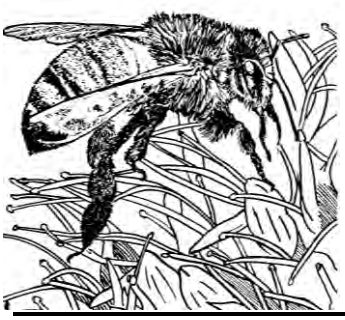


BEE NEWS & VIEWS

The Mississippi Beekeepers Association Newsletter

JEFF HARRIS, Editor
Phone: 662.325.2976

July-August 2013

Giving Credit to Those in the Trenches

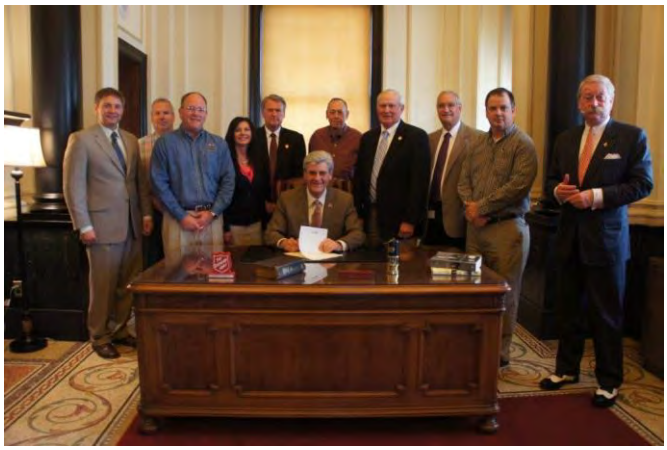
By Jeff Harris

I unintentionally slighted the legislators that really fought for the tax exempt status for honey bees and hive products. Without too much of an explanation, I lifted an excerpt of the bill description from the internet without fully understanding the mechanics of the legislative process. The description that I copied gave credit for the bill to players that were involved with producing a larger agricultural bill to which the tax exempt status was eventually attached.

By crediting those responsible for the larger bill, I ignored the major contributions of those Representatives and Senators that really pushed for the tax exempt status after several failures in various committees. To those people I apologize and assure them that the mistake was from simple ignorance.

I have provided a complete list of Senators and Representatives that were primarily responsible for the tax exempt status effort in the caption to the photo of the Governor signing the bill. These folks were the ones that worked tirelessly to get the bill passed.

More than once the bill died, but they would not let it go. They kept reviving it, and in the end, the bill passed and was signed by the Governor. Please extend a "thank you" to these people either verbally if you should meet them, or even better, in the form of a hand written letter sent to their offices. We greatly appreciate all that they do for our beekeeping industry.



Governor Phil Bryant signs bill establishing the tax exempt status for honey bees and hive products. People from left to right – **Senator Joey Fillingane**, Frank Garletts (MBA), Ben Kern (MBA), **Senator Angela Hill**, **Representative Bill Pigott**, Governor Phil Bryant, Walter McKay (MBA), **Representative Ken Morgan**, Stan Yeagley (MBA), Derwin Thrash (MBA) and **Representative Jeffrey Smith**.

Summer Beekeeping

By Jeff Harris

Most southern beekeepers extract their honey crop during July, or August for those living a little further north. Generally, the amount of incoming nectar from blooming plants declines rapidly after mid-July. In response to the reduced rate of incoming food, queen honey bees lay fewer eggs, and the area occupied by broodnest decreases. Colony size decreases over the summer because older workers that die will be replaced by a lower rate of newly emerging bees. This is a critical time for protecting bees from themselves: a beekeeper's biggest threat is honey bees stealing honey from each other.

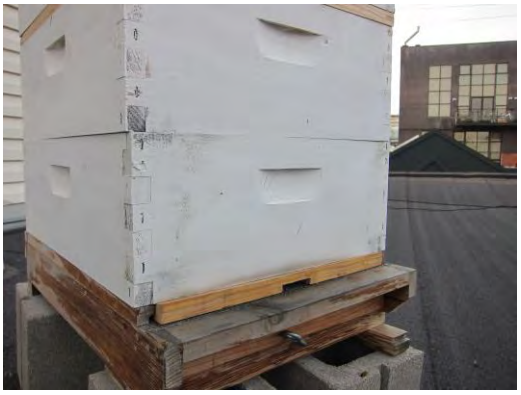
The theft of honey by marauding bees is termed "robbing". This is a confusing term because many beekeepers also use this term to refer to the

harvesting of the surplus crop by the beekeeper. Robbing must be prevented at all costs this time of year. Once started, robbing can spread like a fever throughout an apiary as colonies are stimulated to steal from pools of spilled honey or the weaker colonies in the apiary. The resulting frenzy will result in many stings to the beekeeper trying to work in the bee yard, but much worse, robbing bees can literally kill one another. Usually the weakest colonies are attacked by several stronger colonies. However, once the frenzy begins, strong colonies begin to pick on one another. The result can be that the beekeeper has a few strong colonies full of stolen honey and many dead colonies killed by the continuous onslaught from the strongest colonies.

