medium honey 1 Marian Evans 2 Gary Luckhurst 3 Awen Thau

61 Two 454g jars of dark honey (excluding heather) 1 Shane Llewelyn Jones 2 Gary Luckhurst 3 Carys Edwards

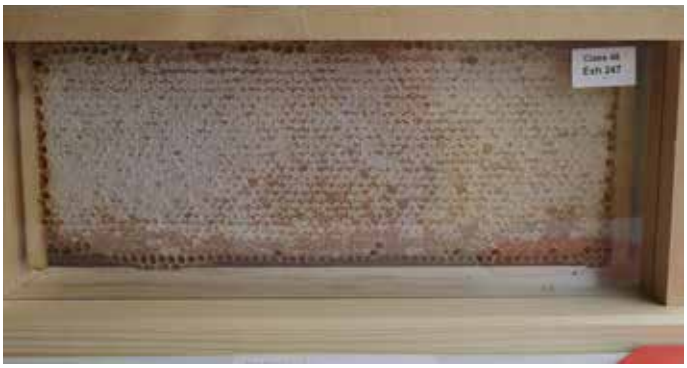
62 Two 454g jars of natural granulated honey 1 Graham Wheeler 2 Carys Edwards 3 Gary Luckhurst

63 Two 454g jars of soft set honey 1 Gary Luckhurst

64 Two 454g jars of heather honey 1 Shane Llewelyn Jones

65 Two 454g jars of heather blended honey 1 Emyr Jenkins 2 Gary Stroud

66 Two 454g jars of chunk honey 1 Shane Llewelyn Jones 2 Jason Rawbone



COMB HONEY - MÊL DIL

67 One comb of honey, suitable for extracting, exhibited in a plain case. 1 Jason Rawbone 2 Shane Llewelyn Jones 3 Trista Edwards-Hulme

68 Two sections of comb honey round/square 1 Shane Llewelyn Jones

69 Two standard containers of liquid cut comb honey (minimum 227g) 1 Shane Llewelyn Jones

BEESWAX - CŴYR GWENYN

70 Six x 28g (approximately) moulded blocks of beeswax. 1 Shane Llewelyn Jones 2 Elyssa Noble Hook 3 Graham Wheeler

71 A pair of candles (1 to be lit by the judge only) 1 Graham Wheeler 2 Elyssa Noble Hook 3 Awen Thau

72 One cake of beeswax (plain mould 250 - 350g in weight) 2 Martin Davies

MEAD/HONEY DRINKS - MEDD & DIODYDD MÊL

73 One bottle of mead, sweet. (SG 1.006 – 1.025) 1 Shane Llewelyn Jones 2 Karen Squires 3 Martin Davies

74 One bottle of mead, dry. (SG 0.990 – 1.005) 1 Graham Wheeler 2 Deborah Smith 3 Gary Stroud

75 One bottle of melomel, hyppocras (fruit spices to be named), cyser or pyment 1 Shane Llewely Jones 2 Deborah Smith 3 Gary Luckhurst

76 One bottle of metheglin or sack metheglin (type to be labelled) 1 Shane Llewelyn Jones 2 Deborah Smith 3 Carys Edwards

SPECIAL PRIZES / GWOBRAU ARBENNIG

SP1 - The Crawshay Challenge Trophy - Class 1: Shane Llewelyn Jones

SP2 - The Ceri & Jean Davies Cup - Class 2: Gary Luckhurst

SP3 - The EJ Tanner Perpetual Memorial Trophy: Emyr Jenkins

SP4 - The Sir Evan Williams Trophy: Brecon and Radnor BKA

SP5 - The WBKA Challenge Trophy - Class 35: Shane Llewelyn Jones

SP6 - The Charles H Davies Challenge Trophy - Classes 39 - 42 (Confectionery): Josephine Anderson

SP7 - The George Faraday Davies Cup - Classes 49 - 52 (Young Beekeepers): Gwynfor Elis ap Bryn

SP8 - The Warren Davies Perpetual Trophy - Classes 73 -76 (Mead & Honey Drinks): Shane Llewelyn Jones

SP9 - The HJ Evans Perpetual Trophy, The EH Thorne (Beehives) Ltd Award £20 voucher and the RWAS Silver Medal Diploma Card awarded to a member of a WBKA affiliated Association winning the highest number of points in the combined open and closed classes: Shane Llewelyn Jones

SP10 - The Michael Badger Perpetual Trophy. Awarded for the best exhibit in the Mead Classes: Deborah Smith

SP11 - The Robert Edwards, Meirionnydd BKA Memorial Award - Best Exhibit in the Meads and Drinks section (kindly donated by Carys Edwards): Deborah Smith

