Apis-UK The Electronic Beekeeping Newsletter

Apis-UK Issue No.48 January 2007

Contents: Editorial; Beekeeping News: GM PROBLEMS, Climate Change Evident; Research News: Two Studies On Bee Evolution Reveal Surprises, Queen Bee Promiscuity Boosts Hive Health, Bad Losers as biological control weapons, Why Do Some Queen Bees Eat Their Worker Bee's Eggs?; Articles: Oxalic Acid Trickling Method, Information sheet no. 6, The National Diploma in Beekeeping; Recipe of the Month: Scallops with Turmeric & Honey Sauce; Historical Note: Early Days in Pollination; Poem of the Month: A Bee his burnished Carriage; Diary of Events; Quote of the Month and more.

EDITORIAL

A Happy New Year to all readers and welcome to the year 2007.
Some may disagree but 2006 was in my opinion a defining year in beekeeping, or rather the science of beekeeping and I think that in a hundred years time or more, beekeepers will look back and see pre-2006 as the dark years and 2006 itself as a year of the dawning of enlightenment in our knowledge of bees. Apis UK and many other beekeeping magazines have been alive with news of new discoveries, month after month, mainly connected with the honey bee genome research and the recent discovery of the fossil bee in amber in Burma. Let's hope that the momentum will be maintained in 2007.

This issue is shorter than usual due to the Christmas and New Year break period, which from where I currently stand, doubles as the main summer holiday period. However we have filled the smaller issue with interesting information. Research into the fossil bee continues to throw up new theories and facts, and we take a look at just why queens go in for multiple mating. I always assumed that despite the inherent dangers of this approach (like she's likely to get eaten en route), the genetic diversity offered, was all important. Was I right? See the article below.

Pesticides are always a worry for beekeepers so in this issue we summarise the dangers and look at a body that actually tries to do something about the problem. We look at an article from Denmark on best use of oxalic acid and also a look at the activities of some beekeepers in Tajikistan.

Our historical note looks at a remarkable Irishman whose observations were, on a smaller scale, another defining moment in our knowledge of bees and flowers, and it shows how human observation can contribute so much to the sum of knowledge even when those observers are without the availability of high tech science at their disposal. Our recipe is truly delicious and modified from an excellent web site which is well worth looking at.

For those beekeepers wanting to get more out of their craft, the path to the NDB (National Diploma in Beekeeping) provides just such a way. In this issue, Norman Carreck tells us about the qualification and just what training there is available for those wishing to obtain it. I often wonder (and it is my opinion only) whether the NDB could or should be turned into a degree and thus perhaps be more recognisable to

those outside of beekeeping who have an interest for example in hiring someone or promoting an employee and so on. I'm sure that such a course of action would be fraught with the usual difficulties, but I'm equally sure that the rewards for those taking it on would be high enough to justify the trouble. And a degree in apiculture would be worth far more than some degrees I've seen!

The strange photo in last month's issue was of bees clustering at the hive entrances nearest to the source of the red light that we used for lighting when dropping hives off for pollination at night. The red light seemed to attract the bees attention but not enough for them to take off and fly at it.

In the meantime, I hope that you enjoy reading this issue of Apis UK and that you stay with us through 2007.

Below is another photo for the curious. Anyone know what is happening here?

All the best for 2007.

David Cramp. Editor

NEWS

GM PROBLEMS

In a recent US survey on the use of GM cotton in China, it has been found that Bt cotton which was genetically modified to kill bollworms and reduce pesticide use, initially worked. Soon however, they had to start applying pesticides to control other pests that had previously been checked by bollworms and pesticides. After seven years farmers were using as much pesticide as growers of conventional cotton. With

the added costs of transgenic cottonseed (2 to 3 times as much), earnings of farmers producing GM cotton are now lower than for those using conventional varieties.

