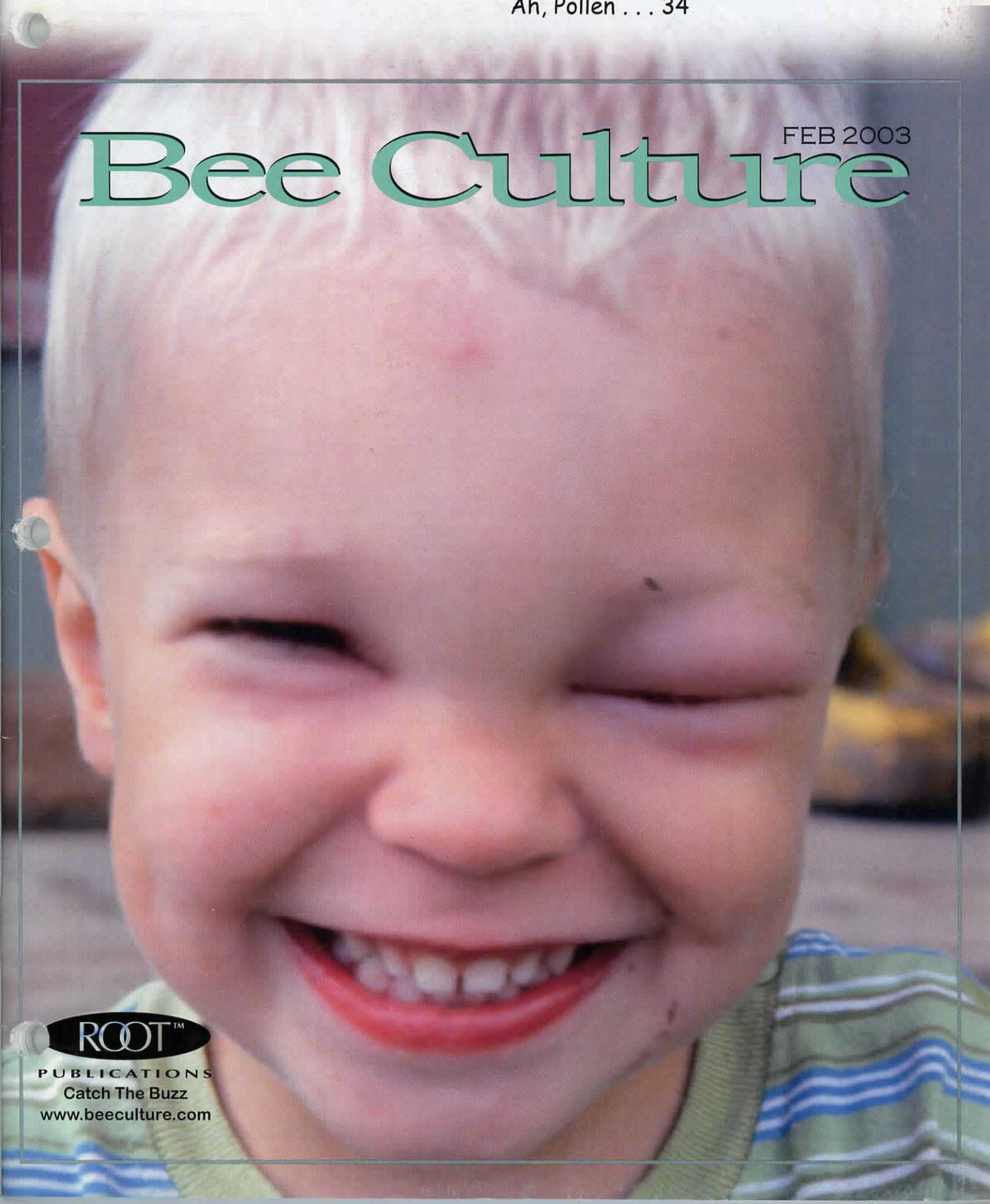
Bee Culture

FEB 2003



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Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

FEBRUARY 2003 VOLUME 131 NUMBER 2

FEATURES

Still smiling – 3-year-old Jordan Hiemstra comes from a long line of beekeepers. It takes more than one sting to stop him. He is the son of Chris & Christy Hiemstra (900 colonies); grandson of Henry & Ann Hiemstra, great-grandson of Auke Hiemstra and great-great-grandson of Andries Russchen, all beekeepers. (photo by Henry Hiemstra) Prize winning photo at 2002 Ontario Beekeeper's Association Meeting.

DEPARTMENTS & COLUMNS

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KEEP IN TOUCH

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MAILBOX

No New Beekeepers?

As a beekeeper of 25 years, my observation in this span of time has been that older beekeepers now retiring are not being replaced in sufficient numbers to meet the future demands of agriculture production. Many beekeepers that are still in business are not being adequately compensated for their endeavors and many of them will be going out of business, because of large amounts of money invested in equipment that will be or has been standing idle. This is due to heavy mite losses and poor returns on honey prices due to the large volume of cheap honey imports. These problems make this industry not very appealing to young people who are part-time beekeepers that might want to expand for commercial production, while capital expenditures out weigh the economical returns when volume is too low, so they have a hard time growing to be self sufficient.

When the banking industry will not make loans for expansion of beekeeping operations because they have a bad credit report (without taking into consideration, the sum of the causes) or because they don't understand the value of beekeeping in agriculture when a beekeeper's assets are in the hives they keep and maintain rather than in land or money (savings, stocks, etc.). Many who would expand as I have had heavy losses due to mite infestation, when you go from 1,000 hives to 70 hives and try to rebuild such losses. That doesn't look very good on credit reports because of poor returns and some neglect due to trying to maintain adequate number of hives for a livelihood and build back resources.

Programs for the honey industry have not allowed any compensation for these losses which are devastating to the income of the beekeeper. Programs are needed to help restore them to full production when losses are more than 20% (due to mites, hive beetles, other natural disasters).

Beekeepers need to be allowed to build storage and extraction facilities in urban areas because they generally don't own or need vast amounts of land to run a beekeeping operation.

Some sort of allowance is needed in the credit reporting systems to enable those in agriculture to maintain operations even though they may not have perfect credit. When someone is shopping for a loan, points should not be allowed to be taken away from their credit score.

Grants or special funding programs with low interest loans are needed to encourage younger beekeepers to expand and middle-age ones to maintain operations rather than abandon their craft. When it is easier to finance semi-trucks in the trucking industry and it costs more to keep a prisoner in his cell than most beekeepers make a year something is wrong with our financial institutions. Programs like the loan deficiency's rate of 60 cents a pound rarely help, (only those with huge volumes until they are able to market their honey) because of cheap honey imports that don't even come close to the cost of honey production in our country. The only time I have seen programs that help the beekeeper was when they received payments based on pounds produced, but this program should have had a ceiling cap per beekeeper.

The demand for bees in pollination has never been greater. Hives are being burned, stolen, exposed to toxic sprays, damaged by mites, low honey prices, cheap imports by some packers with labels marked U.S.A. (which should be listed in descending order by volume), drought (no honey or very little), cutting funding for desperately needed research, not even a mention of the importance of bees to the agriculture community, bad faith by lending institutions, and now the hive beetle. What should beekeepers do, burn up their own hives so no pollination takes place for a season to wake up the rest of the world that they even exist?!

My point is that if the beekeeping industry is allowed to die out, all agriculture will be severely affected, because of lack of pollination. With this in mind remember that a beekeeper was in your service.

John Storey
Salt Lake City, UT

Vote For Wise Guy

Wise guy for president! That guy takes the words right out of my mouth. Because of him I can relate to this magazine. I wouldn't mind giving him my 1¢ per pound.

Jackie Vandersys
Bear Mountain Honey

Beekeeping w/Trays

Thank you for publishing the *Better Management With Screens & Trays* article by Serge Labesque. He is a member of Sonoma County Beekeepers' Association and has given a presentation to our group on his great molded plastic tray. I am using one and really prefer it to my other monitoring boards. I plan to switch over completely to the molded plastic trays. Serge had designed a screened bottom board to hold the thin sheet of plywood and helped us all build them two years ago. In the mean time he improved the method of monitoring so now we have to make a minor adjustment to those so the new tray will slide in them. He is a wonderful beekeeper who keeps meticulous records on what happens in each of his hives. His scientific approach to beekeeping has helped all of us, so I was delighted to see you have given him an opportunity to share his knowledge and great invention with a larger audience.

This is off the first topic, but

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very important for me to relate to you after seeing the cover and story about the colorful caps. I stopped using those caps when one of my customers let her toddler hold the honey bear. The child instantly put it in her mouth and pulled the cap off with her teeth! I was horrified to think she could have choked. Luckily I was watching and alerted her mother to fish the cap out of the child's mouth before it was swallowed! I now use flip caps only.

Ettamarie Peterson
Sonoma, CA

Give NHB Credit

It is obvious that the big battleships have squared off and are firing their big guns with regard to the Honey Board status. No mortal hits have been made. So another view will not hurt matters.

When the check-off was first purposed for honey, I was talking to an acquaintance who was familiar with these programs an he said "The unfortunate thing about these boards is that after they are in, you will have a faction who oppose it. The board will then have to spend more money selling the membership on the board idea than they do on selling the product." The Honey Board has now evolved to this point.

I believe beekeepers should realize that they are Honey Producers and not Honey Sellers. Production is more of a mechanical function, you do X,Y,Z and A,B,C, will probably happen. Selling honey is an Art, you go out and do various things but you are not really sure what makes it sells. The only rule you know for sure is that if you do nothing you are not going to sell.

Real sustainable prosperity for the industry can only be obtained by selling your product to a consumer and not by a restrictive trade rule.

It was not too many years back when the government bought our honey at a pleasant price. We quit selling and suffered some tough years as a result, it took a lot of work to get the market up just a little bit.

There is a lot of emotion out there with regard to the effectiveness of the Honey Board, but the elephant in the tent, so to speak, is that since it's inception the consumption of honey has almost doubled. They have to be given some credit for that fact.

The price we have seen in the last six months can almost be called a "Tsnami " with Argentina restrictions, Chinese problems and a short crop coming together at one time, don't think these events will endure.

If we are ever to really sell honey now is the time because you can be sure the consumer is starting to think is honey really worth that much?

Dewey B. Robson
Carrington, ND

Editor's Note: *In the December issue we published letters sent in by officers of the AHPA. In the pursuit of fairness we publish now responses by the National Honey Board and the American Beekeeping Federation. If you're interested, check the first salvo in the December issue. If you're still interested read the following. Frankly, we think both groups have overplayed their hands. In the future, there will be simultaneous publications, if appropriate.*

ABF Keeps The High Road

I was very disappointed when I read Lyle Johnston's and Hubert Tubbs' letters in the December issue of *Bee Culture*. Their letters were not only negative but also contained many false and misleading statements. I reread my letter in the October *Bee Culture*, which seemed to spark some of their fire. The letter seemed positive. It did not trash the AHPA nor did it praise them. These are not my goals nor do they fit my job description. My letter was meant to call attention to the amazing number of political victories we have experienced this year. It was my goal to explain the ABF's part in these victories. The process does not work without leadership and support from the beekeeping community. The beekeepers of America contributed the funds, made the calls, and wrote the letters. That's how our goals were accomplished. It seems counterproductive to disrespect, belittle, minimize, or make false statements about other organizations. There are times that we have similar goals and it is beneficial to work in harmony. However, if only scar tissue from past wounds exist between our organizations we will not be able to forge the alliances necessary to achieve the goals our members deserve. If you want to know who the ABF is and what they stand for, please come to our convention in Kansas City January 13-16. We will be celebrating the political victories of which you were an important part.

Pat Heitkam, President
American Beekeeping Federation

NHB Responds To AHPA

Recent letters to the editor published in *Bee Culture* were absent of some important facts and information, and called into question the integrity and value of the National Honey Board. As Chairman of the National Honey Board I believe we need to step back and remember why the honey industry created the Board: *to increase demand for honey and honey products.*

In order to carry out its mission, Board activities are conducted within three major focus areas: Research, Industry Services, and Marketing and Promotion. Issues Management, which falls under the Industry Services area, contains the Readiness Plan that keeps the Board and its Readiness Team ready to facilitate industry and media communications with a focus on protecting the image and integrity of honey and the honey industry. This is never done, however, at the expense of public safety. In fact, the first paragraph of the plan states emphatically, "The safety of the public is always the primary concern."

Let's face it; the wholesome, positive image of honey is the foundation of the honey market. The National Honey Board is dedicated to maintaining consumer confidence in honey and always keeps a watchful eye out for anything that could tarnish honey's golden, nutritious reputation.

As early as 1988 the NHB retained the services of public rela-

tions firms to assist the Board in developing media responses when needed to assist in issues management situations. These firms have also been engaged in many marketing outreach programs providing tremendous value to the industry. Currently the Board is using Fleishman-Hillard, one of the largest and most respected public relations agencies in the world.

Our response to the Chinese honey situation has been thoughtful and measured as we try to fairly represent our industry. We also want to make sure we do not fan the flames of alarm when it is not necessary or in the best interest of either the industry or the consuming public. The NHB became concerned in February 2002, when trace amounts of the antibiotic, chloramphenicol (CAP), were detected in Chinese honey by officials in the European Union. While the situation was not deemed a health hazard by U.K. experts, it was certainly a legal issue with the potential of damaging honey's reputation as a pure wholesome food. The NHB developed media responses and a Q&A sheet in order to accurately answer any questions that might arise from the EU situation. In late February the NHB sent an advisory notice to the National Honey Packers and Dealers, Western States Packers and Dealers, and Sioux Honey Association advising them of the European situation and supplied information about where honey could be tested for CAP. Also during that time an industry teleconference was held to brief representatives of the American Honey Producers Association and the American Beekeeping Federation on the status of the situation. It was clear from the outset that CAP was an illegal product not allowed in any food.

Jerry Probst, President of Sioux Honey Association, along with a group of packers and importers met with FDA officials in mid-March in order to learn more about FDA's plans to deal with the possibility of finding CAP in U.S. imports of Chinese honey. The results of this meeting were addressed to the NHB, AHPA, ABF NHPDA, WSHPDA, and Sioux Honey Association.

The Board's concern escalated when officials from Health Canada announced in mid-April that CAP had been found in Chinese honey in Canada. The NHB convened another industry teleconference, which again included both AHPA and ABF representatives. The group agreed that the NHB should be the industry spokesperson on the CAP issue. An industry ad hoc committee was formed (including AHPA and ABF representatives) and invitations were extended to both groups to attend the industry meeting with FDA in early May.

In July I received a call from a New Orleans *Times-Picayune* reporter inquiring about CAP found in honey imported from Thailand in Louisiana. This was breaking news of which FDA officials were unaware until notified by the NHB. Fortunately the next day's story headline in the *Times-Picayune* did not spread throughout the country.

In late August, the NHB was informed by FDA and U.S. Customs that they had detected low levels of CAP in honey from China and other countries and that some shipments of honey were being detained. They asked us to communicate the absolute urgency of the situation to importers and packers. The NHB sent out notices to 200 packers and importers which again stressed the importance of testing honey to ensure that it is free of CAP. The NHB also informed over 600 beekeeping associations and industry groups of the situation, communicated suggested message points on the issue and urged that any media calls be referred to the NHB.

During this past year, the National Honey Board has cooperated fully with FDA to assist with efforts pertaining to CAP in honey. The NHB has acted professionally and responsibly to assist government officials and the food and honey industries throughout this situation, which fortunately has not escalated to crisis proportions.

The NHB Readiness Plan is a tool, first and foremost, to ensure the safety of the honey consuming public, and to maintain consumer confidence in honey. It is only one of many programs the NHB uses to meet its mission of increasing the demand for honey. The evidence of its success is borne out by the fact that consumer confidence in the quality and purity of honey remains incredibly high.

Gene Brandi, Chairman
National Honey Board

Yes, Lets Do Tell The Truth! - ABFs Side

In his letter in the December issue of *Bee Culture*, ironically captioned "Let's Tell the Truth!," Hubert Tubbs, Vice President of the American Honey Producers Assn., wanders from his stated goal several times. As Executive Director of the American Beekeeping Federation, I am writing to correct those wanderings, lest they become confused with the truth.

In the interest of space, I won't repeat Mr. Tubbs inaccuracies, but here are the truths for three of his points – the ones of which I have firsthand knowledge:

TUBBS' POINT 1: ABF and AHPA split the cost of the first trade case, the Section 406 case, 50-50. During discussions to go forward with an antidumping case against China, AHPA refused to continue the 50-50 arrangement. ABF had the most members and the most resources and produced the most honey, they said, equal payment is not fair to AHPA. They refused to go along unless the funding was open-ended. ABF capitulated and over the course of the next five years paid about two-thirds of the cost of the antidumping case against China.

Eventually, ABF members and leadership tired of being the whipping boy for AHPA while paying the lion's share of the expense and forced AHPA to begin to share equally in the on-going costs of the case. When the current case against China and Argentina was being explored, AHPA reluctantly paid half of the initial cost, but then refused to commit to paying 50% of the entire case. ABF made them an offer few could refuse: "We will pay 50% of the expenses; AHPA and whoever else wants to help can pay the other half." But they did refuse, and ABF decided "enough is enough." We paid 50%

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of the accrued lawyer's fees and bowed out.

At that point, we had on our books $31,548 of donations earmarked for the first antidumping case against China. We have continued to hold these funds on our books for some future appropriate use. Since that date, we have collected a small amount of funds designated for antidumping and have forwarded all this directly to the antidumping attorney. In addition, we sent the U.S. International Trade Commission a letter expressing support for the antidumping case (a letter which the AHPA attorney cited as being helpful to their case), and we spent considerable time supplying to USITC and the Dept. of Commerce documentation that helped AHPA and Sioux Honey Assn. make their case. And, lastly, but certainly not least, we encouraged ABF members to evaluate the antidumping effort and contribute to it, if they so desired (and a couple of hundred of them did).

TUBBS' POINT 4: I can't speak for every member of the ABF (and not even for every person in the ABF leadership), but I can state without fear of contradiction that the ABF has never approached the Food and Drug Administration about setting a tolerance for chloramphenicol. Also, the ABF leadership has never entertained such a proposal. We did provide information to the AHPA attorney about possible circumvention. I have no idea how helpful this was. In my Executive Director's column in the ABF Newsletter, I cited the irresponsibility of packers and importers in allowing the circumvention.

TUBBS' POINT 5: Mr. Tubbs is correct that saving the labs was a joint effort; however, our WA representative might quibble with him giving AHPA all the credit for coordinating that joint effort. My memory is that each group provided entré into certain offices.

Yes, let's tell the truth. That would go a long way toward clearing up confusion in our industry.

Troy Fore, Executive Director
American Beekeeping Federation

Be Careful Of Burlap!

Be careful where you get your burlap! I got some from a friend who said he had some that had weathered behind his barn for a year. It looked O.K. to me so I used it on two hives for smoker fuel. After a week I started to see some dead bees in front of the hive, so of course, I fired up the smoker to take a look what might be wrong – a pesticide kill? Well this finished off the colonies. When I questioned my friend in depth, he said that his son had dumped the burlap with the other poly feed sacks in back of the barn. It seems that the burlap I used was used to ball and burlap nursery plants and was treated with copper naphthlate preservative. I then took some of the left over and placed it on a small fire – alas, I got a nice blue flame which is characteristic of copper. I now stick to natural materials or old denim.

Dan Veilleux
Vilas, NC

Raising Your pH!

In doing a little research on honey, I was struck by its acidity. The pH of honey is around 3.4 to 5.0, quite acid when you consider that a pH of 7.0 is neutral, and pH is measured on a logarithimic scale, i.e., a pH of 6.0 is 10 times as acidic as a pH of 7.0, etc.

Honey has a decidedly non-acidic taste when compared with other acid substances such as orange juice (pH 3.5), lemon juice (pH 2.5) and vinegar (pH 4.0).

Most biological processes are pH dependent – bacteria, fungi and enzymes work most efficiently within a relatively narrow pH range. The low pH of honey inhibits the growth of many bacteria; it also inhibits the activity of the enzyme glucose oxidase (enzymes are complex proteins that drive many biological processes). The glucose oxidase enzyme works on the glucose portion of honey (the main sugars in honey are glucose and fructose) converting glucose to gluconic acid and hydrogen peroxide.

Glucose oxidase requires a pH of 5.5 to 8 to be activated; it also requires a sodium concentration of 2300 ppm. With a pH below 5 and a sodium concentration around 20 ppm, honey inhibits or prevents the activity of glucose oxidase.

I decided to find out what would happen when baking soda (sodium bicarbonate) was added to honey to bring sodium level to 2300 ppm. It takes roughly one part of baking soda per 100 parts of honey (about one level teaspoon per pound) to give roughly 2300 ppm sodium. The basic nature of sodium bicarbonate raises the pH of the resultant mixture but the reaction is not instantaneous:

Effect on pH of adding one part baking soda to 100 parts honey

	Clover Honey	Orange Honey
Original pH	4.2	4.1
After 2 hours	6.9	6.8
After 1 week	7.6	8.0

Thorough mixing is required and the final mixture is opaque, much like spun or cream honey. The taste of the final product is pleasing – like honey to which a bit of baking soda has been added.

The question then arises whether or not the final mixture is honey. One would assume there would be significant amounts of gluconic acid and hydrogen peroxide in the final product, neither of which is a significant component of honey; also, the glucose content of the final product would surely be less than that of honey. And if pH is a defining characteristic of honey, the final mixture could not be classified as honey. Which brings up another question: when honey is incorporated in the recipes for baked goods, baking soda is added at high enough rates to activate glucose oxidase. Does the final product – cakes, bread or whatever – contain honey?

The questions put forth here either provide fodder for more illuminating discussions of honey or indicate that Traynor has too much time on his hands.

Joe Traynor
Bakersfield, CA

INNER COVER

It's Time To Consider Queens Again

It's time to consider queens again.

It makes absolutely no difference how well you manage your bees, how clean you keep your equipment, how perfect the apiary location, how many times you check for *varroa*, treat for nosema, burn for foulbrood, put screened bottom boards on, fence for bear, meetings you attend or journals you read...if your queen craps out, you're out of luck, and probably out of business.

It continues to astonish me that there isn't even more focus on this particular bug than there is now, and there is more now than a dozen years ago. But not nearly enough, in my humble opinion.