SP12 - The Robert Edwards, Meirionnydd BKA Memorial Award - Best Exhibit in the Confectionery & Preserves Section (kindly donated by Carys Edwards: Josephine Anderson

SP13 - RWAS Welsh Royal Crystal Awarded to exhibitor gaining the highest number of points in Classes 59 - 76: Shane Llewelyn Jones

SP14 - EH Thorne (Beehives) Ltd £10 voucher- winner of class 46: Gary Luckhurst

SP16 - Best Exhibit in Show - Blue Ribbon (Only awarded by a BBKA judge): Shane Llewelyn Jones

SP17 Class 13 - £50 donated by Carys Edwards: Josephine Anderson

A Royal Visit to Merthyr Nats.

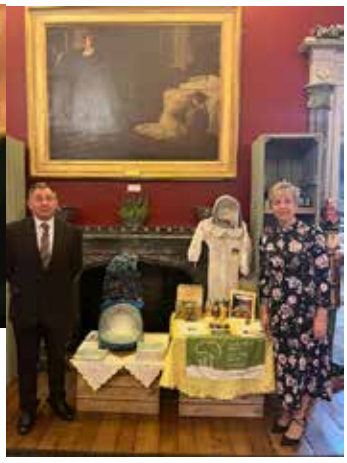
Sue Taylor

With just a weeks' notice, we had a very exciting email stating that the King and Queen will be visiting Cyfarthfa Park and would like to meet us and hear about our project.

As keen wild life supporters and beekeepers King Charles and Queen Camilla were delighted to hear about our work with young people and the volunteering work completed by the Merthyr Tydfil Naturalists. The Queen told us that she had honey from her own bees. The King was very supportive of our programme of work designed to deliver outdoor learning opportunities to schools across the borough. The programme centres around the importance of bees and pollinators to our food supply and what we can do to create an environment where they can thrive.

The WBKA articles in respect of the work we are doing and one of our group achieving the junior bee keeping qualification were on show (with photographs) and the King loved the fact that we were educating the future generation in both bee keeping skills and the importance of caring for our natural world and looking after the fragile ecosystem we all live in.

We then presented the king with a jar of Honey from the park named Merthyr Gold to celebrate his birthday.



King Charles speaks to Sue Taylor and the Merthyr Nats. honey display

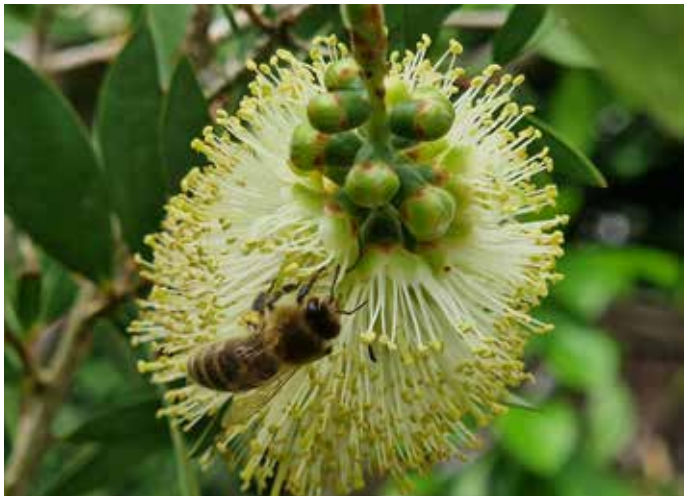
Results of the annual photo competition.

Thank you all for your entries to our annual photo competition and congratulations to the winners. Thanks also to Claire Waring for judging the entries and to C Wynne Jones for their sponsorship.

First place goes to Jemma Liggett

Second place to Barry Griffiths

Third place to Peter Bezkorowajnyj



Fourth place to Anna Jans

Jacqueline Davey

David Jones

Rhai problemau wrth nodi'r frenhines

Wil Griffiths

Haws dweud na gwneud yw hi ym myd nodi'r frenhines i'r profiadol a'r di-brofiad. Yn aml.

Does dim yn gwneud i'r galon guro'n gyflymach na darganfod celloedd brenhines yn y cwch; rhaid gweithredu neu efallai golli'r haid. Y broses gyntaf, yn ôl y llyfrau, yw dod o hyd i'r frenhines: find the queen. Haws dweud na gwneud, yn enwedig i brentisiaid o wenynwyr ac i lawer un profiadol hefyd, gan nad yw'r llygaid na'r dechneg yn caniatáu. I wneud pethau'n waeth, mae'r breninesau cynhenid tywyll eu lliw mor barod i guddio mewn rhyw gornel neu i wthio eu hunain dan bentwr o wenyn ar y ffrâm.