After all the research on GM technology and with the research capabilities of the GM companies, didn't anyone foresee this? Perhaps people with common sense should be paid more than those with degrees! **Ed.**

Climate Change Evident
After the warmest September, October and November since records began in 1659, the Woodland Trust is asking its members to report trees that are still in leaf.

Horse chestnuts have flowered late into the autumn and Dr Sparks reports a precocious blackthorn which usually only flowers in February or March flowering in a hedge at Monks Woods. Oxeye daisies, field scabious and ragwort are still flowering and, at a farm in Monksilver, near Minehead, Somerset, a whole field of charlock, the wild relative of oil seed rape is in flower. The plant normally flowers in the spring but never usually before late January.

This together with numerous other unusual nature sightings amongst the birds and the bees continue to indicate rapid climate change. Even at sea, matters are not all that they seem from above, and major changes are occurring . The Environment Agency reported that the common tortoiseshell limpet, the acorn barnacle and the toothed topshell, the largest seashore shell, have all moved northwards to cooler temperatures in the past few years.

Researchers mapped the distribution of 57 species at 400 locations around the coast and found that the purple acorn barnacle had extended its range eastwards from the Isle of Wight to Kent. The toothed topshell had extended its range from Lyme Regis to east of Weymouth and a northern brown seaweed, called Dabberlocks, had disappeared from most of south west England. The project, known as MarClim, carried out by scientists from Plymouth Marine Laboratory and three other institutes, recorded that the common tortoiseshell limpet, has only been seen in Scotland in recent years having retracted from the Irish Sea and Isle of Man.

RESEARCH NEWS

Two Studies On Bee Evolution Reveal Surprises
In the November issue of Apis UK, we reported on the find of the oldest known fossil bee encased in amber (see below), and as you know, the discovery of a 100-million-year old bee embedded in amber—perhaps the oldest bee ever found—pushes the bee fossil record back about 35 million years, according to Bryan Danforth, Cornell associate professor of entomology. A report on this major fossil discovery, which the researchers say supports *a new hypothesis in bee evolution,* was published in the Oct. 27 issue of Science.

It has always been a mystery as to why the bee fossil record previously only went back to 65 million years.

Scientists have long believed that bees first appeared about 120 million years ago—but previous bee fossil records dated back only about 65 million years. Danforth and Poinar's fossil provides strong evidence for a more remote ancestry. The fact that the bee fossil also has some wasp traits suggests an evolutionary link between wasps and bees. In a related study, published in the Oct. 10 issue of the Proceedings of the National Academy of Sciences, Danforth and several colleagues from other institutions examined early bees' structures in combination with bee DNA, producing the largest molecular and morphological study to date on bee family-level phylogeny—the evolutionary development and diversification of a species. Their goal was to examine the early evolutionary pattern of bees and how their evolution relates to the evolution of flowering plants. Flowering plants are among the most diverse organisms that have ever existed—Charles Darwin called their origin and diversification an "abominable mystery."

More than 16,000 species of bees, organized into seven families, are known to exist. But scientists disagree on which family is the most primitive. Bees are known to affect plant evolution by spreading pollen and preferring to pollinate some types of plants over others. Because scientists assume that bees have essentially always been around, pollinating plants and "creating" new species, it has been a mystery why the bee fossil record only dated back about 65 million years. Until now, many researchers believed the most primitive bees stemmed from the family Colletidae, which implies that bees originated in the Southern Hemisphere (either South America or Australia). However, the work of Danforth and his group suggests that the earliest branches of the bee's evolutionary tree originate from the family Melittidae. That would mean that bees have an African origin and are almost as old as flowering plants, which would help explain a lot about the evolutionary diversification of these plants.

This story has been adapted from a news release issued by Cornell University in the USA.

