Sept. /Oct. 2001

New FAX Number

I am pretty well moved into my new office in the Laidlaw Facility (old Bee Biology Facility). Most of my office things are unpacked (still can't find my UC Systemwide directory!), but I have boxes of laboratory equipment that need to find a new home. We have to have the facility in top shape for the visit by the California State Beekeepers on November 14th, in conjunction with their annual convention.

My new location, two miles off the main campus and away from Briggs Hall (Entomology Department), makes it more difficult to walk down the hall and check for phone messages and Fax's. So, I invested in a FAX machine for the Facility. **If you wish to contact anyone out here by FAX, use the following number: (530) 754-7757.**

Coumaphos Use

Michigan State Apiarist, Michael Hansen, wrote the following letter for publication in the Michigan State Beekeepers Association Newsletter. I suggest you "Read and Heed!"

It hasn't taken long and already the regulatory world is looking down with consternation at beekeepers that are misusing CheckMite+® (coumaphos). In several states beekeepers are facing fines for abusing this product by ignoring label requirements. Reports of misuse include beekeepers leaving strips in colonies during honey production, leaving them in all winter long, cutting the strips in half and even reusing the strips. What do we accomplish by misusing pesticide products?

First, there's the issue of human health. CheckMite+ strips are to be removed during honey production to prevent residues from accumulating in honey at levels that may be harmful to human health. Why would someone want to take the chance of impacting human health? We'll create work for laboratories as the trust factor decreases. In a straw pole among state apiarists today, we were able to list a number of laboratories that will check honey for traces of coumaphos. Honey buyers will have to make sure the products they buy are pesticide free by submitting samples to laboratories. If you get caught, expect to lose your crop, your good name, and a lot of money.

Second, we'll increase the rate of resistance tremendously. Nothing gives mites a fighting chance like long-term exposure to sublethal doses of pesticides. Mites are among the most adaptive animals known. Why would we want to help them develop resistance?

And third, we'll jeopardize legal use of this product. After all, why should EPA authorize emergency use of a pesticide that is being blatantly misused, especially if there is a potential for an adverse health effect?

EPA wants to make sure that the beekeeping industry realizes that no one is standing in the doorway with a new miticide at this time. When the mites are resistant to coumaphos, there is no replacement. So, why does a small percentage of the beekeeping industry insist on gambling away our ability to control our most crippling pests?

Honey and Your Teeth

This tidbit of information was gleaned from the May, 1999, issue of the Humboldt Beekeepers Association Newsletter.

Your mouth contains a tremendous number of bacteria. One milliliter of your saliva (there are about 28 milliliters in an ounce) contains about 100,000,000 bacteria. This is, of course, normal. What happens to them? They are swallowed, and your stomach is very acid. It digests the bacteria, and contains less than 10 bacteria per milliliter. One of the common bacteria in you mouth is *Streptococcus mutans*. These live by eating any kind of sugar. As a waste, they produce lactic acid, which can dissolve the enamel of your teeth and cause tooth decay. These bacteria can do the most harm

when they can attach themselves to your teeth. They do this by polymerizing sucrose molecules to form a fibrous network which sticks to your teeth and holds the bacteria in place. This is called Plaque.

What has this got to do with honey? Well, the usual household sugar - white or brown - is from sugar beets and sugar cane, and is sucrose. Honey, on the other hand, may have started as sucrose in nectar, but the bees have broken it down into glucose and fructose. *Streptococcus mutans* can eat this and produce lactic acid, but they cannot use it to build plaque. The implication is that honey is easier on your teeth than regular sugar.

This information came form the text book, Microbiology, by Pelczar, Chan, and Krieg, 1986, pages 681-682.

One Hive = Two Bottom Boards

The following information was provided by Dr. Michael Burgett (Oregon State University) in the September 2000 issue of "The Bee Line" published by the Oregon State Beekeepers Association.

Several years ago, during a March colony check of the OSU hives, I noticed that the hive bottom boards seemed quite wet. This certainly is not an unusual phenomenon for colonies over-wintered in the Willamette Valley. I replaced all the wet bottom boards with dry ones. The wet bottom boards piqued my interest enough that I took them all and weighed them individually. Then, I placed them in the furnace room of my laboratory and waited about six weeks to re-weigh them. I was curious as to how much water was going to be removed.

The average "wet" bottom board weighed almost 7.5 pounds. After drying out, the boards weighed just about 5.0 pounds, each. With some simple subtraction, the average bottom board had held a little more than 2.5 pounds (2.5 pints, or 1.25 quarts) of water.

The bottom boards came off of colonies that were in a well protected apiary site and all the hives had been given a slight tilt forward, expressly to prevent rain from running into the hives through the hive entrances. The excess water is picked up during the winter and early spring from rainfall (by wicking), high humidity, and activities within the hives.