Rwy'n ddigon hen a hyf bellach i siarad ac ysgrifennu trwy brofiad am broblemau personol ynglŷn â nodi'r frenhines. Fel pob egin wenynwr, flynyddoedd maith yn ôl, roeddwn eisiau meistroli pob agwedd ar y grefft a hyd yn oed nodi a thorri adenydd pob brenhines os oedd angen. 'Yn araf bach mae mynd ymhell' oedd cyngor yr hen wenynwr a oedd yn ceisio fy nysgu. Gan ei fod yn gwybod am fy niffyg amynedd, rhybuddiodd fi nad oeddwn i fod i freuddwydio am nodi un frenhines. Rhoddodd her i mi i nodi faint a fynnwn o'r gwenyn gwryw (drones) am flwyddyn gyfan er mwyn magu profiad.

Es ati o ddifrif a phrynu pac o bennau ffelt (felt pens) parhaol eu lliw i nodi rhai o'r gwŷr diog. Yn wir, fe aeth pethau'n rhemp – ddwywaith neu dair yr wythnos roedd y nodwr yn gwneud ei waith gan gadw at yr un lliw ar gyfer pob cwch. Do, fe ddaeth degau o'r gwenyn gwryw o dan gyfaredd y pennau ffelt. Roeddwn bellach wedi dysgu techneg i ddal y gwrywod, sef gadael iddynt gerdded neu anelu eu ffordd tuag at ddeg o'r gloch, eu dal rhwng bys a bawd y llaw dde ac yna eu trosglwyddo i'r un bodiau yn y llaw chwith i'w nodi. Fyth ers hynny defnyddiais y dechneg hon i nodi pob brenhines.

Efallai mai chwarae i fagu profiad oedd hyn oll, ond dysgais wers bwysig, sef nad oes i'r wenynen wryw gartref parhaol yn y cwch y'i ganwyd. Er fy mod wedi cadw at un lliw ar gyfer pob cwch, sylwais ymhen rhai dyddiau fod enfys o wenyn gwryw lliwgar ym mhob cwch a phob un wedi cael croeso, mae'n debyg, fel ymwelydd. Ie, dysgu gwers wrth chwarae.

Ond mae rhagor. Hanner milltir i lawr y ffordd o'r wenynfa roedd gwenynwr arall dibrofiad fel fi a byddem yn dod i gysylltiad â'n gilydd yn awr ac yn y man yn answyddogol ac yn trafod ein sgiliau neu ein diffyg sgiliau ym myd y gwenyn. Roedd yn barod iawn i sôn un prynhawn pan gwrddom am y rhyfeddodau a welodd mewn dau o'i gychod – nifer o wenyn gwryw o bob lliw, meddai! Wnes i ddim esbonio, dim ond derbyn y newyddion. Mae'n siŵr iddo yntau ddysgu yn nes ymlaen nad oes dinas barhaus ym myd y wenynen wryw ac mai yn rhywle arall y mae ei gwlad enedigol. Tybed a oedd y gwrywod hyn wedi cyfarfod mewn clwstwr o wenyn gwryw i briodi â gwyryf, yna ar ôl methu bod yn llwyddiannus, iddynt droi am adre gyda gwrywod eraill i'r cwch agosaf?

Mae'n debyg bod ymweld â gwenynfeydd ein cyd-aelodau yn rhan o weithgarwch gwanwyn a haf pob cymdeithas – rhai i ddysgu ac eraill efallai i feirniadu yn dawel wrthyn nhw eu hunain drefn neu ddiffyg trefn y gwenynwr hwnnw. Gan fod ganddo 'ddwylo menyw' yn hytrach na 'dwylo ffermwr' mae nodwr y gwenyn gwryw lliwgar yn cael llond côl o ymarfer ar brynhawniau fel hyn. Ambell dro prin iawn, mae'r frenhines, ar ôl ei nodi, yn ymddangos yn hollol farw ar gledr y llaw. Tybed a yw ambell frenhines yn fwy ofnus na'i gilydd a bod hyn yn digwydd? Ymhen ychydig oriau, ar ôl gwneud dim ond eu gollwng ar y caead (crown board) yn agos i'r twll bwydo, maent yn dadebru ac yn mynd yn ôl i'r cwch heb fod damaid gwaeth.