The big guys, the commercial beekeepers, for whom honey is the only game, have one, single, narrow, perspective on this femme fatale. They say they can, and I guess mostly can (note I said mostly) handle the other trials and tribulations that enter a beehive. But it's "Does she make honey?" that's the first and last question they ask of a queen producer. This provides little incentive for a queen producer to do anything else. They make their living selling queens that make bees that make honey...as long as they stay alive, that is.

Honey producers that raise their own queens seldom venture past this single measure of quality control either, and are content to have saved a nickel by raising their own, especially if they stay alive and make honey, no matter how much they have to do to do that.

Well, just making honey isn't the answer, is it? If simply producing a commodity product (sweet stuff in a barrel), no matter the cost of production, worked, why are there so very few commercial operations remaining in business, and why is it so many commercial colonies die every year?

And why can't almond growers get 10 frame hives from every beekeeper that goes to California, or already lives in California, every year? Why do so many operations so often flirt with disaster by either hedging their treatments to save money, or worse, try something illegal because it saves another nickel...or saves a hive, no matter what the cost?

There's more. Why do so very many hobby and sideline beekeepers have trouble with queens? Supercedure, absconding, drone layers, no layers, no production colonies abound. Some researchers suggest it's no worse now than 10, 20 or 50 years ago, but we're just looking harder. Well, maybe. Perusing the journals from 50 years ago lends some credence to this...drone layers and supercedures, like the poor, will always be with us it seems.

But personally, I think that saying it's the same now as 50 years ago is only a good excuse and is a bunch of horse hockey. Here's why. The universal belief is that any queen is better than no queen. Is that right? Is it correct to assume that it's worth the time, resources and money to invest in a colony (one, one hundred or one thousand) only to know that the queen you just put in there is likely to take a powder in six weeks. Or, is it right and reasonable that we should need to invest an extra 20% more than we need, to make sure we have enough queens that survive and can replace those that quit?

Here's the answer Simply, *we don't ask for better.* If we don't demand a better product, queen producers will produce what we want, or say we want, or are willing to pay for. Here's what you should be asking for, and what your queen producer should be doing this season...

- Using breeder stock with tracheal, *varroa* and AFB resistance by having some of these: hygienic behavior SMR genes, Russian genes; not 'trying' to get them.
- Providing only drone colonies that come from breeder stock that's the same as above tracheal, *varroa* and AFB resistant for the same reasons.
- Providing extreme numbers of *varroa*-free, and otherwise healthy drone producing colonies that are all ways otherwise healthy.
- Raising queens in cell builders that have extreme numbers of healthy, well fed nurse bees.
- Avoiding exposure of queen cell wax producing bees, queen cells, queen larvae, pupae and virgins to any and all *varroa* control chemicals. Always.
- Making doubly certain that nosema does not exist in the operation. That

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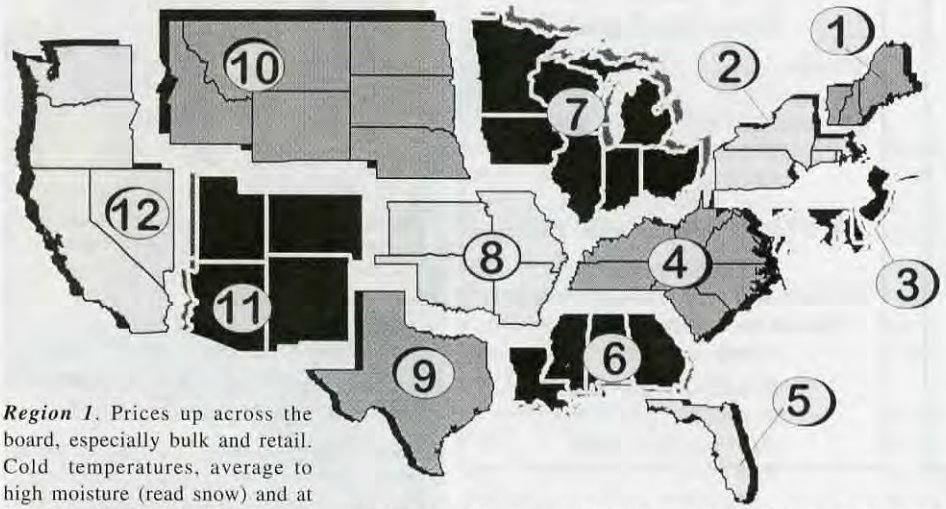
FEBRUARY – REGIONAL HONEY PRICE REPORT



Region 1. Prices up across the board, especially bulk and retail. Cold temperatures, average to high moisture (read snow) and at best average flydays have led to some problems with overwintering, but mostly what everyone expects colonies to be like now.

Region 2. Bulk prices steady, but pail, wholesale and retail prices all down since last month. Cold, cold and wet, wet says everybody. Reduced flydays haven't helped and pests and disease problems showing up.

Region 3. Bulk prices down, pails steady wholesale up a bit and retail steady since last month. About as normal a winter as one can expect according to reporters. Mixed temps, moisture and problems.

Region 4. Bulk, pail and wholesale prices up since last month, but retail only steady. Depending on where in the region you are, temperatures are ok, or too cold, moisture is about right, or too much and colony conditions are about what people expect.

Region 5. Bulk prices up, pails and retail down, but wholesale prices up since last month. Colony conditions about right where people expect so far, with some problems with disease and pests starting to show up.

Region 6. Bulk prices down, pails and wholesale steady, but retail down since last month. Weather a significant contributing factor to less than average colony conditions according to reporters. Average to low temperatures, and excess moisture leading the way.

Region 7. Bulk prices steady, pails and wholesale up in price, and retail steady since last month. It's been a tough winter so far, but perhaps more normal than we'd like to admit. Temperatures have been cold, snow and ice all over, flydays limited and still not too many problems with colonies, yet. Watch for feeding.

Region 8. Bulk, wholesale and retail prices up, but pails down since last month. Winter about what reporters expect, and no major problems to report, so far.

Region 9. Bulk, pail and retail prices steady to up a bit, but wholesale down some since last month. Average to cold temperatures, lots of moisture and lots of problems with pests and diseases showing up. Be careful.

Region 10. Prices steady across the board since last month, but bulk up just a tad. Fairly cold and dry according to reporters and about what you would expect for this time of year for colony conditions.

Region 11. Prices up across the board this month, but retail just barely. Temperatures steady to up just a bit, but mostly dry. No real complaints, as of the end of the year by our reporters.

Region 12. Bulk, pail and wholesale prices up this month, especially pails and bulk. Retail mostly steady. Weather all over the place as El Nino makes itself felt. Lots of rain, wind and more of the same. Almond pollination will be interesting. Watch the food.

	Reporting Regions												Summary		History	
	1	2	3	4	5	6	7	8	9	10	11	12			Last	Last
Extracted honey sold bulk to Packers or Processors													**Range**	**Avg.**	**Month**	**Yr.**
Wholesale Bulk																
55 gal. Light	1.18	1.50	1.18	1.28	1.35	1.41	1.43	1.50	1.48	1.53	1.10	1.18	1.01-1.53	1.34	1.23	0.69
55 gal. Amber	1.21	0.95	1.21	1.04	1.00	1.55	1.42	1.35	1.50	1.21	1.23	1.21	0.95-1.55	1.24	1.13	0.66
60# Light (retail)	83.00	85.34	75.00	81.00	75.00	87.33	95.43	86.67	100.00	85.00	102.50	75.00	75.00-102.50	85.94	92.09	71.90
60# Amber (retail)	85.00	81.37	70.00	77.13	75.00	79.50	92.50	82.50	96.67	88.49	115.00	88.49	70.00-115.00	85.97	81.34	67.77
Wholesale Case Lots																
1/2# 24's	45.00	38.45	49.83	33.04	49.83	30.50	47.56	49.83	49.83	35.76	35.00	49.83	20.50-49.83	42.87	32.23	28.52
1# 24's	57.36	41.10	48.00	45.97	55.33	41.00	50.61	53.04	48.00	66.21	47.00	51.60	41.00-66.21	50.44	51.16	45.13
2# 12's	45.44	38.04	47.00	45.11	47.16	41.00	47.92	48.00	45.00	57.84	47.00	42.00	38.04-57.84	45.96	47.85	40.44
12 oz. Plas. 24's	37.20	35.46	48.00	35.75	33.18	45.00	41.17	43.60	42.00	41.97	47.00	39.60	33.18-48.00	40.83	42.08	37.59
5# 6's	49.67	43.79	57.00	46.08	67.09	56.00	59.93	42.00	67.09	49.68	52.00	67.09	42.00-67.09	54.79	49.63	43.71
Quarts 12's (**NEW**)	92.26	70.80	69.00	64.55	92.26	72.67	80.96	67.60	80.00	83.16	78.00	92.26	64.55-92.26	78.63	67.00	
Pints 12's (**NEW**)	50.07	38.45	50.07	44.67	50.07	40.50	46.88	43.00	54.50	55.44	48.00	50.07	38.45-55.44	47.64	39.92	
Retail Honey Prices																
1/2#	2.53	2.67	3.15	2.10	3.15	1.95	2.53	2.54	3.15	3.15	3.75	3.15	1.95-3.75	2.82	2.39	1.80
12 oz. Plastic	2.83	2.42	2.95	2.41	2.50	2.93	2.67	3.02	3.12	2.83	3.13	2.25	2.25-3.13	2.76	2.77	2.39
1 lb. Glass	3.29	2.79	3.10	3.07	2.90	3.50	3.18	4.05	3.49	3.35	4.67	3.25	2.79-4.67	3.38	3.38	2.90
2 lb. Glass	5.68	4.70	4.75	5.35	3.19	5.49	5.52	6.12	5.25	5.05	4.56	5.00	3.19-6.12	5.05	5.34	4.51
Pint (**NEW**)	4.50	4.50	5.61	4.31	5.99	4.83	5.22	4.49	6.67	6.00	4.92	5.61	4.31-6.67	5.22	5.10	
Quart (**NEW**)	7.63	6.45	7.50	6.00	7.91	8.75	8.87	7.49	9.00	8.70	5.70	7.20	5.70-9.00	7.60	8.27	
5 lb. Glass	12.90	10.61	12.50	12.53	10.00	8.50	12.10	10.99	10.69	12.89	9.40	10.69	8.50-12.90	11.15	11.65	9.64
1# Cream	3.94	3.67	4.70	3.85	4.70	3.80	3.99	3.34	5.00	5.00	5.75	4.50	3.34-5.75	4.35	4.19	3.68
1# Comb	5.00	4.17	3.95	4.60	4.10	4.25	4.24	3.83	4.00	5.00	4.95	4.50	3.83-7.20	4.38	4.71	4.52
Ross Round	5.00	3.33	3.60	4.51	4.26	3.75	4.75	3.50	4.26	5.00	4.25	3.50	3.33-5.00	4.14	4.05	3.84
Wax (Light)	2.14	2.41	3.00	1.98	2.68	1.88	1.72	1.23	2.00	2.25	2.17	2.68	1.23-3.00	2.57	2.72	2.60
Wax (Dark)	1.38	1.60	1.13	1.68	1.75	1.35	1.21	1.95	1.00	1.75	2.00	1.75	1.00-2.00	1.79	1.26	2.28
Poll. Fee/Col.	40.00	41.33	36.00	35.33	30.00	41.00	40.86	40.00	40.52	40.52	50.00	40.52	30.00-50.00	39.67	38.31	38.47

INNER ... Cont. From Pg. 10

there's not a single spore, not one sick nurse bee, not one, anywhere in the operation. Period.

- Providing mating nucs that have new, clean wax every year, large enough to ensure a newly mated queen has lots of room to lay for several days, more days than normal, more days than average. More, more and more days.
- Routinely testing a small percent (2 – 3%) of those 'mated' queens (those ready to sell) to make sure they in fact are well mated by dissecting and checking for a clear (poorly mated) or cloudy (well mated) spermatheca.
- Testing production queens and breeders every year for tracheal mite resistance using the USDA approved testing lab in Tennessee, and providing results to customers. I'll pay for results that are independently measured.
- Providing monthly inspection reports guaranteeing the operation is free of AFB and AHB genes. Inspections done by somebody else, not the queen producer.
- Not selling banked queens...or at least not banked more than a week.
- Not selling packages, with queens, that have any of the above secreted away inside. And no small hive beetles either.
- Making sure Italian production queens are mated with Italian drones, and actually look and act Italian. Same for Carniolans and Russians, and all the rest.
- Making sure some of the breeding stock has seen weather colder than freezing at least once. And survived. And thrived.
- And, of course, makes lots of bees when they are supposed to that in turn make lots of honey, when they can.
- Oh, and pollinates almonds, apples, blueberries, cranberries, cukes, squash, and all the rest with ease and abandon. On time, every season.

I'm sure there are more things to ask queen producers when buying queens, and you have probably heard them before. One problem we run into way too often is when we buy packages. Look at the ads. What is the queen that is included with the package? If you don't know, you have to ask, or you get....what do you get? What you get is what you deserve.

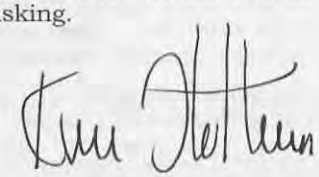
It's the same with queen ads. What are you getting? What is the producer trying to produce, or, better, what is he actually producing? What about references? There's a unique thought. But, if you ask for references, be prepared to be a reference too. That's fair. If you have good luck, first, you darn well better tell the producer that what you bought worked (have you ever done that?); and, second, be prepared to be a reference. Sing the praises of good queens. But, again, to be fair, let the producer know what didn't work. And what you did. And why you did it that way. Exactly. A producer needs to compare apples to apples if he is going to make changes and improvements in his operation and stock. Saying you put them in and they quit just doesn't do it....You need to do better than that if this is going to work you know. You need to know why, probably, that the queen in question went south.

I'm not picking on queen producers. Well, not nearly as much as I'm picking on people who won't pay what a good queen is worth. That's the problem, really. If a good queen produces a colony that makes a hundred and fifty pounds of honey on average (at, what, $1.00/pound or so?), produces bees that require no, or at most only a single *varroa* treatment in her two-year life, thrives without having to be treated for nosema, tracheal mites and American and European foulbrood....and is gentle to boot...what's she worth to you? How much do you save in labor (read your free time here if you aren't commercial) applying chemicals, and then removing them again; in cleaning out dead colonies, in reduced production because of exposure to sub-lethal levels of chemicals in your contaminated wax, in lost time because you are replacing queens, in lost crop this season, in lost crop next season because the colony didn't overwinter? How much?

My thought is at least, *at least* $25.00. And no discount for orders over 10, or even over 50. I'd pay $30 for a queen that did everything I expect a queen to do. She'd be worth it. Every darn penny.

Let's see why. Varroa treatments three in two years (at about $2.00/strip and four strips/colony) equals $24.00. Nosema at $1.50/colony each year equals $3.00. Terra at $1.00/year equals $2.00. Grease patties at three per colony per year (nine total) at $3.00 total. That's $16.00 cash saved per colony per year. For argument's sake let's say you cut corners and get bulk discounts on drugs and it's only $8.00 per colony per year. That comes to about $30.00 the queens you have now cost you because you have to do all this stuff....and you still lose, how many colonies and how many queens? And have to replace them, and lose crops and clean dead boxes and, and, and....see, $25.00 for a GOOD queen is worth the price. And I didn't include your labor costs in all this.

This year, ask before you leap. Ask all the right questions. Ask them nicely but ask. But, also tell. Tell what happened last year. Tell what you did. Tell why you did it the way you did. And tell what you'd pay for a queen that does the right stuff. If enough of us support this, enough producers will make these queens happen. The technology is out there. The genetics are out there. The money is out there. The skills are out there. All we have to do is keep asking.



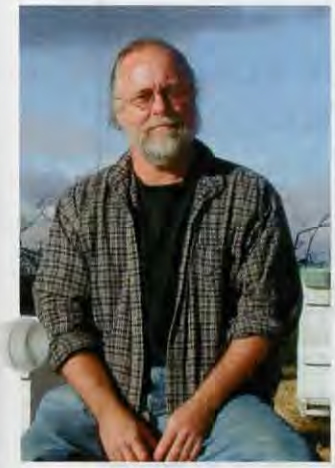
RESEARCH REVIEWED

Explaining • Defining • Using

Steve Sheppard

"The authors conclude, . . . the process of Africanization in commercial apiaries can be halted and even reversed by selective breeding."

The well-known honey bee, *Apis mellifera*, is native to the Old World and a relative newcomer to the Americas. While beekeepers of Europe and Africa have been able to use their own locally-adapted honey bee stocks for hundreds or thousands of years, the earliest U.S. beekeepers had to propagate and maintain honey bees imported from Europe or collect swarms from the feral honey bee population that became established as a result of such importations. Following the introduction of Italian honey bees into the U.S. in 1859, much of the propagation effort turned toward the selective breeding of this newly popular bee, especially as beekeepers strived to preserve the distinctive golden color and gentle behavior. Although additional Old World honey bee subspecies were introduced into the U.S. over the next 63 years (in 1922, the Honey Bee Act restricted further honey bee introductions), most breeding efforts centered on improvement of Italian honey bees. More recently, other honey bee stocks have become the subject of intensified breeding programs, including populations derived from Carniolan and Caucasian honey bee subspecies. In part, the increased interest in selective breeding may be traced to the need to address a new era of beekeeping that now includes parasitic mites, anti-biotic resistant bacterial diseases and Africanized honey bees.



Africanized honey bees (AHB) are the descendants of a sub-Sahara African subspecies, *Apis mellifera scutellata*, introduced into Brazil in the mid 1950's. They spread rapidly through South and Central America as a feral population and were found in Texas by 1990. Currently, AHB occurs from Texas westward to California. Compared to most European-derived stocks, AHB exhibits characteristics considered undesirable by many beekeepers (e.g.: increased tendency to swarm, greater defensive behavior), something of concern to queen producers and bee breeders in southern states. However, a recent research paper on the selective breeding of honey bees in an "Africanized" area provides encouragement that queen producers and honey bee breeders in the U.S. can maintain desirable honey bee stocks despite the encroachment of Africanized honey bee populations (Guzman-Novoa and Page, 1999).

The authors present the results of 5 years of selective breeding by a large commercial beekeeping firm in Ixtapan de la Sal, Mexico, an area that has been "Africanized" since 1990. The paper reports a comparison between stocks maintained in a selective breeding program (>3000 colonies) to those from an unselected "control" group (780 colonies).

The annual selection, 20-30 breeder queens within the program, was based on the following colony measures: 1) honey production, 2) defensiveness, 3) capped brood pattern and 4) avg. worker forewing length. The stepwise nature of the selection process was clearly presented by the authors. Following measurement of honey production (step 1) from more than 3000 colonies, only the top 5-8% of colonies were considered for evaluation in step 2. The defensive test (step 2) measured the number of stings received in a black leather patch that was moved rhythmically in front of the colony. Only the 25% least defensive colonies were considered further for step 3. Evaluation of the capped brood pattern (step 3) was used to eliminate colonies with brood diseases or poor egg-laying queens. About 50% of the colonies with the best brood patterns were then evaluated for forewing length (step 4). The rationale for using forewing length was that the authors had previously shown a correlation between defensiveness and short forewings (AHB are typically slightly smaller and have shorter forewings). The authors selected for breeding purposes only queens from those colonies with worker forewing length that averaged 9.1 mm or greater. The 20-30 queen mothers selected were then used to produce more than 3,000 queens for requeening purposes. Drone-producing colonies used for mating with the >3,000 queens were headed by first generation daughters of the selected queens. To reduce the impact of AHB, mating yards were located at a high elevation (2,000-2,500 m) where the feral AHB population was reduced. The 780 control colonies used for comparison were from local beekeepers who did not move, requeen or select their breeding colonies.

The authors also assayed a smaller number of colonies (139-233) from within the selected population each year for defensiveness, forewing length and a maternally inherited DNA marker (mtDNA) to

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RESEARCH ... Cont. From Pg. 17

evaluate year by year changes and to assess the results of the selection program. They found that honey production in the selected population increased 16% over 5 years, compared to a decrease of about 35% in the unselected colonies. This is notable because the selected and unselected populations produced roughly equal honey yields at the start of the program. The average number of stings (per leather patch/ 60 seconds) decreased from about 97 before selection to 44 after 4 generations of selection, a reduction of about 54%. Similarly, the average forewing length increased from 9.04 mm to 9.13mm after 4 generations of selection. Finally prior to selection approximately 28 % of the colonies contained workers with African mtDNA, whereas at the end of 5 years only 7.5% of the colonies had this DNA marker. In contrast, 29% of feral colonies and captured swarms sampled had African mtDNA when the program began, while at the end of the program this frequency had risen to 96%.

The authors conclude, "...the process of Africanization in commercial apiaries can be halted and even reversed by selective breeding" The response of the honey bee population to the selection and breeding program resulted in increased honey yield, decreased defensive behavior and an increase in characteristics associated with European honey bees (forewing length and mtDNA). These results are of particular interest because the selection program was successful in an area with a predominantly Africanized feral population. Throughout much of the range of AHB in South and Central America, Africanized honey bees enjoy a selective advantage over European stocks and, thus, predominate as the feral population. However, most of the area within the U.S that is populated with AFB has a more temperate climate than the study area in Mexico. Consequently, we might expect that, in most of the U.S., European-derived honey bees will be "more competitive" in the feral realm.

Overall, the paper by Guzman-Novoa and Page is good news for U.S. queen producers located in places where AHB occurs or is likely to become established. By following a selective breeding program that promotes traits important to beekeepers, reduces traits indicative of AHB and that controls queen mating as much as is practical, queen producers can continue to work toward improving available commercials strains of honey bees. **BC**

Reference:

Guzman-Novoa, E. and R. E. Page, Jr. 1999. *Selective breeding of honey bees (*Hymenoptera: Apidae*) in Africanized areas.* Journal of Economic Entomology, 92: 521-525.

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Mark Winston

Bacon And Eggheads

"Unlike most Canadians I found myself getting carried away by love-of-country as I walked towards Parliament that morning."

Let me make one thing perfectly clear right from the start: I was not the bacon. I was, however, the egghead, and for once was proud of that ivory towerish nickname.

Egghead is one of those pejoratives the public likes to use in making fun of my professorial craft, and the definition of "egghead" as an intellectual or highbrow is not commonly used in the most flattering of ways. My being the egghead, though, was anything but highbrow, and to me was most complimentary, because Bacon and Eggheads involved an opportunity to talk about bees at the Canadian Parliament, an institution that is anything but ivory tower.