So, what is the harm of leaving such wet bottom boards on the hives, after all that is what most beekeepers normally do? One

feature of a natural honey bee hive, and our human-made imitations, is that the cavity used by the bees is dry. If not, the bees will expend energy to dry it, to the best of their abilities. Wet conditions within a hive increase the incidence of disease, especially nosema and chalkbrood. By replacing a wet bottom board in the spring, the beekeeper is saving the bees unnecessary work and energy that the bees can then direct to a more productive and healthy colony. It is for these reasons that I always maintain two bottom boards for each colony, and these bottoms are rotated annually. A small thing, yes, but a practice that, when combined with others, will produce healthier and more productive honey bee colonies.

[Editor's comment: I have always considered the California winter tougher on honey bees than the Minnesota winter. In Minnesota, with the proper absorbent material above the inner cover, the colony stayed warm and dry all winter. Out here, the air is so damp, so long, that everything inside the hives just drips water. That is exactly what we intended to prevent in Minnesota.]

Stung by *Apis dorsata*

It isn't too often that a non-research honey bee article gets into an entomological journal. However, the Summer, 2001, issue of the American Entomologist (published by the Ent. Soc. Amer.) contains a very well written article titled "A severe stinging and much fatigue" - Frank Benton and his 1881 search for *Apis dorsata*. Author James P. Strange, working on honey bees at Washington State University, had the article published in the "Heritage" section, pages 112-116, of the society journal.

This is the same Benton whose name is affiliated with the wooden, "three-holer" queen mailing cage. In 1881, at the age of 29, he took a trip to what are now Sri Lanka, Singapore, and Indonesia, looking for the giant honey bee, *Apis dorsata*. Why did he want to find it? At that time, most everyone thought that bigger was definitely better and *A. dorsata* really is big! Also, there was misinformation that the giant honey bee was a happy cavity dwelling bee, which it is not. When Lorenzo Langstroth became involved in the matter, money became available to send Frank Benton and D. A. Jones on the excursion.

In Ceylon, Benton was stung so severely by "large hornets" in the jungles that

he was "laid up for a whole day." Without finding giant honey bees, he headed for Singapore. He was moving Cyprian and Syrian bees around with him, to "... introduce the species *Apis mellifera* and establish ... an industry I am sure will thrive."

Benton never found giant honey bees in Singapore or Java, so he went back to Ceylon. In Ceylon, Benton finally had an opportunity to visit giant honey bees. He climbed up the first tree that had them in it and touched the comb. The bees sent him down the tree quickly. As he wrote about it, "... but my new found friends accompanied me, as I went into the jungle." He "... received many stings." That night, Benton and some natives tried to hive the colony. The torch got too close to the comb and burned part of it. The queen wasn't found and the colony died off quickly. The second colony he visited in a tree during the daytime sent him back down with "a severe stinging and much fatigue." Later trips in the evening never got what he wanted, either. The natives finally were able to extract two combs of bees from cliffs during a thunderstorm and Benton intended to bring them, and a colony of *Apis florea*, back to Cyprus with him on the ship.

Before leaving Ceylon, Benton contracted malaria. Trying to get his new bees to Cyprus involved a lot of trains and boats. When Benton was placed in quarantine in Beirut, his *A. dorsata* perished.

Years later, Benton returned to the U.S. as the USDA's first apicultural specialist. He was involved in importing many strains of *Apis mellifera* into the U.S. However, the beekeepers did not appreciate his new stocks and stuck mostly with Italians. And Benton finally faded into the history of U.S. beekeeping.

Old Vs. New Combs

Jennifer Berry and Keith Delaplane reported results of raising bees on "old" combs (dark and heavy) *versus* "new" combs (never had brood in them), in the Journal of Apicultural Research 40(1): 3-8, 2001. As might be suspected, the inner cell diameter is larger in the new comb, but only by about 6%. Also, there was more total brood in the new combs, the new bees were heavier from the new cells, and the ending colony population was larger on the new combs. However, the percentage brood (continued on page 8)

CSBA 2001 Annual Convention

Sacramento Double Tree Hotel
2001 Point West Way
November 13-15

Monday, November 12
3:00 pm Board of Directors

Tuesday, November 13
8:00 am Registration and Exhibits Open
8:30 Opening Ceremonies and Committee Reports
10:00 Exhibitors' Break
10:15 2001 American Honey Queen
10:30 "Biological Control of *Varroa* Mites" - Dr. Christine Peng, UC Davis
11:00 "How to Diversify Your Industry" - **Casey Stone**, Yolo Land and Cattle
11:30 "Almond Industry Forecast" - **Daryl Brun**, Blue Diamond Growers
12:00 pm Lunch
1:30 "Fending Off Unacceptable Neighbors" - **Tom Glenn**, Fallbrook, CA
2:00 "Can You Think Like a Bee?" - **John Skinner**, Univ. Tennessee, Knoxville
2:30 "Economics and Marketing Your Honey" - **Daryl Rufer**, Waverly, MN
3:00 Exhibitors' Break
3:15 "Africanized Bees as Others See Them" - **Dewey Caron**, Univ. Delaware
4:00 Panel: "Maintaining Healthy Queens" - **Susan Cobey**, Ohio State Univ.; **Tom Glenn**, Fallbrook, CA; **Frank Pendell**, Stonyford, CA; **Shannon Wooten**, Palo Cedro, CA. Moderator: Eric Mussen
6:00 CSBA and NHB Reception