Gyda llaw, enw rhyfedd sydd ar y caead yn Saesneg: crown board. Darllenais ysgrif flynyddoedd yn ôl yn ceisio rhoi esboniad ar yr enw. Yn yr Oesoedd Canol dim ond Ei Fawrhydi a gŵyr tebyg a fedrai fforddio prynu te wedi ei ysbeilio o India. Roedd yn dod i'r wlad mewn bocsys plywood mawr tua dwy droedfedd sgwâr. Gan mai ysbail y brenin a'i hil ydoedd, roedd coron y brenin hwnnw wedi ei stampio ar bob ochr i'r bocs. Wedi datgymalu'r bocs, roedd y chwe ochr gyda stamp coron y brenin yn hwylus iawn i wneud caead i'r cychod pren cyntefig. Coeliwch neu beidio!

Ambell brynhawn bu'r nodi'n fethiant. Roedd un aelod wedi cael syniad, naill ai o'i ben a'i bastwn ei hunan neu wedi ei ddarllen, am ffordd syml y medrai pawb ei ddefnyddio i nodi'r frenhines trwy ddefnyddio teclyn a ddefnyddid i agor poteli gwin, o bopeth. Nodwydd oedd hon, un debyg i nodwydd frechu'r nyrs ond yn llawer iawn cryfach. Ar ben y nodwydd fawr hon roedd pledren (bulb) yn llawn o ryw fath o nwy, tebyg i garbon deuocsid. Gwthid y nodwydd drwy gorcyn y botel win ac ar ôl gwasgu'r bledren unwaith i roi'r nwy i mewn, byddai'r corcyn yn cael ei wthio allan. Syml.

I'r Einstein o wenynwr, roedd yr offer yma'n syml a hwylus i nodi'r frenhines. Dyma'r drefn a ddilynwyd. Rhoed jar fêl wag dros y frenhines a rhai gwenyn oedd yn gymdogion iddi ac ar ôl iddi gerdded fyny i ben uchaf y jar, yna rhoi darn o cling film dros y genau. Gwthio'r nodwydd drwy'r cling film ac yna un gwasgiad i'r bledren nwy. Aros ychydig eiliadau a dyna ddeiliaid y jar i gyd yn cysgu. Gwaith hawdd oedd nodi'r frenhines nawr. Do, fe weithiodd y drefn yn ardderchog ond darganfuwyd un gwall – wnaeth y frenhines ddim deffro!

Bu ein Cymdeithas yn ffodus un gaeaf o gael cyfres o ddarlithiau gan arbenigwr o dan nawdd Adran Allanol y Brifysgol. Yn ystod y trafodaethau, cododd y mater o nodi a thorri adenydd y frenhines. Dangoswyd diddordeb mawr mewn nodi'r frenhines â rhif yn hytrach nag â lliw. Gan fod gosod rhif yn fwy cymhleth, addawodd yr arbenigwr y byddai'n dod 'nôl yn y gwanwyn i nodi rhai pwyntiau a gododd yn ymarferol. Un o'r pwyntiau hynny oedd nodi'r frenhines â rhif yn hytrach nag â phaent gan fod hwnnw yn tueddu i dreulio i ffwrdd mewn tua blwyddyn. Y broses gyntaf oedd rhoi mymryn o lud ar gefn y frenhines ac yna cyn pen rhai eiliadau, gosod y mymryn rhif yn ofalus ar ben y glud. Nawr roedd yn rhaid aros am rai eiliadau i'r glud sychu. Er mwyn i hyn ddigwydd, roedd ganddo focs matsis a chât'r frenhines noddfa yn hwn nes byddai'r glud yn sych. Agorodd gil y bocs, rhoi'r frenhines yn ofalus drwy'r bwlch a chau'r bocs yn sydyn. Er cystal ei ofal a'i gyflymder roedd y frenhines yn gyflymach, ac wrth i'r drws gau'n glep, gwthiodd ei phen allan ac fel un o'r hil frenhinol unwaith eto, collodd hithau ei phen!

Mae pum lliw arferol i nodi'r frenhines, ond erbyn hyn mae rhyw dri ohonynt yn ddigon. Cyn cyfnod y Faroa, byddai ambell frenhines yn byw tan ei phumed flwyddyn ond prin y caiff un ei phen-blwydd yn dair bellach. Mae'r cemegau a ddefnyddir i ladd y pla hwnnw wedi effeithio ar effeithlonedd y gwenyn gwryw ac felly prin y mae'r frenhines yn cael ei ffrwythloni'n llwyr. Mae defnyddio'r lliwiau hyn yn eu trefn yn rhoi gwybodaeth i'r gwenynwr am oedran y frenhines.