Last October I was privileged to speak at the season opener for the Parliamentary Bacon and Eggheads breakfast series. This program is put together each year by the Canadian Parliament and about 20 scientific societies in Canada, spearheaded by our Royal Society and the Natural Sciences and Engineering Research Council, the principal government funding office for scientific research in Canada.

Besides a cholesterol-intensive breakfast, the objective of Bacon and Eggheads is to provide Parliamentarians and the public with an opportunity to hear about current issues in which Canadian science is playing a part. I was there to talk about the intersection of two parts of my scientific life: genetically modified crops, about which I'd just published a book, and bees, about which I've been known to talk about before.

As most of you know, I grew up in the United States, and like most Americans my heart starts to pound at the sight of any iconic, patriotism-inducing symbol of government. The flag, the White House, the U.S. Capitol, the Lincoln Memorial, any and more of these types of symbols still arouse in me an intense love of freedom and country. This knee-jerk reaction to all things patriotic has been transferred to Canada, and unlike most Canadians I found myself getting carried away by love-of-country as I walked towards Parliament that morning to break bread with our politicians.

The Canadian Parliament is roughly comparable to the U.S. Congress, with our House of Commons being analogous to the House of Representatives. Our Senate is different, with Senators appointed to their offices as a reward for decades of public service, and without much power. The real action lies with the Members of Parliament (MP's), who are elected and embody the equivalents of both the U.S. legislative and executive branches of government.

Visiting any major government building is a confusing experience, because they are both more and less imposing than expected. Symbolically, the Canadian Parliament was everything I expected, but on the ground it has a more human scale than I had imagined. Mundane touches reminded me that in spite of its symbolism Parliament is just a set of buildings where people work.

Our Parliament is like many world capitol buildings, built decades or centuries ago at a time when transportation systems, elevators, heating and cooling, and building technology required construction on a scale much smaller than today's high-rise skyscraper towers and office complexes. The buildings look imposing on television, with heavy grey and brown stone walls, weighty towers, and gargoyles adorning the ledges, but in person the entire Parliament complex is only a few stories high, and walkable end-to-end in less than ten minutes.

I arrived at 6:30 AM, and found it odd to walk past the set camera spot next to our Eternal Flame where virtually every news broadcast from Parliament Hill is filmed, with the Parliament clock tower in the background. To my surprise, every MP's office was open for business and full of staff already bustling about their tasks. Our elected leaders may be many things, but lazy is not one of them.

The breakfast itself was in a large, cavernous room meant to be imposing, and it works. Deep red wallpaper on the walls, dramatic entrance doors, chandeliers, a well-catered breakfast with ponderous plates and heavy silverware, certainly not the typical beekeeper breakfast meetings I'm more accustomed to.

The audience was a mix of MP's and Senators, their aides, government regulators, journalists, and representatives from the biotechnology industries who were curious about what I had to say. I talked first about the benefits and risks of

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"Our Canadian government, like that in the United States, is extraordinarily budget-conscious these days, and legislators need both justification and limits if they are to feel comfortable supporting research funding in any area."

genetically modified crops, and then discussed some of our recent research concerning the impact of GM crops on wild pollinators.

The talk seemed to go pretty well, but it was the questions afterwards that really fascinated me. The audience did not know much about genetically modified crops and even less about pollinators, and they asked probing questions asking me to justify whether they should spend taxpayer's money to find out more.

The first tier of questions had to do with pollination, and focused on why our research hadn't studied bees and wheat pollination, a crop obviously important back in the constituency of one MP. I was intrigued by that question since wheat, of course, is wind-pollinated and bees are not important, but also because genetically modified wheat is a no-go zone for Canadian farmers due to concerns about marketability.

But why not study wild bees and wheat? While there is no reason to think bees forage on wheat, they do visit weeds within and around wheat fields, and given the vast acreages of wheat grown in North America, the impact of agricultural practices on nearby pollinators may be severe. The same argument is even stronger for corn, since bees will visit corn for pollen when there is little else in bloom, and thus grain farming may have considerable impact on bees both directly and indirectly.

Our study on genetically modified canola suggested some reduction of wild bee populations at the one site in the one year we've studied this issue so far, and the MP's also focused on how much more research we needed to determine the significance and repeatability of this still-tentative finding. Our Canadian government, like that in the United States, is extraordinarily budget-conscious these days, and legislators need both justification and limits if they are to feel comfortable supporting research funding in any area.

My response was that, as a scientist, I'm always going to demand more data, but as a taxpayer I, too, ask for limits. How much work would be necessary to establish whether GM crops are having an impact on wild pollinators? I suggested two to three years of fieldwork in two or three regions per crop, with at least four to six replicates of each cropping system studied, would do the job, with a budget of around $150,000 per crop.

We next discussed sources of funding, and strategies to insure that research concerning environmental risk is conducted with the independence and rigor that provide public confidence in the results. The legislators were fascinated by the complex funding packages necessary in today's partnership-focused funding environment, which include diverse sources ranging from government to non-profit foundations, commodity groups to private industry.

They also were particularly intrigued by my philosophy for working with industry. On the one hand industry has a great deal to offer in experience, knowledge of their products, and of course funding, but balancing those inputs is the public's concern about whether research is being conducted from a biased perspective. My strategy has been to insist on complete ownership of our work, so that we have control over how projects are designed and conducted, data analysis, interpretation, and most significantly publication.

The final area we explored had to do with turning our attention towards the environmental impact of genetically modified crops, in addition to the already-voluminous studies of their safety as food. In our haste to focus on human health, we have neglected to conduct sufficient studies of GM crops and environmental issues. The scanty results in this area may not suggest any smoking guns yet, but there are intriguing hints that transgenic crops may influence beneficial organisms like pollinators in both positive and negative ways.

For bees, genetically modified crops may be positive because their use results in less spraying of insecticides, but negative in reducing weed populations required for wild bees to thrive. Those reasons, coupled with the agricultural and ecological importance of bees as pollinators, suggest that bees may be excellent indicator species to funnel into standard testing paradigms for the impact of GM crops on our environment.

That was the deepest take-home message I left for our legislators. Our MP's and Senators figured that one out right away, and if nothing else left their sumptuous breakfast with a deeper appreciation for the importance of bees in the world around us.

That also was the most important message I left Parliament Hill with. There is great interest out there in bees once we bring it forward. The opportunity to link bee research with important environmental and agricultural issues provides a strong rationale to study bees in the world around us. BC

Mark Winston is a Professor at Simon Fraser University, Burnaby, B.C. Canada.

BEEKEEPING IN THE DIGITAL AGE

Malcolm T Sanford

"Just the Facts" Researching The Wise Guy Using the Web.

I wonder how many in the readership remember the television actor, writer, producer, director extraordinaire, Jack Webb. His most famous portrayal was as the taciturn Sgt. Joe Friday in the Dragnet television series. As he came to mind recently, I was able to do something that only a little time ago would have taken a huge effort on my part. Using the World Wide Web search engine called **Google**, I quickly found this quote at the **Museum of Broadcast Communications**. Jack Webb "broke the traditional molds of both 'true story' crime dramas and 'radio noir' by de-emphasizing violence, suspense, and the personal life of the protagonists; he instead strove for maximum verisimilitude by using police jargon, showing 'business-only' cops following dead-end leads and methodical procedures, and sacrificing spectacle for authenticity " As I read this, I realize how the current cop shows with their "action" sequences have deviated from this model of veracity to true fiction. It seems clear that Mr. Webb was on to something with his deadpan delivery of "just the facts, maam," as the other characters were often carried away by their emotions.

But then it is this emotional content that modern audiences react to and increasingly appear to "demand" if you follow the **media ratings.** The results of this are the preponderance of what are now called "docudramas" on television, in the movies, and increasingly even on the printed page (newspapers). There are several distortions possible in the docudrama, again quoting from the **Museum of Broadcast Communications** web site. "They may include created dialogues among characters, expressions of internal thoughts, meetings of people that never happened, and events reduced to two or three days that actually occurred over weeks. Other characteristics of docudramas are that they are often extremely simplistic and the listeners/viewers are often unable to distinguish between speculation and known facts."

Many of the characteristics of the docudrama have permeated the news, and even more perversely, the way political campaigns are run. Thus, what is considered objective reporting (campaigning) in many cases contains the distortions of the docudrama, which often leaves the listener/viewer confused. The result of much contemporary reporting of facts, therefore, either in print or on television, is that the consumer is left to do much of the research on his/her own. I find myself often demanding in my reader's mind for a Joe Friday to show up and say, "just the facts...," when I am trying to figure out the true essence of an issue. Fortunately, the World Wide Web has taken much of the burden off Sgt. Friday, although it too must be carefully and judiciously used since it is not immune from the same constraints and characteristics as other media.

This brings me to the column in the December 2002 issue of *Bee Culture* written by the Wise Guy. I (although never having paid an assessment) was shocked and angered to read that the National Honey Board (NHB) was spending "uncontrollably on items that have value only to them." This was especially grating as the Board had just recently turned down a modest proposal by this author to license a National Honey Board Producer Information Database, which would be the full document, including all of the modules presently for sale through **my web site**. This proposal was rejected due to fiscal constraints, even though I thought I had made the point that it would be a resource producers could point to as directly helping them, which their assessments paid for. Now I find out the Board has spent "somewhere around $50.,000 to $60,000" for the nominations committee alone at a recent board meeting in Omaha, NE, according to the Wise Guy, as well as taking "every one on a field trip to Sioux City, IA." I quickly accessed the NHB World Wide Web **site** to get at the heart of the matter. It turns out that even though there is a rather full **accounting** of expenditures, I was unable to locate the specific offending figures. Instead, I found out that according to the **November 2002 statement**, so far this year some 13 percent of the NHB's expenses are in administration with about six percent listed for the Board (perhaps this was where the figures came from) and most of the rest budgeted for the board's three critical focus areas, research, food service functions and promotion and marketing. After I saw the numbers, I simmered down some. There was in fact a published budget online for all to see, and there appeared to be some method in the document, along with figures to back it up. I hope my math is

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DIGITAL ... Cont. From Pg. 21

right here; I urge skeptical readers to run the numbers for themselves.

The next questions posed by the Wise Guy were: 1) What has been the NHB's impact on the business it was initially started to promote?; and 2) What major program sticks out that has promoted honey to the American people? I was unable to find a response to the former, but there is a good number of possible candidates found on the Web site to answer the latter. In the research area alone, one can find links to the Board's current preoccupation with one of its key issues, honey and human health. There are press releases concerning honey's **impact** on cholesterol, a **group** of scientists was put together to help determine research direction, and **seven** research papers sponsored by the NHB on honey use in sports and fitness were reported at the Institute of Food Technologists annual Meeting, June 15-19, 2002, Anaheim, CA. Other studies include one on oral wellness, and there is a long list of possibilities presented using honey in everything from peanut butter to coated french fries for those interested in marketing new food products. Finally, there is the most recent **compendium** of research on the therapeutic qualities of honey, a resource that will be valuable for a wide range of practitioners for years to come. There is so much information that two Web sites are used in its distribution. One for the **general public** and the **other** for food service professionals. Recurring resources include the **quarterly** NHB newsletter and **monthly** bee-mail electronic newsletter Finally, the NHB has mounted its **honey locator**, which provides information about where to get varietal honeys.

The Wise Guy says he loves the question, "Where would we be without the National Honey Board?" One response is that the NHB Web site and its array of resources would not be available. His answer is that "honey prices would have risen to a higher level sooner and been much more stable than what has happened in the past 15 years." He also says about the NHB's readiness plan, "their only plan is to *not* talk about the problem that contaminated Chinese honey has caused." A **readiness plan**, devised by the NHB exists and spells out in some detail how contacts and communications are to be made. The preamble says: "The purpose of this plan is to provide guidelines for handling any serious problem facing the honey industry, especially if such a problem could result in risks to public safety and/or inaccurate and damaging publicity. The safety of the public is always the primary concern. The National Honey Board has a Readiness Team to deal with any serious incident affecting the honey industry. This team will function on behalf of the Board and make decisions on policies, actions, statements and expenditures. To manage an incident, the full Board will be involved in the decisions, as time permits. In all cases, the Board will be notified of the situation and the Readiness Team's response as soon as possible." The Wise Guy concludes the NHB has" taken the same path as the apple industry did with Alar...By not addressing the Alar contamination *before* the TV story broke was a huge mistake..."

"What is considered objective reporting in many cases contains the distortions of the docudrama, which often leaves the listener/viewer confused."

The World Wide Web really comes in handy when one wants to review specific issues like the Alar and apple controversy that erupted over a decade ago, but still remains in the collective consciousness. According to **American Outlook Magazine**, Spring 1999, "Manufactured by Uniroyal Chemical Co., Alar was commonly sprayed on apples to keep them on trees longer so that fewer would fall and rot before being harvested. The attack on it began in February 1989 when 60 Minutes reporter Ed Bradley called it 'the most potent cancer-causing agent in our food supply.' Bradley's main source was the Natural Resources Defense Council (NRDC), which had decided to scapegoat a single substance to illustrate the horrors of all manmade chemicals. The NRDC had retained a radical environmentalist PR firm, Fenton Communications, to create a front group called 'Mother and Others for Pesticide Limits' and place horrifying articles in newspapers and women's magazines. The result: Terrified mothers threw out their applesauce, poured out their apple juice, and swore off apples entirely for "healthier foods" such as Twinkies. Apple farmers across the nation suffered, and some went bankrupt. Subsequently, articles, monographs, and books peeled the wraps off one of the slickest, most cynical fear campaigns in recent American history."

On March 16, 1989, the **following** was released by the U.S. Food and Drug Administration (FDA) concerning the Alar and apple affair: "The FDA, EPA and the U.S. Department of Agriculture believe there is not an imminent hazard posed to children in the consumption of apples at this time, despite claims to the contrary. Therefore, the federal government encourages school systems and others responsible for the diets of children to continue to serve apples and other nutritious fruit to American children. This is an issue that will continue to be monitored closely by the responsible federal agencies that have acted in the past to cancel pesticide uses which pose a cancer risk."

This excerpt is from an **article** in the *Columbia Journalism Review* (September/October 1996): "Why are these misconceptions about Alar so entrenched? According to John Stauber, editor of the Madison, Wisconsin-based newsletter PR Watch, the erroneous reporting on Alar is largely due to a sophisticated

public relations counterattack mounted shortly after the 60 Minutes show. The controversy 'scared the hell out of the agribusiness and food industries,' he says. 'The food industry said, "Never again," [and] set out to convince the news media this was a hoax.' The campaign, he adds, has been 'very successful. David Rall, a physician and former director of the National Institute of Environmental Health Sciences, calls the mistaken media coverage 'a triumph of publicity over science.' He says the contention that there was no scientific evidence that Alar posed a substantial health risk is 'preposterous. Either they haven't looked at the data or they're misinterpreting it.

"Meanwhile, the libel case has not been well covered. Except for a July 1991 front-page feature on the lawsuit in *The New York Times*, the case was mentioned in only a handful of newspapers, and usually summarized in two or three paragraphs. Al Meyerhoff, an NRDC lawyer, and other critics say that the 1991 Times article, apple growers bruised and bitter after alar scare, played a key role in shaping public perception. The Times, says Meyeroff, 'reported the lawsuit filing as if it were won. Coupled with the absence of further coverage, plus a concerted disinformation campaign by industry trade groups, Alar become synonymous with a hoax.' PR Watch's Stauber meanwhile, says the national news media are not paying enough attention to another legacy of the Alar controversy: the agricultural-disparagement laws, sometimes called 'veggie hate-crime bills.' The laws now in at least twelve states making it illegal to disparage fruits, vegetables, and meat are part of the national campaign to intimidate anyone who raises legitimate concerns about food safety,' he says. Stauber believes the laws will eventually be found unconstitutional. But until they are challenged in court, reporting on mad cow disease, *E. coli* bacteria, or pesticides 'could bring on a multimillion-dollar lawsuit.'"

According to a **letter** to the editor, *The Washington Post* (January 13, 1998), "The Post's excellent editorial 'Hamburgers and Free Speech' [Jan. 5] contains an erroneous and misleading statement. In referring to removal from the market of the apple chemical, Alar the editorial described the episode as a 'scare' that was 'later determined to be unfounded.' In fact, the Alar episode was based on solid science. Multiple rodent studies conducted both before and after the withdrawal of Alar showed unequivocally that Alar is carcinogenic. Two degradation products of Alar also are carcinogenic. One product, a dimethyl hydrazine, was known as a cancer hazard at the time of the CBS broadcast revealing the Alar hazard. A second product, dimethylnitrosamine, was found later to be a very potent carcinogen. Moreover, it was shown that infants and children drink more apple juice per pound of body weight than do adults and that young rodents are much more susceptible than adults to nitrosoamine carcinogens." It was signed by David Rall and Philip Landrigan, both M.Ds.

The American Council on Science and Health in February of 1999 issued the following under the title, **Unhappy Anniversary**: "Jane Brody's column in the August 18, 1998, edition of *The New York Times* featured a list of 'some of the most prominent [unwarranted] scares in recent decades. Ms. Brody described her review of these fearsome items, correctly, as 'a cautionary tale that should help you realize why it is unwise to leap before you look. Alar was at the top of her list. But in a $23,800 ad in the August 31, 1998, edition of that paper, the National Environmental Trust, a coalition of environmental advocacy organizations, took issue with Brody's description of Alar. And, in the CJR article cited above, Negin had called Alar, emphatically, "a potent carcinogen.' Extremist environmentalists would revive the Alar controversy. Indeed, they would have their mythology of Alar become a textbook success story of how the NRDC ridded America of a threat to children. But the scientific consensus continues to be that Alar, used in the FDA-approved manner was not dangerous to anyone, and that those who engineered the false alarms about the chemical did so for self-aggrandizement. The foremost lesson of the 'Great Apple Scare of 1989' is that skepticism pays."

The eminent scientist and writer, Dr. Donella Meadows wrote in frustration in her **Global Citizen** column, Feb 27,1999: "Knowing the kind of firepower industry would bring to this issue, the NRDC hired a public relations firm to be sure its message was heard. The PR firm and the natural dramatizing instincts of the media did the rest. The producers of '60 Minutes,' knowing the mythic power of the tainted apple, from Adam and Eve to Snow White, broadcast an image of an apple marked with a skull and crossbones. A Time cover showed an apple with a prohibiting bar through it. Meryl Streep became a spokesperson for pure food. School boards pulled apples out of lunchrooms and mothers pulled them out of lunch boxes. Uniroyal gave up and voluntarily stopped selling Alar in the U.S. Now what is the story here? Is it about an innocent chemical, falsely accused, or about a government agency failing to protect public health? Is it about an essential technology to make a healthful product or a marginal technology that convenienced producers but endangered consumers? Is it about the exaggerations of environmentalists or of media? Of course you don't get to decide what the story is. Millions of dollars have already been spent to perpetuate the legend of the Great Overblown Alar Scare."

The references above show the extensive role public relations has played in the Alar and apple controversy. The Wise Guy says, "I understand the Board has contracted with a public relations firm in California to do their public relations. Wasn't that a function of the current staff? Is this just another expense that becomes easy to justify when spending someone else's money?" He also says news releases from the NHB contain no reference to contaminated honey as a reason for current high prices. A **search** of the NHB Web site using the term "chloramphenicol," the antibiotic recently found in Chinese honey, turns up no documents. He

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INCARCERATION OF SMALL HIVE BEETLES

James D. Ellis, Jr.

European Bees Are Keeping Beetles At Bay, Too.

Although not attempting to state an over-used cliché, life indeed is busy inside of a beehive. Worker bees move about within a colony, performing tasks much faster than that of the average human. A colony-wide equilibrium exists (homeostasis if you wish) which carries activity at a steady pace and in a defined direction.

Occasionally, however, colony behavior is altered by any of or many of a host of problems that may occur anywhere along the path. Nectar dearth, extreme temperatures, queenlessness, among others, tend to change colony behavior and function. Indeed, any of these are enough to derail colony equilibrium and send colonies spiraling downward into certain death.

Despite such "mortality factors," honey bees exhibit a suite of behaviors that exist for dealing with untimely circumstances. If a queen dies, worker bees rear another. If there is a nectar dearth, there are honey stores waiting to be consumed. Indeed, as far as honey bees are concerned, for every problem there appears to be a solution. Similarly, this seems to hold with the newest problem facing our bees.

Deep inside of our colonies, in the darkest, most remote corners, small hive beetles (SHB) wait for their chance to gain access to the combs. Infiltration of the combs means unimaginable feasts (honey, pollen, bee brood) and copious reproduction. Exclusion from the combs yields opposite results, certain death and failure to achieve reproductive success.

We are all aware of the consequences of heavy SHB infestations. SHBs feed on bee brood, pollen, and honey, laying eggs in every available space. Emerging larvae have voracious appetites, feeding on the same foodstuffs on which their parents feed. In due time, a perilous treadmill occurs, with SHB being exponentially produced and colony health subsequently declining.

European honey bee social encapsulation of small hive beetles. Guard bees and incarcerated beetles are in a constant tug-of-war, each trying to gain the upper hand.

However, as those who have seen SHB in their colonies can attest, not all colonies collapse at identical SHB infestation levels. Some colonies survive with many more SHB than do others. Apparently, these colonies exhibit no adverse effects of hosting large SHB populations. Minor SHB infestations are usually contained by the bees, but how this is accomplished has remained a mystery.

Colleagues of mine were able to show that African honey bee subspecies (particularly the Cape honey bee) utilize social encapsulation to control SHB (Neumann et al. 2001, Solbrig 2001). In short, Cape bees construct propolis prisons in which SHB are detained and then guard the prisons suppressing any attempted jailbreaks by SHB.

Elzen and her colleagues showed that African honey bees are aggressive (biting/stinging) towards free-moving SHB, and this aggression probably forces SHB into hiding. Consequently, SHB are usually encapsulated where they hide. Upon the successful imprisonment of SHB, the bees maintain aggression towards and feeding of (trophallaxis) SHB, thus keeping the SHB encapsulated. The feeding of imprisoned SHB by guard bees presumably suppresses normal SHB feeding tendencies, thus keeping the happily fed SHB from wanting to escape.

In a series of experiments, my colleagues from the USDA and Rhodes University and I were able to show that honey bees of European origin (the ones we use in the U.S.) also encapsulate SHB. This is an interesting finding, especially since SHB have not been in the U.S. very long. Herein, I will report the findings of our study.