Beekeepers can protect their colonies in several ways. First, evaluate and remove the weakest colonies from an apiary. Perhaps a couple of weak colonies can be combined to form one strong colony (ways of doing this will be discussed in a future article). Second, all entrances can be reduced using special wooden blocks aptly named "entrance reducers." These strips block about 85% of the entrance, which gives the guard bees in a colony a much smaller opening to defend. The only problem with entrance reducers in the summer is that they dramatically reduce the ability of a colony to cool the nest. So, only use entrance reducers if you are also using a screened bottom board. The screen on the floor of the hive will help the colony keep cool when the entrance reducers are in place. If you use solid bottom boards, you can staple number 8 hardware cloth across most of the entrance and leave a couple of inches open to serve as a reduced entrance.

The most important way to protect your bees is not to open the colonies after taking the honey off until later in the summer. Simply opening a hive will allow odors of honey to waft through an apiary, and this is enough to stimulate worker bees to snoop around the opened hive. When you take the honey supers off of your hives be very careful and try not to spill or drip honey in the bee yard. This will stimulate robbing.

The other important creature to keep in mind this time of year is the Small Hive Beetle (SHB). This hive pest usually increases in numbers in our area during July-August. Strong colonies can handle the beetle and prevent them from laying eggs in the combs. It is the larvae of this beetle that damages combs. However, the other situation that benefits the beetle is a stack of unprotected supers full of honey on the floor of your honey house. The eggs from these beetles can hatch in less than 24 hours during the summer, so any stack of honey supers can fall victim to larvae of the SHB tunneling through the combs – which will spill the honey crop onto your floor. The most important rule is to extract your honey as soon as it is removed from the bees.



Colony fitted with an entrance reducer.

Once extracted, the supers of wet combs can be returned to colonies to be licked dry. Be careful! Just carrying the wet combs back to the apiary can stimulate robbing. Give the bees 24 hours to dry the extracted combs, and then remove the combs from the hives. This is very important. Some of the strong colonies may be allowed to keep a super of combs because they can protect the combs from invasion by SHB. However, almost all colonies will actually decrease in population over the summer months, and placing empty combs on top of the nest is actually a stressor. The additional combs will greatly increase the volume of hive that the bees must patrol to protect from the SHB. Remember there is no food coming into the hive (unless you are feeding the bees), so the extra combs really are not needed until the autumn honey flow begins.

It is best simply to remove the dried and empty combs from all hives that cannot protect the combs without risk of attack by the beetles. The best procedure is then to freeze all of the supers of combs for a few days, thaw them, and then stack them in a cool dark place with a moth repellent

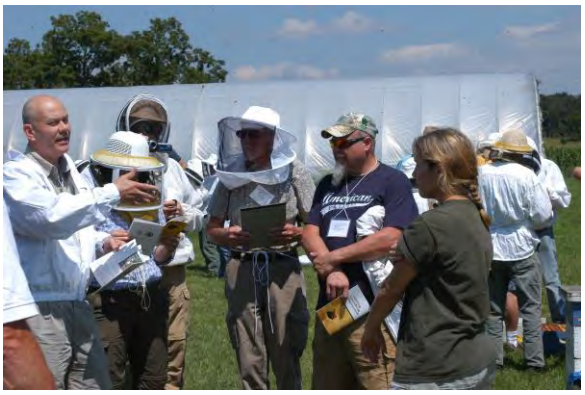
placed within the stacks. Be sure to follow all label instructions for use of these repellents. The only material legal to use for this purpose is para-dichlorobenze (sold as "Para-Moth").

