

Central Maryland Beekeepers Association

2011 Membership Form

Please remit \$5.00 to the address below for your dues and an electronic newsletter.

Please remit \$15.00 to the address below for your dues and a hard copy newsletter by mail.

Name : _____

Mailing Address: _____

City : _____

State: _____ Zip: _____

Home Phone : _____ Work Phone : _____

Spouses Name : _____

Email Address: _____

Note: An Email Address is required unless you wish to receive a hard copy of the newsletter by mail. A \$10.00 fee is required for hard copy service in addition to the annual \$5.00 dues.

Street Address if your mailing address is a P.O. Box:

Check this box if you do not want your name listed in a membership directory that will be available to CMBA members ONLY.

How many colonies do you have? _____

What year did you start beekeeping? _____

Do you want to collect swarms in your area? _____

Do you rent hives for pollination?. _____

Do you have an extractor to rent or loan? _____

Would you like to help a new beekeeper? _____

Would you work on an CMBA committee? _____

Would you volunteer to work for CMBA at the State Fair? _____

Would you contribute an article for the CMBA newsletter? _____

Would you be interested in being a speaker for a local school or civic group? _____

Comments / Suggestions _____

Please return this form to: **Mimi Baroch**
10720 Beaver Dam Road
2nd Floor
Baltimore, Maryland 21030

2011 Beekeepers Short Course

Central Maryland Beekeepers Association

FOR: Intermediate and beginning beekeepers or anyone interested in honey bees. This course will provide you with the basic concepts and management practices for maintaining a colony of honeybees.

SPONSORED BY: CENTRAL MARYLAND BEEKEEPERS ASSOCIATION
BALTIMORE COUNTY DEPARTMENT OF RECREATION AND PARKS

PLACE: OREGON RIDGE NATURE CENTER
13555 Beaver Dam Road
Cockeysville, MD 21030

DATES:

March 10, 2011	7:15 PM - 9:30 PM
March 17, 2011	7:15 PM - 9:30 PM
March 24, 2011	7:15 PM - 9:30 PM
March 31, 2011	7:15 PM - 9:30 PM
April 7, 2011	7:15 PM - 9:30 PM
April 9, 2011	9:00 AM - 3:00 PM

FEE: \$30 Single \$35 Family (Includes a 1 year membership to the Central MD Beekeepers Association)

For additional information contact:

Jerry Fischer Central Maryland Beekeepers Association 410-562-3464

Applicants: Complete and return the application below so that we can plan to accommodate you. Registration at the door will be accepted, space permitting. The Saturday meeting will include outside demonstrations and hands on practice with bee hives, weather permitting. There will be a one hour lunch break during the Saturday session, you may bring your lunch or patronize one of the many local restaurants. All are welcome.

2011 BEEKEEPERS SHORT COURSE APPLICATION

NAME: _____

ADDRESS: _____

CITY: _____ **STATE:** _____ **ZIP:** _____

TELEPHONE: _____ **COUNTY:** _____

E-MAIL ADDRESS: _____

FEE ENCLOSED: _____ Single \$30; _____ Family \$35

Make checks payable to CMBA and return application to:

Jerry Fischer
7943 Dalrose Avenue
Baltimore, MD 21237

Learn how to keep bees with

Hands-On Beekeeping Lessons

Intended for established beekeepers or beginners who feel they would benefit from the hands-on experience. Each lesson will consist of an in-depth discussion on a specific topic in the beekeeper's "honey house" followed by practical demonstrations in the apiary. Everyone will have the opportunity to work with colonies guided by an experienced beekeeper. Everyone will have the opportunity to ask questions about any topic or specific problem. Lessons are informal and enjoyable. Learn from observation and actually working with honey bee colonies. Educate yourself. Meet other beekeepers. Help the honey bee.

February 26 – Getting Started. Beekeeping/course overview. What do you need to know, what equipment is necessary, how do I become a beekeeper. All questions answered. Co-sponsored by the York County Beekeeper's Association, there is no charge for this introductory lesson. (Two sessions: noon and 2pm)

April 2 – Managing Colonies of Honey Bees: Introduction/review of beekeeping essentials; honey bee biology; different types of equipment and their correct use (including a Top Bar Hive); spring management of honey bee colonies.

April 30 – Manipulating Colony Reproduction: Swarms – anticipating, controlling, catching, utilizing; harvesting queen cells and royal jelly; preparing for the major nectar flows and maximizing your honey crop.