To begin, we set up three observation hives, each with three deep frames of bees and a queen. After this was done, 25 SHB were introduced into each hive. My wife and I watched the hives daily, for 17 days, 30 minutes each hive at 9:00 am and 8:00 pm. All guard bee and encapsulated SHB behaviors associated with social encapsulation were recorded.

Our findings proved interesting. There were more guard bees per encapsulated SHB at night than during the day. Therefore, bees put extra effort into guarding SHB prisons at night. The explanation for this can probably be linked to two other findings our lab has made.

First, we found that SHB are generally more active at night. As this is the case, it follows logically that more guard bees are needed at night to suppress SHB that are more active.

Secondly, worker bees guarding SHB prisons are the same age as foraging bees. Bees from the same age cohort are known to share tasks, meaning that it is possible for foraging bees to also guard SHB prisons. If this is true, the ratio of guard bees per SHB is small during the day when many bees are foraging. Yet at night, when foraging ceases, more bees are available to guard SHB prisons. This also implies that as SHB infestations grow, foraging activity may be compromised. My colleagues and I have found this to be the case. Nonetheless, that foraging bees do guard SHB prisons remains only a theory at this point.

There were about six SHB prisons per hive with each prison containing roughly three SHB. The number of prisons or SHB per prison did not differ between day and night. Interestingly, there were 2.5 guard bees per prison during the day and 3.1 guard bees per prison at night. Again, this indicates that there are an increasing number of bees guarding SHB prisons at night, possibly for reasons I have already outlined above.

A look at SHB behavior also proved insightful. SHB, when soliciting for food from guards, walk to the edge of their prison and make antennal contact with the bees. The primary response by the bee is most often one of aggression. Bees usually bite at the SHB and that is that. However, most SHB are very persistent and continue to approach the bee for food. The SHB are frequently successful, coercing the bee into regurgitating honey on which the SHB feed.

With these behaviors described, we found that SHB did not solicit more for food at night than during the day. Yet, we did find that SHB were fed more at night than during day. This result seems baffling unless viewed in proper context. What we have is a situation where SHB are not asking for food more, but they are getting fed more. This implies that bees have an active part in deciding whether or not to feed SHB. Again, it is no coincidence that bees are inclined to feed SHB more at night. As we have shown, SHB are most active at night and there are more guard bees present. It is likely that bees, at least in part, may use trophallaxis to control SHB.

We also found that SHB are able to mate while in prison. However, as we observed no SHB larvae, reproduction seems to be suppressed while SHB are encapsulated. Therefore, SHB likely do not reproduce unless they are able to escape encapsulation and gain access to the combs.

No less remarkable are the guard bee behaviors that we observed. Honey bees guarding SHB prisons often do one of three things: 1) traditional guarding where the bees sit with their front legs in the air, much like that done at the colony entrance, 2) aggressive guarding, where bees are biting at encapsulated SHB, and 3) biting the area around SHB prisons. The third behavior is the one I wish to continue with here. In this behavior, guard bees bite the prison perimeter and "comb" it with their front legs (very similar to the "washboard" behavior often seen on the face of a colony). What this behavior accomplishes is unclear, however

Trophallactic contact between a honey bee and small hive beetle. The bee in the middle is feeding the beetle. The two bees on either side are not as easily fooled; both are trying to grab the beetle.

the behavior decreased substantially at night. This possibly indicates a switch in guard bee behavior to that of a more active state of guarding. Or, as my professor has pointed out, the bees may be checking the solidity of the prison walls. Whatever the case, this observation needs to be studied further.

The final variable we analyzed was SHB intra-colonial distribution. Put simply, where were SHB most often imprisoned? Interestingly, SHB were not found mainly on the bottom board, contrary to what we are often told. Indeed, SHB were imprisoned on the bottom board only 5% of the time. Instead, we found that SHB were most often imprisoned on the front wall (27%) or back wall (47%) of the colony, with the top of the colony (15%) being the third most popular place. Only 7% of SHB were found encapsulated somewhere among the combs (ie, in the brood combs, honey combs, etc.).

This data may show why bottom board applications of the insecticide coumaphos (currently used to treat SHB infestations) are only moderately efficacious at controlling SHB in our colonies. In a normal state (low SHB infestation rate) of social encapsulation, SHB are not found on the bottom board. Instead, most SHB were encapsulated on the front or back wall of the colony showing that it may be advantageous to apply treatments in these areas. Additionally, most SHB in each colony were encapsulated (>95% of observed SHB), therefore treating for SHB at low infestations may not be beneficial since most SHB are not able to freely move about the hive (thus limiting their contact with the treatment).

Further, due to encapsulation efforts by the bees, few SHB are allowed access to the combs, which benefits the bees tremendously. SHB have a huge, explosive reproductive potential once they gain access to foodstuffs located within the combs. However, if SHB populations increase in a colony, SHB may be able to successfully infiltrate the combs (I am going to show that this is the case in the second installment of this article). At this point, SHB reproduction may be triggered and colony health subsequently dwindles.

Many theories abound as to why social encapsula-

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SMALL HIVE BEETLE ... Cont. From Pg. 25

tion is present in European bees when they have only been exposed to SHB for five to seven years. The leading theory is that European and African honey bees, when in their native range (and before their divergence into separate subspecies) were exposed to SHB, or other natural enemies of honey bee colonies hence the development of social encapsulation. Some bees later migrated to continental Europe (becoming our "European" honey bees) where social encapsulation behavior was no longer needed due to the absence of natural enemies. Despite the release from natural enemy pressures, social encapsulation was not lost in European bees; it was only weakened through years of no use.

Further, European bees have been under huge selection pressures against traits such as aggressiveness and absconding tendencies. Both behaviors are traditionally minimized in European bees because they are labeled as undesirable; yet it is these behaviors that African bees rely on to deal with SHB. So, it is not surprising that our bees find it difficult to manage SHB. Not to play devil's advocate, but it is going to be extremely interesting to see how "Africanized" bees in the United States deal with SHB. They may be resistant to SHB, and if so, may prove useful in programs breeding for SHB resistance. Just a thought.

This is social encapsulation by European honey bees in a nutshell. Surprisingly, social encapsulation by European honey bees is very similar to that used by African honey bees. Yet there exist fundamental differences in behaviors of both bees towards SHB once SHB populations begin to increase in a colony.

I want to stress that all of these behaviors were documented at relatively low SHB infestations, 25 SHB per 3 deep frames of bees. I have conducted a very similar study where I observed European honey bee social encapsulation for 3 days at 25 SHB per colony and three days at 50 SHB per colony. The findings from this study are very interesting as well and I plan to share those in Part II of this article.

Our data certainly add to our understanding of how SHB are able to survive in colonies, and what our bees try to do to stop them. It is a delicate balance, one that European bees currently seem to be on the short side of. This should not be discouraging though; the fact that the behavior is present in our bees implies that it can be selected for in breeding programs.

Our goal in SHB management should not be to try to control SHB with chemicals. We use enough of those already. We should instead breed bees that display amplified social encapsulation and hygienic behaviors. In this study, there were a number of differences between the three colonies in respect to social encapsulation. For instance, some colonies had more guard bees per beetle than others. One colony used trophallaxis more than did the other two. It is differences like these that may be selectable. Our main effort should be to breed bees that are able to maintain colony equilibrium, where the bees have SHB in their colonies, but where the SHB are harmless. Understanding what our bees do to control SHB is a necessary first step towards finding the answer. BC

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Bees *for* Development

Dewey M Caron

Iraq and Afganistan are two countries much in the U.S. news these days. The effect war and civilian disruption is having upon beekeepers in both countries is not making much news nor is the fact that Bees *for* Development (B*f*D) is working with beekeepers in both countries, seeking to improve family livelihoods.

EAS & WAS (Eastern and Western Apicultural Societies) invited B*f*D co-founder and director Nicola Bradbear to the U.S. in 2001 to hear about the work of B*f*D. Nicola needed to return to Uganda in Eastern Africa in early 2002 to continue her assessment of Uganda's beekeeping industry and bee product market opportunities so we discussed the idea of my visiting B*f*D in her absence to learn more about beekeeping development work. Thus in January 2002 I went to Wales, UK, headquarters of B*f* D.

Bees for Development was established in 1993 by Nicola and Helen. They helped establish development work at IBRA (International Bee Research Association publishers of *Bee World*, *Journal of Apicultural Research* and *Apicultural Abstracts*) but this activity was terminated by IBRA in 1992 when they had to downsize as funding dried up. The B*f*D office now is The Elms, a 17th century house near the Wye river in the community of Troy outside of Monmouth, Wales, about 40 miles from Cardiff, Wales, and three hours west of London.

After I arrived in Wales, Nicola journeyed off to Uganda to deliver her report on Ugandan beekeeping. She was joined in country by Joe Rowland, a New York commercial beekeeper. Earlier in 2001 Dr. James Tew of Ohio State was also in Uganda assisting VOCA (Volunteers in Cooperative Assistance) in an effort to upgrade the beekeeping teaching program at Makerere University, a leading University in the capital of Kampala. Currently in Uganda there are a number of active beekeeping development programs and many beekeepers, most still using traditional hives. Nicola's objective was to bring the groups together at a major workshop so the groups might benefit from each other and learn what other groups are doing to take better advantage of development opportunities. The workshop included 88 individuals and was opened by the Minister of Agriculture.

A not for profit NGO (Non-Governmental Organization), Bees *for* Development promotes sustainable beekeeping practices worldwide and serves as a unique international resource for beekeeping development. Their primary mission is to assist people in poor and remote countries of the world with beekeeping information and training in beekeeping skills so their standard of living and health might be improved. Their focus is on assisting beekeepers with local sales of quality bee products using appropriate technology available within the community.

One major aspect of the work of Bees *for* Development is communication through their journal, *Beekeeping & Development*, issued four times per year. One specific task I assisted with was production of the March 2002 edition which was done with Helen Jackson, the office coordinator and co-developer of Bees for Development. [If you are not aware of this publication and would like to receive a complementary copy please contact me directly or the Wales office of Bees for Devel-

Wales largest beekeeper, Gareth Baker looking in a National Hive.

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DEVELOPMENT ... Cont. From Pg. 27

opment]. I solicited articles, including one from Mike Embrey of University of Maryland, wrote book reviews, gathered news notes from around the world, and wrote articles on Africanized bees and Observation hives for issue number 62.

Another important activity of Bees for Development is to organize training courses and assist with development of appropriate educational materials. Such training is offered in both Wales (at Cardiff University) and in Africa. I reviewed a book developed from a B*f*D sponsored symposium on Sustainable Livelihoods organized in the Fall of 2000 that brought together 50 beekeeping development specialists, other development scientists and social scientists from 14 countries. The symposium and the resulting book, both examined the process and structure of development while focusing on case studies of successful, and less than successful, beekeeping development projects in Africa, Asia and the Caribbean. Since beekeeping development transcends so many areas but is not always recognized as a major agricultural priority, Nicola and other development specialists advocate that beekeeping, a major contributor to rural family income in many developing countries, should be recognized by using the sustainable livelihoods approach. It is easy to document how helping beekeepers with education, training and marketing assistance can immediately improve rural populations.

I also assisted the information flow process of Bees *for* Development. They receive more than 2000 requests for information annually. On any one day calls may come from all over the world. The office has files of the status of beekeeping in developing countries with information such as development projects completed or in progress, people, resources and general beekeeping information. As far as possible, B*f*D provides information to beekeepers and development projects free of charge; for others there is a nominal charge.

I also used the opportunity to visit with IBRA director Richard Jones (who I had invited to the 1997 EAS in Delaware) at IBRA headquarters in Cardiff. I had a pleasant visit with Karl Showler, a well-known used bee book vendor and skep-maker in Hay-on-Wye, a nearby historic town [Karl is the town's Mayor]. I even found time to visit with and look at apiaries with several area beekeepers and give a talk to the Wye Valley and Gwent (Welsh) beekeepers. The meeting was in an old jail room over the top of a pub – those who attended stopped downstairs first and several brought their pints upstairs for a jolly good time.

All in all it was quite a pleasant experience visiting and working at the B*f*D office. Wales is misty and cloudy with short days in January but it is also an extremely interesting area of Roman, Norman, Welsh and, of course, British occupation and history with plenty of historical sites dating back over the last 2000+ years. I was able to experience some of this history in addition to assisting a top-notch NBO conduct their development program. I learned a lot from the experience.

If you would like to contribute to Bees *for* Development, *you can contact them at Troy, Monmouth, NP25 4AB, UK or contact them electronically at info@beesfordevelopment.org; www.beesfordevelopment.org* BC

Dewey Caron is a professor of Entomology at University of Delaware and author of several beekeeping books.

Reflections On Swarming

Larry Goltz

Reflecting on some 60 years in and out of beekeeping I tend to dwell on the more quixotic experiences rather than the mundane, experiences that have enlivened my pastime, as I often refer to my beekeeping. Taking my bees to the almond orchards and marketing the premium quality thistle honey for a couple of decades has allayed to a degree the deficiencies that tend to accumulate from hobbies that are passed off lightheartedly as "business." Capturing swarms, meanwhile, has been an irresistible, repeated, irrational impulse to collect clusters of thankless bees that would otherwise find decent abodes in trees or someone's house siding. I know that commercial beekeepers in our area of northern California seldom bother to collect swarms once they have emerged from their hives. Most of the beekeepers in our county are queen breeders who also shake bees from colonies for the package bee trade, in themselves swarm control measures.

My swarm chasing may be a form of parsimonious behavior, an inclination or desire to pursue the illusionary, to gain something for nothing. The time and effort involved plus driving expenses rules out any claims that swarm catching is a profitable endeavor; therapeutic, perhaps, but economically unsound unless a fee is collected as sometimes reported. There are no free-bees.

"Experience teaches you caution rather than being aggressive when confronted with a challenging situation. No swarm is worth a fall from an insecure ladder."

Another disillusionment may be that I have thought of my swarm catching over the years to be a community service. This altruistic motivation is a common characteristic, or should be, among public service people. I could name a few, including some more or less respected professional types with which I have had contact. The main difference between my ques-

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Other Stories

Not Quite A Swarm

Last year, I received a call from a lady who said that she had a swarm of bees hanging in a tree in her garden. I was assured that they had only arrived the day before.

I drove over to the property with swarm boxes, etc. The swarm was about 25 feet up a fir tree, hanging underneath a large branch. From the ground it looked like a nice swarm.

However, closer inspection from the top rung of a ladder revealed that there were seven combs hanging there, some with honey, some with brood. The nest was guarded by some fairly unsocial bees. No way would that lot go into the swarm box.

Time to reconsider. The lady was most insistent that they had only just arrived, as she had 'mowed under the tree the day before yesterday and they weren't there then!' Now that she *had* seen them they had to go. And soon.

Back to my bee shed. I made up some new brood frames but left the foundation out. Instead, I stapled

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Is It Congestion?

The excuse mentality is just my phrase for the theory that swarming is "caused" by congestion, and that bee crowding limits distribution of queen pheromones. The limiting of queen scent distribution is given credit for the starting of swarm queen cells. The starting of swarm cells is presumably the reaction of workers to a failing queen.

Let me reemphasize that the above is a *theory*. Careful experts will use the words that leave open the factual aspects of the theory. Words such as "it is believed" or "general opinion" are used to preface the description.

The intent of this article is to show that the theory or theories will not stand up to scrutiny. We have all seen colonies swarm that did not seem to be overly crowded, and conversely, crowded colonies that did not swarm. We will try to break the concepts down into manageable bits and pieces.

Congestion comes in two forms. Adult bee crowding is what the term means to most of us. A second

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frame wire in a zigzag pattern across one side of each of several frames. These went into an empty brood box.

Armed with a sharp carving knife, I returned to the site. Up the ladder again to find the little devils ready for me. Plenty of smoke calmed them down a bit. Made me feel that I had shown them who was boss.

Down the ladder, with only a few stings, and back up with the carving knife. Carefully cut the outside comb – all honey – away from the branch and gingerly carried it down the ladder.

I had laid one frame on a table on a sheet of newspaper, wired side downwards. I trimmed the piece of comb to fit into the frame, remembering to make sure that the cells sloped the right way. I then stapled more wire over the comb to hold it in place and then put the frame in the brood box.

Back up the ladder and cut down the next comb. This had a bit of brood in it. The process was repeated. Trim to fit and then wire it into position, then place the frame in the brood box with the other frame, trying to keep the order of the bits of comb the same as they were in the tree.

By this time the ladder was becoming more than a little sticky with unripe honey. However, the remainder of the combs were cut down, trimmed and fitted into the frames, wired up and then placed in

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type of congestion is stores, in what had previously been comb used for brood. Nectar is used to reduce the brood nest volume prior to starting swarm cells. If nectar is in short supply in the field, the colony will sometimes use pollen to start brood nest reduction. The process will be described more fully in a later article.

Dr. Roger Morse stated that hive body reversal was the best way to "relieve" congestion. He must have been writing about nectar congestion of the brood nest. A beekeeper would not likely be clumsy enough to make an appreciable dent in the total population by reversal. When the lower hive body, with brood to the top bars, is raised, the colony starts over with brood nest reduction at the top.

Before we leave nectar congestion, one more thought is offered: The upper hive body can be nearly filled with nectar by the brood nest reduction before swarm cells are started. The queen will be circulating in the lower hive body, recycling brood cells as they are prepared for eggs. Heat rise from the brood nest will carry her scent right through the plane where swarm cells will be started. Swarm cells are generally built on the bottom bars of the upper hive body. Most of the bee crowding will be concentrated in the upper hive body, where there is less activity. Although the upper hive body is crowded, there is queen scent available where the swarm cells are started.

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tionable altruism and that of some of the professionals is the application of, or distortion, of some of the principles of Ricardian or Keynesion economics. In other words, the professionals get paid and I don't.

So much for psychological self-analysis, always a dangerous indulgence, like self-medication. I would prefer to pass off such placating thoughts about swarm catching as pardonable rationalizations, compulsive behavior that makes swarm chasing so irresistible to some beekeepers, a necessity that perhaps motivated our forefather beekeepers to catch swarms. It is an inherited inanity, no doubt, that has long since been resoundingly superseded by the efficiency of the packaged bee business! Oh yes, I hear the guffaws from those among us who practice our guileless, inefficient madness of pursuing vagrant bees who want only to be left alone to propagate their kind as nature intended.

I have been involved in some novel situations in my adventures chasing swarms. The calls come in all manners of introduction: Usually something as disarming as "There is an enormous bunch of bees in our backyard and we and the kids don't dare go outside, we are all allergic to stings. Can you come right away and take them away?" After the usual questions, how high, hanging from a limb and how long there, I either go or explain that if the bees are not bothering anyone (and they usually are not) just ignore them and they will shortly leave. I positively refuse to have anything to do with bees ensconced in holes in trees or in the siding of buildings. I go to the address given, sometimes at the far end of muddy lanes accessible only by four-wheel drive or by such expeditious routes as exiting from the freeway at Poison Oaks, left at Crash Corners and a dozen or so lefts and rights beyond. A quick assessment tells me if I can or wish to try to take the swarm. I have encountered swarms from the size of a golf ball to some that would overflow my 20-gallon plastic swarm catching container. I tend to ignore both size extremes much as I would like to bring

"Capturing swarms, has been an irresistible, repeated, irrational impulse to collect clusters of thankless bees that would otherwise find decent abodes somewhere else."

home the giant bunches. The weight of a large, gorged swarm is not inconsiderable when the swarm box is held head high while balancing on a shaky step ladder. Several pounds of bees spilling upon your hopefully bee proof veiled head and shoulders can be disconcerting. In almost every instance of a swarm capture there are stragglers. How does one avoid return calls for a handful of bees? I have yet to come up with a satisfactory answer, usually offering placating advice to the effect that such an infinitesimal number of bees offers no threat – and politely hang up.

I have taken swarms from the handle of a lawn mower in the middle of a half mown lawn, left there when the operator had fled upon the arrival of the swarm. I have removed swarms from inside wood duck nesting boxes, from shrub and tree limbs, building sides, chimney stacks, dog houses, fences, piles of lumber, culverts and from inside various appliances and furniture abandoned on porches or in yards. In a nearby city a policeman had captured a swarm on a city playground in a ventilated plastic bag. He handed it to me from the trunk of his police cruiser. Bravo for the law! I have several times been called to remove a swarm from beneath a mobile home. Only once did I refuse to do so. It was an enormous feral colony well established on a number of combs suspended from the underside of the trailer. The complication was that it was only a few feet from a well-used sidewalk. I purposely never inquired as to what happened to the bee colony.

I have always hesitated to attempt to gather a swarm of bees above or near a busy pedestrian sidewalk, parking lot or building entrance. I was called to a Wal-Mart store where a swarm was hanging in a tree across the driveway from the store's entrance. Hundreds of customers were using the crosswalk blissfully unaware of the swarm overhead among the tree branches. The only disturbance, the store manager later told me, was when the swarm arrived and departed a day later. Witnesses to clustered swarms are usually surprisingly calm, cautious, but curious. The sight and sound of an arriving and departing swarm is much more of a concern to onlookers.

No one swarm situation is the same as another. Your experience, agility and skill usually determines your success in swarm catching, plus some luck in drawing the easy catches. Forms of collecting containers other than a plain covered cardboard carton or plastic container are no doubt handy devices to have. I sometimes use a burlap bag attached to a long handled fish landing net, the netting replaced by the bag. Experience teaches you caution rather than being aggressive when confronted with a challenging situation. No swarm is worth a fall from an insecure ladder. Then too, always consider what effect the disturbed bees may have on innocent passersby. A swarm entwined in a wire fence or shrub, against a tree trunk or the side of a building may be tempting but brushing them off into a container may be difficult. Ordinarily smoke is useless in swarm captures but sometimes it has a purpose when used to direct obdurate or confused bees in the desired direction or take flight from the ground. I have never had much success placing an empty hive near a swarm hoping they would enter, even when baited with a frame of brood and honey. They either ignore the offered home or enter temporarily, load up on the free lunch and take off following the scouts who have located another abode. I admire those who regularly practice removing swarms from tree boles and inside buildings. Hiving a captured swarm is a satisfying experience if they show every indication of becoming a thriving colony.

With experience you will learn to quickly recognize whether or not you have the queen in your capture box. Free flying bees will soon cluster on the outside of your container if the queen is inside. Some loose bees will return to the original clustering site but smoking may help to put them to flight and hopefully cling to the container. You are then faced with the dilemma of how to get them inside without releasing those within. Of course you can put them in your vehicle as is and hope they don't fly to the windows which they

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the hive. Space at one end of the brood box was filled with frames of foundation.

