Apis-UK The Electronic Beekeeping Newsletter

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EDITORIAL Back to top

This issue of Apis UK may describe a turning point in beekeeper/bee relationships. At last we bring you news of the future of bee control and in the very interesting research item below you will see that so far scientists have managed to 'speak to' and 'control' cockroaches using revolutionary 'insbots' and although I suspect that bees are a little bit smarter than cockroaches I'm sure that bee control will figure somewhere in the future.

Yet again we report on the decline of pollinating creatures threatening some of our richest plant habitats and it is a sobering thought that if we humans were all wiped off the earth right now, our planet would probably turn back to the healthy, diverse and ecologically balanced state it was in some 10000 years ago. Whereas if our pollinating insects suffered the same fate (which we seem to be engineering), we wouldn't last very much longer at all! Actually, even nature isn't clean in some respects and we learn in this issue that some plants can actually exterminate others with Wordsworth's Lakeland daffodils being a prime example, and super bumblebees are threatening our native species by being more efficient. Wasps and ants feature in this issue with interesting features on these members of the hymenoptera, Ian Rumsey continues his fascinating and well thought out series on rotating hives, Chad gives us proper and timely warning of the dangers of beekeeping at sea and Gill Sentinella tells us of the very interesting beekeeping history of a part of Bedfordshire.

In New Zealand the inevitable happened and varroa got to the South Island where I suspect it has been for some time and from experience of the mite in Europe and the USA I suspect it will gradually cover the whole of the island in the next few years whatever lines are drawn on maps. The authorities are quite right to try and slow its advance for a variety of reasons, but advance it will.

The rest of our issue this month contains the usual mix of news and articles and a very interesting selection of reports from our US correspondent Jim Primus. Should anyone in other countries wish to contribute, do get in touch. After China, the UK and New Zealand, and I'm sure elsewhere, we now have the Irish honey scam where honey isn't all it seems; our recipe this month is in fact a curative used by the sexiest (supposedly) woman in ancient Rome who ought to know about these things and we are reminded yet again of the marvellous substance that is honey in our historical note and we take a look at that all but forgotten, perfectly adapted little fly Braula coeca. And, we have our first short story. Read it. It's good. If others wish to contribute short, bee/beekeeping related stories it would be interesting to see them in print.

And finally in the press I read of a European government that released a bear in to the hills to help repopulate the bear population but stupidly, they forgot to fully brief the bear on borders and border controls. So the bear who obviously must take some of the blame for not reading up on the subject, crossed a border, caused panic, ate some livestock and was shot by a brave farmer with the consent of the government. Truly pathetic isn't it. So how does this relate to bees? Well the Spanish government, in

its efforts to prevent the Spanish bear population from dying out has allowed an organisation 'FAPAS' to follow a 'bees for bears' programme which is turning in remarkable results to the benefit of the landscape, the bees, the farmers and the bears. So to that European government I would say simply 'use your imagination, not your gun'. In next month's issue of Apis we'll report on the Spanish bees for bears initiative.

In last month's editorial I asked the question 'what is going on in the photo'. A reader, Thor Bue Hansen in, I believe, Scandinavia replied as follows: 'It's obvious! The driver just followed the directions given by his GPS navigator'. Well Thor, you don't realise just how accurate that reply is. They were using GPS to get to the site but in fact it was thinking they were somewhere else that caused the problem. Thanks to everyone who wrote in and apologies to one of the correspondents, Melanie Campanis of Nashville in the USA to whom I can't reply because my emails keep getting returned. But thanks for the email and good luck with your beekeeping.

If anyone has an idea of what is going on in the photo below, please write in.

David Cramp
Editor

NEWS Back to top

UK Increases imports of New Zealand manuka Honey

Christie hospital in Manchester UK is another hospital importing New Zealand manuka honey for medicinal purposes. They plan to trial the honey on patients suffering mouth and throat cancer. Rates of survival from these cancers have improved over the last 15 years due to an effective combination of chemotherapy and radiotherapy but side effects include mucositis and inflammation and infection of the tissues lining the mouth and throat with the attendant risk of contracting the MRSA superbug. They will use the active manuka honey to counter this. Another Manchester hospital, The Manchester Royal Infirmary is already using manuka honey wound dressings to excellent effect.

Super Bumble Bee

In a recent report in the Journal of Applied Ecology, Tom Ings, an ecologist at Queen Mary college University of London, warns us that "*Conservationists and policy makers must consider non-native subspecies as potentially posing an invasive risk*". He reports on the arrival in the UK and subsequent

spread of a Mediterranean species of bumble bee, Bombus terrestris dalmatinus. It arrived to pollinate fruit in glasshouses and has now been shown to outclass native species in nectar collection, queen production, size of colony and size of male bee. This he asserts is helping the already serious threat to the UK bumblebee species and further causing their decline.

Now it's Irish Honey Scams
Following news of honey scams in the UK and New Zealand, it appears that a few beekeepers are still not worried about getting caught out. Tests by The Food Safety Authority of Ireland (FSAI) have shown that a quarter of 'Irish' honey turned out to be from foreign shores while some contained antibiotic residues. The tests also discovered that one type of honey which was genuinely Irish contained antibiotic residues. This was in a sample taken from the Clare Jam Company and investigators are looking for the source of the problem. The antibiotics were at a very low level which would not be a cause for public health concerns, but they are not supposed to be present in honey, said FSAI Environmental Health Specialist Jeffrey Moon. While bees are of course treated with drugs to get rid of varroa, there should be no residue in honey on sale in our shops. The Food Safety Authority of Ireland (FSAI) today urged the food industry to be vigilant when sourcing honey labelled as Irish, following the results of a recent FSAI survey, which highlights the issue of misleading labelling.

The survey of 20 randomly-selected Irish honeys, sourced from various manufacturers and retail outlets throughout Ireland, identified that five were found to be non-Irish, four of which were labelled as Irish, and one of which bore a misleading label of origin. As a result of the breaches, a total of five food business operators were fully audited including packers, brand owners and/or retailers of the samples in question. The FSAI is working with retailers to ensure the affected products are removed from sale.`The five non-Irish honey products identified by the FSAI survey were:

- Molaga Pure Honey (best-before 9.8.07) – the label inferred Irish origin, but the survey indicated honey of Mediterranean/Spanish origin;

- Kilkenny Pure Irish Honey (no information) – labelled as Irish, but the survey indicated honey of Mediterranean/Spanish origin;

- Natural Ireland Honey (best-before 9.8.07) – labelled as Irish, but it the survey indicated honey of Mediterranean/Spanish origin;

- Irish Honey- Wheelock's Fruit Stall (no information) - labelled as Irish, but the survey indicated honey of South American origin;

- Wexford Honey – Jim Kenny (no information) – labelled as Irish, but the survey indicated honey of Eastern European to Chinese origin.

Varroa hits the New Zealand South Island
Biosecurity New Zealand says it is going to start testing beehives on the South Island's West Coast, amidst fear the varroa bee mite may have spread further south. The parasite has been confirmed in 28 apiaries in the Nelson region, and in two apiaries 30 kilometres southwest of the city at Tapawera. The agency says 500 will now be tested in the Hokitika area. Varroa was first discovered in the North Island six years ago, resulting in the loss of about 25,000 hives. A Nelson (South Island) fruitgrowers' representative says whether varroa is eradicated from the region or not, it cannot be allowed to threaten essential pollination preparations that beekeepers are about to begin. Despite new mite finds, the Biosecurity Authority, is not ruling out varroa's eradication from the region to prevent it spreading through the South island. A Nelson Fruitgrowers' Federation director, Richard Kempthorne, says that is what orchardists would prefer to see happen. Leaders of New Zealand beekeeper groups are concerned that reticence shown by some owners of unregistered beehives in the Nelson region may jeopardise the varroa identification enterprise currently underway in that area. Both Jane Lorimer, President of the National Beekeepers Association of New Zealand, and Lin McKenzie, chairman of Federated Farmers™ Bee Industry Group, are urging owners of unregistered hives to take advantage of an amnesty being offered by Biosecurity New Zealand, and declare their hives so that inspection can take place.
Item from NZ online Beekeeping news letter.

(I really don't want to sound like a doom monger here but if they manage to eradicate varroa from the South Island they will have performed a miracle. From my experience of varroa arrivals in the UK and in

Spain, it has probably been there some time now; it will spread to wherever bees are kept and is there to stay even if they start drawing up no movement lines etc. But of course they are right to try. **Ed**).

