# Beetalk December 2021

**General info and news about bees**

## Hello and welcome.

**Beetalk is a compilation of news from across the bee keeping word.**

**Its not affiliated to any beekeeping group so you wont get things like the next meeting and what we are doing and such like.**

**We hope that the articles provided will be useful to anyone interested in the a rewarding hobby and in some way we also hope that you may gain some pleasure in reading some of the article that are included.**

**Also we intend to include articles that may be helpful to anyone new to this wonderful hobby.**

**Being based in Lancashire it would be great for any contributions from Beekeepers from the county. But as stated above, please nothing about your association or group.**

**Hope you enjoy. And to everyone of our readers. Have a great Christmas and all the best wishes for the coming year, both in health, wealth and happiness, and may your beekeeping year be a great one.**

**Michael Birt (Editor)**

**If you have any articles that you think may be useful to have included in Beetalk.**

**Please e-mail them to the editor**

**at**

**birt_192@hotmail.co.uk**

# Honey Bee Species

**Michael Birt.**

**I have given 5 pages of this edition to cover the most common bees we have in Europe along with species in Asia.**

There are almost 20,000 species of bees in the world which have been identified to date. Bees are close relatives of ants, wasp and hornets. One genus under which all honey bees fall, Apis, contains all the known species of honey bee forming at least 44 sub species. Bees in this genus are all characterised by their abilities to produce and store honey and build comb from wax. It is these properties that mankind has learned to use by learning to harvest honey from wild colonies or managing colonies in hives.

Many of the sub species described to date have one or more other variants. Geographical isolation and breeding of favoured local bees by beekeepers has led to numerous versions of the better described sub species. Given the vast number of sub species (and it may be possible to describe many more than 44), I will only look at the main species and the better known subspecies we see in modern beekeeping and some of the more interesting species from which mankind has learned to harvest from to his advantage.

***Apis mellifera* (the "European" or "Western" honey bee)**

***Apis mellifera*** is the most wide spread species of honey bee in the world. It is the main species which has truly been "domesticated" by humans, largely due to its habit of building its nests within cavities (e.g. amongst rocks or within hollows in trees). It is due to this habit that ***A. mellifera*** lends itself to being "kept" in hives. *A. mellifera* has been cultivated by humans for at least 5000 years.

The species is characterised by colonies numbering 10s of thousands that form multiple combs per colony and build their colonies within cavities. The colonies can survive in a very wide range of climates (most climates occupied by humans) and can use a very wide range of food sources. Colonies can live through winters in cool temperate zones (albeit only numbering between 10 to 20% of their summer numbers) by laying down considerable stores of honey gathered through the summer months. It is these characteristics that have led humans to favour ***A. Mellifera*.**

Due to the wide geographical spread of *A. mellifera*, a number of sub-species have arisen; some of these being the honey bees commonly in use by beekeepers around the world today. At least 30 sub-species of ***A.mellifera*** have been described throughout its wide range. Here we look at the main sub-species that have their origins in Europe (the maps showing the areas of origin rather than their current range).

***Apis mellifera mellifera* (the "Northern European" or "dark" or "German" honey bee)**

Here in the UK, the native bee - and hence most kept bee - is the ***A.mellifera mellifera***. The sub-species are found throughout Britain and Ireland and extend across northern and central Europe. ***A mellifera mellifera*** is a relative newcomer as honey bees re-entered northern Europe following the last ice age. The bees of this sub-species are typically small, stocky bees with a number of variants existing in different geographical locations. Colours can vary from jet back to dark brown. No yellow should exist on native ***A. mellifera mellifera*** however, much hybridisation has occurred with Italian bees making pure bred ***A.mellifera mellifera*** largely a thing of the past. Neither dark or Italian bees are considered to be aggressive however the hybrids of the two are often aggressive by nature causing beekeepers to spend much time and effort in developing and maintaining non-aggressive gene pools.

### *Apis mellifera ligustica* (the "Italian" honey bee)

***Mellifera ligustica*** originates in Italy and the neighbouring parts of the Mediterranean where it is believed to have survived during the last ice age. It is the most widely spread (and preferred) of all the sub-species of the western bee ***(A. mellifera).*** Italian bees are slightly smaller than their darker, northern cousins and are noted for their obvious yellow/orange banding. They are favoured for having a gentle temperament, prolific brood laying and colony build up, strong foraging abilities and they build comb very quickly with clean, white cappings. On the down side, they are known to readily rob other hives, drift between hives and eat much of their stores if available forage is not plentiful. They have become widely hybridised with other subs-species of ***A. mellifera*** across Europe and North America.