May 28 – Dividing Colonies: Simple methods for raising your own queens; making up splits and nucleus colonies; expanding your number of colonies, combining colonies; bait boxes.

June 25 – Harvesting Products of the Hive: Taking honey off the hives; extracting and processing honey; collecting pollen, propolis, and beeswax; marketing your honey.

July 30 – Maintaining Healthy Honey Bees: Diseases and pests of honey bees and their controls; making choices and dealing with the mite problem; the latest research on honey bee health problems.

August 27 – Preparing for the Winter: Anticipating your colonies needs; honey bee nutrition and feeding colonies; a beekeeper's library and resources for continuing education.

All Sessions: Saturdays from 12noon til 4:00pm. Rain or shine. No registration required. Bring protective gear if you have it.

Cost: \$15.00 per lesson or \$75.00 for all six lessons (pre-paid).

Location: 12703 Blymire Hollow Road, Stewartstown, PA 17363

For more information: DCPapke@aol.com or phone 717-246-2339

Instructor: David Papke, past president of Central Maryland Beekeepers' Association, has kept bees for 35 years in PA, MD, OH, and in Central America as a Peace Corps Volunteer. Often asked to speak about his beekeeping experiences or to teach various aspects of beekeeping, Mr. Papke keeps bees in York County, PA, providing pollination services to growers and producing honey for the local market.

THE HIVE TOOL

Volume XXXVIII

February 2011

**PUBLISHED BY
THE CENTRAL MARYLAND
BEEKEEPERS ASSOCIATION
FOUNDED 1973**

Snow Cancellation Policy

In case of snow or ice on the meeting date, listen to WBAL radio before 7:00 PM. If Baltimore County's snow emergency plan is in effect at 6:00 PM, then the meeting is automatically canceled.

Caring For A Dead Out

By Jim Agsten

Reprinted from Bee Culture Dec 2010

Dead outs are normally discovered on those occasional mid to late Winter days when the sun shines and the temperature rises high enough to allow the bees to wake up and make some cleansing flights. Your blood flows with the sound of the bees flying and you hope for strong hives coming out of Winter. Yes, a few hives are active, but there is one hive that seems strangely quiet. No regular traffic at the entrance. Maybe a bee or two investigating an upper entrance or browsing about on the bottom board where the mouse guard prevented intruders from taking up residence last Fall. There are a few dead bees at the entrance. That means it's time for a hive check.

Opening the hive we see what we dread. A mass of



bees clustered between the frames but there is no movement. No life. Prying a frame loose and gently removing it shows a layer of dead bees on the frame, their lifeless sisters head first in the

cells below. I believe it's the saddest sight in beekeeping. The fact that one of your hives is gone strikes deep and hard at a time when you are feeling the urges of Spring return after a long, cold Winter. Our desire to nurture the bees or even be greeted by the occasional sting will no longer be satisfied by this hive. Try as we may, it can be hard to determine exactly what may have caused the demise of our hive. Hopefully, we did all we could under the adverse conditions bees and beekeepers face today. Death is a part of life in our current environment, but we must

always try to make the best of a bad situation.



Our inclination may be to close up the hive and take care of it later. This is definitely a situation where we should be proactive. A little effort now will save us time preparing equipment in the busy Spring and

help conserve the energy of the bees destined for this equipment later. If you have ever seen a dead hive neglected until spring you understand by then, the frames of dead bees have become a sticky, smelly mess. Strange molds and fungi may grow on the combs and carcasses and who knows what affect these may have on bees. The cleaning of these combs and cells would be a monumental effort for the bees when their energy would be better spent establishing their new colony, building combs, and foraging. I do not like to leave the cleaning to the bees. Although they may eventually accomplish the task, they really do have better things to do.



The best thing you can do to help your bees after a dead out is to clean it as best you can the day it is discovered. This may seem like an obvious and simple statement but you really should do more than just

brush the bees off the surface of the frame and leave the rest to the bees. The longer the dead bees are in the cells, the harder they are to remove, for you or the bees. After brushing the frames off, hold the frame by the end bars and strike the top bar sharply a few times against an outer cover or hive body to expel as many bees as possible from the cells. I like to use something at least as long as the top bar so the force is distributed across the entire frame rather than one end or the other. Flip the frame over and repeat. An errant strike will damage comb so exercise care. Yes, this can test your frame strength, but top bars are thick and you did put those last two nails through the end bars when you built the frames, right? Getting each and every dead bee out of the cells is not practical. Get as many as you can and

move to the next frame.