Heartland Apicultural Society met in TN

By Jeff Harris

The annual convention of the Heartland Apicultural Society (HAS) was held on the campus of Tennessee Tech University in Cookeville, TN on July 11-13, 2013. For those not familiar with HAS, it is a regional beekeeping organization formed by union of the state-level beekeeping associations of Indiana, Illinois, Michigan, Kentucky, Ohio, West Virginia, Tennessee and Alabama. HAS was formed in 2001 as an effort to provide beekeepers in the mid-west access to a 3-day regional meeting that was closer to them than the usual meetings of either the Eastern Apicultural Society or the Western Apicultural Society.

Audrey Sheridan and I gave multiple presentations at the event. I gave three different presentations focused on various aspects of bee breeding and queen rearing. Audrey spoke about the biology of swarm behavior in bees (given twice), and she gave a hands-on field lecture on the management of the Small Hive Beetle in the apiary (given 3 times). Although Mississippi is not an official partner in HAS, the meeting was close enough to us this year that I had expected to see some familiar faces. However, I only saw one family from Mississippi.



Audrey Sheridan (right) being asked a question about the Small Hive Beetle during one of her presentations at HAS.

I greatly encourage you to attend one of these regional meetings in the future. The selected speakers are most often of national and regional prominence in beekeeping. They usually include researchers and scientists, extension experts, and commercial beekeepers. Additionally, it is simply a lot of fun to meet and talk with beekeepers from different parts of the country. I do not know the official attendance for the event, but I suspect that over 500 beekeepers were there.

Audrey showing how to use one of the many traps that have been developed for the Small Hive Beetle.

Observations of a Diseased Hive – Late September 2009

By Audrey B. Sheridan

I recently sent off some samples of diseased brood from the demonstration hive located in the Pollinator Garden behind Clay Lyle Entomology. The samples were collected using sterile techniques and transferred to Eppendorf tubes containing RNAlater. The samples were cold-shipped to Beltsville for RNA virus analysis. I expected to have a positive test for European Foulbrood, but the symptoms were not a perfect match

The disease was first detected in my hive in early August, when I noticed a foul smell coming from the direction of the hive. Upon investigating the brood comb, I saw that about 50% of the brood was infected with some sort of disease manifesting similar symptoms to those ascribed to "parasitic mite syndrome" (PMS). PMS is a term coined by the Beltsville lab to describe a degenerate condition believed to be caused by varroa and tracheal mite infestation, there is no actual causative agent

described for the symptoms as of yet. Another term for the brood disease is "snotbrood", which accurately describes the appearance of dead larvae. The only thing inconsistent with the description for PMS is the presence of an odor in my hive. This is not one of the characteristics of PMS.

I have recently noticed a behavior in the adult bees of the infected colony that suggests whatever is causing this "snotbrood" disease may be diminishing the health of adults. In general, affected bees that are performing hive duties are bumbling around in an uncoordinated 'drunken' stagger, and when they fall to the ground, the do not fly immediately back to the hive, but sort of roll around on the ground, limbs waving slowly and totally out of synch, before they eventually take off and spiral up to the hive. These may also be the effects of pesticide poisoning that I am occasionally observing, but one of the symptoms described for PMS is "crawling adult bees", which is perhaps the strangest behavior I have noticed in my bees. Flying seems to be very difficult for the affected adults. Their movement is sluggish in every way. I have not noticed whether all bees displaying this odd behavior are of similar age or hive task, or whether any of them are foragers at all. I need to do some lengthy observation to determine whether the behavior is caused by pesticide poisoning or if it is related to the mysterious brood disease.

UPDATE—August 2013

I never did hear back from the Beltsville lab about my diseased brood, but I encountered the same disease in that colony the following summer and the summer after that. In every case the brood eventually stopped showing disease symptoms as soon as the temperature started to drop. Last summer I had a break in the disease pattern, perhaps due to requeening. I haven't seen the disease in any of my hives this year.

Workers removing diseased "snotty" brood

Science Brief - Idiopathic Brood Disease Syndrome

By Jeff Harris

Audrey's previous observations are fairly typical for a conditioned that is now called idiopathic brood disease syndrome (IBDS). Idiopathic means that the cause of the condition remains unknown, or at least a specific cause is difficult to determine because several confounding factors cannot be separated. She did not mention it in her article, but she had not used chemicals in her hives for control of any pest or pathogen, so the brood disease was not likely caused by residues of a miticide.

She also did not mention sampling for Varroa mites, so we cannot totally discount the PMS angle from her scenario. I have seen colonies that were very advanced with PMS, and they smelled terrible and like rotting brood in other diseases.