Queen Bee Promiscuity Boosts Hive Health

One of the questions that scientific beekeepers always ask themselves is, 'why do queens mate with so many drones when they don't really need to? My own research in the early nineties concerned the dynamics and parameters of drone congregation areas and as I watched the drone comets repeatedly form up on my artificial queen, (and occasionally on some unfortunate butterflies that passed innocently by), I often wondered at the reason for it all. I put it down to the benefits of genetic diversity in the hive, but I found no absolute research which proved this. Now there is, and this research is important as you can see from the following conclusion made by the researchers at Cornell University in the USA:

'Queen Honeybees who indulge in sexual surfeits with multiple drones produce more disease-resistant colonies than monogamous monarchs'.

'Multiple mating boosts the health of the hive.'

Drones beginning to form up on an artificial queen bee (Synthetic 9 ODA on a small piece of sponge).

According to a new Cornell study published in the Jan. 7 issue of the Proceedings of the Royal Society of London, the curious promiscuity of queen honeybees has long perplexed apiculturists, especially since seeking out multiple mates takes more time and energy and puts the queens at greater peril for predator attacks.

As the lead author, Thomas Seeley, Cornell professor of biology and chair of the Department of Neurobiology and Behaviour said,

"Even though just one male provides all the sperm that a queen needs for the rest of her life, queen honeybees go out on mating flights and obtain sperm from a dozen or more males." Researchers of the North Carolina State University tested the leading hypothesis that queens' promiscuity improves colony disease resistance by boosting the genetic diversity of their offspring, the worker bees. "This required a particularly nasty experiment, in which we inoculated colonies with the most virulent disease of honeybees that is known, the dreaded American foulbrood disease," said Seeley. Specifically, they inseminated honeybee queens (Apis mellifera) with sperm from either a single drone or from 10 drones. Seeley then sprayed the brood colonies of the resulting 49 colonies (24 from "multiple-mate" queens and 25 from singly mated queens) with water tainted with spores of the highly virulent bacterium that infects bee larvae and causes the disease American Foulbrood.

It was found that the more genetically diverse colonies derived from multiple fathers were significantly less affected by the disease several months later.

The findings have implications for beekeepers everywhere. Honeybees bring revenues of about $20 billion a year in the United States alone for pollinating services. Beekeepers could boost the health of their colonies, say the researchers, by promoting the queens' promiscuity by providing plentiful drones where queens are mating.

Note: This story has been adapted from a news release issued by Cornell University.

Bad Losers as biological control weapons

It appears that for their own defence, some wasps have more than just a sting, according to new research published recently in the Proceedings of the Royal Society

B. They also carry the insect version of pepper spray in their heads, which they can release when fighting other wasps. The research not only gives scientists a fascinating insight into insect behaviour but could also help them to use wasps to kill crop destroying pests.

Bethylid wasps, Goniozus legneri head to head on a larva of the navel Orange worm

For the first time scientists, funded by the Biotechnology and Biological Sciences Research Council (BBSRC), have recorded 'chemical exchanges' undetectable by the human nose which take place between females of a species of bethylid wasp - Goniozus legneri, when they fight over larvae on which they lay their eggs. Not only have they discovered that chemical exchanges take place, but also that it is always the losing wasp that releases the potent gas.

While the research was primarily aimed at improving the understanding of animal behaviour, lead researcher Dr Ian Hardy, from the University of Nottingham, explains that there is great potential for applied spin-offs:

"Bethylid wasps kill the larvae of many insects that are pests of crops, such as almonds, coffee and coconut, ruining harvests and costing industry thousands of pounds. These wasps could be used as a cheap and effective biological control to kill the larvae, avoiding the use of expensive and polluting pesticides. But for successful biological control, we need a good knowledge of wasp behaviour, including how wasps from the same and different species interact. Understanding these patterns can inform us of the best combinations of species to release against a given crop pest." The scientists staged 47 separate contests between pairs of female wasps, placing them in a transparent chamber with a larva, which in the wild they paralyse to use as a host to lay their eggs on. One 'owner' female had paralysed the host 24 hours before the other wasp was allowed to intrude. Making new use of a real-time chemical analysis technique known as Atmospheric Pressure Chemical Ionisation Mass Spectrometry (APCI-MS), as well as recording wasp behaviour on video, the researchers were able to study the visible and chemical behaviour of the wasps in tandem. Behaviours displayed by the wasps included chasing, biting, stinging and full-on fighting. The video and chemical analysis showed that a volatile chemical, which is a type of spiroacetal, was released by the wasps when losing a particularly aggressive fight.