US News Items from our correspondent Jim Primus

California citrus battles

Decades ago the citrus growers in the San Joaquin Valley in central California sprayed a highly toxic pesticide during the orange blossom bloom. Spraying was carried out despite insecticide labels explicitly prohibiting application when honey bees were visiting the bloom. Eventually an agreement was worked out in which growers did not spray with highly toxic materials from 10% bloom till petal fall. This created a financial boom for beekeepers through increased production of the highly prized, light colored orange blossom honey. Now, trouble between at least one large citrus grower and beekeepers is brewing again. Letters from Paramount Citrus are warning property owners and beekeepers that they could be sued for trespass if they do not move their bees to locations at least two miles from some recently planted citrus groves. The latter groves are coming into production of the small, seedless mandarin orange that has become much in demand. The problem is that the new groves are adjacent to citrus groves that produce pollen, and Paramount wants to protect unseeded varieties of citrus from bees carrying pollen from seeded varieties. Beekeepers claim that Paramount's request would cause steep financial losses if their bees are deprived of the honey they make from nectar in orange groves. Sun Pacific, another citrus grower, has also asked beekeepers to keep hives away from their seedless varieties but has not as yet threatened a lawsuit. Wishing to protect the seedless crop, Paramount says it will not tolerate any damage caused by bees that trespass. On the other side, beekeepers say the restrictions will harm the conduct of their business. Many of the beekeepers having been using the citrus locations for decades, and they point to "right-to-farm laws" that allow them to pursue their livelihood. If the case goes to court, beekeepers could have the upper hand since previous cases have ruled that honey bees are free-flying and are not trespassing when found on someone else's land. The outcome would have adverse ramifications if the citrus growers win in which case anyone, anywhere could tell beekeepers to relocate colonies beyond the flight range to prevent trespass. It seems that Paramount Citrus has not recognized that even if they are able to keep managed colonies at a distance there still is the problem of 'wild' bees such as solitary bees and bumblebees that will be pollinating the mandarins. Joe Traynor, manager of Scientific Ag Co. in Bakersfield, California and a broker for bee colonies, suggests Paramount should do a marketing campaign touting the virtues of mandarins with seeds, using the slogan "Spit a Seed, Save a Bee."

North American pollinator decline

The U.S. Department of Agriculture and Agricultural Research Service, and U. S. Geological Survey have asked the National Academy of Sciences to carry out a study to document the status of pollinating animals in North America. The National Academies perform a public service by bringing together committees of experts in all areas of scientific and technological endeavor. These experts serve without compensation to address critical national issues and give advice to the federal government and the public. The pollinator study began last July, and it is expected to be completed late this year. The investigative committee will ask (1) to what degree pollinators are experiencing serious decline; (2) where decline can be established; (3) what the causes of decline are; and (4) what possible consequences of the decline are for both agriculture and ecosystems. The recent *Bioscience* publication by Losey and Vaughan comes at an opportune time and should receive added press from the Academy study. The committee (15 members total) has at least three members who will insure that the status of honey bees receives deserved attention. Nicholas Calderone is Director of the Cornell University Dyce Laboratory for Honey Bee Studies. He has published numerous articles on honey bee management, and co-authored in 2000 an article with the late Roger Morse on the value of honey bee pollination to U.S. agriculture production. Gene Robinson at the University of Illinois at Urbana-Champaign co-authored an article in 1989 with the late Roger Morse on the value of honey bee pollination to agriculture. He is a well-recognized leader in the study of genes that regulate honey bee behavior. An additional champion for honey bees is Stephen Buchmann who is president of an environmental consulting company in Tucson, The Bee Works, and who is affiliated with the University of Arizona in Tucson. Dr. Buchmann is a recognized as a world authority on pollinating animals and he has written five books including "*The Forgotten Pollinators*", and more recently "*Letters from the Hive*".

Biocontrol of small hive beetle (SHB) with fungi

In 2003, the USDA Bee Laboratory at Weslaco found that fungus containing dusts or coated strips were as effective as Apistan in controlling Varroa. The fungus studied was an entomopathogenic fungus, or a

fungus that kills or parasitizes insects. It has now been found that entomopathogenic fungi are also capable of killing the SHB under laboratory conditions. Researchers at the Rhodes University in South Africa tested whether the spores from four different fungi could kill adult SHB in glass dishes. Two of the fungi caused significantly increased mortality of the SHB: one caused 74% SHB death, the other, 28%. The less active fungus was the same species used in the Weslaco investigation for anti-Varroa activity. Both of the active fungi lack toxicity for humans and mammals but under laboratory conditions, both of these fungi are toxic to honey bees. However, the Weslaco study did not find any honey bee toxicity of the fungus applied under field conditions. Thus, dusts or strips containing fungal spores could offer an effective means in the future for controlling both Varroa and the SHB. Field studies with the SHB are needed as well as an interested manufacturer.
Source: *Journal of Economic Entomology*, vol. 99, pg. 1, 2006
Jim Primus. USA correspondent

Insect detectives
A few years ago the Defense Advanced Research Projects Agency (DARPA) funded a $3 million project to train honey bees to find landmines that was spearheaded by researchers at the University of Montana. DARPA was formed in 1958, and although it coordinates with the Pentagon, it operates independent of the Pentagon. DARPA has the freedom to fund what is termed "blue-sky" thinking, ideas that are imaginative and typically unconventional. But the agency developed the precursor to the Internet in 1969, invented global positioning systems, and is credited with half of the major innovations in the high-tech industry. It also created over 120 technologies for the military from the M-16 rifle to stealth aircraft. All of these accomplishments happened because of the agency's healthy budget which this year is $3.1 billion. The agency recently announced that the honey bee landmine "sniffer" project was not successful, assuming a place in a long list of other failed projects. Approximately 85% of projects do not achieve their stated goals. According to the agency, the bees' instinctive behavior barred reliable performance. The groundwork provided by the honey bee landmine detector project may, however, someday have a positive outcome. DARPA's new big idea is to make insect cyborgs, organisms which are a mixture of organic and synthetic parts, that can be controlled to arrive within feet of a specific target located hundreds of feet away. Once there, the insect cyborg would remain there unless ordered to move on and transmit data about the immediate environment. The agency proposes that the cyborgs would be created through the implantation of microsystems at the pupal stage of insect development where it is hoped that the microsystem would be integrated into the insect's neural network. Sound far-out? You bet, but the army of the future may be assisted by platoons of cyborg insects sniffing out landmines or penetrating terrorist strongholds.

Other applications of insect detectives appear more promising. Joe Lewis, an entomologist with the Department of Agriculture's Agriculture Research Service in Tifton, Georgia has been studying the tiny parasitic wasp, *Microplitis croceipes*, as a potential biocontrol agent of caterpillar pests. During these studies, he learned that the wasps were ultra-sensitive to wide spectrum of volatile chemicals. Together with Glen Rains and Samuel Utley, biological engineers at the University of Georgia, a hand-held odor sensor called Wasp Hound was developed (*Biotechnology Progress*, vol. 22, pg. 2, 2006). They found it was very easy to train a wasp to detect a new odor in just three 10-second sessions. The Wasp Hound consists of a PVC cartridge containing five of the wasps, a light source, an intake portal for fan-driven air, and a miniature video camera. Assisted by special software, the device recorded wasp beh avior in response to sampled air. With no response, the wasps presented a diffuse image, but if they do recognize the smell, the wasps clustered around the air inlet within seconds and turned the central part of the image black. In laboratory trials, Wasp Hound was able to detect and discriminate the presence of minute concentrations of an odor associated with growth of a fungal pathogen of several plant species. So far the authors have found that the wasps reliably respond to odors associated with explosives, human corpses, decaying food, and toxic fungi. Odors were detected at the parts per trillion level, the equivalence of a grain of salt in a swimming pool, and very similar to a dog's sense of smell. Why not continue to use "sniffer" dogs? Sniffer dogs cost about $15,000 to train because it takes six months to train them and they also require a dedicated handler.