Un flwyddyn, coch oedd y lliw a chan fod y lliw hwn braidd yn aneglur ar gefn tywyll y frenhines, roeddwn yn chwilio am liw coch a fyddai yn haws ei weld. Roedd yr ateb ar flaen bys – wel, ar flaen bysedd merched, beth bynnag – nail varnish. Hawdd ei ddefnyddio, yn sychu'n gyflym er braidd yn gryf ei arogl. Roedd Woolworth y pryd hwnnw yn llawn o samplau a chyn pen dim o dro roedd pob gewyn a chefn y llaw yn llawn smotiau coch wrth chwilio am y lliw mwyaf tanbaid. Rhaid bod rhywun wedi cwyno am y dyn rhyfedd (wel, oedd, yr adeg honno) wrth gownter y merched. Roeddwn yn canolbwyntio'n llwyr ar ddewis lliw pan synnwyd fi gan y rheolwr yn cydio yn fy ysgwydd ac yn pwyntio tua'r drws. Meddyliais am geisio esbonio iddo mai dewis lliw yr oeddwn ar gyfer nodi'r frenhines ond wedi meddwl, efallai y byddai'r esboniad hwnnw yn gwneud pethau'n waeth!

Wedi cyrraedd y drws, cefais wthiad allan a geiriau'r rheolwr yn fy siarsio, 'Your custom is not required here ever again'. Ond roedd gwaeth i ddod. Pwy safai ar y palmant yn gweld ac yn clywed y cyfan ond dau aelod benywaidd o'r capel yn gweld sarhad y blaenor yn cael ei daflu allan. Ni cheisiais esbonio dim, dim ond chwifio llaw smotiog goch ar y ddwy a throi'n slei i lawr y stryd. Ni ddefnyddiais y lliw coch byth wedyn – roedd melyn a gwyn yn ddigon.

Weithiai byddaf yn meddwl – tybed ai oherwydd fy niffyg prynu i o hynny allan yr aeth Woolworth i'r wal?

Beeswax and 'Silk' Stockings

Phil Regan

Several readers may know Phil Regan, a beekeeper with decades of experience who lives in northern Ceredigion. "He was my Aberystwyth BKA beekeeping mentor for many years", says Ann Ovens, "helping me get set up, gently advising me about colony management, and helping me spot queens - he has an eagle eye for finding them! His support has been invaluable, with lots of stories of keeping bees at the school he worked at in Sheffield years ago, before moving over to Wales. He has retired from beekeeping now, and his wife Juliet and I were going through his extensive equipment collection sorting and rehoming items when I came across this piece he had written 20 years ago about wax extraction. You will be pleased to note that the wax extractor he made has passed on to another Aberystwyth BKA beekeeper for refurbishment and a second life.

Whenever Phil tells a story from his beekeeping past, there is a glint in his eye and a cheeky chuckle and that is just how he would narrate this little piece. Enjoy."

On asking my wife recently for her old nylon tights/stockings, I was rather alarmed when she said that she had none. When trying to find out the reason for this, I discovered that such items of clothing are not as much in vogue these days, at least for my wife, and probably for the rest of feminine society. On explaining my reasons for wanting such items I was told not to worry. A few weeks later, much to my amazement, my wife presented me with a whole bag of old stockings. On querying their source, she mentioned two letters that illuminated the situation immediately - "The W.I.". She had just spread the word at their regular monthly meeting and that was it.

Now you may be wondering why on earth I needed such items of clothing, but I have discovered that they are the best thing for hobby beekeepers since the advent of movable frames - for extracting pure beeswax. It's always a problem knowing what to do with all those bits and pieces of mucky wax accrued during the season, not to mention all the bits from the winter cleaning of frames. In fact, this is seared on my mind from a rather disastrous experience I once had regarding wax.

I decided to try and melt down all my old wax in a large Pyrex beaker. This I nervously put in a saucepan of water over the gas stove in our kitchen, knowing that open flames and beeswax are not a good mix. I discovered that when the wax melted and was left to set, all the dross tended to settle at the bottom of the wax, which was easy to cut off. The problem came when I decided to shortcut this process one day. After melting the wax, turning off the heat, and leaving the molten wax to settle for while, I carefully picked up the wax filled Pyrex container with the intention of pouring off the clean wax at the top. So much for cunning plans, I underestimated the trickiness of holding something very hot and slippery. The wax laden-Pyrex container slipped from my hand as I took it out of the saucepan of water and to my horror it spilled all over the stove. To understand the full depth of the problem, it was one of those old stoves full of holes and crevasses, which the molten wax soon discovered and disappeared at a great rate of knots. The only positive thing in the whole situation was that my wife was out for the day!