When all the comb had been cut down, I scraped any remaining comb off the branch and sprayed disinfectant where the nest had been. The flying bees didn't like the smell and kept away. By this time some bees were fanning round the new hive. This was left in position and I went back for it the next evening, sealed it up and took it back to my apiary.

The bees soon became accustomed to their new home and quickly repaired the damage to the combs. The queen soon started laying again but I replaced her with a newer model.

The operation produced a viable colony of bees. The colony went on to produce a super of honey that year. All the foundation was replaced at the beginning of the next year.

However, the process is inherently messy with the unripe honey running out and getting everywhere – not least on gloves and bee suit.

However, everyone finished up happy! The lady got rid of her *swarm*, the bees got a new home and I got a colony of bees!

Isn't that what it's all about?

by Peter Smith

CONGESTION? ... Cont. From Pg. 31

There are two major types of swarms generated in the Spring season.. The reproductive swarm is earlier and smaller than the overcrowding swarm. To build population to an intolerable level takes a little longer and the swarm is generally larger. The literature makes no distinction between these two types of swarms, and that leads to confusion as to the "cause" of both. The causes are different for each.

The reproductive swarm is timed to coincide, as close as possible, to hardwood leaf-out in the Spring. At my location, the reproductive swarm issue period lasts for about three weeks, starting at the beginning of apple blossom. General hardwood green up starts a week after the start of apple blossom. Considering the complexity of swarm preparations, most colonies in good condition do an excellent job of hitting the issue timing window. This puts the offspring swarm on their own approaching peak woodland forage availability.

The bees do not need an excuse for reproduction by their unique method. Their motivation to reproduce would be as compelling as the mammal sex urge. I doubt that anyone reading this has found it necessary to fabricate an excuse, a reason, or a "cause" for his sex drive. Why must we invent a justification for the honey bee reproductive process?

The steps to reproductive swarming are a deliberately controlled process. Starting in Winter, the build-up in population is specifically for the purpose of division by the reproductive swarm. Controls built into the process prevent overpopulation when permitted to do it their way. The reduction of brood volume by nectar congestion serves several purposes and one of them is to prevent population overrun. The process controls will be explained in a later article. If there is a "cause" for reproductive swarming, it is the colony motivation to reproduce.

Overcrowding swarms *do* occur. They are created by the meddling beekeeper. The beekeeper who deliberately interferes in the controlled process of reproduction can cause overcrowding. For example: Reversing hive bodies on a periodic basis maintains nearly two full boxes of brood. He must add space for the bees generated by that much brood. The bees have been deprived of their natural control of brood nest reduction. We see overcrowding swarms as a defense mechanism to protect survival of the existing colony.

In summary, with two types of congestion and two types of swarms, the literature theory isn't applicable to all circumstances. We can safely say that overcrowding swarms are "caused" by congestion (overcrowding), but the root cause is mismanagement by the beekeeper. It ends there. Neither type of congestion is the "cause" of reproductive swarming. We need to recognize swarming for what it is: a deliberate effort to perpetuate the species. No excuses required.

The experts tell us that some swarming is inevitable, no matter how hard you work at prevention. This is true if you treat the symptoms. Its much like the doctor prescribing a pain pill without treating the source of the pain. Congestion, both kinds, are component parts of the swarm process. They are *effects*, and not the cause. Treating the effects or symptoms of the swarm process will continue to yield only partial success. It's time to move away from yesteryear's guesswork. In this age of exploding technology, we keep bees by the same dogma handed down for 200 years. I'm inclined to call it horse and buggy technology.

The last improvement in beekeeping know-how was the Reverend triple L's movable frame, and that's over a 100 years old. It was a mechanical improvement that contributed very little to dispel the misinformation of yesteryear. Although it should have – we can now remove frames and actually see how the bees run their shop. As I see it, the main obstacle to improvement in technique is the mindset of those schooled in "conventional wisdom."

The intent of this article is to soften the reader up a little for an impending series on survival traits of the European honey bee. The survival traits discussed in that series stray considerably from conventional wisdom. They are the result of my personal observations. It is human nature to reject any concept that differs from what we think we know to be true. Acceptance of what I see happening in a beehive will be difficult, if not impossible, for some with strong conviction to the contrary. I invite you to take a strong stand an set out to prove me wrong. I will have one more convert.

by Walt Wright

usually do while you are on the road. In an open truck bed they are usually no problem, they simply disappear.

I have lost count of the number of swarms I have successfully captured over the years and then there is the number of "dry runs," and the failures to hive the swarms. It has been an interesting trial and error experience, but the same could be said of any enterprise that we enter for any number of reasons, some rewarding and some not. **BC**

Larry Goltz has been a hobby and sideline beekeeper for many years. He is the former editor of Bee Culture *magazine and now lives in Redding, CA.*

Lloyd Spear

Ah, Pollen!

Our bees need pollen. Lots of pollen, more than most beekeepers realize. Adult honey bees exist solely or almost solely on carbohydrates. Sugars, if you will, mostly in the form of nectar or honey. However, honey bee larvae and young bees require copious amount of protein for development. How long they live, and how industrious they are, depends on their flying muscles and their nervous system. Their nervous system lets them function through recognition of pheromones in the almost-total blackness of their hive, and lets bees navigate home from their distant trips. Without strong wing muscles they cannot forage efficiently, perhaps at a considerable distance, for hundreds of trips and will die prematurely and not collect normal amounts of nectar and pollen.

Yet, how many of us feed pollen in times of dearth? Not many, but we are reasonably quick to feed syrup or honey. Why? How many of us use pollen ourselves or sell or give it away, as we do honey? Why not more of us?

The importance and role of pollen to honey bees is not well understood, and not enough beekeepers recognize the substantial and highly profitable market for fresh pollen. In this article I will address why, when and how we should feed our bees pollen and how to collect pollen. A future article will address how to process and market pollen for human consumption.

What bees do best.

All animals, including insects and honey bees, need protein. Some, such as birds and turtles, have relatively plentiful amounts in their egg yolks. Others, such as honey bees, develop from an egg so small that little protein is immediately available unless supplied from outside sources. Nurse bees, of course, feed larvae a protein rich diet almost constantly until sealed in their cells for metamorphous.

This diet is a remarkable substance, consisting of nectar, pollen, and glandular substances from the nurse bees themselves. Most of the protein value comes from glandular material produced by nurse-bees. Some researchers report that larvae do not directly consume pollen, but that pollen is critical as a nurse-bee food for production of the protein rich glandular substance. What scientists agree on is that young bees need substantial amounts of protein or their wings, muscles, and nervous system will fail to develop properly. Virtually the only source of honey bee protein is from pollen. How much protein does pollen contain? Here are typical amounts determined for some common US pollen-bearing plants:

Species:	% Protein	Species:	% Protein
Maple	26.4%	Thistle	18.3%
Blue Aster	34.7%	Almond	30.0%
Creosote	25.8%	Dandelion	14.7%
Pine	7.5%	Cottonwood	16.6%

To put this into perspective with our diets, meat, fish, and soybeans generally contain 10%-12% protein. Indeed, the only food that most of us eat that contains over 20% protein is chicken.

Within a day of emergence, most worker bees start direct consumption of pollen. Most of that is used for development of muscles, the nervous system, and internal organs, but some goes into fat stores (pollen is the honey bees sole source of fats), and some to the development of glands. As previously mentioned, glandular production of proteins is critical to the nutrition value of food fed to larvae.

Workers function as nurse bees for the first 10-14 days of their lives. During this period of copious pollen consumption, they are also feeding brood. When they are fully developed they cease pollen consumption, their protein producing glands shut down, and thereafter they exist solely on carbohydrates, principally sugars. Important to our consideration for feeding pollen is that scientists have demonstrated that the amount of pollen available for consumption directly effects both:

1. The number and weight of larvae raised by nurse bees.
2. The amount of nectar and pollen gathered after the workers cease to function as nurse bees.

Many beekeeping articles written for hobbyists advise when and how much sugar or corn syrup to feed in periods of dearth, to assure good overWintering, or to spur brood production. Relatively few articles also advise feeding pollen or a pollen supplement, although I think I sense an increase during the past few years. My advice is that beekeepers should feed pollen *whenever conditions advise feeding syrup.* In fact, feeding syrup without feeding pollen can lead to workers not fully developed and consequently weak hives.

A good test of any beekeeping practice is 'what do the commercial beekeepers do'? More often than not, when they are feeding syrup they are also feeding pollen substitutes. *Tons* of pollen substitute are produced every year in the U.S., and many tons more of plain brewers yeast and sugar. (Strictly speaking, the combination of brewers yeast

and sugar is not a pollen substitute, but it is used as one by many California beekeepers and queen breeders. It is fed primarily for the protein content of the brewers yeast, with the sugar used as an attractant.)

Lets examine more closely whether we should feed pollen whenever we feed syrup. First, think of the obvious cases when bees might need syrup but not pollen:

Is that your final answer?

Ok, lets think of some common reasons for feeding syrup and then consider whether feeding pollen might also be appropriate:

Foragers returning to their hive with their pollen loads.

1 The Summer has been hot and dry. Little nectar has been available and the bees do not have enough stores for Winter. Feeding syrup is necessary for Winter stores.

How can there possibly be enough pollen in the hive when the drought has been so severe that bees could not collect enough nectar for Winter stores? Do we have plants that produce nutritious pollen when they do not produce nectar? (Answer... NO. Some plants will produce pollen without nectar (corn, cattails, pine, etc.) but the pollen has almost no nutrient value.)

The fall of 2002 found Virginia with almost exactly these drought conditions. Dr. Richard Fell, Professor of Entomology at Virginia Tech and a top beekeeping advisor, published an article in the state beekeeping newsletter advising beekeepers to feed both syrup and pollen to ensure Winter survival. He emphasized that feeding syrup alone would be insufficient.

2 We want to make good splits from existing overWintered hives, for sale as nucs, to increase the number of hives, or to replace losses. The books recommend starting to feed syrup approximately 30 days before the first maples bloom in the area. They are silent about feeding pollen (the usual case). Should pollen be fed?

Absolutely. In fact, if pollen is <u>not</u> fed worker bees will not fully develop. After the split, the beekeeper will have two or more weak hives that fail to reach their potential. OverWintered pollen is valuable, but cold conditions when feeding 30 days before natural flows will mean that the bees are not able to uncap and use as much as needed. In addition, feeding syrup will stimulate an increase in brood production that cannot be sustained solely on overWintered pollen, even if the weather is warm enough to allow access.

3. I have received a package or purchased a nuc. I do not have enough drawn foundation and understand that I have to feed syrup to encourage the bees to draw more. The instructions are silent about feeding pollen. It is necessary?

Absolutely, especially if you purchased a package. When purchasing a package, a beekeeper gets 2-3 pounds of bees *and no brood.* Some of these bees are likely to be nurse bees (workers that have emerged 1-14 days before being put into the package), who must have pollen to complete their development. Some of these bees will be 60 or more days old, so will die before the next generation emerges, in about 30 days. More important, the number of bees in the package to forage for pollen and act as nurse bees is limited and is certainly insufficient to properly forage for the next two generations. Failure to feed pollen will likely result in the premature death of larvae, undeveloped workers, and a hive that fails to reach its potential during the following Summer.

Do commercial beekeepers feed pollen (or pollen substitutes) under these conditions? You bet they do. They know what they are doing. In fact, their families depend on it.

What is this about pollen substitutes? If commercial beekeepers use the stuff, why not me? Then I could forget about collecting pollen. Sure the commercial guys use it, but many or most do not really have a choice. I think I am safe to say that <u>all</u> would rather use natural pollen.

Natural pollen requires some manipulation to collect (we will go into that later), and a great deal of labor. At least 'a great deal' compared to the labor that a commercial beekeeper that has to support a family can normally give to her hives. Unless hives are located in the Southwestern U.S., or somewhere similar with hot dry pollen-collecting conditions, the beekeeper must empty the pollen drawer at least every 3-4 days. Then freeze it immediately. It must stay frozen until it can be dried (or made into pollen patties for feeding). This is because pollen is so rich in protein, fat, minerals, and vitamins that all kinds of bacteria and fungi love it and will feast on it under humid conditions. Commercial beekeepers

Collecting pollen on a fruit blossom.

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AH, POLLEN ... Cont. From Pg. 35

normally visit their honey production hives about once a month, and are in remote areas where large freezers are not available. For these reasons, it is just not practical for commercial beekeepers to produce the tons of pollen they require.

Ok, how is pollen collected? To collect pollen, beekeepers use a tool that is termed a pollen trap. (You need to know that we collect, use, and sell a great deal of pollen. Over the past 20 years we have gradually designed our own trap that we started selling about five years ago, the Sundance™ Pollen Trap.) I do not know as anyone knows why the tool is called a 'trap' but it is. Essentially all traps operate by removing a portion of the pollen from the bee, as it enters the hive. The pollen removed is then 'trapped' in a manner that the bees cannot get to it until it can be collected by the beekeeper.

There are two general types of traps. These are termed 'Front Mount' and 'Bottom Mount' The best of the Front Mount traps are those made from wood and sold by Dadant, 800.637 7468 and Mann Lake, 800.880.7694, and perhaps others. While inexpensive, they all have the same shortcomings (none of which are mentioned in the catalogs):

1 They mount on the hive in a manner that significant amounts of burr comb result.

2 The bees must either go through screen mesh once on entering the hive and again to exit or separate exits will be used by the bees as entrances as well. If so, pollen collection will be negligible.

3 Drones cannot exit the hive, as the screen sizes are necessarily too small. Some beekeepers say that hives become demoralized when drones are trapped inside.

4. A Summer thunderstorm will saturate the pollen collected, making it worthless and leaving the trap a gummy mess that must be taken elsewhere to clean.

5 Since they mount on the front of the hive, the beekeeper must stand directly in front of the entrance to collect the pollen. Bees are not happy about this, and usually a veil is necessary, and often gloves.

All bottom mount traps incorporate design features to address these difficulties. All are somewhat successful. As you might expect, we believe the Sundance™ trap is the best designed. Commercial pollen collectors, universities, and the U.S. Department of Agriculture apparently agree, as all are important customers. My dad used to say 'buy the most expensive tool you can, take care of it, and it will be the most economical in the long run' We believe the Sundance™ trap meets those criteria. Sundance™ traps are available from most major dealers.

Before you buy any trap, ask beekeepers in your area what is successful. Alternatively, ask on one of the Internet beekeeping discussion groups, such as the largest, Informed Discussion of Beekeeping. This is available at ListServe@Listserve.Albany.edu then type "Subscribe Bee-L" "Your first and last name" in the body of the message (without the quote marks and with your actual name). Do be careful when making a purchase, some of the catalog descriptions can be misleading.

Do not buy pollen to feed, unless you know the beekeeper that collected it, and have good reason to believe his hives are free of American Foulbrood.

A pollen trap tray after a day's collecting.

If you do not have enough pollen for all your needs, buy pollen substitute and mix it:

1. First, 20% (by volume or weight) with pollen.
2. Next, with sugar or corn syrup as described below.

If you do not have and cannot get *any* pollen, and must feed syrup, use 100% pollen substitute in patties as outlined below. It is better than nothing.

To feed pollen, make patties and place them directly on top of the brood nest. We make our patties during the Winter and freeze them with wax paper on top and bottom. We put the patties and wax paper directly on top of the top bars. Both the wax paper and patties disappear in no time!

The patties should be made about the thickness of pizza dough and weigh about one pound. The two recipes that follow assume that the pollen has been thawed and the liquid is either grade 55 corn syrup or a 1:1 sugar syrup.

To make four pounds of pollen patties:

1. Three pounds of pollen
2. 2 cups of syrup (corn or sugar)

Mix well and form four patties with your hands. Put wax paper on top and bottom and place inside a plastic bag and freeze until needed.

To make 34 pounds of pollen patties:

1. 24 pounds of pollen
2. 1 gallon of syrup (corn or sugar)

Heat the syrup to about 150 degrees. Pour the syrup into a 5-gallon bucket and gradually add the pollen. Mix with a dry wall compound stirrer in a ½" drill or something similar. When well mixed, make patties and freeze, as described above.

Feeding pollen as often as you feed syrup will make you a better beekeeper, improve the health of your hives, and increase your yields. Most important, you will be giving your bees the attention they need. "Take good care of your bees, and they will take good care of you." BC

Lloyd Spear owns and operates Ross Rounds Equipment Company, and is a sideline beekeeper.

Better Records
Make Better Beekeepers

James E. Tew

Contributions From Record Keepers

For you...

Writing for you folks is a lot like fishing. Some baits work sometimes but not at other times. Likewise, some articles pique your interest while others do not. My piece in the October 2002, issue of *Bee Culture* on record keeping apparently touched your big nerve. For your review, I have included here some of the comments from real-life beekeepers who corresponded with me on the subject of beehive record keeping. Honestly? I have not included all the comments I received but I have not intentionally shown partiality to the readers' comments I selected. I simply included all those I could readily find. Sorry, but Editor Kim and I had to make a few small changes in some of the communication text. Please know that I read all you write to me and I appreciate the communication.

David S. (Maine) Dr. Tew, I was interested in reading your article on record keeping. I keep regular records in a diary after opening each of my 4 +/- hives, but my system is woefully inadequate. It is difficult to compare to previous years and see trends. Because I am swapping frames of bees and nectar I can't even figure out how to compare hive performance. I have 3 types of bees and I am confused on each of their performance. It doesn't take into consideration the weather, forage. I need a record keeping consult!!!!!

I would love to see various record keeping techniques that other people use. I keep bringing it up as a topic at our local meeting, but few are enthusiastic about it.

The one thing I do like about my technique is putting a list at the end of each visit what needs to be done the next visit. I thank you for any information you *(or your readers)* can share.

Jean B. (Washington) Last year, I harvested 2,373 pounds of extracted honey, which is an average of 113 pounds per colony. I use a small loose-leaf notebook for my records. I have several outyards and have the colonies categorized as to location. Each colony is numbered according to the hive stand with two to 10 colonies in each location. If a colony is moved from one yard to another the record for that colony moves to the new hive stand and acquires the stand number for that location.

When examining colonies I smoke the first one, examine each frame, close the hive, smoke the next colony and record in my journal everything I found in the colony. I note queen presence and laying activity, queen cell activity if any, amount of honey and pollen and amount of brood and quantity capped. I also note number of frames of bees and whether they need space for expansion. As the supers stack up, I indicate nectar storage, etc. I must record after each colony as I forget what I observed when I begin working the next hive. The time it takes to make notes gives the smoke time to work on the next colony. I am very methodical which makes it easier for me to accomplish the end result.

I examine my colonies every seven to 10 days and remove active queen cells, as this appears to prevent swarming. My goal is to maintain strong colonies and produce as much surplus honey from each colony as possible. If I note how many active cells I remove each time I have a good idea when the worst of the swarming activity has passed. I also know which colonies need more scrutiny.

This season I had a higher number of colonies that didn't exhibit the swarm impulse. Also, this year I lost four swarms, retrieved one, collected two and had one come to visit in a bait hive. If I didn't control the swarming I wouldn't get the production I need to stock my store shelves with local blackberry honey.

Is this a lot of work? Yes, it is. I feel it is worth it in the long run as it helps me keep on top of conditions and enables me to answer questions better. And I do answer lots of questions.

Marvin S. (Nevada) I have all my hives numbered so I bought 3" x 3" x 1/8" pieces of plastic (any size will do). I drill a hole in each side and then screw these on the front top of the lid. At a stationery store, I purchased a black grease pencil/lab marker that I use to record what is going on in the hive and the current date along with anything else I observe. When things change in the hive, I just wipe off any information I no longer need. This system works very well. Neither snow nor rain will remove the grease pencil from the plastic – it can only be removed by wiping it off with a piece of burlap.

Keith J. (Washington) Record keeping is essential, especially in the somewhat marginal environment of the San Juan Islands of Washington State. I started by using a large old-fashioned ledger book with margin space for queen data, medication/ feeding, supering for honey, and extraneous comments. I made field notes and recorded entries into the ledger at night. My records were thorough, but read like a novel. After three years of mixing up notes and just plain spending too much time, I gave this procedure up. It would be perfect if I had a stenographer in the field to take

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RECORDS ... Cont. From Pg. 37

notes and transcribe into the ledger while I relaxed.

My current method is much better. I have two 3-ring binders for my two locations with sequential numbers on each hive and dividers for each colony. There is a facing page on the cover under plastic with the hive's number and the queen date (year, introduction date, type and marking). I also include honey production for the preceding and current year. Behind each divider is the description for the queen and her age. That page is divided into sections on feeding, supplements and medication. This contains information such as the amount of sugar fed, pollen substitute, menthol and so forth. In more detail is the date I put in specific miticides, its removal date and the mite drop rate over a twenty-four hour period. This is especially important because this year (Fall), I am not treating five colonies that tested with 2-5 mites or even no mites. In the Spring, I will very carefully monitor their mite load.

In the Fall and Spring, I start a page of "to do" things, such as check mite loads, put queens in nucs and replace failing queens or replace rotted hive bodies. This information goes in the front of each book. At the back of each book is a sheet for day-to-day tasks. (i.e. Change inner covers, replace frames, etc.)

I make my notes after working each hive because I forget quickly. I have a third book, which keeps track of weather information, first bloom, first Yellowjackets, first sign of drones being raised or thrown out, or the first swarm. When Alders bud, egg laying starts.

I use abbreviations when possible. In the future, I will develop a format to photocopy for the medications and feeding schedules for uniformity.

I know there are beekeepers who use systems that work for them, such as 3x5 cards on the inner cover, but I like to read my notes in front of the fire at night.

Paul N. (New York) I've used a voice-activated mini-recorder for years. I turn it on and place it into my left breast pocket of my bee suit when I enter the beeyard. I turn my head slightly and start talking – hands free to do what is needed. I transcribe into computer files when I get home. My computer makes it easy to cut notations that are no longer relevant, thereby keeping the files as short as possible.

There are two drawbacks: (1) I have an accent and hate to hear my own voice, and (2) people think you are a little "odd" talking to yourself with your head turned sideways.

Bill G. (Nevada). With all my "growth" (through the years) on this subject, I have decided there is perhaps no perfect way to come up with the ideal record system. However, it is fun and challenging to work this out especially during the cold Winter months.