Honey bees also have a similar sensitivity to volatile chemicals. Inscentinel, a small British company based at Rothamsted Research in Hertfordshire, has developed a detector with honey bees as the sensor. Inscentinel's detector relies on a well-known response of honey bees when they expect food, the "proboscis extension reflex". As air passes by the bees' head, a miniature camera records the proboscis extension and sends the image to a computer. If the tongues stick out, the response is positive. Inscentinel's prototype has been tested in several agricultural applications but most of the interest has

been in the sensing of explosives. It will not be long before we see Inscentinel's device as well as the Wasp Hound used for sniffing for bombs at airports or locating buried bodies.
Jim Primus USA correspondent

RESEARCH NEWS Back to top

HYMENOPTERA NEWS

Ancient Ants
Ants appear to be the older brethren in the hymenoptera world, beating bees by millions of years, but only really took off when the bees and the flowers started their amazing co-evolution. The journal Science reports that researchers have found that ancient ants appeared 140-168 Million Years Ago, But these insects, now found in terrestrial ecosystems the world over, apparently began to diversify only about 100 million years ago in concert with the flowering plants, the scientists say. The study was also supported by the Green Fund. The researchers were led by biologists Corrie Moreau and Naomi Pierce of Harvard University, the researchers reconstructed the ant family tree using DNA sequencing of six genes from 139 representative ant genera, encompassing 19 out of 20 ant subfamilies around the world.

"Ants are a dominant feature of nearly all terrestrial ecosystems, and yet we know surprisingly little about their evolutionary history: the major groupings of ants, how they are related to each other, and when and how they arose," said Moreau. "We now have a clear picture of how this extraordinarily dominant - in ecological terms - and successful - in evolutionary terms - group of insects originated and diversified." Moreau, Pierce and colleagues used a "molecular clock" calibrated with 43 fossils distributed throughout the ant family tree to date key events in the evolution of ants, providing a well-supported estimate for the age of modern lineages. Their conclusion that modern-day ants arose 140 to 168 million years ago pushes back the origin of ants at least 40 million years earlier than had previously been believed based on estimates from the fossil record. Their results support the hypothesis that ants were able to capitalize on the ecological opportunities provided by flowering plants and the herbivorous insects such as early honey bees that co-evolved with them," said Pierce. The herbivorous insects that evolved alongside flowering plants provided food for the ants. The researchers found that the poorly known ant subfamily Leptanillinae

is the most ancient, followed by two broad groups known as the poneroids (predatory hunting ants) and the formicoids (more familiar species such as pavement ants and carpenter ants).

Other co-authors of the Science paper are Charles Bell at Florida State University and Roger Vila and S. Bruce Archibald in Harvard's Museum of Comparative Zoology.

BEES AND PRIMATES

Although much work has been done on bees in Central and south America, little has been discovered about how bees and other species interact in Africa, the original home of the honey bee. In the first study of native African honeybees and honey-making stingless bees in the same habitat, humans and chimpanzees are the primary bee nest predators. Robert Kajobe of the Dutch Tropical Bee Research Unit and David Roubik from the Smithsonian Tropical Research Institute report this finding in the March, 2006 issue of Biotropica.

Batwa Pygmies, who have traditionally harvested honey for food, located 228 bee nests (both honeybees and stingless bees) for the study. Roubik identified the bees and found that Pygmy names for the bees corresponded to scientific names, except for a black and a brown form of Meliponula ferruginea. Honeybee (Apis) nests were numerous compared to other sites in the tropics, whereas honey-making stingless bee nests were relatively scarce. Nest abundance did not vary with altitude, nor did pollen collection or the seasonality of flowering.

Roubik has followed the progress of Africanized honeybees in the New World, documenting effects of pollen and nectar collecting and nesting ecology on native-American stingless bees. Kajobe invited Roubik to visit the Bwindi-Impenetrable National Park in southwestern Uganda, where African honeybees coexist with five or more species of honey-making stingless bees in their native habitat.

Chimps in the Park peel and chew the tips of vines and twigs to make honey dipsticks. Roubik notes that indigenous groups in the Americas use similar honey brushes to harvest honey in areas where Africanized bees are relative newcomers. Most studies of stingless bees have been undertaken in South America and south-east Asia and have ignored the ecology and context of Afro-tropical stingless bee species, particularly in equatorial regions. The researchers hope that this is the beginning of a long-lasting collaboration that will make a significant contribution to Afro-tropical bee research. Bwindi-Impenetrable Park is the only place on earth where gorillas, chimps and humans partition forest resources. Given the importance of honey as one of the most concentrated sources of sugar and protein in the forest, and the fact that the park management plan allows collection of non-timber forest products, there is a lack of ecological information about the role of honey-making bees and the role of their natural predators in this ecosystem. Nothing is known about the amount of honey produced in nests of different species. Nothing is

known about how often bee species found new nests. “Unfortunately, this dearth of information about native bees will continue unless more funding for basic natural history research is forthcoming,” asserts Roubik.

DEATH BY POLLEN

Each day you can read in the newspapers of murder, treason and plot amongst human society, but did you know that all is not exactly squeaky clean in the plant world.

Researchers from Oxford University in the UK have discovered a striking example of apparent on-going extinction in a European plant species. This confirms that biodiversity can be threatened when one type of plant species eradicates its relative by swamping it with incompatible pollen. The findings will help predict the fate of plant species such as the wild daffodil Narcissus pseudonarcissus, celebrated by the poet William Wordsworth, and the potential impact of pollen flow from genetically modified crops. Researchers at Oxford University's Department of Plant Sciences studied the plant Mercurialis annua (the annual mercury), a European species of weed, (an anti syphilitic for those interested) which has two types, one with separate male and female plants, the other with male and female flowers on the same plant (a hermaphrodite). During the last ice age, males and females of the plant were restricted to the eastern Mediterranean Basin, while the hermaphrodites' ancestors occurred in southern Spain and present-day Morocco. Over time, when climates warmed, they moved towards each other and now occur side by side in northern Spain. Historical records show that, over the last 40 years, the males and females are rapidly displacing the hermaphrodites and moving south, further into Spain.

Mercurialis annua

By allowing males, females and hermaphrodites to compete for mates in experimental populations, the researchers have now been able to explain the mechanism behind the rapid demise of the hermaphrodites: when hermaphrodites cross with either males or females, they produce sterile progeny (similar to a mule, which is a sterile offspring of a cross between donkeys and horses). This is because the two types of plant have a different number of chromosomes: the males and females have 16, while the hermaphrodites have 48 chromosomes. The males have a large advantage because they produce much more pollen than hermaphrodites, and hold their flowers on an erect stalk above the leaf canopy. This leads to a process called 'pollen swamping,' by which the male plants father nearly all of the offspring in the population. Females, which have the same number of chromosomes as males, produce normal fertile progeny when pollinated by the males, but hermaphrodites, which have a different number, produce mainly sterile progeny. The result is the rapid extinction of hermaphrodite populations that the researchers have observed. This finding has implications for other plant species. For example, in the English Lake District, the wild daffodil Narcissus pseudonarcissusis threatened by cultivated Narcissus 'Carlton', which has twice as many chromosomes. In the past it has been assumed that because the two speciesproduce sterile hybrids, the wild species is not threatened. The results for the annual mercury suggest that the cultivated daffodil could in fact eliminate Wordsworth's daffodils.

HOW TO CONTROL BEES (WITHOUT A SMOKER)

Have you ever wanted to control your bees by command as you would a dog. Just imagine if you could! Wouldn’t beekeeping be so much easier. No more smokers; no more swarming (you’d just tell them not to); no more stinging (unless you ordered them to attack someone you didn’t like) and so on. Well one day you may be able to do just that. But first you would need an ‘insbot’. Researchers have recently succeeded in controlling cockroaches with tiny mobile robots. The results hint at a future where we can interact and communicate with many different kinds of animal, and there is no reason to believe that bees wouldn’t be among them.

Researchers recently succeeded in controlling cockroaches with tiny mobile robots. Little bigger than a thumbnail, the cubic insect-like robots or 'insbots' are technological marvels. Developed under the European Commission's Future and Emerging Technologies (FET) initiative of the IST programme as the project Leurre, the insbots are fitted with two motors, wheels, a rechargeable battery, several computer processors, a light-sensing camera and an array of infrared proximity sensors. When dropped into a small experimental area with a maze of curved walls, the robots move, turn and stop. They can navigate their way safely by avoiding the walls, obstacles or each other, follow the walls, congregate around a lamp beam or even line up. When placed in the same area with cockroaches, the robots quickly adapt their behaviour by mimicking the animals' movements. Coated with pheromones taken from roaches, the infiltrator robots even fool the insects into thinking they are real creatures.