I recently talked with a friend of mine who told me an interesting story about how stubborn some folks are to accept mites as a possible cause of death. The beekeeper claimed to have a varroa-resistant stock of bees that did not need treatment; however, he complained that somebody needed to investigate IBDS because it was occurring in many of his colonies. The man never sampled his own bees for mites, but he sold a nuc to a woman who had my friend sample them for mites. My friend also noted the brood disease in her nuc, and he found > 45 mites from a 300 bee sample. That level of mites is well above the economic threshold for mites for late summer when the sampling had occurred. So, at least in this case, the man's bees are probably suffering from PMS related to high varroa populations.

I am not suggesting that IBDS does not occur; I am only suggesting that when you first see signs of this kind of disease, sample for mites to eliminate that possibility. It is the most likely candidate for a brood problem that appears to be PMS-like.

All of that said, I wanted to summarize a paper published by Dennis van Engelsdorp and co-authors this year (van Engelsdorp *et al.* 2013). The research team followed the fate of a random group of 62 colonies that were being used in migratory pollination service among 3 different beekeeping operations (n = 20, 24 and 18 colonies). Each operation ran colonies from Florida to New Jersey or Maine and back to Florida between March-2007 and January-2008. Generally, the team randomly chose colonies, tagged them and marked and clipped all queens in these colonies at the start of the experiment.

They examined and sampled all colonies at the start of the experiment and every 50 days until the end of the test. Their goal was to try and assess those measurable factors that were the best predictors of colony mortality. For example, if a colony had a lot of chalkbrood mummies in the brood at one observation period, was it more likely to be dead at the next period 50 days later?

The team measured colony size, quality of the capped brood pattern, presence of the marked queen, and clinical symptoms of chalkbrood, European Foulbrood, American Foulbrood, sacrbrood virus, deformed wing virus, and IBDS. They also sampled slightly more than 300 bees for a varroa mite load estimate and 30 workers for measuring Nosema spore levels. They called a colony as having experienced a "queen event" if it had emergency or supersedure queen cells, contained a virgin or unmarked replacement queen, or if it was queenless without eggs and larvae.

Over the entire 10-month period, 56% of all marked colonies died (35 out of 62 colonies). The team used epidemiological statistics to determine the relative risk that having one or several of the risk factors had on the chances that a colony would die. The two biggest single risk factors were the presence of IBDS and the occurrence of a queen event. If a colony was seen with IBDS, it was 3.8 times more likely to be found dead 50 days later than if not. Similarly, if a queen event occurred, a colony was 3.1 times more likely to be dead. No other single factor had a relative risk above 1.6.

The team also found that the presence of multiple factors greatly increased the chances of a colony being lost. This fuels the idea that in situations with high colony mortality, it is likely multiple factors acting in concert that kills colonies.

Interestingly, the symptoms of IBDS were independent of the level of Varroa mites in colonies at the time of the brood symptoms. This suggests that the two may be completely unrelated. However, it may also be that the IBDS is caused by viruses that are vectored by the mites during a previously high mite infestation period. This also suggests that viral diseases can run a course independent of the mite populations once the mites have vectored them into bees. Another study suggested that even when acaricides are used, virus loads can continue to grow in bee colonies, and it is these high viral titers that can kill bees in late autumn or early winter (Francis *et al.* 2013).

It seems likely that IBDS is likely caused by viruses. The question will be whether mites initially instigate the disease (as with PMS), or if this is a new viral progression that really is independent of Varroa mites. Scientists simply do not know the cause of IBDS.

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Van Engelsdorp, D., D. R. Tarpy, E. J. Lengerich and J. S. Pettis (2013) Idiopathic brood disease syndrome and queen events as precursors of colony mortality in migratory beekeeping operations in the eastern United States. Preventative Veterinary Medicine 108: 225-233.

Francis, R. M., S. L. Nielsen and P. Kryger (2013) Varroa-virus interaction in collapsing honey bee colonies. PLoS ONE 8(3): e57540. Doi: 10.1371/journal.pone.0057540.

Winning the War?

By Jeff Harris

Dr. José Villa of the USDA Honey Bee Breeding Lab in Baton Rouge, LA told me of some relatively good news recently. It had to do with people more than bees, but it left me feeling pretty good about how persistence can lead to changes in behavior. He had attended a meeting of the Capitol Area Beekeepers Association (CABA) after a lengthy period of being absent from their meetings. During the course of the meeting, José was impressed by the lecture from the current President, who was championing the concepts of integrated pest management (IPM) in dealing with varroa mites. The President asked all new beekeepers to sample their colonies in order to make treatment decisions, and he gave all of the good reasons for doing so (chemical residues in combs, development of mites that are resistant to chemicals, and the possible ill health effects of chemicals on bees).