Dr Hardy said: "Our research suggests that wasps which have lost a fight release spiroacetal to temporarily and partially incapacitate the winner, it could be likened to the insect version of pepper spray. The volatile chemicals released by the wasps may prompt females to disperse away from the target area. If we understand how to reduce chemical release behaviour we can improve the efficacy of these wasps in pest control". Professor Julia Goodfellow, BBSRC Chief Executive, said: "This research highlights the benefits of understanding animal behaviour and the impact this can have on finding solutions to tackle costly problems such as pest control."

This story has been adapted from a news release issued by Biotechnology and Biological Sciences Research Council.

Why Do Some Queen Bees Eat Their Worker Bee's Eggs?

Worker bees, wasps, and ants are often considered neuter. But in many species they are females with ovaries, who although unable to mate, can lay unfertilized eggs which turn into males if reared. For some species, such as bumble bees, this is the source of many of the males in the species. But in others, like the honeybee, workers "police" each other -- killing eggs laid by workers or confronting egg-laying workers.

Why do some Queen bees eat their worker bees' eggs?
A new study supports old findings.

A new study from the American Naturalist finds that honeybee workers' sons are reared 100 times less in species with a queen mated to multiple males.

It was in 1964 that the English biologist William Hamilton put forward his "relatedness hypothesis", a major landmark in kin selection theory. He hypothesised that worker bees, wasps and ants do not reproduce because most workers are half sisters. Instead the workers favour the queen's male progeny, since she has mated with multiple males, ensuring variation in the species. According to this theory, a species where the mother queen mates with multiple males would have more worker policing. This theory is widespread and in animal behaviour textbooks. However, Hamilton's relatedness hypothesis was challenged in 2004 by researchers from the University of Lausanne, Switzerland. They compared 50 species and found no evidence that multiple mating by the queen correlated with reduced rearing of workers' sons or greater worker reproductive policing. Were the textbooks wrong?

A new study appearing in a recent issue of The American Naturalist strongly supports Hamilton's original theory. Tom Wenseleers and Francis Ratnieks (University of Sheffield) compared 90 species and found that workers' sons are reared 100 times less in species with a queen mated to multiple males. They also found worker policing by the queen, with the queen eating working-laid eggs, in all species with multiple-mated queens, but in only 20 percent with single-mated queens. "It seems that the textbooks do not need rewriting," write the authors. "Kin selection theory is important when studying relatedness in social behaviour. Social insects, with their great variation in kinship, have been a key test bed of the theory, and the theory has revolutionized our understanding of insect societies."
The research reference is as follows: Wenseleers, Tom and Francis Ratnieks, "Comparative analysis of worker reproduction and policing in eusocial humenoptera supports relatedness theory." The American Naturalist: November 2006.

This story has been adapted from a news release issued by University of Chicago Press Journals.

ARTICLES
Oxalic Acid Trickling Method
By David Ashton
As a result of much demand for knowledge of the subject, David Ashton gives us some very interesting and sound advice in this article on the use of oxalic acid in varroa control. **Ed.**

Reference: Danish Beekeepers Associations website www.biavl.dk/varroa

The late season varroa – control is important. The treatment should take place when autumn feeding has finished, and the colony is free of brood.

Oxalic Acid Dripping Method

Oxalic acid is an organic acid, which is found naturally in honey. The method is extremely effective, very quick and inexpensive.

Safety

For varroa control the Oxalic acid is used in a very weak solution (3.2%). This solution is a very weak corrosive. But you must be very careful to avoid contact with the skin as oxalic acid can be absorbed through the skin. During treatment it is important to use acid resistant rubber gloves. Whilst mixing the solution you should use, gloves, safety goggles, and respirator (P2 Dust Mask).