After identifying all the things of importance to be considered in keeping thriving colonies today, it is a test of one's creative abilities to organize it on paper. In the end, I have concluded a check off system (or Yes and No entries) is about as close as one can get to saving time when making entries on the different headings.

Of course, everything will not fall under a check-off system, so I have allowed for journal entries that are required at times. Also, I believe that each hive should have an easily identifiable symbol of some sort. After making stencil ID's for some years, I decided it was time for a change. I wanted some other permanent method to label a hive. I finally came up with the idea of an aluminum clip. These can be clipped on over the edge of hive bodies or supers just under the cover or just left plain (without the bend) and tacked on the hive body. The letter is used to indicate the bee yard and the number for each consecutive hive in that apiary. These transfers were made by a friend of mine who runs an "instant sign" company. These clips work quite nicely as they can be transferred to new or refurbished hive bodies. Yes, the bees will do a little propolizing when on for some time, but still they pop off. The material for the numbers and letters is very durable and holds up in all sorts of weather.

My record sheets are made for a 3-ring binder and are in Excel format. They make a fold out or "spreadsheet" so that information for a hive can be carried straight across. Also, an additional note strip can be inserted as needed (if needed). I use one of these spreadsheets, Side I and Side II, for each apiary location and fill in the location, property owner's name, rural route address or any other information for that purpose. Additional sheets or sections can be added according to the number of hives at any one location. I include the property owner's telephone number as well with information.

Two sizes of identification clips

Now, I do admit filling out these entries after finishing work in a yard is no convenient task, but that is what it takes if one wants information before returning the next time to that yard. You have information and you do not have to guess just what to do your next trip out. You will know whether or not to combine hives, requeen, super hives, and do splits – whatever.

Regardless, the records I have kept are very interesting when I go back to any year and review a beeyard. I can review the highlights of the year – things such as hive temperament, new queen entries with the race of bees in each colony, production, when supered and when honey was taken off, and how that particular apiary performed as a whole that year. In the Fall, after all the Winter prep, etc., I sometimes write a summary or overall impression of that yard from scanning the information before me.

So, yes, record keeping is additional time spent and takes determination, but it depends on the extent one wants to go with on information desired. One can collect as much or as little information as is needed to do a good job. When specific information is needed, there is only one way to get it keep records of some kind.

Thanks...

Thanks to everyone who wrote to me on the subject (and on so many other subjects.) I appreciate the interaction (even if I don't respond to all writers in a timely way). I hope these additional record keeping comments help us all become more organized. **BC**

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My interest in bees and beekeeping began when during graduate school I literally stumbled upon a pile of toppled and rotted beehives that were sited on an old abandoned estate in Philadelphia. I had just finished getting a MFA in sculpture and was roaming, in more ways than one, trying to figure out what to do next as an artist. Not yet knowing it, my work as an artist was to become more meaningful to me and truly my own.

I found the hive parts compelling and took them back to the studio for a good sandblasting and repairs. A friend had an old copy of a beekeeping book and when I started flipping through that I found images of bee equipment that were just as interesting to me as any sculpture I had seen. The more I read the more mysterious it all became. To me it seemed a strange but wonderful combination of agriculture, science, architecture, religion, and art. The dreamers of bees and the inventors of bee equipment seem to have been working at very high level of creativity.

While repairing the old hives and teaching myself a little bit about bees from the old moldy bee books and pamphlets, I began to work as a carpenter on very old homes in Philadelphia. The late 18th and 19th century architecture that I was immersed in had a similar romantic affect on me as my finding out about bees did. The domestic spaces, with their built-in cabinets and drawers, window seats with storage compartments, trim details, and decorative carpentry were clearly made by craftspeople with the same passion and integrity as artists I thought.

Bee Bed, Italian honey bees, cherry wood, Linen 78"l x 41"w x 34"h.

Spending my days working on human architecture I would work on bee architecture at night. I began to contemplate bees and beekeeping to the point of maybe becoming obsessive. Thinking about bees never compares to dreaming of bees so I made myself a *Bee Bed* and it seemed the most natural thing to do. The bed was not made for novelty or to ever be shown as art or craft. Its purpose was to serve as a place for me to sleep while the bees return the nectars, pollens and resins to their archive the head of my bed. The mattress is hand sewn of linen with flowerlike shapes stitched into each corner with a particular stitch I call the *pollen stitch* (French knots).

Kevin Kautenburger

The very first bee inspired work I made was a series of circular embroidery hoops I made of poplar and muslin. I had been captivated by the beautiful color of the pollens that the bees brought back to the hive and the little wads of pollen in their pollen baskets looked almost like French knots used in embroidery. Each hoop documented a particular pollen hue I had seen and each stitch represented one visit to a flower. Every hoop has hundreds and hundreds of stitches so in some small way I put myself in the position of a bee. I called these *Pollen Frames*.

Pollen Frame, muslin, wool, poplar, beeswax, 14" dia. x 2" d.

Pollen Shutters, pollen, mirror, glass, poplar, 70"h x 48"w x 3"d each pair.

While I could easily see the lumps of pollen the bees had gathered I believed that at certain times of the day, if the angle of the sun were just right, I could see pollen itself being blown about in the atmosphere. Experiencing this in combination with the normal frenzied flight of the bees was a sensation of ecstasy and reverie. Pollen had been mixed with light and I wanted to bring this phenomenon into a domestic space. I designed two pairs of large louvered shutters that were made of mirrors dusted with pollen and then clear glass over top. Sort of like a slide specimen. The silvery reflective quality of the mirrors lends a visual sense of atmospheric depth. I installed the custom *Pollen Shutters* in the windows of an old Georgian mansion in Philadelphia that is now an art space. The interior white walls and the plaster moldings would reflect changing saturations of pollen hue throughout the day. When asked where the *art* was I replied that we are absorbing it, it is permeating us.

Another sculpture similar to the idea behind the pollen frames is the *Pollen File*. This is a collection of one season's worth of pollen from the Andorra Natural Area in Fairmount Park in Philadelphia. The file contains 22 frames of pollen mirrors (mirrors dusted with pollen) each being one weeks worth of pollen. This is a work I keep next to my bee bed. In a way it is some sort of reliquary.

Bureau, cast portland cement, Italian honey bees, 50" w x 21" d x 41" h.

Also reliquary-like, or tomb-like is a cast portland cement hive in the form of a *Victorian Bureau.* The wishbone mirror was made of clear glass and the bees could move up into it from the main chamber below. The hive was installed on the site of an early 18th c. cemetery in Old City Philadelphia, and the first sunny morning caused a melt down of the comb in the mirror! This was replaced by copper 'mirrors' which lent a quiet luminous sensation to the hive, alluding to the warmth and energy within.

Amber Rocker, cast resin, beeswax, 34"h x 19"w x 26"d.

The scent of the viscous resins within the hive seem to trigger my memory, almost as if I had always known the aromas of propolis and beeswax. I waned to construct a chair of cast tree resins (sap) with the seat of beeswax. I had seen a beautiful exhibition about amber a while back at the Smithsonian and began to become aware of the beautiful saps that flow from fruit trees. I have made a prototype cast *Amber Rocker* with a beeswax seat. I dream of making a bee room with propolis and tree sap wainscoting, pollen vaulted arches, and a library of nectars and aromas.

I teach Foundation Design at the Cleveland Institute of Art and I encourage my students to link their passions and interests to their studies. Without our making a vital connection to ourselves and the world our work can easily become meaningless. BC

James E. Tew

Bee Culture's Beeyard

Frame Management

Some undeniable facts of beekeeping

There are certain aspects of beekeeping that are simply non-negotiable. It is as though these characteristics have been reduced to their absolute bee minimum. Some examples of this concept are:

1. Honey is heavy. You can put extracted honey in smaller jars or you can remove one frame at a time, but the overall weight of the honey is the same – heavy.
2. Honey bees only eat protein (pollen) and carbohydrates (honey). Beekeepers can offer some alternatives, but the bees are still really just eating protein and carbohydrates – with an occasional drink of water.
3. Frames of comb are the smallest equipment units of the hive. You can use plastic or beeswax foundation – or nothing at all and bees will still build individual combs. You can put three frames in a nuc or you can put ten frames in a full-depth hive body, but you must still handle individual frames. Individual frames make up all hive appliances.

Thanks to *Bee Culture* reader and beekeeper P. Hooper for asking for comments on moving and repositioning frames. I took his challenge. Telling someone how to move frames about is a lot like trying to tell someone how to tie a shoelace. So, this discussion could get tedious.

Game board pieces

Frames (combs) are much like game board pieces to beekeepers. "Put this comb of honey here and put that light frame of brood there." "No, wait!" "Put that frame of uncapped brood up top to attract workers to the second deep." Then take it all apart as Winter approaches.

Keeping bees productively can be a game. We move frames (game pieces) within the hive (the game board) trying to win more than we lose. As you know, we don't always win.

The general layout of the cold season hive

Variations are innumerable, but essentially the general layout of the cold season hive is well known. The cluster should be in the center of the bottom deep early in the Winter season with honey and stored pollen surrounding the cluster

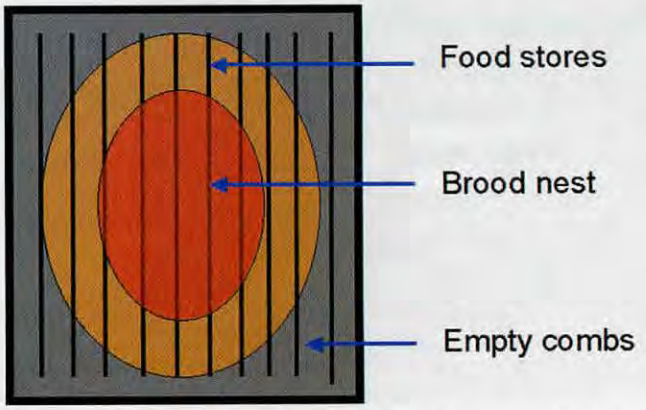

Figure 1. A generalized diagram of a cold-season colony in good Winter position.

In the diagram, the reddish oval represents the bee cluster while the yellowish oval represents the honey and pollen food sources. From the side of this hypothetical hive, the colony, in two deeps, has the volume and shape of an oversized football. In early Winter, most of the cluster should be in the bottom deep. The diagram represents a homeostatic colony in good shape for the upcoming Winter. However, much of the time colonies are not laid out in perfect form. At this point, beekeepers can be helpful by adjusting frames.

What if?

What if your cluster is up against a sidewall as shown in the next diagram?

Remove the right side four frames and reposition them on the left side. Move the remaining six frames toward the center. Then take the edge frames of both

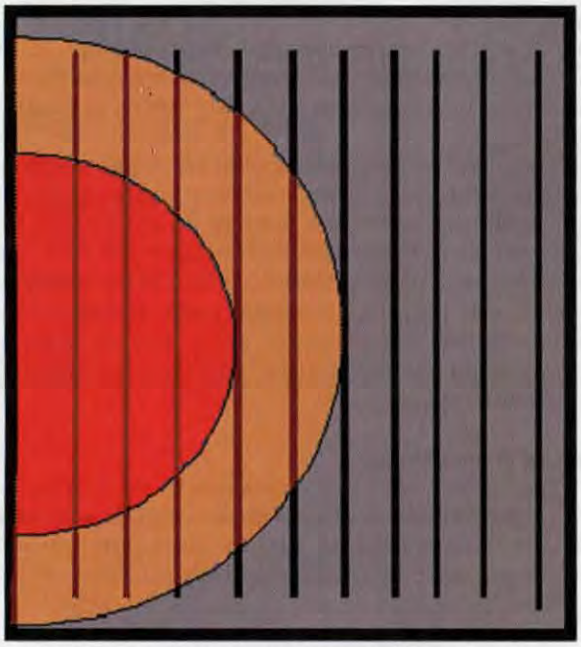

Figure 2. A colony cluster in need of repositioning.

honey and brood, flip them end-to-end, and put them on the opposite side (the left side) to help round out the cluster. The cluster won't be perfectly formed as in the first diagram, but it will be centered better and will have access to more stores in the upper deep as winter progresses. Sorry, I realize that this description is tedious.

Essentially, do whatever it takes to (mostly) center the cluster.

The newly relocated cluster would look something like the next diagram.

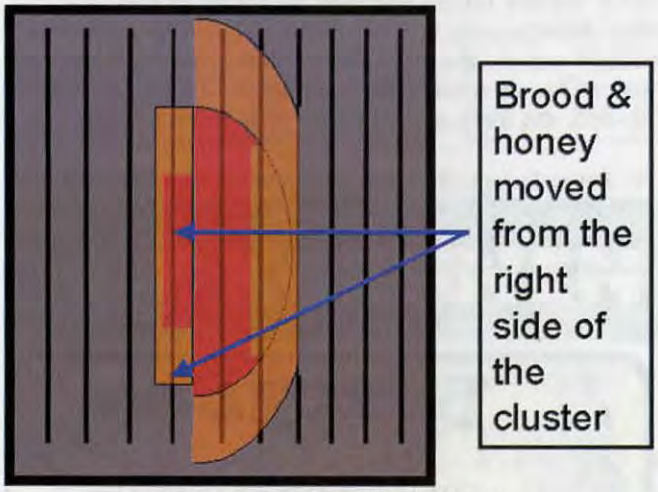

Figure 3. The repositioned cluster.

Notice that I have diagrammatically tried to show the changes by compressing both the brood and food stores on the right side to show they have been moved to the left side. While the cluster is now somewhat centered within the hive, in early Winter, the oval brood area should be in the bottom deep as is portrayed in Figure 4. Again, the reddish color represents the brood area while the orangish color represents the honey stores.

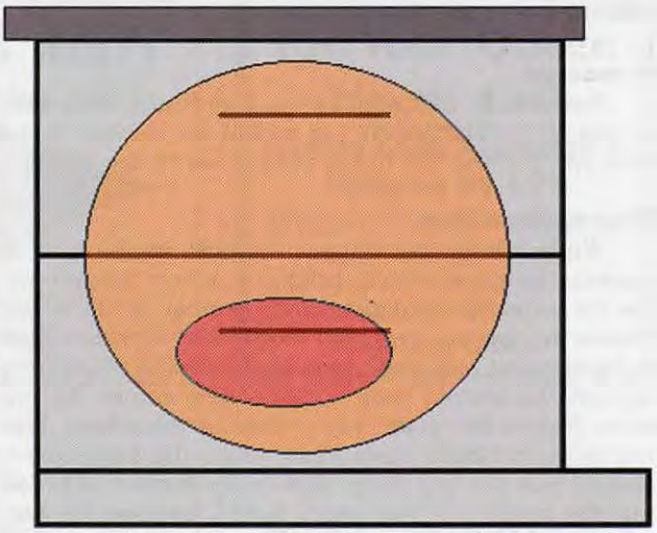

Figure 4. A wintering hive in early Winter.

The whole purpose of centering the brood nest is to have the cluster move directly upward onto fresh honey stores as the Winter season progresses. Therefore, most clusters will be immediately beneath the inner cover in by Winter or early Spring.

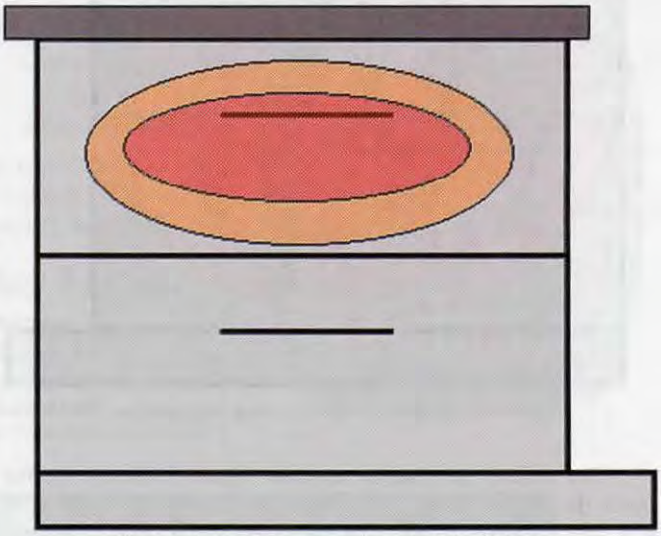

Figure 5. A wintering colony in late Winter.

Notice in Figure 5 that in late Winter the honey stores have diminished and the brood area has increased – all in preparation for Spring. So why have I exposed you to all of this detail? In order to help the wintering colony as much as possible, you and I must frequently move frames around. There are some things to watch for

When Moving Frames...

1. Don't break the cluster apart on cold days.
2. When giving frames of honey, position them at the sides of the cluster so the bees can access the added honey without leaving the cluster.
3. Don't isolate patches of brood away from the central cluster.
4. In *early* Winter, position added honey frames on top of the cluster, but in *late* Winter, position added honey frames on the sides of the cluster. Or drastically, add an entire deep honey super.
5. So much as possible, perform all your frame-moving tasks in the Autumn. Get the colony prepared for Winter. Then leave it alone.

Continued on Next Page

BEEYARD ... Cont. From Pg. 43

In essence...

Essentially, you are moving any frame necessary to put the wintering cluster within the center of the hive and putting full honey frames above the cluster.

Then Spring arrives

While having the cluster up high in the hive is appropriate for a wintering hive, it is very inappropriate for an early springtime hive. Strange to us, a bee cluster in the top deep will frequently consider itself to be crowded and begin to make swarming plans even though the bottom deep is completely empty. So, we move frames the other way – down. If the colony does not move naturally move itself, you – the beekeeper – should put the top deep, filled with frames of brood and the remains of last year's honey, back on the bottom board as shown in the earlier diagram. If all goes well during the early Spring flow, your hive interior will begin to look like the one shown in Figure 6.

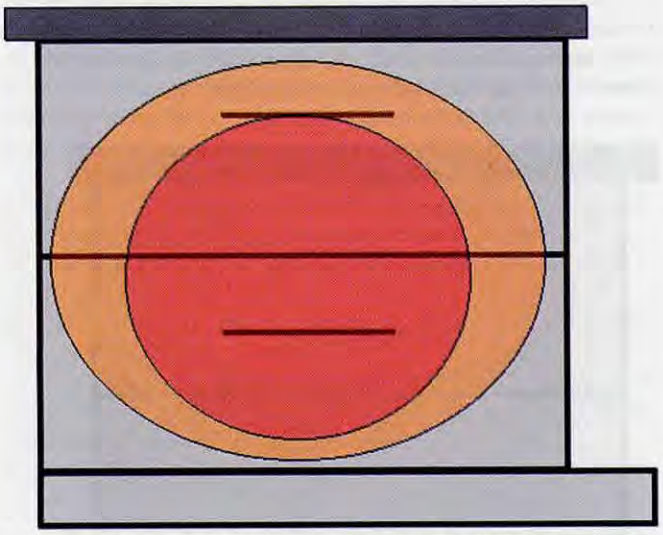

Figure 6. A Spring hive in need of supering.

The colony portrayed in that figure is freely using both deeps for brood. As the nectar flow develops, it will need supering or swarming behavior will commence. Most of the time, when a colony needs reversing in preparation for Spring, the entire deep is moved, but that is not always necessary. You may have to move selected frames from one deep to another to have the brood nest in the bottom deep and honey primarily up top.

There are several occasions when you may make special frame moves. In most instances, beekeepers are attempting to get the bees to increase their brood nest area or a beekeeper encourages the bees to either build new combs or repair old combs. In such instances, you place the specified comb in the middle of the brood nest. Be judicious. Don't put so much new foundation in the colony that you split the brood nest into distant halves.

Special Frame Moves

1. The center two or three frames in the top deep are empty but are surrounded by full frames on either side. You are trying to lure the queen into using the top deep by giving her temping space to lay.
2. New foundation is placed within the center of the brood nest to entice bees to build new comb (ostensibly to replace old comb).
3. You want the bees to remove and consolidate honey remnants or to clean previously used comb. For instance, an earlier hive suffered wax moth damage and you want the bees to restore the comb.

You might want to know...

Interestingly, some beekeepers are arguing that bees build specific comb to go in specific places within the hive. There appears to be some credibility to this observation. If this is true, many recommendations made by people such as I and those in nearly all bee books will need to be revisited. Maybe we don't have the complete freedom that we have always assumed to move frames hither and yon. But even if this observation does become fact, we will still need to manipulate combs within the hive for all the reasons described above. I have tried to discuss some of those instances for you. Go forth and manage your frames. BC

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The Great Almond Orgy Begins

Over a million colonies have headed west.

Kim Flottum

This month signals the beginning of the world's largest annual pollination orgy. Roughly 525,000 acres of almonds begin blooming by the end of the month. Each of these acres uses an average of 2.5 colonies for pollination. That's 1,312,500 colonies of bees, if you're counting. Last year there were 2,634,000 colonies in the U.S., according to the USDA. That means that half of the colonies in the U.S. get used for this single crop in California. Of these, only 440,000 were in California to begin with. Since every colony in that state isn't used for almonds (though it may seem like it) roughly 1,000,000 colonies of bees come from somewhere else. Really, that's only about 2000 semi-truck loads of bees crossing the border. More than that many a day cross the U.S./Mexican border at a single check point, so those 2000 aren't such a big deal.

Crossing can be tiresome though, and even deadly if the colonies come from areas known to be infested with Red Imported Fire Ants. Finding even a single ant is reason to turn the truck around, and if any ant is found, identification can be time consuming and deadly, if you're sitting in the desert sun. Beekeepers from the south, primarily Texas have gone a long way in solving that problem by both controlling ant populations in their beeyards during the year and cleaning colonies before loading.

Colony numbers actually coming to California are a bit of a mystery this year, as in every year. High honey prices have caused some beekeepers to stay at home and make honey rather than incur the expense, and income from pollination. This has been exacerbated by the fact that colonies in California have had a hard time due to drought this past year. This has meant low or no honey production, (meaning little feed and little money) and weak colonies. Recent rains may help this situation, but the storms in December were strong enough to actually blow colonies off pallets. Perhaps too much of a good thing.

The El Niño weather patterns, if they hold, will keep much of the central valley wet this spring, too. This certainly impedes the easy movement of colonies, and can reduce fruit set due to low pollination, and if too much, flooding is always a big problem.

That hard winter has caused problems inland, too. Coupled with last summer's drought is some areas, colonies destined for pollination won't make it because they are too weak to send, or even dead. How many? We'll know by the end of the month.