This lecture impressed José because he and I and several other scientists from the Lab often enjoyed interacting with the members of CABA. Soon after varroa mites came to that area, we felt it our duty to continually impress upon beekeepers the need for sampling for these mites in order to make treatment decisions (e.g. knowing when to use a chemical miticide). It seemed like we talked for years, but at any one time only 1 or 2 folks ever tried the techniques that we asked of them. It was quite refreshing to hear beekeepers preaching to other beekeepers about the need for IPM in dealing with varroa. This represents a small victory in the war to change beekeeper behavior from the regimented and indiscriminate use of miticides.

Since I have been in Mississippi, I have seen many colonies of bees dying from obvious varroa mite infestations. Many folks do not know how to sample for the mites or how to make a decision of using a chemical miticide based on their sampling. Others simply do not to treat and do not sample. Many of these people resist the idea of using chemicals in their hives. I understand this sentiment, but I will caution that folks who do not treat will likely lose many colonies over several years.

Some folks feel like they are breeding a better bee by only keeping survivors. Theoretically, this is possible, but most people are not in situations in which they can control mating among their bees. Therefore, it is highly unlikely that the average small scale beekeeper can "breed" mite-resistant stock that will reliably produce varroa resistance without using instrumental insemination to control mating.

I am trying to be very clear here: it is unlikely that anyone can produce disease resistant stock without first controlling the mating in their bees. Even if a colony is truly resistant to the mites, if you cannot make sure that daughter queens mate to drones carrying similar genes that control resistance, the genetic effects of the queen mother will be diluted in the next and subsequent generations.

So, the use of chemical miticides is sometimes essential to save colonies that reach a threshold level. If you elect not to treat with a chemical and allow a colony die, you might be needlessly losing honey production or pollination service. Several people have told me that they allow colonies to die, and their stock is getting genetically superior over time. Perhaps they are able to control mating better than most people? I will remain skeptical (based on my experience as a breeder) because it is unlikely that anyone with just 10 colonies can truly breed resistant bees.

I have also helped several people evaluate the mite loads in colonies that were sick or dying during the last year. Some of these people were sold varroa-resistant stock and told not to worry about varroa IPM or sampling. **This is clearly the wrong message.** I helped developed one of the best varroa resistant lines of bees (VSH trait), and I would never advise anyone to forgo sampling or monitoring of the pest population in these resistant bees. There simply is no totally varroa resistant line or stock of honey bees – so implementing a varroa IPM plan that incorporates sampling to make treatment decisions will always be the best approach to this problem.

I want to end with a story about a husband and wife beekeeping team that I had met last year. I will keep their identity a secret, but their initials stand for Randy and Lee Lee Burris of Columbus, MS.

They called me after 2 of 5 colonies had already died. I went to their home, and we sampled the remaining 3 colonies to find that they were all above the economic threshold of 5 mites per 100 bees in a sugar shake during late summer last year. I advised them to intervene and save the bees with a miticide treatment.

They were frustrated because they had been told of the varroa resistance quality of the stock, and they did not think that monitoring the mite populations was necessary. I explained that some people have hyperbolized claims of resistance, and that it is always a good bet to practice some form of IPM. I even suggested that they look up the use of drone brood as a trap for mites and to implement drone trapping during the following spring as a way to slow the growth of mite populations without using chemicals.

This couple recently attended a beginning beekeepers workshop that Audrey and I held in the Starkville area. Without too many details, I tried to impress on the 40 new beekeepers that learning to manage varroa mites would be key to their success as beekeepers. The couple then added their experience of this year as a testimonial. They had saved their bees with miticide as I had directed them last summer. They also implemented drone trapping techniques this spring, and they reported that their mite loads were 0-2 mites per 100 bees in early August, which is well below the treatment threshold. I was very pleased that they actually implemented drone trapping and sampling as a regular part of their beekeeping. I believe that they will save their bees from the mites, and even better, they will greatly reduce the need for miticides by slowing the growth of mite populations with drone trapping.

2014 4H Bee Essay Contest Topic

To the earliest European settlers in the New World, honey bees were an important part of their existence. Cargo manifests show that honey bees were among the first shipments of animals. How were they shipped? Why were they important to the colonists? How does that differ from today?