Treatment in Brood Free Period

'Oxalic Acid Dripping Method', does not work behind the brood cells sealed cap, this is the reason why treatment should take place in periods when none or very little brood as possible is present. We would normally recommend a treatment in late October - November *(but account should be taken of climate for example in western seaboard of British Isles the gulf stream keeps the temperature up so brood rearing goes on into December)* As the climate warms its important to check if brood rearing has stopped, so it could well be that treatment should take place in November or December. The important thing however is that the beekeeper must not fall in to the trap of forgetting to use an oxalic acid treatment. Bees, which for various different reasons go into winter and hibernation with too many mites, will suffer a large amount of damage and harm. One should there for in your considerations consider what is said. " *Treatment when brood free, so that those mite present can do the least amount of damage "* In

other countries outside of Denmark, there is a tradition because of climate to give a much latter treatment!

It has previously been said that the colonies should be treated so the bees will have a couple of flying days after treatment. There is however no research that shows this to be necessary

Mixing the Solution

For the treatment then use oxalic acid – bi hydrate

The Oxalic Acid is mixed in proportions **1 litre distilled water: 1 kg sugar: 75 g oxalic acid – bi hydrate.** This is enough for 55 colonies. You need to adjust this in proportion or use the Danish beekeepers calculator on www.biavl.dk/varroa. You need to be aware that mixing very small amounts for example just two colonies for example, can create problems, as ordinary kitchen scales can give the wrong mixture. Consider weighing a minimum of **0.5 litre distilled water: 0.5 kg sugar: 32.5 grams oxalic acid – bi hydrate.**

Durability (Shelf Life)

When we only recommend autumn treatments, there is no reason to keep your surplus mixture; it is best put down the drain. If however you wish to keep your mixture, we should draw attention to the fact that it will keep up to six months in the dark in the cold of a cellar. The mixture should also be kept in child safe and secure bottle.

How to use it?

The Oxalic Acid mixture should be look warm. You should use a 50 ml dosing syringe. You trickle 3**- 3.5 ml** per frame space with bees. That is to say 35 ml per colony. This is a very small quantity so it's a good idea first of all to practise with ordinary water. It is important that the trickling takes place direct onto the bees and not just on the frame tops were the bees would let it lie.

Temperature

The outdoor temperature above $0^{o}C$

Damage to bees

If the Oxalic Acid is used correctly, in the correct dosage there is no risk to the bees or the risk is very small. If you over dose then you can loose a lot of bees and weaken the colony.

How often should you treat?

Danish and international research has shown that if bees are treated more than once per generation, it can result in damage to the bees and a reduction in the strength of the colony. We recommend there for that you should only treat the bees once each season. The best time to treat is in the autumn early winter when the colony is brood free. We have however with large-scale beekeepers treated with success both in the autumn and in the spring with Oxalic Acid Trickling Method.

Information sheet no. 6

Melbourne, Australia 9 – 14 September, 2007

The Apimondia 2007 website has been updated with new information.

On the website you will find the entry form and the rules and regulations for the World Honey Show and the Australian Quarantine Inspection Service (AQIS) conditions. These AQIS conditions are very easy to comply with and I would see no one having problems bringing their entries for the World Honey Show into Australia.

I hope beekeepers are preparing their entries for the World Honey Show. Note that there are also classes for honey packers and those who produce a nice bottle of mead. And what about the cooks amongst you? You will be able to enter the baking/confectionery class. I can personally recommend the macadamia and honey biscuits.

More details on the contests plus the entry form are also on the website. I am sure there are beekeepers who have entires that they could submit for the various contests.

A new section on the Honey Queen Competition has also been added. This was a new section which was held for the first time in Dublin in 2005. This will be continued at Melbourne in 2007. We welcome entries form the beekeeping associations for this competition.