Examine each frame of bees for disease signs and check other frames for honey or pollen that may be used to bolster hives light on stores (if disease free). Once the dead out is cleaned, either store the equipment or reassemble the hive and seal all entrances against mice still seeking a cozy comb to nest in for the remainder of the winter. Now check your remaining hives for adequate stores. If the temperatures are up and the bees are active, it is an ideal time to get some sort of feed on them before they join the hive you just attended to. Frames of honey and pollen are the first choice. Pollen patties, fondant, syrup, or even dry sugar may help prevent a late Winter starvation if the hive is light. Place these in close proximity to the cluster. Other feeding methods appropriate for colder weather will work as well. Remember once cold returns, the bees may not be able to move to the feed, so get it as close as possible.

The effort expended in a little extra clean up of dead hives will make a big difference to the next bees that occupy those combs, whether it be a new package, a split, or that first big swarm catch of Spring. Save the bees time and energy and they may reward you with a stronger hive and a nice crop of honey (but don't take too much!)

Workers Life In The Hive

By Larry Connor

Reprinted from Bee Culture January 2011

Know what to expect, when to manage them best.

Worker honey bees are pretty amazing insects. This has the fortunate result that many scientists use them as their 'lab rats' to decode the complex relationships they have with each other and with the queen and drones. They do all the work in the hive, except for egg laying. They control the queen's behavior and replacement as well as the number and age distribution of the drone population of a hive.

As a product of evolution, worker bees are the result of an amazing selection process that resulted in many chemical and nutritional control mechanisms used to suppress worker ovary development so they do not lay eggs unless there is no queen and no brood in the hive. A worker bee is a female bee that cannot mate, so the eggs of a worker are not fertilized, and thus haploid, having just one set of chromosomes. In Hymenoptera, these develop into males. Worker produced drones may or may not be significant in terms of passing on genetic information - depending on which scientist you speak to. I suspect that it is an indirect benefit of the haploid-diploid sex determination system. That a worker bee can produce sons to pass on a portion of the colony's genetic composition is undoubtedly important in the grand scheme of things in bee-dom.

The queen on a frame of brood toward the end of the brood season. Worker bees continuously obtain samples of her queen pheromone, modify it and return it to her as a means of brood area regulation. There are cells of pollen in the brood area. This is generally considered a good behavior of bees. House bees pack the pollen into the cells, add honey containing microbes, and preserve the pollen. This pollen is likely to be used quickly as the nurse bees remove and digest it for royal jelly production.



Worker Development

We should all know by heart the intervals of metamorphic honey bee worker development: three days as an egg, six days as a larva and 12 days in the sealed cell. Remember 3+6+ 12 equals 21 days. Like many things in the hive, these are average figures - variations are common.

The egg - The queen deposits each worker egg in the cell after first inserting her head into that cell and determining the cell size. The late British bee researcher Dr. Jnqn Free fastened tiny cylinders of tape on the front legs of test queens and found that when a queen could not detect the size of a cell, she was no longer accurate in the release of sperm to accomplish fertilization of the egg - these queens mixed the frame with both fertilized and unfertilized eggs, both workers and drones in worker cells. Thus all worker eggs are fertilized, and a good queen will produce a pattern of 95% or more worker cells and a few missed cells and diploid drone eggs that will be removed soon after hatching.

The egg stage functions as the time period for the union of the sperm and egg with the resulting embryo feeding on the yolk in the egg - resulting in rapid growth of the embryonic bee during this short three-day period. Eggs are held upright by a small amount of cement at the bottom of the egg. At the end of three days the outer egg shell, the chorion, softens as it is reabsorbed into the body and the egg lies on the bottom of the cell and becomes the larva. Initially the larva is without food.

The larva - This is the period of continuous feeding and growth of the bee. In just six days the bee grows from a tiny egg to a large larva. Nurse bees feed the larva many times per hour and provide a surplus of royal jelly at the bottom of the cell for the first 48-50 hours. This is the same food as fed to a queen bee throughout her lifetime. After this initial feeding, the diet of the larva changes to a more complex diet that inhibits the formation of queen characteristics and promotes the formation of worker features. The special diet, or worker jelly, is loaded with additional carbohydrates and lipid molecules that turn on characteristics of worker development and turn off

characteristics of the queen caste. Other triggers are also involved in this caste manipulation.