The scope of the research is an essential judging criterion, accounting for 40% of your score. The number of sources consulted, the authority of the sources, and the variety are all evaluated. Personal interviews with beekeepers, farmers and others familiar with the subject are valued sources of information and should be documented. Sources, which are not cited in the endnotes, should be listed in a "Resources" or "Bibliography" list. Note that "honey bee" is properly spelled as two words, even though many otherwise authoritative references spell it as one word.

The complete announcement and rules are available for download in Adobe PDF format at http://honeybeepreservation.org/2013/05/2014-essay-contest-topic/. Mississippi essays should be sent to Dr. Jeff Harris, Entomology Department, Box 9775, Mississippi State, MS 39762.

Honey Contest at the State Fair

The Mississippi State Fair will be held October 2-13, 2013 at the State Fairgrounds in Jackson, MS. I encourage all Mississippi beekeepers to enter their honey and/or beeswax competitions this year. I just looked online for the Premium Book, which describes the rules for entry and judging, and it apparently has not been released yet. I recently standardized the rules for participation for this contest, and if you would like to receive a copy of these rules, please contact me at JHarris@entomology.msstate.edu or (662) 325-2976. I will likely use the same rules to judge the honey contest at our annual MBA Convention in Tupelo, MS.

Buy, Sell or Service Needed

Robert B. Crouch & Associates are looking to buy honey produced in Mississippi. They want 12 oz. bears or 1 pound jars (and up). Please call (769) 226-2581 or email rbcrouch77@gmail.com if you want to sell them your bottled honey.

Upcoming Events

The **Mississippi Beekeepers Association**'s annual convention will be at the Clarion Inn & Summit Center in Tupelo, MS on November 15-16, 2013. I will mail more details and registration forms to all

MBA Officers and At-Large Directors 2013

President – John R. Tullos (601.782.9234); **Vice President** – Derwin Thrash (601.469.4788); **Secretary/Treasurer** – Stan Yeagley (601.924.2582); **At-Large Director** – Milton Henderson (601.763.6687); **At-Large Director** – Johnny Thompson (601.656.5701); and **At-Large Director** – Steve Coy (coy266588@bellsouth.net)

current MBA members in the next few weeks. Speakers will include:

- Dr. Medhat Nasr, Provincial Apiculturist for Alberta, Canada
- Dr. Jerry Hayes, Honey Bee Commercial Lead for Monsanto in St. Louis, MO
- Mr. Phil Craft of the 'Ask Dr. Phil' column in *Bee Culture* and the Phil Craft Hive Craft blog
- Dr. John Adamczyk, Research Leader for the USDA, ARS lab in Poplarville, MS and leader of a project to investigate problems with honey bees and insecticides in row crops
- Dr. Jeff Gore, Assistant Professor at the Delta Research and Extension Center in Stoneville, MS and partner in a multi-state project looking at neonicitinoids and honey bees
- Mr. Phillip Raines, a commercial beekeeper from Illinois who winters some colonies in Mississippi

The **American Beekeeping Federation**'s North American Beekeeping Conference and Tradeshow will be held January 7-11, 2014 in baton Rouge, LA (see http://www.nabeekeepingconference.com/)

The **American Honey Producers Association**'s annual convention will be held January 7-11, 2014 in San Antonio, TX (see http://www.ahpanet.com/?page=AHPAconvention)

Electronic Newsletter Reaches You Faster

The MBA electronic newsletter is available to members and will get to you faster than regular mail. The quality is also better than the hardcopies we mail out. Pictures are in color and are very sharp. As well as being more convenient to members, the electronic newsletter helps save on the labor and expense involved in preparing and sending our members hardcopies. Contact Jeff Harris (jharris@entomology.msstate.edu) to submit your e-mail address and request electronic delivery.

The Bee

By Emily Dickinson

Like trains of cars on tracks of plush
I hear the level bee:
A jar across the flowers goes,
Their velvet masonry
Withstands until the sweet assault
Their chivalry consumes,
While she, victorious, tilts away
To vanquish other blooms.
Her feet are shod with gauze,
Her helmet is of gold;
Her breast, a single onyx
With chrysoprase, inlaid.
Her labor is a chant,
Her idleness a tune;
Oh, for a bee's experience
Of clovers and of noon!

Request for Submissions

Please contribute articles, stories, book reviews or news items that might interest your fellow beekeepers to (jharris@entomology.msstate.edu).

Enjoy beekeeping!

Jeffrey W. Harris

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