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On a sad note, I would report the untimely passing of one of our Organising Committee members, Graeme Matthews. Graeme was looking after the organising of

the Technical Tour day at Apimondia and the other tours associated with Apimondia. Graeme had put a lot of effort into bringing together the program for the Technical Tour and his input into the Committee will be missed.

Trevor Weatherhead (Organising Committee) queenbee@gil.com.au

If you no longer wish to receive these information sheets,
please contact Trevor Weatherhead at the email address above.

The National Diploma in Beekeeping.

The National Diploma in Beekeeping was introduced in 1954, essentially as a qualification intended for County Beekeeping Advisors, and is the highest beekeeping qualification available in the British Isles. It provides evidence of a broad based competence in beekeeping at the highest level, of the ability to communicate to others, and of teaching ability. Although few paid advisory posts now exist in beekeeping, the requirement for those teaching others to be properly trained and qualified remains as important as ever. The normal requirement for entry to the NDB Assessment is the holding of the Senior Certificate of the BBKA or equivalent qualification. The Assessment is normally held in alternate years, so will be next held in March 2008, but the Board also organises training courses with content appropriate to the Diploma. An advanced Beekeeping Course will be held from 8th to 13th July 2007 at the Central Science Laboratory, Sand Hutton, York. Further details are available on the Boards website:-

http://www.national-diploma-bees.org.uk/

Advanced Course enquiries should be made to the Course Director, Ken Basterfield NDB on: ken@basterfield.com

All other enquiries about the NDB should be addressed to the new Secretary:-

Norman Carreck NDB,
New Hall,
Small Dole,
Henfield,
West Sussex.
BN5 9YJ.
Tel: (01273)492206
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Email: norman.carreck@btinternet.com

RECIPE OF THE MONTH

Here is a recipe for a sauce to go with pan fried scallops, which happen to be a favourite of mine. Use fresh scallops from a reputable fishmonger. The recipe advises using fresh turmeric but as I couldn't find any, I modified it and used the dried stuff. It was good, but of course I have no way of knowing how the sauce using fresh turmeric would have been.

Scallops with Turmeric & Honey Sauce

150 ml very heavy cream

2 inches of fresh turmeric (advised). I used 1 teaspoon of dried Turmeric.

1 Tablespoon of Honey

Sherry. I used 3 tablespoons. For this recipe I used a dry sherry to counter the sweet honey. As it is essentially a fish dish, try a dry manzanilla.

1 tsp cornflour

1 pinch salt

Heat the cream and turmeric in a saucepan for a few minutes and add the sherry and honey and stir until the honey is dissolved.
Add some of the sauce to a teaspoon of cornflour and stir until dissolved.
Add the cornflour mixture to the sauce, stir in and then keep on a low simmer for about ten minutes, stirring occasionally, until the sauce thickens.
Season according to taste and sip ice cold manzanilla* or fino whilst eating.

Fry the Scallops in very hot olive oil for 30 seconds per side. Place on a bed of cous cous and add the sauce.

*(Remember not to get caught out. Manzanilla is a really dry sherry from San Luca de Barrameda in Spain. It is also an herbal tea infusion. You want the sherry).

This recipe has been modified by the editor to suit taste and availability of ingredients. The full version is from The Thorngrove Table, http://thorngrove.typepad.com/table/recipes_included/index.html an excellent web/blog site for recipes.

HISTORICAL NOTE

Early Days in Pollination
Pollination is really what honey bees are all about, but knowledge of this important function was slow to come to bee observers. The little known Irishman Arthur Dobbs made what we believe to be the first statement about the role of bees in pollination. This rich and influential gentleman was active in politics and science and built up a large library at Castle Dobbs in Co Antrim, Northern Ireland. His words on pollination, were based entirely on observing bees in the field and he appears to have been one of those few observers like Von Frisch and others, who are able to see 'beyond' just the visual image and work out from that image, what is going on..

Portrait of Arthur Dobbs, 1752, by William Hoare.

Arthur Dobbs 1689-1765.