Nurse and House bees work with the foragers to regulate brood production in the hive. Here we see a condition typical of a poor season. This was taken in the Fall of 2009, when the colonies were ending a poor year. There is brood on the right and stored honey (or sugar syrup) on the left. In between we normally expect eggs and larvae, and stored pollen. The absence of the pollen undoubtedly is the reason there is an absence of open brood.

Larvae form a shape of a letter 'C' a few hours after feeding, and 12 hours after hatching the larva is floating in a pool of royal jelly. When raising queen bees, this is the start of the ideal time for removal to a queen cup. The larva floats on the bed of royal jelly and molts at least four times before the final molt to become the pupa. The molting skin is extremely thin and hard to detect. During the sixth day the bees place a beeswax 'cap' on the cell, even though the larva inside has not completed her larval phase. Then the larval body changes into an intermediate prepupal form, which is intermediate between the larva and the pupal stage.

The pupa - The larva spins a thin brown silk cocoon with special glands in the head. Then she molts the final time to become the pupa, with characteristics in the form of the bee, but without wing development and integument pigmentation. The first parts of the bee's external body to change color are the two compound eyes, first to pink and then purple. Internally the body is becoming more differentiated, with the formation of adult bee organs, like the honey stomach, developing out of the simpler larval digestive tract. Just how many changes take place during the 'quiet or resting' phase of development is not known, but it is both large and essential to the adult bee's many roles in the hive.

The emerging individual Twenty-one days after the queen deposited a tiny egg in the cell the worker bee emerges, soft of body, unable to sting, and covered with body hairs that have not yet dried in the atmosphere of the hive. Some refer to emergence as hatching, but we restrict the term hatching to refer to the egg to larval transformation, and emergence for the worker bees cutting the protective capping off her cell and walking out of the cell, ready to begin her initial duties. These callow bees are responsive to the queen bee, and quickly learn her odors. This helps them at various parts of their adult life.

The Nurse Bee (in the brood nest) These young

bees quickly assume duties. No other bee provides instruction or hints at the job ahead.

Cell cleaning - Newly emerged bees will clean the cells of newly emerged cells; the remaining royal jelly traces, larval fecal materials and trim the cappings of the cell. I suspect they either remove any objectionable odor that might repel the queen, or they coat the empty cell with a special odor or pheromone that stimulates the queen bee to deposit a new egg into the cell, thus starting the brood production cycle all over again.

Feeding brood - Newly emerged bees quickly feed themselves pollen and nectar, and are fed by other worker bees as part of the 'community stomach' of the hive. This includes food and chemical components collected from the queen, and the microorganisms necessary for digestion. The feeding process stimulates the digestive tract of the bee to process the food and convert the proteins and carbohydrates into royal jelly for the feeding of bees in the larval stages.

Royal jelly production - Each worker bee undergoes a period of abundant royal jelly production when the season and food supply allows. Most of the year this feeding is almost immediate after food intake. But in the Fall and early Winter the royal jelly production is delayed as the colony takes a break in brood rearing. The appearance of the first larvae in January (northern hemisphere) stimulates royal jelly secretion by select nurse bees.

Brood regulators - It appears that these young bees determine the amount of royal jelly to produce, and thus the amount of brood to rear, based on stimulation by the increasing day length as well as the food budget of the hive. Here the 'community stomach' controls population growth. Bees with proper nutrients in their cells and their digestive tract will produce more royal jelly only when there is an abundance of food stored in the combs and coming into the hive as foragers find early season food. Food reserves in the cells of overwintering nurse bees is essential for the care and feeding of a healthy brood cycle early in the season. If the prior season had poor food reserves, or if the colony was exposed to parasitic mites and diseases, or the colony was undergoing any other stress, then the nurse bees are likely to be less fit for brood rearing.

It is not the temperature outside the hive that determines the amount of brood that a colony produces, but the bee population and nutritional status of the nurse bees, these young bees that are so critical to starting the new season properly.

Queen attendants - Nurse bees also feed and care for the queen. They regulate the amount of food she receives as they themselves are subject to complex factors that include the food reserves, the nutritional composition of the 'community stomach' and population of young bees inside the hive. Part of this network is the feedback the nurse bees provide to the queen by returning modified queen substance to the queen - she

then responds to her own chemical signals (pheromones and hormones).