### *Apis mellifera carnica* (the "carneolan" or "grey" bee)

Sometimes known as the Slovenian bee, due to Slovenia's mountain ranges creating geographical isolation (and hence purity) of ***A. mellifera carnica***, the carneolan bee is a sub-species originating in the Balkan peninsular (Austria, Hungry, Bulgaria down to Bosnia and Serbia). The sub-species is characterised by being smaller than other European races and - due to the large amount of hairs - appears grey in colour. The **Carneolan bee** is renowned for its gentle temperament and has become increasingly favoured by beekeepers who want 'an easy time' when handling bees or who wish to keep bee in their gardens. The bees over-winter with smaller colonies sizes (hence require less stores), and build up very rapidly in spring. The downside of this rapid colony expansion is that carneolan bees have a strong swarming tendency and can be difficult to manage as a result. Daughter queens resulting from cross-breeding with local strains can be particularly aggressive.

### *Apis mellifera macedonica* (The "Macedonian" bee)

**The Macedonian Bee** looks similar to its northern cousin ***A. mellifera mellifera***. Like its northern cousin, the Macedonian bee has readily hybridised with the Italian bee. Although first described in Macedonia and northern parts of Greece, it is naturalised in an area extending all the way into the Ukraine and stretching around the north of the Black Sea towards the Middle East from where this strain is first thought to have arisen.

***Apis mellifera cecropia* (The "Greek" bee)**

Very similar in appearance to the Italian bee, the **Greek bee** is favoured for its very mild temperament, large colony size, lack of tendency to swarm and good foraging ability. However it is renowned for being a heavy producer of propolis, making it difficult to separate hive parts and is not thought to do well in the damp and cooler climates of northern Europe. The Greek bee has often been used to produce crosses in an attempt to instil less aggression into northern bees. However, some bee-keepers have reported that crosses of Greek and Northern strains often produce very aggressive colonies one or two generations on.

***Apis mellifera iberiensis* (The "Iberian" bee or "Gibraltar" bee)**

An unusual bee from southern Europe, ***A.mellifera iberiensis*** (sometimes referred to as iberica) is a small, black bee that can be found throughout much of the Iberian peninsula. Although there are considerable numbers of Italian bees kept by beekeepers in the region, the Iberian bee has remained relatively pure. The sub species, thought to originate from crosses with bees from northern Africa, exhibits a high degree of polyandry, with drones actively seeking out other colonies in order to mate with queens. The drones are believed to be very specific to their own kind and this habit maintains a very pure yet genetically diverse strain. Colonies are often destroyed upon being found. **The Iberian bee**, although not overly aggressive, has a tendency for a handful of "sentry" bees to patrol the area around the colony up to 24 hours following a disturbance and attack any intruders. This has led to a poor reputation and the bee often ends up the loser.

***Apis mellifera caucasica* (the "Caucasian" bee)**

**The Caucasian bee** originates in the Caucasus region (the mountain range dividing South-eastern Europe from Asia). It is a large bee that - like the carneolan bee - often appears grey due to large amounts of hair; some variants can have brown spots. Like the carneolan, the Caucasian bee is very mild tempered and is quite productive however it is slow to build up to full strength and fairs poorly in cooler, damper climates further north in Europe.

**Other European Sub Species of the Western Honey Bee**

A number of island dwelling sub species have been described in the Mediterranean all having become geographically isolated and specialised for their particular habitats.

A. ***mellifera ruttneri*** **(the "Maltese" bee 1)** - a dark medium sized bee thought to originate from bee populations that spread northward from north Africa during the period of warming following the last ice age. It is noted for being very drought tolerant and responds rapidly to seasonal changes and forage availability. It is renowned for being highly aggressive immediately around the vicinity of the colony; a fact which often leads to the destruction of colonies. **The Maltese bee** is noted for its high degree of resistance to Varroa mite infestations. This is largely due to its fastidious hive cleaning tendency. The sub species is under threat from imported Italian strains

***A. mellifera sicula*** **(the "Sicilian" bee 2)**

A dark honey bee that is distinctly different from its yellow banded neighbour on the mainland of Italy.

***A. mellifera cypria*** **(the "Cypriot" bee 3)**

**A.** ***mellifera adami*** **(the "Cretian" bee 4)**

**<u>Non-European Sub Species of note</u>**

***Apis mellifera scutellata*** **(the "African" honey bee)**

An otherwise unremarkable sub-species of ***A. mellifera*** originating in central southern Africa, the African bee has become infamous through the extreme aggression of its progeny following introduction to South America, and being termed the "Africanised bee" or "killer bee".