"…..I have frequently follow'd a bee loading farina (pollen), Bee Bread or crude Wax, upon its legs, through a part of a great field in flower; and upon whatsoever flower I

saw it first alight and gather the farina, it continued gathering from that Kind of Flower; and has pass'd over many other Species of Flowers, though very numerous in the field, without alighting upon or loading from them: tho' the Flower it chose was much scarcer in the Field than the others. So that if it began to load from a Daisy, it continued loading from them, neglecting Clover, Honeysuckles, Violets, &c., and if it began with any of the others, it continued loading from the same kind, passing over the Daisy……"

"Now if the Facts are so, and my observations true, I think that Providence has appointed the Bee to be very instrumental in promoting the increase of vegetables….Now if the Bee is appointed by Providence to go only, at each loading, to flowers of the same Species, as the abundant farina often covers the whole Bee, as well as what it loads upon its legs, it carries the farina from flower to flower and by its walking upon the Pistillum and agitation of its wings, it contributes greatly to the farina's entering the Pistillum, and at the same time prevents the heterogeneous mixture of the farina of different flowers with it, which, if it stray'd from flower to flower at random, it would carry to flowers of a different species…."

"Now, if the farina of specifically different flowers should take the place of its own proper farina in the Pistillum, like an unnatural coition in the animal world, either no generation would happen, or a monstrous one, or an individual not capable of further generation. "

POEM OF THE MONTH

A Bee his burnished Carriage
Emily Dickinson

A Bee his burnished Carriage

Drove boldly to a Rose—

Combinedly alighting—

Himself—his Carriage was—

The Rose received his visit

With frank tranquillity

Withholding not a Crescent

To his Cupidity—

Their Moment consummated—

Remained for him—to flee—

Remained for her—of rapture

But the humility.

Written Circa 1875

DATES FOR YOUR DIARY Back to top

Saturday 3rd March 2007 - **West Sussex Beekeepers Association Beekeeping Convention**. Venue: Lodge Hill Conference Centre, Watersfield, Pulborough, West Sussex. Main Speakers, Rev Stephen Palmer, Michael Badger and Richard Ball plus a

choice of attending four from a total of ten workshops. Further details from John Hunt on 01903 815655 or email john_bateman_hunt@hotmail.com

Tuesday 24th, Wednesday 25th and Thursday 26th July 2007 - New Forest & Hampshire County Show. The New Forest & Hampshire County Show is the highlight of Hampshire's social calendar featuring all the attractions that have made it so popular for the best part of a century, bringing traditional country pursuits, new exhibitions and demonstrations to this unique event. Put the dates in your diary now.

There is a full range of horse and livestock competitions plus a rabbit section, cage birds, and honey bees. The Countryside area features woodland activities and demonstrations of rural sports, plus terrier and ferret racing. Other favourites include the horticultural marquee featuring many nationally acclaimed flower entries, and the Southern National Vegetable Association Championships.

With over 600 trade stands there is a wide choice of stalls to visit many offering goods never to be found in the shops, including antiques, crafts, and the best of Hampshire food and produce.

We also have the Forest Fun Factory arena, a haven for children with all day entertainment. These are just a few of the many attractions you will find at this year's show – you will be spoilt for choice.

A pay as you go shuttle bus service runs from Brockenhurst mainline station right into the showground, so let the train take the strain.

Discounted tickets available on line at http://www.newforestshow.co.uk/ or on the credit card hotline 01590 622409 from June 1st 2007.

Additional information Show opens 08.15 to 1800 Web site full of information – http://www.newforestshow.co.uk/ Full Title is New Forest & Hampshire County Show.

QUOTE OF THE MONTH

This month's quote comes from a noted historical figure prominent in the world of bee science. Who said this?

"The man who never before has beheld the swarm of a populous hive must regard this riotous, bewildering, spectacle with some apprehension and diffidence. He will be almost afraid to draw near; he will wonder, can these be the earnest, the peace loving, hard working bees whose movements he has hitherto followed?