Wednesday, November 14
7:00 am Sioux Bee Breakfast Meeting
8:00 am Registration and Exhibits Open
"Intermediate Beekeepers Workshop" (**See Next Page**) - Dr. Dewey Caron, Univ. Delaware
9:00 "The Future of Shipping Bees and Queens"
9:30 "The Future of Seed Alfalfa" - Dr. Shannon Mueller, UCCE Farm Advisor, Fresno
10:00 Exhibitors' Break
10:15 "Almond Pollination Research" - **Dr. Gloria DeGrandi-Hoffman**, USDA/ARS, Tucson, AZ
10:45 "Beekeeping in Tropical Asia" - **Dr. Christine Peng**, UC Davis
11:15 "National Honey Board Report" - **Gene Brandi**, Los Banos, CA
11:45 Research Luncheon: "A Tribute to Harry Laidlaw" by **Robert Page**
2:00 pm **Tour of Harry H. Laidlaw Bee Research Facility**, followed by **Dinner in Old Sacramento**

Thursday, November 15
8:00 Registration and Exhibits Open
"American Honey Producers Report" - **Steve Park**, Palo Cedro, CA
8:15 "2002 Farm Bill Report" - **Pat Heitkam**, Orland, CA
8:30 "Genetic Variation of *Varroa* and Strategies of Control" - Susan Cobey, Ohio State University
9:00 Ladies' Auxiliary Breakfast
"Mite Management" - **Dr. Robert Danka,** USDA/ARS Baton Rouge, LA
9:30 "The Future of Cotton" - Earl Williams, Cal-Cot, Cotton Growers Association
10:00 Exhibitors' Break
10:15 "**TBA**" - Dr. Tom Webster, Univ. of Kentucky, Frankfort, KY

11:00 Panel: "Co-Ops:If and How They Work" - **Daryl Rufer; Bob Brandi**, Los Banos, CA; **David Smith** or **Patrick Berends**, Cal State U, Fresno; and **Karen Spatz**, USDA Rural Development. Moderator, Kevin Roberts.
12:00 Lunch
1:30 pm Annual Business Meeting
3:30 Auction
6:30 Social
7:00 Annual Awards Banquet, featuring Dr. Norman Gary's jazz band, "**Beez Kneez**"

Friday, November 16
8:00 am CSBA Board of Directors' Breakfast Meeting

ECONOMIC COSIDERATIONS IN BEEKEEPING
For the Smaller Operator

A Special Program Held in Conjunction with the California State Beekeepers' Association Annual Convention

Tentative Schedule, Wednesday, November 14th

8:00 am "Managing Smarter for Success: The Big Step to Bees as a Business" - **Drs. Dewey Caron and John Skinner**

9:00 "Handling the Challenges of Mites/Pests/Pesticides" - **Drs. Dewey Caron and John Skinner**

10:00 Break

10:15 "Value Added Products and Services" - **Dr. Dewey Caron and an Experienced Beekeeper**

11:00 "Keys to Success in California" - **Dr. Eric Mussen**

Time and Place

This special program is being held concurrently with the CSBA convention scheduled for November 13-15th at the Sacramento Double Tree Inn, 2001 Point West Way, Sacramento, CA.

Cost and Preregistration

The half-day program, alone (including Dr. Caron's textbook), is $45.00. Anyone who registers for the convention ($25, 40, 75 - depending on size of beekeeping operation) can attend the program for an additional $25. Pre-registration is being coordinated by Mrs. Susan Bunch, CSBA Secretary/ Treasurer, 8242 Alderson Road, Hughson, CA 95326. She can be reached at (209) 667-4590.

Presenters

Dr. Dewey Caron is a Professor in, and Department Chairman of, Entomology and Applied Ecology at the University of Delaware. Dewey, who has been teaching apiculture for many years, is an active participant on the programs and in the administration of the Eastern Apicultural Society (EAS) and recent recipient of the Roger A. Morse Distinguished Achievement Award presented by the EAS. Dewey recently published a 355 page textbook, "Honey Bee Biology and Beekeeping" that will be included in the price of the program.

Dr. John Skinner is an Extension Apiculturist at the University of Tennessee, Knoxville. He conducts research in mite control and pollination. John attends myriad beekeeping club meetings in his own and neighboring

states. He has authored many extension publications on beekeeping and currently is on the Board of Directors of the American Association of Professional Apiculturists.

Dr. Eric Mussen also is an Extension Apiculturist, from the University of California, Davis. Eric devotes the majority of his time to disseminating information about honey bees to beekeepers and other individuals requesting bee-related information. He publishes a bi-monthly newsletter, "From the UC Apiaries," that can be accessed free of charge at: (no www) entomology.ucdavis.edu/faculty/mussen.html

(continued from page 5) survivorship was lower on the new combs. The authors felt that these results suggest very strongly that old combs should be routinely replaced by new ones, if you want the most production from your bees.

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Sincerely,