In fact, the ***A.mellifera scutellata*** is no more aggressive than most other sub-species of ***A. mellifera***. However, in 1957 scientists in South Eastern Brazil who were conducting experiments on the interbreeding of the African bee with other forms of European ***A. mellifera*** (in an attempt to improve local stocks of bees) allowed the escape of some of the resulting hybrids. The African bee, when mated with other forms of European bee (mainly the Italian bee), were noted for their defensiveness. Hybrid colonies were found to have guard bees patrolling an area extending up to 20 or 30 metres from the colony and would send out several times the number of bees to defend the colony as other strains of ***A. mellifera*** with a tendency to pursue any threats over long distances. Another worrying trait shown by this new Africanised hybrid was its tendency to enter and take over (killing the incumbent queen) the colonies of other strains of European bee resulting in rapid expansion. The Africanised bee has worked its way up through Central America and Mexico and is now a problem in a most southern states of the USA.

***Apis mellifera scutellata*** is actually under threat. The Cape bee ***(A. mellifera capensis***) from southern South Africa readily invades the colonies of African bees. The Cape bee workers are capable of laying eggs that turn into clones of themselves (known as parthenogenisis), gradually growing in numbers and taking over the colony.

## Asian Honey Bee Species

### *Apis cerana* (the "Asiatic" or "Eastern" or "Himalayan" honey bee)

***Apis cerana*** is found in a vast range from northern India, across southeast Asia to Malaysia, Indonesia, the Philippines and Japan. Like ***A. mellifera***, cerana is a cavity nesting bee making it suitable for housing in a hive. The species is kept extensively by farmers across this vast region although due to having a smaller colony size than the Western honey bee ***(A. mellifera)*** its honey yields are quite small. This has led to wide scale importation of the Western bee which in turn has led to bee diseases of ***A. cerana*** crossing over to ***A. mellifera*** - most notably the Varroa mite.

***A. cerana*** is characterised by a smaller (around ¾ the length of ***A mellifera),*** narrower body than that of the Western bee and has quite marked yellow bands between the abdominal segments. It is renowned for adapting to seasonal changes (in temperature and flora) rapidly. The species is found in habitats ranging from low land forest and scrub to high mountain passes in the Himalayas. In fact it is reported that ***A. cerana*** can survive short spells at freezing point - at which point ***A. mellifera*** would have long since died.

**The Asiatic bee** has co-existed with some notable problems for thousands of years. Two diseases which affect Western bees, Varroa and Nosema ceranae, present little problem to the Asiatic bee due to its hygienic behaviour. They have a strong grooming trait and are known to renew the wax of brood comb on a continuous basis thus keeping pathogen levels to a minimum.

Many will have seen the Asiatic honey bee on video clips from the National Geographic channel. The Asiatic bee faces a number of fearsome predators in the Asian hornet, the largest of which is the Japanese giant hornet. The latter being 5 times larger than the honey bee can destroy entire honey bee colonies numbering 30,000 bees within 2 to 3 hours. Once a scout hornet finds a bee colony, other hornets are led to the colony and proceed to attack the bees until all are dead, leaving the hornets free to gorge themselves on the honey and take the bee larvae back their nest to feed to their own young. The Asiatic honey bee has learned to adapt to this onslaught. The bees are unable to take on such a large predator one-on-one; however several dozen bees immediately surround the hornet and vibrate their wing muscles. The combined activity of all these bees raises the temperature and "cooks" the hornet to death. Imported stocks of Western honey bee have no defence against this predator.

### *Apis dorsata* (the "giant" honey bee)

**The giant honey bee** is found in locations across southern and south east Asia. It is typically found in densely forested areas and nests beneath large branches and under rocky over-hangs of cliffs. One sub species ***(A. dorsata laboriosa)*** was made famous when Jimmy Doherty (from Jimmy's Farm) was seen descending down a cliff face on a rope whilst cutting away honey comb and dropping it into an awaiting basket on a large stick. The giant honey bees are - as their name suggests - much larger than ***A. mellifera***. They are typically very aggressive when provoked however, indigenous peoples routinely harvest honey and wax from colonies whilst wearing the simplest of protection, if any. The bees are known to be prolific producers of honey. They produce large, exposed combs (not cavity nesting) and typically do this more than once per year as they migrate between different areas according to the changes in the seasons. Due to the giant honey bee not building its combs in enclosed cavities (like ***A. mellifera***), it has never been domesticated.