House Bees (In the hive but outside the brood area)



A nurse bee feeding open brood in the brood nest. Notice the middle-sized larvae and the newly sealed brood cells. Once the cells are sealed the workers will have about 12 days in the cells, where they complete development into adult bees.

As bees mature they move away from the brood area to the areas immediately beside the brood. This includes the areas where pollen and nectar are being processed, as well as the area where honey is being converted from the raw ingredient brought from the field, the nectar. It is useful to call these older bees House Bees, since they are leaving Nurse bee duties, but are not yet leaving the hive to collect pollen, nectar, propolis and water.

Pollen and Nectar Processing - It seems logical that bees transition to food processing after being the primary consumers of the products. Pollen foragers enter the hive with two pollen pellets on their corbiculae, and go to the comb near (and sometimes in) the brood area. There they reverse the packing direction and kick off the pollen loads, directly into the cells. These are in pairs. The house bees then add additional stomach contents (including nectar and honey containing microbes for conversion to bee bread) and push the pollen into the cells using their heads. This increases the efficiency of storage by two and halftimes. In the Fall the pollen may be coated with a thin layer of honey, but most of the year the house bees keep the pollen cells open and available for consumption.

We have discussed the process of converting nectar into honey in other articles. The house bees are the hive members that normally handle this duty. When the flow is heavy, many bees are required to ripen the nectar crop into honey.

Wax secretion - The house bees consume nectar and honey and digest the carbohydrates, stimulating the eight wax glands on the underside of the abdomen to secrete beeswax. House bees then manipulate the wax scales into the beautiful wax comb. Some of these

bees are responsible for keeping the wax production area warm. They use their antennae to measure the comb temperature and heat the area by flexing their wing muscles without moving their wings.

Guard duty - The house bees are the bees that monitor the hive for invaders, including wax moths, small hive beetles and *Varroa* mites. A series of intricate behaviors are involved in grooming behavior used against *Varroa* parasites. Older nurse bees are at the hive entrances and may be the ones that greet you with hive defense in mind.

Other duties - There are other duties of house bees, including general house keeping, queen and drone cell construction and regulation, undertaking duties, wash-board activities at the entrance (removing bark from the non-existing bee tree) and much more. Undoubtedly there are duties we have yet to discover.



The cell with a hole reveals the large worker larva inside. The bees will complete the sealing and the larva will then spin a silk cocoon and have the last larval molt, becoming more adult bee like in appearance.

Hive Kit Raffle

Raffle tickets will be available for purchase at the January 2011 meeting for a complete hive kit. The hive kit will include a telecover, inner cover, topfeeder, bottom board and either two hive bodies or three Illinois supers with frames and foundation. The tickets will be \$1.00 each or 6 for \$5.00.

Newsletter Changes

Effective with the 2011 membership renewals 'The Hive Tool' will be emailed to the membership. If you wish to continue receiving a hard copy of 'The Hive Tool' please submit an additional \$10.00 with your dues to cover postage and printing costs.

Also as of January 1, 2011 any member wishing to advertise items for sale in "The Hive Tool" may submit up to a 10 line ad to the editor for publishing. If you wish to advertise for more than 1 month or the ad is more than 10 lines contact the editor for advertising rates.

IMPORTANT PHONE NUMBERS

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Jerry Fischer, State Bee Insp. 410-562-3464
Oregon Ridge Nature Center 410-887-1815
Lloyd Snyder, Editor 410-329-6671
Editors E-Mail - Irsnyder@zoominternet.net

DATES TO REMEMBER

General Meeting - February 1, 2011 – at Oregon Ridge Nature Center. 7:30 PM. Honey Bee Night Invite or bring anyone to this meeting that has expressed interest in beekeeping. We will answer everyone's questions about getting started in beekeeping.

Board Meeting – February 21, 2010 7 PM at Oregon Ridge Nature Center.

2011 Beekeeping Short Course – Consecutive Thursdays March 10, 2011 – April 7, 2011 (7 PM – 9:30 PM) ending on Saturday April 9, 2011 (9 AM – 3 PM) at Oregon Ridge Nature Center .

Lloyd Snyder – Editor
4747 Norrisville Road
White Hall MD 21161