The cockroach pheromones – a blend of molecules developed by the project partner from the Université de Rennes I, France – enable various forms of communication, including recognition and attraction. For example, when a roach detects another roach, it may approach it, move away or stop.
Cockroaches were chosen here because their pheromones are better understood than those found on other gregarious insects, such as ants.Artificial agents meet natural agents

According to the researchers, the project had its origins in collective intelligence and behaviour in animal society, as well as the tradition of using artificial agents to test theories about animals. Robots have already been used to interact with some animals, such as bees. But they cannot react to the animals' response. In this project, the autonomous insbots call on specially developed algorithms to react to signals and responses from individual insects. This results in a chain action or reaction between the artificial and natural agents – a two-way interaction that is unique and very promising for sciences such as biology and robotics. Not only did the insbots act like and interact with the insects, they even succeeded in changing the cockroaches' behaviour. For example, the darkness-loving insects followed their artificial cousins towards bright beams of light and congregated there. This process took up to two hours, but it showed how humans might soon be able to manipulate the behaviour of a whole colony of insects. A trick that would delight pest-controllers and beekeepers the world over!

LACK OF POLLINATING INSECTS
Apis UK has often reported on the decline of pollinating insects and now we report the matter again in the light of new research which is showing alarming findings. The decline of birds, bees and other pollinators may be putting plants of the world's most diverse ecosystems at risk of extinction, according to a new study that analyzed hundreds of field studies investigating fruit production in hundreds of wild plant species.
The finding raises concern that more may have to be done to protect the Earth's most biologically rich areas. The meta-analysis was sponsored by the National Center for Ecological Analysis and Synthesis at the University of California, Santa Barbara and was funded by the National Science Foundation. The article, "Pollination Decays in Biodiversity Hotspots," reporting the results, is published in the January 17 issue of the Proceedings of the National Academy of Sciences. and is available online at the academy's website at www.pnas.org.
The analysis shows that ecosystems with the greatest number of species, including the jungles of South America and Southeast Asia and the rich shrubland of South Africa, have bigger deficits in pollination compared to the less diverse ecosystems of North America, Europe and Australia. The study took several years to complete and all continents except Antarctica are represented.

New research on the wasp society hierarchy

Apis UK has previously reported on the wasp hierarachy and we know that a wasps position in life can depend on the shape and dynamism of his or her face blotches. Well now, the journal Nature reports that researchers at UCL (University College London) have discovered that in the work place, wasps are driven by their status. The study, published today in Nature, shows that lower-ranked female wasps work harder to help their queen than those higher up the chain because they have less to lose, and consequently are prepared to take more risks and wear themselves out. The study, funded by the Natural Environment Research Council (NERC), reveals that those higher up the chain and therefore with a greater chance of being the next in line to breed are much lazier than their lower-ranked nest-mates: rather than use up their energy in foraging to feed the queen's larvae, high-rankers sit tight on the nest and wait for their chance to become queen themselves.

Dr Jeremy Field, UCL Department of Biology, said: "Helpers wait peacefully in an age-based queue to inherit the prize of being the queen or breeder in the group. The oldest female almost always becomes the next breeder. The wasps in this queue face a fundamental trade-off: by working harder, they help the group as a whole and as a result indirectly benefit themselves, but they simultaneously decrease their own future survival and fecundity because helping is costly. It involves energy-expensive flight to forage for food, and leaving the nest is dangerous. We have found that the brighter the individual wasp's future, the less likely it is to take risks by leaving the safety of its nest to forage for food." The defining feature of eusocial animals - including insects like bees, ants and wasps, and vertebrates like meerkats and the naked mole rat—is that some individuals forgo their own reproduction to help rear the offspring of others.

In hover wasps, helpers spend between 0 and 95 per cent of their time foraging to feed the queen's larvae. Previous scientific thinking indicated that the variation in help given might be proportional to genetic relatedness. Those less closely related to the queen would help out less. This new study, however, shows that more distantly related wasps aren't in fact lazier. Instead, the team led by Dr Field, found that it is the likelihood of future reproduction that primarily determines a wasp's behaviour - the more likely they are to spawn their own young in the future, the lazier they become.

The tests were carried out on the non-aggressive tropical hairy-faced hover wasp - Liostenogaster flavolineata. Both the wasp's rank and the size of the group were manipulated to show how these variables affected the amount of help each individual contributed to the group. The team changed the position of individual wasps in the social hierarchy by removing higher ranked, older wasps, thus promoting their younger relatives. Regardless of age, a wasp's contribution to feeding the queen's young depended only on its position in the queue to inherit queen-ship. Lower-ranked helpers, and helpers in smaller groups, worked hardest.

ARTICLES Back to top

The following article has been sent in by Gillian Sentinella of the Bedfordhire Beekeepers Association and shows just what a pro-active association can achieve if they really want to. No doubt, the beekeeping display at the Stockwood Park Museum will encourage new beekeepers to take up the craft and it could give other associations ideas for similar undertakings. Gillian Sentinella is the author of the short film 'Dancing with Bees' featured in the last issue of Apis UK. **Ed.**

RECALLING HERROD HEMPSALL
A beekeeping site of great interest in Bedfordshire.

It's an unlikely fact that in the early 1930's, Luton in Bedfordshire was the centre of beekeeping. It was a thriving town with hat manufacture as its main industry dating back to the late 17th century, and the arrival of the railway and cheap electricity encouraged new engineering firms to move from London, including Vauxhall Motors. The renowned beekeeper and author William Herrod Hempsall, moved to Luton in 1903 and opened a School of Beekeeping soon afterwards on the steep hillside of Stockingstone Road with more than 100 hives,. Students came from many parts of the world to learn the craft. Just down the road from the School was Wardown Park with a lake, bowling green, band stand and house, which in 1931 became a museum. Herrod Hempsall set up a revolving 3 frame observation hive with comb and bees which was maintained by members of Bedfordshire Beekeepers Association in the following years after his death, proving to be a permanent memory to many people.

In 1994 a proposal was made by the Association to move the observation hive to Stockwood Park Craft Museum on the south side of the town where there were already 2 working skeps in the public walled

gardens, under the care of Ian Beaty; (no mention of health and safety!) The new Bee Gallery was set up within the rural trades section, dedicated to the memory of Herrod Hempsall and centred around his books and equipment which were donated by Leslie Gingell, one of his local pupils at the Beekeeping School, and an area was allocated beside the 18th green of the golf course for an apiary, primarily for teaching beginners the basics of beekeeping and also to raise funds for the Association by selling honey in the museum shop.

After 10 years in 2004, the original well loved display in the museum needed updating and Beds Beekeepers Association invested £2500 into a modern, interactive centre for children including of course, an observation hive but this time with a microphone attached to earphones for in house buzzing, a webcam outside the building to see the bees zooming off and arriving home loaded with pollen. In addition, there are puzzles, dead creepy crawlies, and panels of information for those who want to find out a bit more, and the 10 minute film 'Dancing with Bees' filmed specifically for this kind of exhibition and aimed at the 4 to 94 age range. Without doubt, the partnership with Stockwood Museum benefits both parties; the enormous interest in bees pulls in visitors all year to the museum and the Association has fantastic facilities for introducing the public to the craft, not only in the permanent display in the Bee Gallery, but on many open days.

Stockwood Park

Stockwood Park Museum beekeeping display

There have been several reports recently in many of the major newspapers about the huge rise in interest in beekeeping, and Bedfordshire is following the national trend. The Association has seen increasing numbers of beginners at courses over the past 4 years in both the north and south of the county, and this year ran a popular 'One Day BeekeepingWorkshop' with 6 half hour talks to give people a background of beekeeping and a chance to look at the bees in a hive to see if they really wanted to take up the craft. The apiary is still sited in the golf course and the golfers who know the hives are there ask, without fail, if there is any honey and did we get stung. Those that don't know about it, send their ball soaring into the trees when they see 15 spacemen watching them tee off. This year, one of our young beekeepers is learning beekeeping here with the intention of setting up hives to help the people in his home town in Kashmir, an indication of the diversity of the town and, we hope, an inspiration to other groups who may have similar ideas.
Gillian Sentinella

Marking Queens
Despite the cold start, the year in Ulster is proving fantastic for experienced beekeepers who, by now, will be swimming in gallons of honey. As for me, this was my second year, having started with a single nucleus last year. All my well-considered and carefully researched plans, made over winter, came to nothing the day all my girls decided to leave home! I had already separated off several perfectly formed Queen cells, together with brood, in preparation for increasing my humble stock. Then the proverbial hit the fan. My daughter decided to move out into her own home and I took the day off work to help. It was a beautiful sunny morning in May and I was up early. While I waited for the action to start I took out the lawn mower and leisurely cut the grass. The removal van arrived about 10.00am and immediately - the sky turned black. Not with storm clouds but BEES. My only Queen had decide she was moving too, regardless of the extra space I had given her and the pristine frames of foundation adorning her newly refurbished home. This was my first experience of swarming so I was amazed and a little panicked. But all was not lost; hamfistedness was to save the day. Several weeks earlier, in marking the Queen, I had missed the thorax completely, glued her wings together and also spilt the bottle of Tipp-ex! I quickly realised that to continue and attempt to clip her wings too would probable prove fatal – for the Queen that is. With a healthy dollop of white marker over both wings her majesty's attempts at flight caused her to plummet like a stone into the freshly mowed grass, where she was relatively easy to find. I picked her up, gave her a good talking to about loyalty, perseverance, the money I had shelled out for her, and after pointing out the grass was actually greener this side of the fence, I placed her back into the hive.