### *Apis florea* (the "red dwarf" honey bee) and *Apis andreniformis* (the "black dwarf" honey bee)

Existing as two species (***A. florea*** - the red dwarf honey bee and ***A. adreniformis*** - the black dwarf honey bee), the dwarf honey bee inhabits a range extending throughout southern and south eastern Asia. Dwarf bees are probably the most distinct of all honey bee species and are believed to have separated from the other lineages of honey bee some 40 million years ago. The dwarf honey bee provides a "snap-shot" of what the early honey bees may have been like. **The dwarf bee** - as its name suggests - is characteristically small and produces small, simple nests. Their nests are exposed and are typically built on small branches of bushes and trees. In fact they may at first look like small swarms having escaped from a Western honey bee hive. The bees cover parts of the branch, on which the nest hangs, with propolis which acts to deter ants and other crawling invaders.

### *Apis nigrocincta*

Closely related to ***A. cerana, A. nigrocincta*** has become slightly distinct from its more widespread neighbour due to its isolation on a handful of islands in Indonesia and the Philippines.

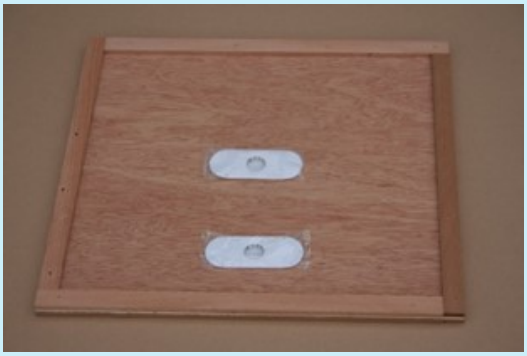
**Clearing the Supers of Bees.**

Michael Birt.

The Porter Bee Escape was invented in 1891 by Edward Porter, and is a very effective method of removing bees from a super if used correctly.

Correctly means using a minimum of 2 escapes in a crown board the correct way up – most have top written on them - if not, fit it with the single hole on top! Additionally the spring must be adjusted so there is a 3mm gap between each pair of springs.

To use the board you must provide enough space for the bees to evacuate to so it is no good just placing the clearer board on top of the brood box.
the clearer board for the bee to collect and cluster in - this must obviously not be a full super. Effective precautions must be taken to ensure the super is bee tight so place another crown board on top (sealing off any feeder holes) and use gaffer or masking tape to cover any bee sized gaps.



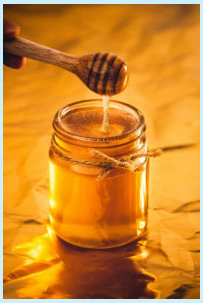
Any colony that has collected a super full of honey will be strong and populous. You must add another super below the clearer board for the bee to collect and cluster in - this must obviously not be a full super. Effective precautions must be taken to ensure the super is bee tight so place another crown board on top (sealing off any feeder holes) and use gaffer or masking tape to cover any bee sized gaps.

Do not rely on just a roof as they often have faulty ventilators and/or fit loosely. The board works best on a warm day when there is a flow on and most of the bees will clear in 24 hours; any straggler can be shaken out. Sometimes if the weather is poor they may be reluctant to leave the super but before you blame the weather, as all 'Englishmen' do, check that there is no brood in the super.

Bees will not desert their young and many times I have found supers still full of bees because of a faulty queen excluder allowing the queen access to the super(s). I always now (well when not in a rush!) check the center two frames in the first super for brood – finding brood needs other actions not relevant to this article.

An addition problem is that some brood may be drone brood and drones being bigger will block the escape springs. How many boards do I need? Well in my experience placing a pile of supers over a single clearer board will not work so if you have four supers to clear place TWO empty supers below a clearer board topped with the first TWO supers to be cleared.

## Recipe (1) Honey Fruit Cake



8 ounces Honey 8 ounces Self Raising Flour 4 ounces Butter 4 ounces Currants 4 ounces Sultanas 2 ounces Mixed Peel 2 Eggs 3 tablespoons Milk A pinch of Nutmeg A pinch of Salt Grease and line a 7" round tin. Set oven to 180°C or Gas Mark 4. Sift together the flour, salt and nutmeg. Mix the dried fruits and mixed peel together with a tablespoonful of the flour. Cream together the honey and butter until light and fluffy. Gradually beat in the eggs alternately with the flour. Stir in the dried fruit and milk and mix well. Transfer the mixture to the baking tin and bake for about 1.5 hours until deep golden colour. A wooden cocktail stick inserted into the centre should come out clean. Leave to cool for 10 minutes before removing from the tin

## Understanding How Bees Keep Warm in Winter

*Apis mellifera* worker bees begin assuming a clustering configuration in the centre of the nest as ambient temperatures start dropping. Individuals remain active at the core of the cluster, keeping space between themselves, whereas bees at the cluster's edge pack together tightly. Bees enter empty cells headfirst, thereby maintaining the contiguous state of the cluster in spite of the interspersing combs. The cluster tightens and expands as temperatures drop and rise.