I spent the next couple of hours trying my best to clean the stove, retrieving as much of the wax as possible. Unfortunately, on gingerly trying one of the burners, dense smoke swiftly appeared - the stove was finished, and so was I - or so I thought. My wife had barely put her foot inside the door before she became aware of a strange smell. On carefully explaining the situation, and the now defunct stove, I awaited the explosion but was completely bemused by the reaction: a thoughtful smile and a certain smugness. I quickly discovered the reason, it was the ideal excuse to revamp the kitchen - something we had been putting off for some time. On reflection, I can only say that it was one of the most expensive wax spills I ever experienced.

Now they say that adversity is a great spur to invention, and such was the case here, having been banned from bringing anything to do with bees into the home. I had

been meaning for years to make a solar wax extractor, but you know how it is. On looking at some plans I was amazed at its simplicity. It was after all only an open topped box, with a few bits and pieces inside to hold the old wax and catch it as it melted from the heat of the sun. The only problem I could see was having the top double glazed with glass to let in the sunlight and hold in the heat. Unfortunately, glass and children are not a good mix, and our garden, the only place I could put the extractor, was always full of our children's friends. Necessity being the mother of invention, I discovered the local DIY store had Perspex sheets, from which I proceeded to make a double glazed top. In the extractor, I separated the old wax from the melted wax by a piece of wire gauze, which held back most of the dross, but this was not too satisfactory, there was still a lot of muck in the wax and this is where the old stockings come into their own. I fill the leg of the stocking to a length of about thirty centimetres (one foot) with the old bits of wax, which then looks a bit like a misshapen sausage. This I tie to the inside of the extractor at the top and then just leave it for the sun to do its work. Perfectly clean wax is filtered through the stocking and collected in a plastic container. After some time when most of the wax has come through, (a few days to a few weeks according to the number of sunny days), the remnants left in the stocking can be used in two ways.

Firstly, I take out the hard black mass, break it up into small pieces and add it to the compost heap. The other use is to cut up the remnants into several centimetre long pieces, and use these as fire lighters, which work a treat as long as you don't live in a smokeless zone of course.

The lovely clean wax can either be exchanged for equipment etc. through your beekeeping supplier, or even better, used to make candles. Latex candle moulds are simple to use and come in a variety of different shapes and sizes. They are expensive, but can be used again and again, and really do give a lot of pleasure in the making. You could also recover your costs by selling such unusual presents. Candles are very useful as Christmas or birthday presents for friends and family alike. The candles not only look good, but they also have a lovely aroma of beeswax and honey, reminiscent of the smell from a hive opened up when the nectar is flowing in summer. In fact, the candles are so good as decoration that people are very reluctant to light them.

Wax building in honey bee colonies

Elizabeth Knight

Insights into how bees build with wax.

The wax used for construction in honey bee colonies is a substance that is unique to social bees. Some honey bee species such as *Apis mellifera mellifera* and *Apis mellifera ligustica* are more prone than others to wax building.

Beeswax has lots of uses in our world. We use it for all sorts of applications: in cosmetics for creams, soaps, lipstick, mascara, eye shadow and depilation products etc.; in pharmaceutical medications it is an ingredient for creams, ointments and tablet coatings; in the production of food, beeswax helps with coating against spoilage, as a food additive, or as a glazing agent; in our homes we use bees wax as polishes, candles, waterproofing (zips etc) or for craft where it is used for encaustic and batik work, waxing threads, woodworking and modelling. There are many more uses than I can list, but what is this substance and how do bees make and use it in the hive?

Bees use the wax to construct comb in their nests. In the dark the bees have no visual clues as to which way they are facing. But honeybees do possess cushions of sensory hairs at all their joints, which are stimulated if gravity causes a body part to move or bend. Sensory receptors in these hairs and body parts detect the direction of the force of gravity. So, guided by the sense of gravity, the bees build comb vertically downward. They (generally) build combs in parallel, typically at a distance of 8-10 mm (note, bee space) and preferably in a NE-SW orientation at 50 degrees to the meridian. The parallel combs allow space for air currents to pass through and to help with climate control in the hive. The bees build hexagonal cells, which are the strongest, most economical shape. Left to their own devices, bees will always build comb to suit the shape and dimension of the cavity in which they live.

Within the comb, worker cells are 5.2 - 5.4 mm diameter approximately and drone cells measure 6.2 - 6.4 mm. The cell wall thickness is 0.073 mm and septum thickness is 0.2 mm. The cells are built at an angle of 13 degrees from the horizontal and at 120 degrees to the adjacent cell. The worker cell is 11 mm deep and a honey cell is up to 16 mm deep. The cell floors slope gently towards the cell base and a complete nest has around 100,000 cells with a combined surface area of 25,000 cm^2.

"But how do the bees build perfectly geometrical six-sided shapes", I hear you ask.