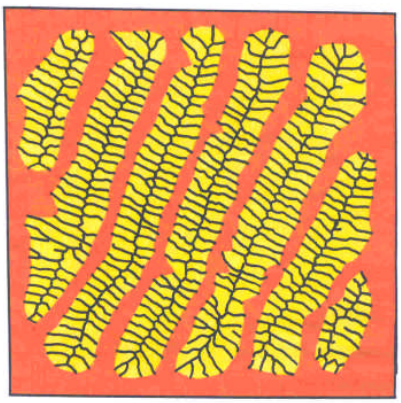
My conclusion? You can be completely incompetent and still keep bees. Had I not been at home to see my daughter and the bees leave, and had I not glued up the Queen's flying equipment accidentally, and cut the grass so I could find her when she fell out of the sky, it might have been a sadder ending! Though eventually my workers all came home, my daughter is not coming back, except to *"borrow"* stuff that I was sure I had two of at one time.

From our Ulster correspondent

Bees and Rotating Hives. (Part 3 of 5)

The time has come, what is revealed? What exciting revelation will be made? The result is shown below.

Resultant comb alignment after a 10 degree clockwise movement at the end of nine consecutive days



Disappointment, despair, there is no correlation between our theoretical comb built in either a stationary or revolving hive.

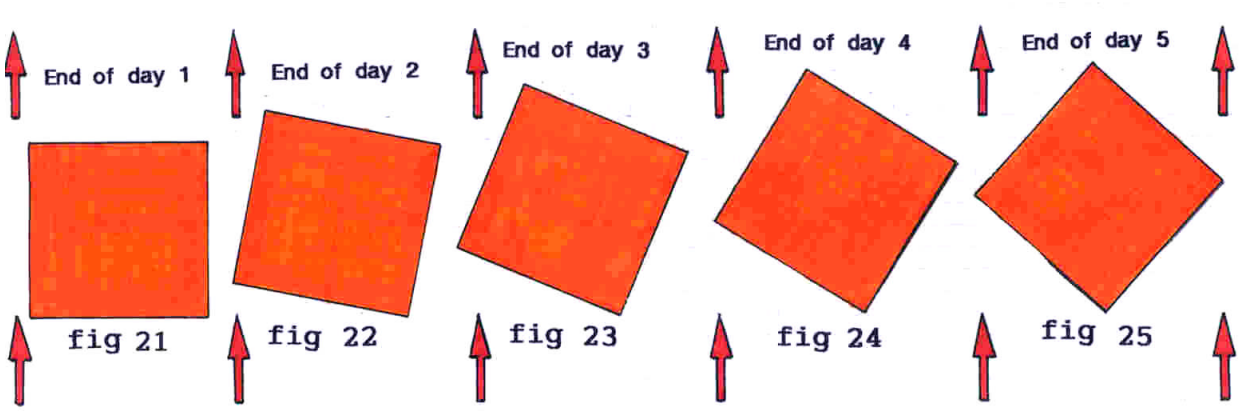
Theoretical comb alignment without rotation

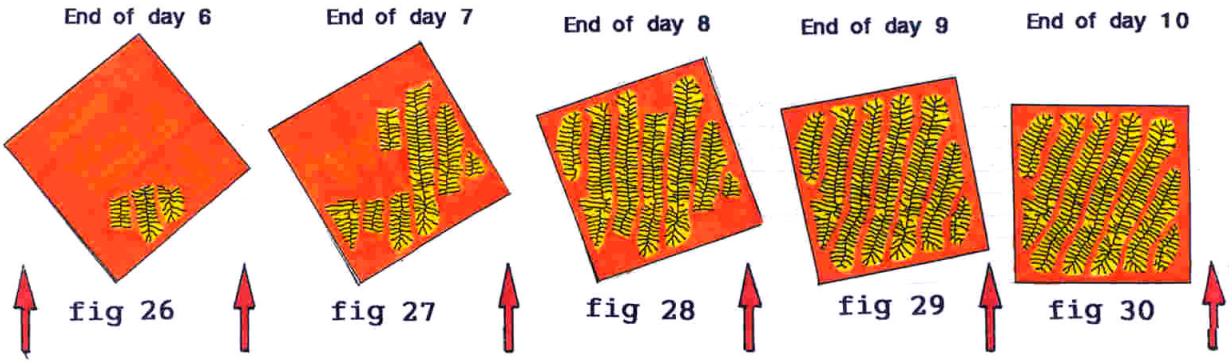
Theoretical comb alignment with rotation

The experiment is a failure. Let us move quickly on to something else where success may more readily grace our endeavours. Failure, who can abide with failure?

But surely something might be rescued from these ashes, the comb alignment is different from anything observed before. This is the first time ever where bees have been subjected to a 10 degree movement each day though a total angle of 90 degrees. Are you sure they are not trying to tell you something? Have we not been able, with the aid of modern science, to view the actual wax attachment to the underside of the roof? Can we not now measure the precise angle of each comb to an accuracy of the odd degree? Look, I will give you a clue; the comb was built between days 6-8.

Well it is true that the comb alignment, if built as per our theory, in an East - West direction, would have occurred only on days 6 - 9. We will draw it out to demonstrate the point more fully.





We are warming to our subject. By marking off the diagram in 10 degree increments it becomes apparent that the comb aligns itself to these angles associated with days 6 - 9 as shown, and also the order of comb construction may be envisaged, with its alignment to the gravitomagnetic field as depicted by the arrows shown in red. Why should comb construction not commence until 5 days had elapsed. Let us pause for further reflection.

To refresh the memory regarding how a swarm of bees festoon themselves in an empty cavity, prior to the commencement of comb construction, it is worth re-reading the accounts given by Messrs Cowen and Herrod-Hempsall. It is not an immediate action, time is taken to produce wax, and also to decide upon the form of construction. The actual stringing procedure infers a measuring up of the cavity, and of course, regarding comb alignment, there must be a general consensus of opinion. A few thousand bees must be of one mind. This all takes time. One might assume the smaller the swarm the longer this period becomes, and could be in excess of 24 hours. If an outside force was a reference point regarding comb direction, and it was amended by a 10 degree movement, this could confuse the bee sufficiently to cause them to recommence their calculations. We have moved their goal posts, not just once but repeatedly for 9 consecutive days. Now by Day 5 things are becoming desperate, no comb built, no eggs laid, but the bees are solving the puzzle. They realize that their calculations are correct, something is moving their reference point. Satisfied with this solution they build furiously on days 6-9. For them the puzzle is solved. For us the puzzle is just beginning; have bees the ability to think and reason?

Although at present we are considering the affect of external forces operating within the hive, more important influences of a less substantial nature, already existing or being created ***within*** the hive, must eventually be appreciated and evaluated. These items may be identified as instinct, innate knowledge , memory, intelligence, and most important, the essence of life itself. All are no doubt interrelated as we suspect magnetic, gravitational, electric, and gravitomagnetic fields intermix. Indeed they are all probably part of the same thing - an intelligent life form. This particular example of bee behaviour, indicating their ability to think, may have some relevance to future studies. Fortunately we have a more immediate and simpler task of inspecting a further hive that was rotated in an anti-clockwise direction. Let us see whether these bees came up with a similar solution.

In this illuminating article, Chad warns us of the dangers of beekeeping at sea!

Beekeepers Ahoy!

Although in the past we had teased him mercilessly for it, we owed our lives to John Whitford who had, as usual, turned up to go fishing with a packed lunch that had been prepared for him in a small box with his name on the outside. The small boat which held the five branch members had been listing for several days. We had been rationing the remains of John's packed lunch and on this third day we were down to his last pot of sherry trifle.