What's the incentive to go west this year? Well, a $3 to $5 per colony increase in fees is helping. Averaging in the $50/colony range, and at 2.5 colonies per acre, a lot of money is going to change hands this spring. The fee has increased due to the possibility of fewer colonies due to all the factors mentioned, plus the fundamental increase in the cost of maintaining a colony. These colonies are generally in the 8-frame size, (of bees and brood) with a 6-frame minimum. Bonuses up to $52/colony for 10 frame minimum aren't uncommon.

Almond growers are balking a bit at these prices, but a quick look at their business is in order. Almond farm-gate value per acre runs about $1.00 per pound of nuts, with an average of 1500 pounds per acre. Pollination costs amount to about 8% of that dollar figure. A most necessary 8%. Many beekeepers are not as opportunistic as it may look. They realize that high honey prices won't last, and almond pollination will. Deserting a customer this year will probably mean losing that customer next year, when the money will be more important. This, of course in only common sense, and good business.

Of course, as mentioned, colony costs continue to increase. Feeding protein has increased to improve colony strength, and mite and disease control costs have only gone up too, as resistance has spread and labor costs have climbed. Freight, at about $12 per colony out and back, and about $8 handling costs while in state add to the mix and that $50 dwindles fast. Most don't lose a honey crop by doing this, but queen losses are in the 8 -10% range, and stress on the bees, equipment and beekeeper, though hard to quantify, add up.

Some beekeepers have a different perspective. Their game is, "I'll stay put, unless somebody offers me that $60 figure." Strength is usually not the first criteria when an almond grower realizes at the last minute he has no bees, and anything is better than no crop. Sometimes that may be debatable when looking at 4 frame colonies. On the other hand, many growers who wait to that last minute often are marginally capable, cash-wise, to handle this, and payments are late, or perhaps never.

If you see a bee truck heading west this month, wish them luck, God-speed and good weather. The biggest bee-in in the world will soon be under way. BC

DIGITAL AGE ... Cont. From Pg. 23

says Europeans and Canadians have been informed about the issue, but "the public in the U.S. is not aware of the problem. Do we need to issue our own warning?"

Certainly the United Kingdom (England) and Canada have been at the forefront in issuing warnings about chloramphenicol-contaminated honey. The Canadian Honey Council devotes a **page** on its World Wide Web site detailing the problem, which includes questions and answers by Canada's Health Ministry, and information that Germany has also detected the antibiotic. The UK's Food Standards Agency also has published the **results** of its testing program, ranging from not detectable to 7.2 m g/kg of the antibiotic. The Center for Infectious Disease Research in the U.S. has issued an **alert**, with a link to the FDA's site, which published a **news release** on August 28, 2002. It concludes, "Since the discovery of chloramphenicol in the Chinese honey imports, Customs has been stopping all suspect bulk imports of honey for the FDA to test for the presence of chloramphenicol. The FDA has developed a method to confirm chloramphenicol levels in honey at one part per billion. The FDA and Customs are continuing to coordinate their enforcement strategies and will be detaining or seizing any honey imports that contain chloramphenicol to ensure that they are not released for human or animal consumption in the United States." The state of Louisiana promulgated an **emergency rule** concerning the situation.

The Wise Guy asks, "By not addressing the contaminated honey problem, who was the NHB protecting?" He also states that the reason the ABF (American Beekeeping Federation) won't agree with the new Packer-Importer-Producers Board is that it wants to protect the domestic producer, but "domestic producers voted overwhelmingly to get rid of the Board in the last vote." Aggregate **numbers** published by the NHB show a majority of producers voted for the program (676 yes, 657 no), while the number of pounds that were voted showed a wider gap in the reverse direction (98,004,370 yes, 149,717,717 no). He concludes, "If the Board is kept in it current form only further division will occur, while we keep funding it with our own money." Putting on Sgt. Friday's hat, I would ask the Wise Guy to reveal his true name. He may not be able to keep it a secret much longer as he has been urged to show up and accept the Beekeeper of the Year Award by the Colorado Beekeepers Association as published in a letter to the editor in the November 2002 *Bee Culture* for "...educating beekeepers to the real facts in the bee industry." If he does this, he would then be able to tell the readership how much assessment he personally has paid to the NHB. Just the facts... BC

Dr. Sanford is former Extension Specialist is Apiculture, University of Florida. He publishes the APIS newsletter: ***http://apis.shorturl.com***

Ohmigosh! Look At The Time!

Ann Harman

Whoops! Look at the time! And the bee meeting starts at 7:30. Many local associations serve refreshments at an evening meeting – nothing fancy but some nice things for nibbles or sweets to go with the coffee. Time is short and it is your turn to bring the goodies. What to fix? It has to be something with honey or it wouldn't be appropriate. Let's see what we can do.

CHOCOLATE BURRS

2 squares unsweetened chocolate
3 tablespoons honey (use a light and mild variety)
1/2 teaspoon vanilla
Few grains salt
3 cups corn flakes

Combine all ingredients except corn flakes in a saucepan, heat until melted and blend thoroughly. Then stir in corn flakes. Drop from a teaspoon onto waxed paper and let cool.

A Honey Cookbook
A. I. Root Company

There, that was quick and easy. The cooling time gave you an opportunity to do something else. Now perhaps there is still time to make a dip. This one is suitable for corn chips or potato chips and is a delightful change from the usual cheese dips.

SWEET & SPICY DIP

1/2 cup mayonnaise or light mayonnaise
1/4 cup honey
2 tablespoons horseradish
2 teaspoons lemon juice
1 teaspoon vinegar

Whisk all ingredients together until blended. Makes about 1 cup.

Suebee Honey Collector's Edition Cookbook

In that same recipe book is a recipe for "Puppy Chow." A friend once fixed a snack with the same title (quite similar ingredients) and served it in a brand new, never used dog dish. One of the guests was horrified and announced in a loud voice "THIS is no way to serve food!" So maybe you had better serve this snack in an ordinary bowl.

PUPPY CHOW

9 cups of any Chex cereal or Cheerios (or any combination of these)
1/4 cup margarine
1/3 cup honey
1/2 cup peanut butter
1 cup semi-sweet chocolate chips
1 teaspoon vanilla
2 cups powdered sugar

Measure out cereal and set aside. Combine chocolate chips, peanut butter, margarine and honey Microwave for 1-1/2 minutes, or until smooth, stirring well after 1 minute. Stir in vanilla, Pour chocolate mixture over cereal, stirring until pieces are evenly coated. Pour coated mixture and powdered sugar into an airtight bag and shake until all pieces are coated well. Spread mixture on waxed paper to cool and harden.

Suebee Honey Collector's Edition Cookbook

If you have the time to bring the cream cheese to room temperature, this is a nice dip. Take along some small plastic forks or some toothpicks to spear the pieces of fruit. Grapes work very well with this and with the next recipe.

CHEESE DIP WITH FRESH FRUITS

One 8-oz package cream cheese
1/4 cup milk
2 tablespoons honey
1-1/2 teaspoons vanilla
1/8 teaspoon nutmeg or mace
1/8 teaspoon cinnamon
2 tablespoons lemon juice
1/4 cup diced toasted almonds (optional, especially if short of time)

Blend together all ingredients except almonds. If made in advance, this can be chilled. When ready to serve, top with almonds and allow to come to room temperature. Serve with banana slices, melon cubes, grapes, strawberries, peach or nectarine slices.

Honey Any Time
California Honey Board

DELICIOUS GRAPES

1/3 cup honey
2 tablespoons brandy
2 tablespoons lemon juice
2 cups sour cream
about 1 pound grapes

Mix honey, brandy, lemon juice with sour cream. Pour over grapes and mix well or put in bowl for a dip.

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TIME ... Cont. From Pg. 49

This can be made in advance and kept chilled until ready to serve. (I have no idea where this recipe originated.)

Take a look inside the kitchen cupboard and see if you have any crackers. Some quick spreads can be made to put on them. Just don't forget to take a few plastic knives for spreading.

SALMON SPREAD
One 16-oz can salmon
1 tablespoon lemon juice
1 tablespoon honey
one 8-oz package cream cheese
1 teaspoon grated onion

Drain salmon well and flake, removing skin and bones. Combine with rest of ingredients and mix well. This can be chilled several hours but is best served at room temperature. Serve with crackers.

Kansas Honey Producers Cookbook

This next recipe is good on a wheat cracker.

ORANGE CREAM SPREAD
One 8-oz package cream cheese
1/4 cup honey
2 tablespoons orange juice
1/2 teaspoon grated orange peel

Combine all ingredients and blend well. This can be kept chilled overnight. If not making it for a bee meeting, try it for breakfast on rolls, muffins or a croissant.

(*Unknown source*)

If you are sure you have enough time to bake something, here are some recipes.

ANYTIME SNACKING SQUARES
1/2 cup softened butter
2 eggs
3 tablespoons cocoa
1 cup flour
2/3 cup honey
2 tablespoons milk
1 teaspoon vanilla
1 cup raisins
1/2 cup chopped walnuts

Combine ingredients in large bowl, mixing well. Spread in well greased and floured (or use cooking parchment) 8-inch square baking pan. Bake at 350°F for 25 to 30 minutes until done. Cut into squares while warm.

The Canadian Honey Recipe Book

Peanut butter cookies are always popular but you do not have the time to make the fancy ones. So try this drop cookie recipe – same great taste but more quickly made.

PEANUT BUTTER DROP COOKIES
1/2 cup shortening
1 cup honey
1/2 cup peanut butter
1 egg
1-1/4 cups flour
1/2 teaspoon salt
1/2 teaspoon soda

Cream shortening. Continue creaming while adding honey in a fine stream. Add peanut butter and mix well. Add egg; beat until light and fluffy. Combine dry ingredients. Add to creamed mixture and blend well. Drop by teaspoonsful onto a lightly greased cookie sheet. Bake at 325° for 12 to 15 minutes.

There! One or two of those should get you to the meeting on time. Oh, by the way, you can use these recipes when you are not in such a rush. Enjoy the bee meeting and say hello to all the beekeepers for me. BC

Ann Harman is a qualified procrastinator, and produces excellent eats on a moment's notice.

Richard Taylor

Bee Talk

"We tend to think of insects, correctly, as mindless and without purpose, incapable of significantly altering their behavior."

Last time I gave a very general description of swarming, which is generally known to most beekeepers. Now it is time for some of the details, plus the description of the experimental methods which led Tom Seeley to his astonishing discoveries.

I noted that the scouts of a newly emerged swarm are likely, over several hours or perhaps days, to locate several potential nesting sites, typically hollows of trees. They will then, more often than not, choose from among these the best of them, the one most suited to their needs. What, then, more precisely, are they looking for, and how do they manage, not only to select one of them, but usually, the best one?

There are several characteristics which, together, make up what the bees are looking for. These, more or less in the order of their importance, are (1) volume, (2) size of the entrance, and (3) height from the ground. They also prefer that the entrance, i.e., the hole into the hollow, face south, and that it should be near the bottom of the cavity. The first two are, of course, the most critical. The bees can put up with a hollow that is really too low, or whose entrance is not ideally located, but they will totally scorn one that is too large or too small. Still, they do manage to make a choice, and usually this will be the best such hollow among those available, and the question is: How on earth do they do that?

The natural supposition would be that the scout bees go around and visit the various sites they have found, compare them, then fly back to the clustered swarm to announce their choice. But that is not what happens at all.

Suppose that the scout bees have, perhaps over several days, located, let us say, five potential nesting sites, some better than others, and one, let us suppose, clearly the best of all in terms of volume, entrance size, and so on. The bees now dance to announce what they have found. These dances may be long-lasting and vigorous, or brief and sluggish. In time, however, the feeble dances for the lesser sites tend to wear down and even disappear, because they have aroused few recruits, while the dances by the bees who have visited the really good site increase in number as more and more bees are stimulated to go forth to discover this site. Over time, then, responding to the information conveyed by these dances, the bees dancing for the lesser sites decline in number. The bees dancing for the superior site also eventually tire and drop out, becoming inactive bees in the swarm, but before they do so they have stimulated many others to visit their site. Eventually all or virtually all of the dances are carrying the same message. As this process continues, more and more bees gather at the favored site, while the numbers decline at the others. The choice has now been made. The bulk of the swarm still hangs quiescent on the branch where it gathered, but on the surface excited dancers all, or virtually all, exhibit the same behavior, conveying the same evaluation. No scouts have gone forth to directly compare potential sites. That was not necessary. And the bees that have gathered at the favored site, in increasing numbers, now begin to guard it against, for example, the possibility that scouts from other colonies might find it.

The swarm, still quietly clustered, perhaps miles away, is not yet ready to take wing and move in, however. It must first warm to the temperature needed for flying. The bees deep in the cluster are already warm enough to fly, about 95°F, but not those on the surface. These must warm up by exercising their wing muscles. What, then, gives them the signal to start doing this? All but a relatively few have been passive throughout the entire search process, and have no way of knowing that a new home has been found, or where it is.

he signal to warm up comes from

The scout bees which produce a signal Dr Seeley calls "worker piping." Having sensed that the new home has been chosen, they rush about excitedly, grabbing their sisters from above, pressing down on them and emitting a piping sound, audible to a human being, and transmitted as vibrations to the other bees. This signal means "warm up, it's getting to be time to take off." Other investigators had heard this signal, but Dr. Seeley (working with a German colleague, Dr. Juergen Tantz) is the first to have described the signaling behavior and demonstrated its meaning.

The next step will be for the swarm to take wing. Beekeepers have noticed that this happens with considerable suddenness, that a swarm which has hung quietly, perhaps for days, so quietly that the beekeeper himself may have failed to see it, suddenly begins to disintegrate, filling the air with a cloud

Continued on Next Page

of thousands upon thousands of bees.

What gives them the signal to do this? The answer is what are called "buzz runners." These are bees that dash about, in and out of the swarm, as if trying to break it up, which is exactly what then happens.

The cluster disintegrates, and for a moment the air is filled with bees, milling about in a seemingly random, pointless way. Then this cloud of bees begins, slowly at first, to move off, soon gathering speed and vanishing from sight.

Relatively few of these thousands of bees know where they are going, having had no part of the home hunting that has been going on. What, then, gives them their direction?

This is the job of the bees that have visited the new site, and who therefore know where to go. These bees fly forth and back into the swarm, keeping them all headed in the right direction.

When the swarm cloud approaches its destination, some of the scouts alight at the new home's exact location and signal this spot with the familiar Nasanov behavior. That is, arrayed around the entrance and facing it, they bend down, their abdomens raised, exposing the Nasanov gland which releases a scent familiar to beekeepers. With their wings the bees waft this odor back, where it is picked up by the other bees, who then turn toward it.

Most, indeed virtually all, of the bees of the swarm, including the queen, now see their new home for the first time. The task of finding it, together with all of the sometimes complex devices of getting the swarm to it, has fallen to a relatively few.

It must be added that swarms do not in every case follow exactly the complex pattern of behavior just described. Dr. Seeley found that, having been offered an array of possible nesting sites, only one of which really meets all of the criteria of desirability, the swarm usually, but not every time, goes to the best one. Once in awhile – one time out of five in Dr. Seeley's tests – it chooses one of the inferior cavities. And indeed, swarms sometimes settle into a spot that is quite exposed, but one that is almost always protected somehow – for example, under the eaves of a building. Such colonies rarely survive the Winter cold.

Now I have described what actually happens. It is an astonishing and complex process, the more wonderful because it involves a multitude of insects acting very much as if they comprised a single complex organism. We tend to think of insects, correctly, as mindless and without purpose, incapable of significantly altering their behavior. Honey bees do not entirely fit that picture. Thus, bees are so fixated upon their hive that, if it is moved even a foot or two, returning bees fly straight to where it should be before finding its new location. They seem incapable of modifying this orientation. And yet, when the time comes, the scout bees completely change their behavior and go off looking for another place to treat as home. And indeed, if, as sometimes happens, a colony should throw a swarm in the Fall, when it will be too late to gather the stores needed to get through the Winter, then every bee of that swarm will nevertheless stick with its new home and face starvation rather than go back to its original home, fully provisioned with Winter stores, the fruit of their own labor.

Honey bees sometimes act *as if* according to plan, coping with problems entirely new to their experience, *as if* they knew exactly what they were doing. All this simply boggles my mind.

Next time I shall describe the precise and enormously ingenious experiments that Dr. Seeley and his co-workers devised in order to establish and understand the behavior I have described. They asked the right questions, and then thought up just how they could find the answers. **BC**

Richard Taylor is a lifelong beekeeper and philosopher living in the Finger Lakes region of New York.

?DO YOU KNOW?

Spring Prep

Clarence Collison
Mississippi State University

In the southern parts of the United States, beekeepers are working hard to get their colonies in peak condition for the purpose of taking advantage of early nectar and pollen flows such as the citrus flow, while others are preparing their colonies to shake packages and raise queens. In the north the colonies are still in tight winter clusters and beekeepers are anxiously awaiting the first signs of spring. When beekeepers make their first spring inspections, what conditions, diseases and other maladies are they likely to encounter?

Please take a few minutes and answer the following questions to determine how well you understand spring/disease/pest management.

The first nine questions are true or false. Place a T in front of the statement if entirely true and F if any part of the statement is incorrect. (Each question is worth 1 point, unless otherwise indicated.

1. ____ Highest levels of nosema disease are typically found in the early Spring.
2. ____ Nosema disease is the primary cause of dysentery.
3. ____ Brood rearing begins in an overwintered colony before the workers begin to forage for nectar and pollen.
4. ____ In late Winter/early Spring, the majority of food stores should be located in the lower part of the hive.
5. ____ Sacbrood, chalkbrood and European foulbrood are normally most prevalent in the Spring of the year
6. ____ Nosema infected bees live approximately only half as long as non-infected bees.
7 ____ Dead brood at the edge of the broodnest consisting of brood of all ages is a typical symptom of chalkbrood.
8. ____ Antibiotic extender patties are prepared by mixing fumagillin, vegetable shortening and sugar.
9. ____ *Varroa* mites normally overwinter in colonies as eggs laid in the bottom of cells in the broodnest area.

(Multiple Choice Questions)

10. ____ The temperature of the outer surface of the Winter cluster is normally maintained at approximately:
    A) 73-76°F
    B) 53-56°F
    C) 83-86°F
    D) 63-66°F
    E) 43-46°F
11. ____ The minimum temperature for active foraging is approximately:
    A) 45°F
    B) 40°F
    C) 50°F
    D) 55°F
    E) 60°F
12. ____ The honey bee disease that is most likely to kill a colony is:
    A) Sacbrood
    B) Nosema
    C) American Foulbrood
    D) Chalkbrood
    E) European Foulbrood
13. Name three ways in which small hive beetles damage honey bee colonies. (3 points)
14. What are the two basic questions asked when overwintered colonies are examined in late Winter/early Spring? (2 points)
15. In the late Winter/early Spring inspection, what action should be taken if the Winter cluster is found just below the inner or migratory cover? (1 point)
16. Name two advantages and two disadvantages of using a Miller syrup feeder. (4 points)
17 List three ways to build up weak colonies in the Spring. (3 points)

ANSWERS ON NEXT PAGE

?Do You Know? Answers

1. **True** The incidence of nosema disease generally varies during the year with the highest levels of infection found in the Spring. Long periods of Winter confinement that prevent the bees from taking cleansing flights are conducive to disease build up.
2. **False** Even though nosema disease appears to aggravate dysentery, there is no evidence that it is the primary cause of dysentery. It is the result of excessive moisture in the gut contents and results from long periods of confinement and high moisture levels in the food stores.
3. **True** In the temperate regions, the honey bee queen normally stops laying eggs in October and resumes sometime in January, long before natural sources of pollen and nectar become available.
4. **False** In late Winter/early Spring the majority of the food stores should be located in the uppermost hive body. A colony will starve in mid-Winter even though there is plenty of honey in the lower brood-food chamber(s), if there is too little honey in the upper food-brood chamber. Over the Winter, the cluster slowly eats its way upward and there should always be food above and to the sides of the Winter cluster.
5. **True** European foulbrood, chalkbrood and sacbrood are considered to be stress diseases and are most prevalent in the Spring of the year.
6. **True** Nosema infection affects individual honey bee workers in many ways. The life span of infected honey bees is reduced particularly under the stress of rearing brood. Often the life span of infected workers is less than half that of healthy individuals.
7. **False** When an individual finds brood of all ages killed at the same time and at the edge of the broodnest this would usually be chilled brood, not chalkbrood. There is no single brood disease that kills equally in the egg, larval, and pupal stages.
8. **False** Antibiotic extender patties are prepared by mixing Terramycin® with vegetable shortening and sugar. In this manner the antibiotic is protected from water and the shortening slows down the consumption by the bees and prolongs treatment.
9. **False** Only adult female *Varroa* mites are found on adult bees and can live outside the brood cells. This behavior allows the mite to survive the Winter when the colony is not rearing brood. *Varroa* mites can only reproduce when the colony is actively raising brood. The female mite when she is ready to lay eggs moves into brood cells containing young larvae just before the cell is capped.
10. E) 43-46°F
11. D) 55°F
12. C) American Foulbrood
13. Consume brood
    May cause the bees to abscond
    Damage combs
    Cause honey to ferment and ooze from the cells making it undesirable
14. Is the colony dead or alive?
    Does the colony need feeding?
15. When the Winter cluster is found just below the inner cover or migratory lid in late Winter/early Spring, this is the cue for the beekeeper that emergency feeding or rearrangement of food stores is needed. It is necessary to keep food above and to the sides of the Winter cluster during this time period.
16. Advantages- Miller-type feeders can hold large amounts of syrup, and are easily filled by just lifting the hive cover
    Disadvantages- These feeders tend to be some distance from the bee cluster and are not as efficient as gravity type feeders that are placed directly over the cluster.
17. Uniting weak colonies
    Adding combs of sealed brood to weak colonies.
    Exchanging positions between weak and strong hives.
    Buying booster packages and adding bees to the weak colonies.
    Stimulatory feeding will be effective on a limited basis.

There were 25 points in the test this month. Check below to determine how well you did. If you scored less than 12 points, do not be discouraged. Keep reading and studying- you will do better in the future.

Number Of Points Correct
25-18 Excellent
17-15 Good
14-12 Fair

Clarence Collison is a Professor of Entomology and Head of the Department of Entomology and Plant Pathology at MS State University, Mississippi State, MS.

GLEANINGS

FEBRUARY, 2003 • ALL THE NEWS THAT FITS

Where Do Beekeepers Stand?