The bees build around themselves, with each cell formed at an angle relative to one another of 120 degrees. It is the inner tension that forms the shape. The bees use their antennae to measure as they build. If their antennae are shortened, they build cells with thicker walls.

The wax and the comb have various uses. At the top of the nest the comb is used for honey production, hanging out nectar to ripen. It is used for honey storage and pollen storage and, at the bottom, for brood rearing. Generally, honey is stored in upper and peripheral regions and brood is reared in the lower central areas. This means that the heavier honey is close to the points where the comb is attached to the hive wall or to the frame, thus reducing the stress on the wax comb, while brood is located in the central part of the nest where the temperature is more easily maintained.

The comb provides other key uses necessary for the life of the colony. Alongside providing the bees with shelter and somewhere to live, it also acts as a first line of defence against pathogens and disease as it stores those pathogens and can be removed and replaced. The comb forms part of the bees' communication system. It provides a dance floor, a telephone system which conveys vibrations while also storing information. As a superorganism, the ability to communicate is important and the presence of comb enables communication and gives the colony cohesion.

It gives the colony a specific identity, depending on the physical and chemical properties of the wax and depending on where the bees have been foraging. If your bees have ever made wax that is bright yellow, you will know that it can be affected by the type of pollen that the bees bring back.

It is the conditions in the hive that demand the production of wax. As the colony increases in size, so the space the bees need will increase and they will produce wax to provide more space both for brood rearing and for food storage.

The colony employs a population of what appear to be generally inactive young worker bees in the comb construction. First, to be able to produce wax the colony's young bees (5-6 days old) need plenty of pollen in order to develop their wax glands. Then the older wax producing bees (12-18 days old) need plenty of nectar to aid wax production. So, the foragers are an important part of the process. The process of foraging and trophyllaxis leads to a number of activities in the colony, including wax secretion and comb building.

Once building has started, it will continue as long as there is nectar coming in, and regardless of whether the comb is complete. A swarm will immediately initiate comb building for the brood and storage areas once a new home has been located. Generally, a nuc of bees will be good comb builders. If the colony is above a certain size (6,000 bees) in the active season the bees will build drone comb.

In order to produce wax the colony needs bees that are 12-18 days old that have been fed on a diet rich in pollen and so have well developed wax glands. In preparation for wax production, they will hang in strings, or festoon, for 24 hours and gorge on honey. Wax production is very resource heavy. The production of 1 kg of wax can demand as much as 8 kg of honey to be consumed. And the bees need to maintain a temperature of 33-36^{o}C during this process. Where does the wax come from?

Dreyling (1903) studied the wax glands at different times in the life of worker bees. He found that wax glands are best developed in workers 12-18 days old. He showed that, by day 14 the cells in the glands are enlarged longitudinally, are richly supplied with trachea and the tracheoles branch out to penetrate into the cells and intercellular spaces.

Wax is secreted from four pairs of wax glands located on the underside of sternites A4-A7. If you were to spread out the abdomen, you would see that part of each sternite is hairy. The overlapping part has two smooth shiny wax plates (or mirrors). A large well-developed cellular mass (fat body) composed of fat cells and oenocytes lies over each gland. There are two glands on each sternite.

The glands secrete liquid wax which passes through the minute pores of the mirrors and oxidises as a flake in the wax pockets. The pocket is the area between the plate and the overlap of the preceding sternite. Together the glands, mirrors and pockets are collectively known as the waistcoat pockets.

How do they build the comb?

The hind leg has a broad flat metatarsal segment which is marked on the inner surface by several rows of stiff spines on the distal end of the leg, some of which stick out beyond the metatarsus. The wax scale is speared by these stiff spines and passed forward. Scales that are dropped in the process may be recovered later but not usually by the bee that secreted them. The wax is passed forward by the legs to the mandibles, where it is chewed for around four minutes, mixed with a secretion from the mandibular glands (or the salivary glands depending on which book you read) and chewed to a workable consistency before fixing and moulding into place. Wax builders don't tend to engage in any other activity in the hive. Bees that produce wax may rework the wax laid down by other bees. They may turn to the work of building and sculpting wax before all their own scales have been removed.

As beekeepers we provide foundation which provides a start point from which comb is drawn out. Without foundation, the colony will initially create a thick base of wax to draw out into comb. Construction starts on the roof or side of the nest cavity with possibly two or three construction sites being started at the same time. Thick layers of wax are drawn out into cells by elongating and thinning the wax to form cell walls. A single worker will move from cell to cell and site to site smoothing out or adding wax as necessary. Each site will eventually join to form a continuous comb. The joins may mean that the bees adjust the size and shape of the cells. Check this out

in your own colonies.