### Early Models of Bee/Cluster Behaviour.

Research by Phillips & Demuth in 1914 showed that the temperatures at the centre of the cluster begin increasing as ambient air temperatures begin decreasing. This formed the basis for an early model of honey bee winter thermoregulation - that core bees respond to decreasing ambient temperatures by shivering to actively generate heat and warm the cluster.
This model assumed the existence of an information conduit through which core bees learned of ambient temperature. It also assumed an altruistic response on the part of the core bees to expend the energy needed to generate heat for the welfare of nest mates.

### Recent Model of Bee/Cluster Behaviour.

The early model has now been replaced with a more parsimonious one that takes into account nothing more than the actions of individual bees as they respond to temperature conditions in their immediate vicinity (*Heinrich, 1993*).
In the Autumn, as temperatures drop, bees do what any of us would do, they move closer together to share body heat.
Young bees cannot shiver to generate heat, and they naturally have a low cold tolerance, so these individuals move by choice towards the centre where it is warmer. Older bees, in contrast, have a higher cold tolerance and are able to shiver their flight muscles, so these individuals end up in the middle layers and outer mantle.
As temperatures continue dropping, all bees both young and old respond by clustering tighter together. The mature bees shiver to keep warm and it is their heat not the young bees in the middle that are responsible for warming the whole cluster. Eventually, the problem at the core is no longer excess cold but excess heat, and the young bees respond by moving away from the centre, opening channels in the process that allow the exchange of inner air that warms the mantle of bees and outer air that cools the interior bees.
It is this excess heat in the middle of the cluster that tricked earlier investigators into thinking that core bees were the altruistic heat generators for the cluster.

### Critical Temperatures

There are two temperatures that regulate much of the behaviour by the bees: 35°C (95°F) and 15°C (59°F).
Young bees naturally prefer temperatures nearer 35°C and move further in or out of the cluster to find it. The lower number, 15°C, is the minimum temperature at which an individual bee can shiver its flight muscles and generate heat. It is possible for older, cold-tolerant bees at the surface of the cluster to fall below this threshold and enter a 'cold coma'. These hardy individuals can survive this state for several hours, passively relying on the shivering and contracting bees beneath them to stay above lethal hypothermia, waiting until their bodies exceed 15°C again to resume shivering. They constitute living insulation. But things take a critical turn if these bees are subjected to sustained temperatures below -2°C (28°F). (*Free & Spencer-Booth, 1960).*
A deadly cascade of events may then ensue if that lower ambient limit is realised and if bees deeper in the cluster cannot keep the surface warm enough. Surface bees begin dying from hypothermia and dropping off the cluster, imperilling the rest of the cluster with the loss of living insulation. If this cascade persists it spells certain doom for the cluster and, sadly, this outcome seems common as many first year colonies in temperate regions struggle to survive their first year

## Question -

What is a Drone Trap and why is it used?

This is a frame placed within the brood box to proprietary trapping board, or more simply a capture and remove Varroa mites, as part of shallow super frame with foundation, which is your Varroa management programme. The method takes advantage of the preference of the Varroa mite to occupy drone cells. Because the drone larvae remain capped about three days longer than the workers, more eggs are laid in the drone cells. On average, approximately three mites will emerge with a drone compared to two mites with a worker bee. Research has shown that the population of mites in a hive can be greatly reduced if the drone brood is removed before the cells are uncapped and the mites emerge. Consequently a 'drone trap' should be placed in the brood box. This can be either a special positioned at the edge of the brood. The bees will build drone cells in the space below the frame. Whilst these drone cells are still capped, the frame can be removed from the hive, and the drone cells together with their cargo of mites discarded. Drone trapping is a great way to reduce the number of Varroa mites, without the use of chemicals, during the honey production season, and is recommended standard practice for all beekeepers. But be warned if you don't remove drone frames before the brood hatches, you will be raising bumper crops of both drones and mites.

## Something for the Beginner.

**Michael Birt**

It is not necessary to know a great deal about the ins and outs of the bee to keep bees and produce honey. All too often I find that so many people bother to learn the last things first. One thing is essential and is to learn correctly how to handle bees. Of course, as with so many crafts, handling bees is something which one has to learn rather than be taught. The relaxed confidence of the good beekeeper is something that only comes with experience. Experience is only gained by constantly opening and closing stocked hives and it is not at all easy for the one hive man to do the job sufficiently often to become fully adept in a short while. There are however, a few dos and don'ts which will help a beginner to learn more quickly.