MARYLAND BLACK BEAR HUNTED?

A recommendation for regulated hunting of black bears in Maryland by the Maryland Black Bear Task Force has drawn criticism from the Fund for Animals, a national non-profit animal conservation organization.

The Fund for Animals, in comments written by wildlife biologist D.J. Schubert, criticized the draft report and recommendations from the Maryland Department of Natural Resources' 2002 Black Bear Task Force issued in November. A slim majority of the task force recommended opening the state's small black bear population to recreational hunting for the first time in 50 years.

Maryland's bear population is estimated to be between 266 and 437 animals. The Task Force recommends that the state's bear population be maintained at a level it calls "cultural carrying capacity." This level is defined as "levels compatible with land use, property concerns, and recreational opportunities." Cultural carrying capacity (CCC) can fluctuate and is determined primarily by a public attitude survey about bears.

To maintain this CCC level, hunting would be allowed, but not baiting, use of dogs, or spring hunting.

Michael Markarian, president of The Fund for Animals and a member of the 2002 Maryland Black Bear Task Force, said, "Maryland's small black bear population, estimated at 266 to 437 bears, has come back from near extinction, and we should not turn back the clock on bear management by allowing trophy hunting of these majestic animals."

"The task force reviewed voluminous scientific data on black bears, and there was never information suggesting that hunting bears would reduce bear/human conflicts," said Markarian. "In fact, hunting bears for sport would most likely make those problems worse."

Schubert, who was a member of the 1994 Maryland Black Bear Task Force, said today, "A bear hunt cannot be justified at this time or in the future. The DNR [Department of Natural Resources] needs to provide a much more comprehensive analysis of black bear habitat needs and evaluate the impact of any proposed hunt on the bear population as well as on any non-target species."

Schubert also recommended that the DNR expand public education efforts on implementing non-lethal methods to humanely prevent or resolve human/bear conflicts in the state.

"A black bear hunt will satisfy the fringe minority of people who want to hunt these animals for fun and for trophies, but will not satisfy the Maryland citizens who want real solutions to bear problems," said Markarian.

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GMO LABELS

The European Union (E.U.) appears set to lift its four-year ban on foods made from genetically modified organisms (GMOs), following the drafting of a new directive on food labeling in late November. The European Parliament is expected to give its final approval of the new rules this March, and the European Commission has put in place the mechanism to make the new system work: the European Network

Continued on Next Page

BEEKEEPERS SHOULD CAPITALIZE ON USING ALTERNATE POLLINATORS

Like cherries? Here's good news from ARS scientists in Utah: The blue orchard bee, or *Osmia Lignaria*, continues to rank as an ace pollinator of this delectable Summer crop. That's important. If pollen isn't ferried to cherry blossoms by insect pollinators such as this nimble bee, the flowers won't form the sweet, plump fruit that cherry aficionados love.

New information about the gentle bee's superb pollination skills comes from investigations by entomologist William P. Kemp of the ARS Bee Biology and Systematics Laboratory in Logan, Utah, and colleague Jordi Bosch, formerly at the Logan laboratory and now with the Department of Biology at Utah State University.

In a four-year experiment at a commercial cherry orchard in northern Utah, Kemp and Bosch compared cherry harvests before they brought in blue orchard bees – and then after. "Production was more than twice as high when blue orchard bees were used in place of honey bees," Bosch reports

Blue orchard bees typically stay on the job despite weather that sends other bees buzzing back to their snug hives. That may help explain why the cherry orchard that the blue orchard bees pollinated produced harvestable yields even in the years when bad weather robbed most cherry growers in the region of their crop.

The researchers also found that blue orchard bee populations continued to increase throughout the study.

Kemp and Bosch encourage beekeepers and orchardists to use this hard-working bee to augment efforts of the domesticated honey bee, *Apis mellifera*. Many colonies of this familiar honey bee have been devastated in recent years by mites, beetles, and aggressive Africanized honey bees.

The scientists have authored a new, 96-page handbook that's packed with helpful tips on how to use the blue orchard bee to proficiently pollinate not only cherries, but also almond, apple, apricot, and pear trees. Based on nearly three decades of lab, greenhouse, and orchard studies by ARS experts based at Logan, the book makes an excellent reference for growers, professional beekeepers, hobbyists, and home gardeners. *How To Manage the Blue Orchard Bee as an Orchard Pollinator* is available from the University of Vermont, Burlington, 802.656.0484.

WISCONSIN QUEEN

The WI Honey Producers Association is proud to announce that Sarah Boknevitz was selected as the 2003 WI Honey Queen at their convention in November. Sarah is the 20-year-old daughter of Tim and Jan Boknevitz of Greenfield, WI. She was a 2001 graduate of Charles B. Whitnall High School in Greenfield. Sarah served as the 2002 Milwaukee County Honey Queen. To schedule an appearance contact Anna Kettlewell at 414-545-5514.

DOWN UNDER NEWS

Australia Purity Examined A government residue survey has given Australian honey a clean bill of health.

The Australian National Residue Survey, an operational unit of the federal department of agriculture, conducted 11,798 analyses on 515 honey samples in the 2001-2002 financial year and said none contained residues above legislated standards.

Two samples tested positive for the antibiotic oxytetracycline, 103 samples had traces of lead and another 125 had traces of zinc. In all these incidents the levels were below the maximum permissable set in the Food Standards Code. – *Alan Harman*

•

NZ Virus Study The race is on to find out how many of the 14 known viruses of European honey bees are present in New Zealand.

The search has become more pressing after the arrival of *Varroa*.

Government scientific institute HortResearch said beekeepers need to know which of the viruses are likely to become economically important.

To begin the work, Hortresearch scientist Jacqui Todd who is developing a honey bee virus diagnostic laboratory at the Mt. Albert Research Center in Auckland.

"Studies in other countries have shown that *Varroa* mites cause dramatic changes in the type and severity of virus infections causing the death of bees and brood," she said.

"The problem is that the female mites transfer virus between adult bees and to developing honey bee pupae when they feed. The introduction of virus directly into the circulatory system of bees overcomes the natural controls that normally limit virus spread.

"We need to know which of the viruses are the potential killers of colonies so we can most effectively target and time our mite controls."

HortResearch is collaborating with scientists in the United Kingdom. Recent research there suggests that even colonies severely infested with mites can survive, provided certain key viruses are absent.

Some of the viruses of concern in the UK have not been found in New Zealand and identifying the damaging infections associated with *Varroa* in New Zealand will be a primary objective.

The investigations now underway at HortResearch will augment a previous study by former HortResearch scientist Denis Anderson who found nine of the known bee viruses in New Zealand in 1988.

An initial analysis of samples of dead bees taken from 32 colonies in New Zealand last summer showed that cloudy wing virus was the most common infection, although another five different viruses were detected.

Analysis of live bee and mite samples from these colonies is continuing and will provide further insight into the establishment and transmission of these infections.

More detailed studies will be undertaken this year on a group of 12 small bee colonies at Mt Albert. The regular collection of samples of dead bees and brood will provide additional information on the seasonal incidence and severity of infections.

The samples are put through a grinder and the liquid extract is then centrifuged at high speed to concentrate any virus present. The extract is then tested against specific antisera by immuno-diffusion to identify the viruses present.

Ultimately, more sensitive tests will be developed to detect virus in live bees and mites to provide essential information on virus epidemiology. – *Alan Harman*

GMO ... Cont. From Pg. 57

of GMO Laboratories (ENGL).

The new rules will require a GMO label on any food containing more than 0.9% GMO material, a threshold designed to allow for some accidental contamination. "These are among the tightest regulations (on GMOs) in the world," says Barry McSweeney, director-general of the commission's Joint Research Centre (JRC). JRC's main laboratory in Ispra, Italy, will coordinate the ENGL network of more than 45 institutes in the 15 E.U. member states and 10 countries that are expected to join in 2004. These labs will randomly test foodstuffs to ensure that they are GMO-free if they claim to be, or that they contain only approved GMO materials. "We need harmonized procedures and methods to ensure that we get the same results" all over Europe, says Guy van den Fede, coordinator of ENGL.

from Science Magazine

HEADLINE ACCIDENTS

Linz, Austria A 90-year-old beekeeper in Linz, Austria is recovering from 1,000 stings, the Austria Press Agency reported.

Hermann Danner was stung in early January when he approached his two hives without protection gear.

"It was a battle that lasted about half an hour – but it was unsuccessful," Danner was quoted as saying.

Danner was barely moving when a neighbor found him and alerted medics. Doctors counted about 1,000 stings on his body, said Guenter Watzl, head physician at the hospital in Kirchdort an der Krems, a small town about 120 miles west of Vienna.

"At such an old age, a couple of hundred stings could be deadly," APA quoted Watzl as saying. Danner was expected to recover fully.

•

Napier, New Zealand A beekeeper stung by hundreds of bees spent the night trapped in his crashed truck and was expected to remain in hospital for a week.

Chris Robinson was trapped for 12 hours after the truck went off a farm track and rolled down a 60-foot bank. He was distributing 40 hives round a rural property in the Hawke's Bay region when the truck crashed in a remote area. The bees swarmed and stung him after the accident.

Paramedics eventually rescued Robinson, who had a broken leg and hundreds of stings to his chest and neck, and he was winched from the site and taken to hospital by a rescue helicopter. – *Alan Harman*

APIMONDIA 2003

Invitation from the APIMONDIA President – The 38th Congress of APIMONDIA will be held in the very heart of Europe. Slovenia is a small country with a wealth of historical and natural beauties. Mountains, beaches, agricultural land, lakes and forests make this small country well worth visiting. You will feel comfortable in the lovely city of Ljubljana. It is the smallest capital in Europe, but with all of the available facilities, this will be a first class Congress.

Beekeeping has old roots in the history of Slovenia and even today beekeeping is an important activity with strong support for research and development of beekeeping for pleasure and profit. Slovenia is a land of world famous beekeepers and not least the homeland of the Carniolan bee. Traditional and characteristic beekeeping practices exist in Slovenia along with modern techniques and researching. Animal breeding has deep roots here, not just for bees but it is also well known for its horses from Lipica. Slovenia is worth visiting for many reasons.

The programme for the Congress has been developed between scientists of the Slovenian Organising Committee and the Standing Commissions of APIMONDIA to ensure that we hold a world congress that also reflects special values of Central European scientific development. In the plenary sessions selected keynote speakers will review scientific developments for the benefit of beekeepers as well as fellow scientists. We will supply extensive interpreting services at the plenary sessions. Plenty of symposia and workshops will give you the opportunity to discuss specific issues in deep detail. Scientists and beekeepers will have many opportunities to exchange ideas.

APIEXPO will feature displays by exhibitors from all over the world. As the Congress is being held in the heart of Europe, this should facilitate companies as well as beekeepers to take part in this event. The APIEXPO is a major showroom for everybody who wants to make new contacts in the beekeeping world.

An important aim of APIMONDIA congresses is to establish links between people involved in the beekeeping world. It has always been an important goal of APIMONDIA to create friendships between people. Receptions, folklore and entertainment will be an integral part of the Congress to ensure that people have good opportunities to meet.

I look forward to meeting you in Slovenia at APIMONDIA 2003.

Asger Søgaard Jørgensen

Invitation from the Congress President – After six years, the world international apicultural congress APIMONDIA and the international exhibition ApiExpo will be held in Europe. Apart from scientists, equipment manufacturers, honey traders, pharmaceutical companies and publishing houses, there will also be numerous professional and amateur beekeepers from Eastern and Western Europe who will have the opportunity to attend the APIEXPO. Slovene beekeepers have been preparing for this event for some length of time and we hope our

Continued on Next Page

guests will feel welcome amongst us.

The year 2003 is also important to beekeepers because of three special anniversaries. Anton Janša, world reputed beekeeper who was the first beekeeping teacher, died in Vienna 230 years ago; the first beekeeping organisation in Slovenia was established 222 years ago and 130 years have passed since the *Slovene Beekeeper* magazine was first published. The 38th Apimondia Congress will present an excellent opportunity to commemorate all three anniversaries together with our beekeeping colleagues around the world.

There are 8,000 beekeepers in Slovenia with 160,000 bee families. Since the bees and beekeepers are fairly spread proportionately around the country, cultural plants are adequately pollinated and nature's biological equilibrium is maintained. Therefore enough honey is produced for our requirements. When spruce and fir trees secrete nectar, some honey is even exported. Accordingly, we cordially invite world honey producers to attend Apimondia 2003, as Slovenia's APIEXPO will be an excellent springboard for anyone who wishes to penetrate the European market.

The slogan of our Congress is "Beekeeping – A Way of Life" expressing the fact that Slovene beekeepers do not breed bees merely for the purpose of producing honey, but also because they are emotionally attached to them. We can justifiably say that we are involved in the culture of beekeeping. And it is this culture that we wish to communicate to the beekeepers of the world. – ***Lojze Peterle***

CONTEST – Congress participants are invited to take part in the contest program for the traditional awarding of gold, silver and bronze medals and certificates in the following categories: Technical inventions in beekeeping; New products from the beehive; Promotional packaging; Films, videos on beekeeping subjects ((i). professional, (ii) amateur); Slides, photographs on beekeeping subjects ((i)bees, (ii) beekeeping); Books professional; Books general; CD; Philatelic collections on beekeeping subjects; Beekeeping collections; Apicultural journals; Beekeeping web sites; Exhibition stands at ApiExpo.

The entry fee is 30EUR. Only entries with paid entry fee will be judged. The entry form must be completed and sent together with the registration form. Only **videos, films, slides, books, instructional material, journals, photographs, address of the web site must** be submitted and paid in advance **by 1 Aug. 2003.** These items enclosing the entry fee should be sent to: Cankarjev dom Cultural and Congress Centre, Presernova 10, 1000 Ljubljana, Slovenia, **Please mark:** MATERIAL FOR CONTEST-APIMONDIA'03

Other items should be deposited at the designated **Competition room in Cankarjev dom between Saturday, 23 Aug. and Monday, 25 Aug. 2003 from 9:00-12:00 h.** Videos, films and slides should be submitted in VHS or PAL video format. The contest organisers will appoint an international panel of judges. This panel of judges will decide on the medal and diploma/certificate winners in each category.

Registration Fee – Participants from countries that are members of Apimondia will have 5% discount of the early registration if they include a proof of Apimondia membership. **The registration fees are in EUR. Fees** paid before 31 Dec. 2002 – Full congress participant 300EUR, Companion 200EUR, One day pass 90EUR. For more information contact: Franc Šivic (franc@silvaapis.si); Gorazd Cad (gorazd.cad@cd-cc.si, fax: +386 1 2417 296).

Price Support Division - 2002 National Loan Summary Report

IMPORTANT: (1) Data in this report is updated **daily**. (2)Units of Measure: Wheat, Corn, Barley, Soybeans, and Oats in *Bushels*, Flaxseed, Grain Sorghum, Sunflower Oil & Other, Canola, Rapeseed, Safflower, Mustard Seed, and Rice in *CWT*,; Honey and Sugar in *Pounds*; Peanuts in *Tons*; Upland Cotton in *Bales*. (3)Upland Cotton Loan and LDP Data provides only *Form A* (FSA County Office) activity.

		Loans Made			Loans Outstanding		
Crop Yr	Cmdy	Count	Quantity	Amount	Count	Quantity	Amount
2002	WHT	7,633	86,851,421.13	$246,751,874.30	5,654	61,394,689.13	$176,680,446.46
	CORN	44,312	1,017,780,201.38	$1,962,135,335.55	43,894	994,626,112.20	$1,916,393,615.65
	BRLY	749	9,718,743.34	$18,140,098.70	589	7,020,370.67	$13,225,528.65
	OATS	410	1,849,424.69	$2,415,192.81	371	1,647,824.31	$2,155,350.83
	FLAX	30	58,269.00	$401,721.71	25	43,342.00	$300,493.84
	SOYA	41,264	328,514,975.20	$1,626,726,779.01	39,755	309,164,317.90	$1,530,956,092.03
	SORG	440	3,098,107.30	$11,049,422.50	413	2,421,173.04	$8,501,742.68
	LEND	5	8,395.00	$98,988.30	5	8,395.00	$98,988.30
	PNUT	14,286	536,604.76	$199,418,069.52	14,245	533,403.94	$198,288,025.28
	PEAD	31	114,785.00	$726,589.05	31	114,785.00	$726,589.05
	WOOL	2	5,220.00	$2,088.00	2	5,220.00	$2,088.00
	CHKP	1	1,450.00	$10,962.00	1	1,450.00	$10,962.00
	ELS	223	21,142.00	$8,491,411.00	220	20,213.00	$8,110,080.71
	UP	17,852	2,016,082.00	$501,485,612.47	14,219	1,516,485.00	$376,395,364.55
	SUP	23	2,694,171.00	$1,312,385.97	23	2,694,171.00	$1,312,385.97
	SUNO	317	1,069,619.25	$9,693,401.37	313	1,060,308.25	$9,608,703.04
	CANO	196	773,225.23	$7,408,813.86	186	702,467.49	$6,730,428.76
	SAFF	2	1,877.00	$20,922.45	2	1,877.00	$20,922.45
	MUSD	16	10,137.03	$97,796.39	14	8,011.03	$75,941.11
	SUNF	79	325,243.53	$3,979,865.55	78	323,507.53	$3,958,568.75
	HONEY	**78**	**4,203,734.00**	**$2,522,240.40**	**71**	**4,080,998.00**	**$2,448,598.80**
	IPBS	19	296,000,000.00	$52,867,600.00	19	296,000,000.00	$52,867,600.00
	CSUG	19	341,460,927.00	$61,637,351.06	19	341,460,927.00	$61,637,351.06
	BSUG	125	1,386,986,000.00	$311,114,904.40	124	1,366,155,536.00	$306,375,376.52
	RRICE	8,559	122,488,329.54	$803,524,563.00	6,178	72,390,255.62	$473,586,289.86

National Loan Totals - Where your money goes

Loans Made			Loans Outstanding		
Count	Quantity	Amount	Count	Quantity	Amount
136,671	**Mixed Units Of Measure**	**$5,832,033,989.37**	**126,451**	**Mixed Units Of Measure**	**$5,150,467,534.35**

Display Advertisers

I used to be a wallflower, but since I started keeping bees I'm the life of any Valentine's Day party.

You already know what I mean, don't you? Once strangers learn I'm a beekeeper, there are no awkward silences. Folks start asking questions and look to me as the expert that I'm really not.

Right away I figured out that the title of beekeeper confers a sort of celebrity status, only without accompanying wealth. You see, most people are intrigued by bees. Almost everybody thinks that bees are important to the environment, although they're maybe not sure why. They've heard that mites are a threat, although they're not sure how. They know killer bees are out there somewhere. And of course they fear bees. Who hasn't been stung?

The beekeeper knows the answers to all their questions, but more significantly, he is different in that he is not afraid. How could he be? Somehow he goes into a beehive – into that scary maelstrom of bees – and pulls sweet honey out of it. What could be more mysterious or wonderful?

The beekeeper connects to the land in the way all farmers do. He plies one of the world's most ancient and respected crafts. He brings honey to the table.

I say milk this.

I knew I wanted to write, but I needed an angle. Why not bees?

Aunt Minnie came up with a name for my proposed column – "To Bee or Not to Bee." I live 55 miles from Aspen, and the best known, most widely read paper around here is the Aspen Times. The editor said, "What's with the name?"

I said, "Well, if I write about bees, it's 'To Bee, but if I write about something else, it's 'Not to Bee.' The editor laughed. He said he'd give it a try.

Residents of one of the world's richest, most cosmopolitan communities now get to read about piping queens, evicted drones, crop dusters, jet-black aphid-made honey, butterscotch-flavored rabbit brush honey, black bears, bees at 9,500 feet, Africanized bees, and the always unpredictable twists and turns of any day working for my beekeeper boss, Paul.

I try to amuse folks, but I also want to educate them about bees and make them feel sympathetic to bees and beekeepers. I started calling honey bees "little darlings," and that became a sort of trademark of the column.

In June another Aspen Times writer, veteran columnist Su Lum, weighed in on honey bees and a certain local beekeeper. She wrote:

"Another peculiar thing about this Summer has been an inundation of BEES I started asking people if they'd noticed a proliferation of bees and they said, 'Yeah, man, a lot of bees this Summer.'

"Two weeks ago I was reading Ed Colby's sweet column, 'To Bee or Not to Bee,' and damned if he didn't say he was trucking his bees up to ASPEN

"I think we need another column from Ed Colby to clarify this matter. How many of the little darlings are you talking about? How do you transport bees to greener pastures? Do you lead them here like the Pied Piper, or do you bring a truckload of bees, and set them down somewhere? Where? Do you need a bee permit?

"After the initial shock at the plethora of bees, I really don't mind them. They do not divebomb or (so far) sting – they appear to be, indeed, darling bees, perhaps lethargic due to all the smoke.

"Speaking of the Pied Piper, what if you were raising darling RATS? If conditions were more favorable here, would it be OK to send them to Summer camp in Aspen?"

Cute, huh? Initially I basked in the glow of this unexpected attention. "Hey," I thought, "people are reading my column!" But Su's urban point of view troubled me. She asked a leading question: how many bees? What was I going to say, "Oh, just a million or two, Su "?

Su's message was clear. She'd never really noticed bees in Aspen before, but now that I had a bee yard in the neighborhood, suddenly the town was thick with them.

I don't want to paint with too broad a brush, but Aspen is a small town filled with big-city folks. Some will call their attorney before they'll phone a neighbor. I could picture it. A child gets stung by a honey bee, a wasp, a yellow jacket, whatever. She has an allergic reaction and gets rushed to the hospital. The parents need a scapegoat and a legal target. Is their case weak? Of course, but I might still need to hire a lawyer.

Then a friend from Aspen called. He insisted that the city suffered from a plethora of yellow jackets, not bees. I responded to Su in a column by explaining the differences between honey bees and yellow jackets. I pointed out that the omnivorous yellow jacket makes trouble, not honey. I wrote: "Yet time and again people crucify the saintly honey bee for the sins of the yellow jacket."

I summed up: "Personally, I don't know a thing about any kind of plethora in Aspen. But go ahead and call it a plethora of bees, if you want, or call it a plethora of yellow jackets. Just don't call it a plethora of Ed's bees, because my bees don't live in Aspen. They live way out in the country, and they never go to town."

I immediately felt better. The Aspen honey flow was now finished, so I played it safe and brought the little darlings home.

Little Darlings

Ed Colby