The five of us had been pulling together very well considering we hadn't had sight of' land for so long. But now, with the prospect our food running out, we were all secretly looking at each other with a different perspective. Fred Swift subdued our feelings of cannibalism with encouraging stories of bravery, all with the common theme of survival through hardship at boarding school.

Things weren't really that bad I suppose. We certainly caught a lot of fish, there wasn't really much else to do. According to the coastguard, the mist had been to blame. As the mist had descended it had hidden the fact that we had drifted down stream rather too far. Getting caught mid flow in the Bristol Channel hadn't helped. That, and the fact that the combined extent of our collective seamanship was limited to Roger Tilley's once having gone with a friend to sail a toy sailing boat with radio controlled rudder, on the boating lake at Weston Super Mare, when he was twelve.

'If you don't put that camera down and stop taking pictures of me, I shall be forced to take action, said John C. addressing Chris rather hotly.

'I just wanted to preserve the moment, said Chris, a little crestfallen, (Chris takes his journalism very very seriously.) This situation was in his eyes a great scoop.

'I never want to be reminded of drinking sea water again' said Fred looking a little green. Despite our best efforts to stop him, he had drunk a great deal of seawater.

'I just thought it would make a nice article for the Branch magazine. I thought I'd call the article Adrift or Beekeepers' ahoy'! What do you think?'

At this, we all got a little cross with Chris. I therefore confiscated the batteries from the camera so he still had the device to comfort him, just not the ability to record our plight.

'I have to say that if we come out of this alive, I think I shall stick to beekeeping in future,' continued Chris. 'I've rather gone off fishing.'

'It was you that got us into this mess!' returned John Whitford bitterly. ' We only came because you kept on and on about fishing. We're beekeepers and beekeepers are traditionally land lovers. Bee keeping is so much less risky.'

'That's the last time I will fritter away my precious hours sitting on a river bank pretending to be occupied and engaged. This is a lesson, you know, telling us that we shouldn't turn from our intended purpose.

'I don't even like eating fish' added John C., who had given me a withering look when I suggested we could take up golf. The five of us vowed there and then to only turn to fishing in times of desperation when catching fish was our only chance of survival.

Our salvation came as a winch was lowered down from the hovering yellow Royal Navy Sea-King helicopter: plucking us one by one from our boat. John W. was annoyed that we had lost the twenty pound deposit that he had paid for the two hours boat hire, but in retrospect we had a great deal to be thankful for. There was certainly increased public awareness of the Melksham and District Branch in the National press. Terry addressed the hundred strong group of journalists in Plymouth harbour and the press were all eager to hear the story of our survival.

Despite giving the five of us a good telling-off for our dangerous antics, Terry was keen that branch members should learn from our ordeal and I was asked to draw up a list of the lessons learned. These lessons are as follows:

* Packed lunches should in future be made to last for at least four days.
* A diet of raw mackerel or other such uncooked fish can be made more palatable if washed down with a great deal of methyglin.
* Most importantly, Fred Swift pointed out that in the worst case scenario, none of us had mentioned our

hives in our wills. Therefore it was generally agreed that branch members should be urged to leave bees, hives and associated equipment to the branch apiary in memorial.

Chad Cryer

BOOK REVIEW Back to top

This month we are again taking the unusual route by taking a look at another book in Spanish, and this time a serious one entitled '**Pests and Diseases of Bees. Prevention, Diagnosis and Treatment.'** Written by the team of scientists at the Research Centre for Organic Beekeeping of Cordoba University in Spain (CAAPE), the book covers in richly illustrated detail the biology of the hive and how it relates to diseases, how to carry out hive manipulations with hive sanitation always in mind and then goes through each type of disease from virus diseases through to vertebrate pests including of course a detailed look at the Small Hive Beetle.

The book contains a wealth of photographs but also and importantly it gives clear, detailed yet easily understood diagrams explaining the biological cycle of the pests in question. Running to nearly 200 pages, this glossy soft back book gives a slightly different perspective to the subject than we are used to in the UK and US and should be an essential source of information for all Spanish speaking beekeepers.

Diseases and Pests of Bees

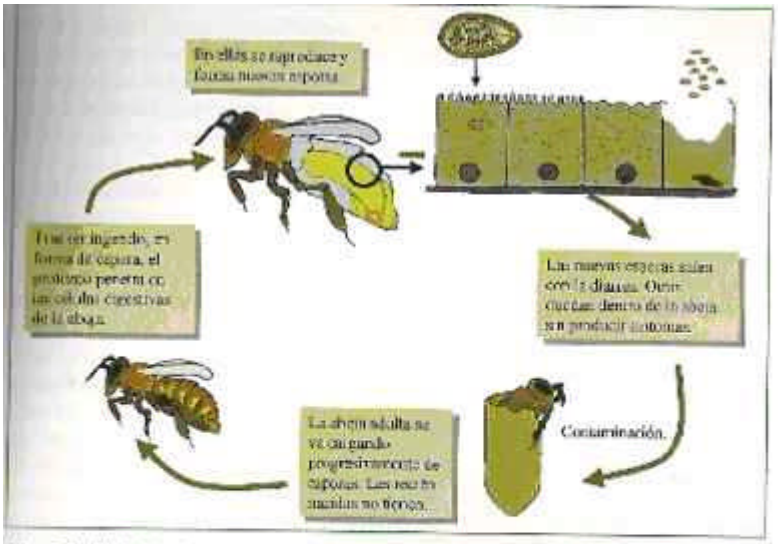


Fig. 5.1. Ciclo biológico de *Nosema apis*.

Clear Explanatory Diagrams

RECIPE OF THE MONTH Back to top

This month we take a look at an American healing recipe rather than food. With many of the healing recipes that have been sent to me, or that I have read about, it is a wonder that the person on the receiving end doesn't explode on contact, such is the list of ingredients, but this recipe is simple and effective (and extremely expensive) and should cure rather than kill! Wasn't it Poppea who used to bathe in asses milk? And she evidently knew her stuff, so give this one a try and see where it all ends up.

De-stressing Bath (ideal after the swarming season or at the end of the harvest).

Ingredients:
2 litres (4 pints) of milk. (best from a cow).
2 oz (50g) of liquid honey. Acacia is specified but I'm not sure that is essential.
2 oz of tincture benzoin
The following essential oils:
30 drops orange; 10 drops cinnamon; 5 drops clove; 10 drops lemon. 5 drops almond oil.
Any or none of your favourite fragrance oil. E.g. lavender.

Pour into a hot bath tub with the water pouring and whilst in the bath, soak a sponge in the liquid and massage your body with it.

I haven't tried this one (yet) but I am told it is good! Ed.

FACT FILE Back to top

Braula Coeca. (pronounced Browler seeker). The Bee Louse

Many beekeepers are not really aware of the small so called bee louse that is a common inhabitant of the hive and some may mistake it for varroa, but in fact it is a small wingless fly perfectly evolved and adapted for life with bees in the hive.

The beelouse, *Braula coeca* Nitzsch 1818, despite its name, is not a louse, it is a tiny wingless fly found in colonies of the honey bee, where it lives on the bodies of the bees and literally steals its food out of the mouth of its host. The beelouse is in the family Braulidae, comprising two genera, *Braula* and *Megabraula*.

Some writers have stated that the beelouse causes little or no harm to bee colonies, but some investigators think that *Braula* is harmful. The larvae are problematic because they damage the appearance of comb honey by burrowing under the cappings. Most beekeepers practice mechanical control unknowingly by extracting honey because the *Braula* larvae are eliminated while removing cappings before extraction. As many as 187 beelice have been reported on a single bee queen and is found on worker, drone, and queen honey bees. If a queen is over infested with Braula, many beekeepers have found that she will then suffer.

This fly has been reported in Africa from Congo, Egypt, and Morocco, in Asia from India and the Soviet Union, in Australia from Tasmania, in most of Europe, in South America from Argentina, Brasil, Trinidad and Tobago, and Venezuela, and in North America.

Identification

Eggs: Eggs are white, oval-shaped, with two lateral flanges which are flat and extend parallel to each other and to the long axis of the egg. Imms (1942) reported that the average length, without flanges, ranged from 0.78 to 0.81 mm and the width from 0.28 to 0.33 mm. Including the flanges, a typical egg measured 0.84 mm by 0.42 mm. Eggs may be deposited in various places in a hive--in empty cells, on brood cell cappings, or on wax dirt on the floor of a colony, but only eggs that are laid on honey cappings hatch. Incubation period for eggs varies from two days during summer to 7.4 days during winter.