The bees will adjust the comb to enhance its communicative properties for dancing. The upper edges of cell have bulged rims to emit vibrations such as in queen piping. In his book The Buzz of Bees, Tautz talks about how the bees mix propolis to the wax of the cell rims. The proportions of the wax/ resin mixture and their distribution are adjusted so that the resonant properties of the wax lie in the correctly tuned range, thus providing the best platform for communication.

Wax production requires significant amounts of energy. Photo by Ann Jans (2024 photo competition).

Producing wax and building comb however requires significant demands in energy. As we have learned, workers need copious amounts of pollen in the first 5-6 days of their life in order to secrete wax because the protein in pollen is needed for adequate fat cell development and the workers cannot produce beeswax unless there are adequate honey stores. The need for wax can be precarious for swarms. For a medium sized nest with an estimated 100,000 cells, the bees will need approximately 1.2 kg wax to build those cells (and 7.5 kg honey to produce that wax). A swarm however will carry enough honey for just 75 g wax.

My bees aren't drawing out the foundation. Why? There are a number of reasons why your bees might not produce wax. You need to maintain healthy colonies with bees of all ages. Young bees and old bees cannot produce wax. Queenlessness and bright light will inhibit wax secretion and comb building.

The wooden frames we use in our hives enclose the comb on all sides and this can restrict the vibrations on the surface of the wax. Have you ever noticed holes in the foundation or comb in particular along the edges of the frames. One of the reasons is that the bees will introduce gaps between the frame and the comb on frames that are used for a dance floor, to provide a free edge that can expand and contract with the vibrations thus restoring the communication network.

What about pests and diseases? Wax moths infest colonies. Moths have scavenging habits feeding on brood comb, larval and pupal skins and pollen. An infestation can destroy the comb. The larvae tunnel through the comb, leaving silken threads and faeces, damaging the appearance of the comb honey and trapping the developing larvae in their cells. Wax moth can lead to bald brood type conditions; bees have deformed wings and legs due to the faecal pellets of wax moth larva. And as we have already seen, the wax will store pathogens such as foul brood and other diseases that can threaten the colony. The comb can absorb pesticides and chemicals from the environment which may harm the bees. As the brood cycles continue, waste materials will accumulate in the comb having a negative impact for new brood. In bumblebee colonies however, it is recognised that wax moth destroys the comb and so removes pathogens. And recent research has shown that wax moths will eat some plastics.

In conclusion, the appearance of the cells in a comb with its unbelievably regular geometry is intriguing and fascinating, and its pattern has been used many times for artistic ornamentation. Beeswax is an incredibly beautiful and highly valuable resource. Isn't it?

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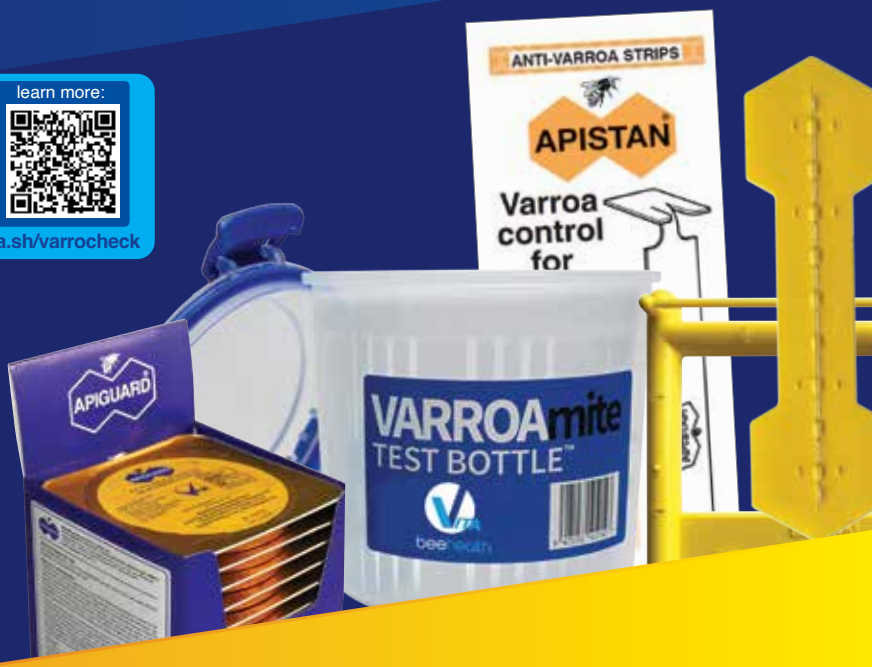

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