The best time - according to some old hands, the only time - to open a stocked hive us when the bees are flying freely and nectar is coming in. Before going to work on the bees take a look at the drinking place. I leave some old wax etc. if the bees are not on it; they are collecting pollen and nectar. If there are more bees there than usual, one already knows a lot. Nectar is scarce and scout bees will quickly find exposed stores and excite the bees in the hive being examined to repel robbers; the consequence will be an inclination to use the stings. Many bees around the watering place denotes that the hive climate is too dry.

A careless examination of brood at such a time is detrimental to the healthful state of the larvae. Though nothing at all may ever become apparent to the unwary, the eventful foraging life of the adult bees will be shortened and the sure foundations for swarming are well laid. Having ascertained that climatic conditions are favourable, next take a look at the hive entrance. If the bees are looking outwards be sure that all is not well. While examination of the stock is almost essential be sure that it will not be made in comfort. Ideal external conditions are when bees are freely gathering nectar and those on alighting board, or just inside the entrance face inwards and are fanning and exposing the scent gland. Next get to work! I avoid puffing smoke into the entrance of the hive. First gently remove the roof and top covers then puff just a little smoke under the cover of the crown board. A little smoke through the crown board is enough. There may be no need to look in supers so there is no need to uncover them further. If it is only the brood combs that one wants to see, push the hive tool into one corner below the lowest super and above the queen excluder. When just a small crack has been made give another puff of smoke; loosen the supers all round, giving a little more smoke each time a further crack is made.

When the supers are free of the excluder lift them off. This is done with a twist, raising the supers at one side first. So many people raise the supers first at the side nearest the manipulator. That is wrong. Raise the side farthest away so that any flying bees fly away from and not towards the manipulator.
After the hive is opened work quickly and gently. Smoke should only be used to keep the bees below the top-bars of the frames. With confidence this is best done with the bare hands. Lay the hands, palms down, on top of the frames and the bees will run away from them without any rise in temperament.

Bees carefully handled are less prone to swarm than those handled roughly, and are better tempered. It is a fact that in tw lots of ten hives of bees, if one ten are examined every ten days for queen cells eight will prepare them sometime in the season. If the other ten are not examined below the top of the top super, only two of the ten will swarm. This is on the average of seasons and it is generally in the poor seasons when these two do swarm, so it does not matter.
A golden rule I work with is simple - before ever opening up any hive, know exactly why it is to be opened up. Know just what is to be done in any eventuality and be prepared to do it. But first choose your time.

**For those of you who are on a swarm list, it is felt that you should be aware of the other types of bees that you may be called out for.**

**The Tree Bee (*Bombus hypnorum*)**

Which is one of the seven most common bumblebees, is the one that we have had most communication about from the public. One of their favourite habitats is a bird-box. They are to be found in a variety of habitats from woodlands to town gardens and allotments primarily in lowland areas which, of course, includes us. Like most bumblebees, the last litter they have will be next year's queens who will hibernate elsewhere so they only have to wait until the end of August for them to not be there anymore.

**The Mason bee. *Osmia***

Is another to be aware of. It is a solitary bee and they tend to live in holes in walls and can be also be found living in bamboo stems and other hollow wooden structures.
They lay eggs at the end of the season which they leave with pollen and then the larva hatch in the spring when the weather warms up. Their brood cells are constructed in a linear fashion and the nest plugs are made of mud. The uninitiated envisage that when the bees disappear into a hole in their wall that they have made a huge cavity behind the entrance hole. They haven't, it is still just a hole quite often in the mortar between the bricks that occur quite naturally with time but sometimes if the mortar is old the bees will tunnel a hole in it.

**There are quite a lot of the Solitary Mining Bees (*andrena fulva)***

Around at the moment. They live in holes in the ground and are common in all sorts of habitats. They also look quite like a honeybee.
Then we come to the other six varieties of bumblebee. The big furry bees which are seen around at the present time are the queens which have hibernated over winter and are now having their first litters which are the little, almost round bees. They choose just about anywhere to make their nests for the season from bird boxes to compost heaps, under patios and door steps which are made of perhaps slabs which could leave a gap underneath. Their colonies vary in number but are never more than a few hundred individuals. They have a sting but rarely use it. They are a social creature which is quite happy to share our gardens with us and as long as they are not provoked are not a problem. People should learn to appreciate them. Children taught to watch them but not touch.

A lot of bees are protected and the public should understand that they are not dangerous and they should be left alone to get on with their lives and pollinate our plants. If they have had bumblebees living with them this year they are not likely to have them in the same place next year so if they don't want them back they should fill in the cavity the bees have been using once the season has finished i.e. the end of August.