Larvae: Larvae emerge from the attached end of their egg where they begin constructing a tunnel under cappings and sometimes on the walls and bottoms of cells. These tunnels give cappings of infested comb the appearance of being intersected with fine fractures, similar to the mines of a leaf miner. Larvae feed upon honey and pollen grains within the wax of their tunnels. Beelouse larvae pass through three instars, requiring from 7.1 to 10.8 days to complete larval development, depending upon the season of the year.

Pupa: The prepupa ranges from 1 to 2.7 days and appears cream-white when viewed through the transparent larval skin. The pupa is enclosed within the unmodified cuticle of the last larval instar and is white or yellowish in color, 1.4 to 1.7 mm long by 0.5 to 0.75 mm wide.

Adult: The beelouse has rudimentary eyes just above the antennae seen as pale spots on the cuticle surface surrounded by more darkly pigmented rings. There is no trace of wings. The tarsi are 5-segmented; each terminal joint contains a comb-like structure, divided in the middle, with a variable number of teeth. The combs allow *Braula* to cling tightly to the host which is an evolutionary trait necessary for life in the hive. Be careful not to confuse Braula with varroa.

HISTORICAL NOTE Back to top

The Virtues of Honey

Honey has been in the news lately as a first rate antibiotic which can even defeat the MRSA Superbug. Indeed so great is the value now of certain honeys that some beekeepers are able to command prices per kilo many times those that they managed to obtain previously. But was this all known about by our forefathers. We know that in various wars in the past, many armies on running out of conventional treatments used honey and some used honey to start with and of course most housewives of old used honey and other hive products for a multitude of healing purposes. I am always one to believe that there is no smoke without fire and that anecdotal evidence can usually lead to the truth of the matter. So in good faith, read about what one venerable bee-master of old thought of the curative powers of honey. I take some examples from his tract. Is he indeed right?

….it breedeth good blood, it openeth obstructions, and cleareth the breasts and lights of those humours which fall from the head. It is a sovereign medicament both for outward and inward maladies. It helpeth the grief of the jaws, the kernels growing within the mouth and the quinancy or inflammation of the muscle of the inward gargil; for which purpose it is gargarized, and the mouth washed therewith. It is drank against the biting of a serpent or a mad dog. It is good for such that have eaten mushrooms, or have drank poppies, against which evil the honey of roses is taken warm. It is also good for the falling sickness, and better than wine, because it cannot rise to the head as doth wine. It is a remedy against the surfeit; for they that are skilful in physick, when they perceive any man's stomach to be overcome, they first ease it by vomit, and then (to settle the brain and to stay the noisome fume from ascending unto the head) they give the patient honey upon bread.

And so it goes on. This was taken from **'Englands Interest, or The Gentleman and Farmers Friend by Sir J. More, 1707.**

What I wonder is 'the evil of drinking poppies'? Was this an early form of opiate taking?

POEM OF THE MONTH Back to top

This month's poem comes from one of the greatest who to me seems to be able to say it all with very few words. The extract quoted was appended to Burns' original song by the Edinburgh music publisher, John Hamilton.

Blaw, blaw ye wastin winds, blaw soft
Among the leafy trees,
With gentle gale from hill and dale
Bring hame the laden bees.

Robert Burns, Of a' the airts…

SHORT STORY Back to top

I'll do it tomorrow

Rolling Stones Gather No Moss

Mick Bickers pulled in behind a familiar maroon car at the end of Yew Tree Road where it runs into Moor Green Lane. As he locked the door, he glared up and down the road as though daring any lurking vandals to reveal themselves. Never happy away from his home apiary he cursed himself for giving in too easily. But he and Trev Dunt had been friends for many years and Trev could be very persuasive. Yes, Mick thought, Trev could be very persuasive especially when he sensed the opportunity to show off his generous nature by responding to a fellow County member's call for help. And then there was that John Magic, a grand bloke, a good apiary manager no doubt but really! 'John Magic; well named', muttered Mick. 'Waves his wand and we all come running and not just his own Branch members. No beekeeper in the County is safe'.

Wrapped in his disgruntlement, Mick was scarcely aware of the gardens through which his path took him. He was equally oblivious of the early summer's blossom which seemed to nod winningly at him in a doomed attempt to charm him into a happier mood. At the end of the garden which fell away parallel to Moor Green Lane, the path swung to the left. The shrubs and specimen trees opened out into parkland. Mid-slope some hundred yards ahead, Mick's attention was caught by an instantly recognised profile. As his mouth formed the word "Trev!", it jammed, wide-open. Although the lower part of his body was concealed by a line of shrubs which rose up a fairly sharp incline into a lightly wooded area, there was no mistaking his friend, Trev. But what was he doing? He seemed to be walking upwards but without progressing. The movement of his head and torso recalled the to and fro action of some Hasidic Jew attending to his devotions before the Wailing Wall in Jerusalem or the continuous operation of a shadoof or the swinging head and neck of a loping giraffe or simply the normal body motion of a man walking up a hill. But without advancing a step, not going anywhere! At this moment Mick's lips released their hold on his friend's name. "Trev! Trevor! Trevor Dunt! What are you playing at, Trev?"

Trev stopped, turned and shielding his eyes with his hand held horizontal, stared in Mick's direction. It was one of those moments which, while fleeting, in recollection appeared an eternity. Slowly at first then quickening in tempo like the opening clarinet glissando in Gershwin's Rhapsody in Blue played backwards, Trev's image started into descent. Continuing to maintain the saluting attitude of a brave captain going down with his ship, except that he was going down sideways, Trev slid smoothly down the slope then slipped from sight. Mick began to run…well, began a rapid shamble.

In a moment he was pushing through a shrub to reach his friend. He found Trev sprawled in a scatter of garden stones beside an upturned handcart. An unbroken trail of wet soil marked Trev's passage down the sloping pathway to his present boggy resting place. "Stoned again, are we?" observed Mick. Trev's response was a meaningful silence calculated to wither but which appeared to leave Mick surprisingly unaffected. "What were you thinking? There must be 2 hundredweight of stones here! They call me Mick Bickers, not Mick Jagger! I mean, not even Lazarus could have moved that lot of stone on his own! It's always the same! You read in The County Beekeeper that Highbury Park wants a hand with drainage and soft-hearted T. Dunt Esq. comes running! Never mind blooming Birmingham! If they wanted to do something with their ruddy flood of mud then they ruddy could and should have done it sooner!"

It was clear that Mick's concern for his friend had called forth a darker personality from his not usually unsociable psyche. In an effort to voice the defence of a fellow Branch, Trev's lips parted only to succeed

in releasing a muddy bubble which burst marking his cheeks with the symptoms of a plague victim.

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Diacritical Path Analysis

Some time later, as he set his foot on the familiar path of his home apiary, Trevor Dunt literally experienced a renewed spring in his step from the first resilient contact with the freshly strewn bark chippings. A few paces behind shuffled Mick Bickers, eyes fixed on the veil which bobbed between his friend's shoulder blades like a dislocated halo. In a tone of insincere concern, Mick addressed the veil. "That Highbury Park fiasco! You should have told the bees you were going and you should have told them sooner." The veil disdained a response. Mick renewed his injunction. "You would have had no problem if you had told the bees! And you should have done it sooner!" The veil stopped bobbing, paused and rejoined, "Otiose, superstitious folklore!"

There was a moment's silence during which Trev had stopped and turned towards his friend while Mick tried to determine whether or not Trev had accepted his advice. To be on the safe side, Mick opted for a change of subject.

- How long before you took your Bayvarol strips out, Trev?
- A couple of months.
- Eh!? You should have done it sooner! So it'll be Apistan next time, will it?
- Eumm. M'yes. Uh. That is… Well, I'll probably… You know…
- You don't know which you used, do you? Typical! You just can't bring yourself to keep proper records, can you?

Trev's eyes narrowed in a brief but genuine reflex of unaccustomed anger. "I can assure you, Michael," he formulated carefully, "I can categorically assure you that I take my responsibilities vis-à-vis pyrethroid resistance very seriously."

There was a further moment's silence which Mick opted to break with a further change of subject.

"How's the mead, this year?" he asked.

"I thought I would try a change of recipe." Trev replied.

"What? Another fancy mixture? " snorted Mick. "It's a bit late at your age to plan to be buried with your own 20-year old mead."

Warned by a sudden protean change of expression and wondering if the Highbury Park incident may have caused more psychological trauma than he had at first thought, Mick reverted to his favoured strategy of encouraging Trev to talk himself back to good humour. "Tell me, Trev" he coaxed. "What would you suggest as a good honey drink which could be ready for next year's County Show?"

"Well, if you started now," said Trev, "you might try elderflower and honey. Say 3lb of honey to the gallon and if you have no fresh elderflower, Marks & Spencer's or Sainsbury's do a nice concentrate."

"Do you think they would go well together? What would call a drink like that? Melomel?" asked Mick.

"As elderberry has been called the English grape, perhaps pyment would be more apt," suggested Trev, growing expansive. "The elderflower has notes of Riesling or Müller Thürgau – both grapes of a temperate country – and Chardonnay has notes of honey and so the blend recommends itself."

"Müller Thürgau? What's the funny mark over the ü?" enquired Mick.

"Oh that's an umlaut or more properly a diacritical mark, a diaresis," replied Trev.

"A dia…what?"

"Diaresis"

"Of course," said Mick. "Dia …whatsaname." He stared at Trev, head on one side like a robin eyeing a grub. "Yes dia…thingy." Mick paused and then added without even the suggestion of a smirk, "You know. Listening to you, that is exactly the word that comes to mind."

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The bees tolled

'Funny how the louder you hear the bees, the quieter the apiary seems,' thought Mick as he set to open one of Trev's hives. He eased the hive tool through the propolis and removed the roof. Pairs of stones, 1 large with 1 small, were arranged in a quincunx on the crownboard. As the crownboard came away, the stones shifted, slid towards and then over the edge. With a sound like ice-cubes being dropped into a summer jug of Pimm's, the stones came to rest at Mick's feet in a miniature parody of the Highbury Park incident. Like the full moon emerging from behind a cloud, Trev's face appeared above a ceanothus. "What in the name of gad's lymph do you think you're playing at with my hive log?!!!", he screamed. "Calm down! Calm down!" called back Mick. "These are stones, not logs!" Evidently impressed by Mick's observation, the moon face sank silently back into it's concealment behind the cloud of ceanothus.

An uneasy peace re-settled over the apiary. Out of view of each other, the two men proceeded with their separate tasks. As he worked, Mick pondered Trev's unstable moods. 'It's just not like him,' he thought. 'He must be liverish. Still the O.A.P., Old Apicultural Procrastinator, has finally got round to keeping some sort of records. He should have done it sooner.' They worked on. Opening another of Trev's hives, Mick shook his head and muttered to himself. 'Here's another one that needs a super. I don't suppose for one minute that he's got any frames ready. It's always the same. If I ask him if he's made up any shallow BS frames, it'll be, I'll do it tomorrow.' They worked on.

Dusk was beginning to darken the apiary. Mick looked to the sky and felt a first stutter of rain. Trev remained out of sight behind the shrubs at the far end. Deciding it was time to leave, Mick was about to call out to his friend then changed his mind. 'Let him sulk if that's what he wants. I'm off.' He made sure that his smoker was out forcing a twist of grass into the end vent, slipped his hive tool into a side pocket of his rucksack and had a last look round. Satisfied, he stepped out onto the wood-chipped path which led away in a lazy S-shape between the head-high banks of bramble and fireweed. The first droplets were now an established drizzle.

Suddenly he exclaimed out loud, "Bigger-Beggar-Bagger!" A pause, then apologetically, "Oops, pardon me, bees! His Evening News! I've still got Trev's paper!" Cursing his forgetfulness, Mick dropped the rucksack, jerked open the draw string and roughly retrieved the paper. Back he went to the apiary, his footfall quiet on the wood-chip. He hurried up to the large ceanothus where, abruptly, he stopped and looked. Trev was standing in front of a hive, veil thrown back, bare-headed, quite still apart from the movement of his lips and the small channels of drizzle which marked his cheeks. Mick stifled an involuntary snigger and almost out loud chuckled to himself, 'Well, just look at him! He's telling the bees! He should have done it sooner! Still better late than never! Heh-heh-heh… Better not disturb the superstitious old fraud. Heh-heh-heh… I'll give him his Evening News later. Heh-heh-heh…' Stuffing the paper into a side pocket, he retraced his steps. Mick was still chuckling as he bent to retrieve his rucksack from the wood-chipped path. Preoccupied, he did not notice the blackberry runner reaching towards him as he stooped nor did he feel the soft tug as the thorns picked his pocket clean of Trev's paper.

It was raining steadily when Trev at last emerged onto the path out of the apiary. There was no sign of his paper which lay just off the wood-chip, hidden by a drooping swag of rain-heavy grass and fireweed. The sodden newsprint was already barely legible, a fragment of a grainy picture with a partial news snippet;

News in Brief

….. regret to announce the tragic death of Elizabeth Dunt, aged 32, daughter of Trevor and Florence Dunt, after a losing battle with cancer. The family…

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Ron Fisher

LETTERS Back to top

Dear Editor

Attn: New Product
Hi! I am Randy Johnson an inventor. I have a new kind of outdoor jump suit and I am looking for a manufacturer to license this and put it on the market for me. This jump suit will be good for hunting, fishing, landscaping, bee keeping or any kind of farm work, For more info you can contact invent-tech by email at products@invent-tech.com , or by phone at 1-800-940-9020 , ex 2230 and ask for more info on the sting saver file # 463369. This jump suit will help keep the body cool and safe from harmful stings and bites. You can also contact me at , randyj40@hotmail.com, or randynight41667@yahoo.com. I think this product will be good for you and your company. Thank you.
I'M LOOKING FORWARD TO HEARING FROM YOU.

Randy Jonson

(Any clothing manufacturers out there wanting to develop a new bee suit? Ed.)

Dear David

Can you help via Apis -Uk to source suppliers of honey jars? It appears that Bristol Bottle Company are in administration. Do we have a general suppliers list online?

Martin Gilmore

Dear Sir

The Century Foundation, Bangalore in association with Bangalore University, India is organizing the "**International Workshop on Strategies for the Integrated Beekeeping Development in South Asian Countries" from November 13-14, 2006** in New Delhi. The FAO of the UN is supporting the scheduled workshop with a view to promote integrated beekeeping in SAARC countries.

The proposed meeting will address the possible strategies to integrate beekeeping development in South Asian Countries for sustainable livelihoods.

ON behalf of the Organizing Committee, I take this opportunity to invite you to participate in the deliberations of the scheduled workshop.

For details of the workshop please contact :

Dr. V. Sivaram
Organizing Secretary
International Workshop on Strategies for the Integrated Beekeeping Development in South Asian Countries
Dept. of Botany
Bangalore University
Bangalore – 560056, India

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DATES FOR YOUR DIARY Back to top

2 to 8 July THE ROYAL SHOW BBKA is planning a comprehensive display of bees and beekeeping at the Royal Show, Stoneleigh on 2-5 July 2006. This will be located in the new Countryside Smallholders area. To volunteer as steward send your name, address, telephone number, (e-mail) to Clive Joyce National Beekeeping Centre, Stoneleigh Park, Warwickshire, CV8 2LG.

8 July Thorne's Open Day, Wragby bargains from 9.00 a.m.

11 – 13 July The Great Yorkshire Show 2006 at the Showground, Harrogate includes daily demonstrations of bees at work in the Bee Garden and Observation Hives in the Flower Hall.

Friday-Saturday 21 - 23 July Devon Beekeepers Association Summer Conference at Exeter University. For more information Download Booking Form [159KB PDF]

30 July – 4 August **Social Insect Meeting**: The XV Congress of the International Union for the Study of Social Insects will be held in Washington, D.C. For more information, go to: http://www.iussi.org/IUSSI2006.html

11 – 12 August **Shrewsbury Flower Show** Alongside, the Shropshire Beekeepers Association will be staging fascinating displays, reflecting the wide range of interest in everything to do with bees, from honey to mead and other homemade wines. Members of the association believe that their display at Shrewsbury Show is second only to the annual National Honey Show.

13 - 14 November **INTERNATIONAL WORKSHOP ON "INTEGRATED BEEKEEPING DEVELOPMENT IN SOUTH ASIAN COUNTRIES" , New Delhi,** see Editor's letters above

QUOTE OF THE MONTH Back to top

I hope that everybody read the quote for last month as it could contribute to a long and healthy life for all. It was of course that famous Roman gardener Pollio who said it in answer to the question by the great Augustus and I'm sure that you all knew that. Well now turn your attention to the following easily recognised and well known tract. Who said this?

The Honey-bags steal from the humble bees,
And for night tapers, crop their waxen thighs,
And light them at the fiery glow-worm's eyes.