If you go onto the www.bwars.com website there is information about all of these bees.

**Happy Swarm Catching**

# What Exactly is Bee Propolis?

**Michael Birt**

Propolis is known as the cement of the beehive. It's sticky and usually darkish brown, and unlike builder's cement, (well, a good builder's cement anyway) it does not set completely hard but retains some of its stickiness. Even when dry, it is sticky, so sticky in fact that it can be a pain in the neck for your average beekeeper, because the frames that contain the honey get stuck to the inside of the beehive. As you can imagine, with all those bees around, hammering away at the beehive to loosen the frames is not something you want to be doing unless you're after one big dose of bee venom therapy!

Ready for a little Ancient Greek? No? OK, I'll keep it short: The word "propolis" comes from the Greek "pro", which can be translated as "in front of" and "polis", the word for "city".

I mentioned the similarity between propolis and cement. Truth is, propolis is much more than that. Composition varies a lot depending on the season and the locality, but give or take, the main components are as follows:

Resin 50%
Wax and fatty acids 30%
Essential oils 10%
Pollen 5%
Other compounds 5%

Now listen carefully,that final 5% is what makes things really interesting. Propolis is a very complex substance. A 1998 study by A H Banskota of Toyama Medical and Pharmaceutical University in Japan found an amazing 300 components. Some of these components are what make propolis such a great natural antibiotic and anti-fungal agent. Later we'll find out why this property of propolis is so important.

**Where does Propolis Come From?**

Glad you asked. Weirdly, making propolis is a habit that honey bees, except stingless bees, in Asia haven't taken up. It's only honey bees in the Western world that do it! The bees look for sticky resins such as sap – they have been seen collecting it from those big sticky buds you get on some plants and trees. They carry the resin back to the hive in the same way as they carry pollen – on the hairs of their back legs. The resin gets mixed with a little beeswax and hey presto, you have propolis ready for use. In a healthy hive, up to a pound of this bee cement is stored as building supplies over the season, in case there is some unexpected damage to be repaired; a bit like that tub of wood filler in the garage. (You know the one – sits there for two years then when you're desperate to use it, you find it's turned into a brick!)

**What do Bees use Propolis For?**

Bees use it as a sort of filler, to plug gaps. It also strengthens the beehive, acting a bit like lacquer does when it's painted onto tissue paper; you know, like people used to do when they made model airplanes, makes everything stiffer and stronger. Bees also use propolis mixed with beeswax to make lids to fit over the so-called brood cells; the chambers where the young bees are raised. This helps to stop the youngsters from catching infections because of the antibacterial properties of propolis. Bees also use this handy substance to remodel the hive a little. In the wild, ideal beehive sites are in short supply, and sometimes the bees will find a plot that maybe isn't quite ideal. The natural contours of the site can make the construction work a little tricky, and propolis can be used to sort of smooth over the cracks – for example if the opening into the hive ends up just too big for safety, propolis is used to remodel the entrance hall, making it more cosy so bigger intruders can't get in.

Talking of intruders, if a little mouse decides one day to nibble a hole in that beehive so he can push his way in to get a mouthful of that heavenly raw honey, well, it's going to be the Last Supper for Mr Mouse! The bees will sting him and four or five stings are enough to kill him. The bees then have a problem. They're not strong enough to carry the body of the dead mouse out of the hive, so having immobilized the mouse right there in their living room, they're stuck with their dead visitor, forever! Because of the warmth of the hive, you can imagine that this could get nasty very quickly. Luckily, propolis comes to the rescue. The bees cover the body in a complete layer of propolis, using it to literally mummify the corpse and because of its antibiotic and anti-fungal properties, the layer of propolis stops the body from contaminating the hive. The ancient Egyptians are known to have used propolis just like this in their embalming process.

**Collecting Propolis**

Humans collect propolis by using special frames or a grill that replaces the inner cover of the hive. The bees don't like all the holes in the grill and proceed to "repair" these windy gaps. After a while the grill is removed and placed in a refrigerator or freezer for a while to make the propolis more brittle, then the grill can be flexed a little and the propolis cracks and falls off. You can also just scrape it off.

**What do Humans use Propolis For?**

Propolis, like other bee products, has been used by mankind since ancient times. The Egyptians used it for healing. Aristotle recommended it for treating wounds, and Roman Centurions carried it in their first-aid kits for the same purpose. Even today it is used in Africa, as it always has been, as a medicine and an adhesive. It is widely acknowledged that propolis can kill a wide range of microorganisms such as bacteria, viruses and fungi, and is therefore an accepted treatment for wounds.

Since the mid-1980s there has been a growing revival in the use of propolis as people have turned more towards complementary medicines. The biggest importer of propolis is Japan. It may be this revival in propolis and the resultant increase in its commercial value that has prompted more research into its effects on health, and we have recently uncovered some new and interesting benefits. For example, a study by Duarte S and others in 2006 (one of many) showed that propolis could be useful in preventing tooth decay. Even more recently, scientists have started to uncover tentative evidence for some of the more dramatic claims that are made for this substance. For example, a 2009 study by M Demestre and others at the UKE (Universitaets Klinikum Eppendorf) in Hamburg, Germany, reported that propolis had been used successfully to kill certain types of human cancer cells that had been introduced into mice.

I have to say to you that despite all of this research we still have nowhere near a complete understanding of this product and its benefits. The research is of varying quality, and the conclusions about health benefits, although positive, can only be viewed as preliminary. But if you are with the Egyptians, Greeks and Romans, and you want to give bee propolis a try, please read on for some buying tips.

## Buying Propolis

Before we start, you need to know that as with other honey and bee products, propolis can cause an allergic reaction in some people – and it could be serious. So if you are concerned about this, seek the advice of your physician before you take or use propolis.

Although it is possible to chew on raw propolis, I don't recommend this at all because it can lead to an upset stomach. There is a whole range of products out there specially designed to give you the benefits of propolis without you having to get down and dirty with the raw material! Here is a selection:

**Liquid Extract** – this usually comes in a bottle with a dropper and can be used on cuts, ear infections and as a mouth rinse.
**Capsules** – these contain a dose of propolis extract and are probably the closest you should get to taking the raw thing.
**Toothpaste** – packaged in a tube just like regular toothpaste, this is a natural alternative to fluoride-based toothpastes.
Throat sprays – these often combine other herbal extracts with propolis and are used as an alternative treatment for sore throats.
**Lip balm** – this takes advantage of the healing properties of propolis for cracked and dry lips.
**Lozenges** – these are often a mix of honey and propolis and are used for their possible antibacterial properties – and because they taste good!

Please remember what I said about possible allergic reaction, and please only buy the above products from established, reputable retailers. As with other honey and bee products, there are a lot of sharks out there and you need to be as sure as you can that you are getting the real thing and not a worthless cheap imitation.

Thanks for reading.
Michael Birt

## BEE KEEPERS' QUARTERLY.

The Bee Keepers' Quarterly published by Northern Bee Books is a somewhat weightier magazine that BeeCraft.

It carries articles on research; articles from bee keepers from around the world, (the editor lives and keeps bees in Messinias in Greece); articles on bee health; bee keeping development; the bee keeping season and much more besides.

Recent features have included colony losses; making a 'Langstroth' top bar hive; overwintering; new technology; Travellers' Tales and articles 'for the workshop', and there always a number of book reviews.

The normal cost is £28.00 pa, but through the Association it is just £18.00pa.

It needs a minimum of six subscribers for us to take advantage of the offer and John McKee, our Treasurer has kindly offered to facilitate it on our behalf.

So, send a cheque to John McKee at 27 Egmont Drive, Avon Castle, Ringwood. BH24 2BN along with the address to which you would like the magazine delivered and BKQ will wing its way to your door every three months.

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If anyone would like to read a few back copies to see what it is like, you can contact me through the web site or at BADS-BKA@gmail.com.

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***UK Honey Labelling Regulations***

*Below is our simple advice on honey labelling. For more detailed information - go to the website of the Food Standards Agency. www.food.gov.uk*

*1. The Word "HONEY" is required.*

*2. The weight must be on the label - we will ensure it is the legal size and format.*

*3. You can specify the area where the honey is produced. For example, Lincolnshire, Forest of Dean, Scottish Borders.*

*4. You can specify the type of honey. For example, Heather, Borage. The honey must be at least 75% of that particular type.*

*5. If you are selling the honey, you must have your name and address on the label. It does not need to be complete but you should be able to be found from the information.*

*6. If you are selling the honey through a third party, you must have a lot number.*

*7. New for 2003 You must have a best before date on the jar. We suggest 2-5 years from now.*

*8. New for 2003 You must have a country of origin on the jar. For example - Produce of England, Product of Scotland, Harvested in Wales. Adding the country to the end of your address is not acceptable.*

*E H Thorne (Beehives) Ltd disclaims all responsibility for all consequences of any person acting on, or refraining from acting in reliance on, information contained above.*

*From EH Thorne's online catalogue 2010 - other sources are available*