OCT 1998

BeeCulture

INSIDE. . .

Hive Beetle Controls
Extractor History
Visit Betterbee, Inc.
Sell More Honey
Plant Crocus This Fall

Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

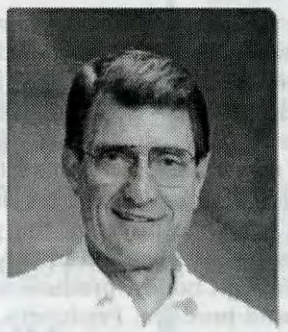
SEPTEMBER 1998 VOLUME 126 NUMBER 10

FEATURES

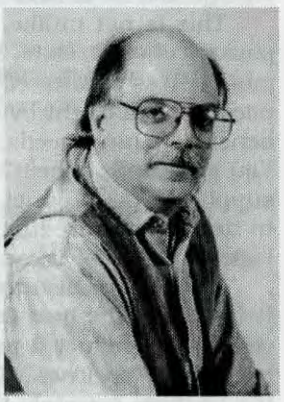
COVER
Fall flowers signal the end of the season for bees, and beekeepers. But if food's available, honey bees will gather it – for colder days, and hungry mouths to come.
photo by Kim Flottum

COLUMNS

DEPARTMENTS



JOHN ROOT
Publisher



KIM FLOTTUM
Editor

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INNER COVER

There's three steps leading up to my front porch, which puts the top of the three foot railing just about five feet above ground level. Dead even with the top of the railing, and just 31 inches away is a beautifully sculptured, football shaped bald-faced hornet's nest.

I spotted it in early June when it was softball size and my first thought was major chemical eradication. But none was immediately at hand and more often than not first impulses are best left to settle a bit before action is taken.

And, things being what they are, I didn't get back to those eradication plans. Now, fast forward to early September. The reason I can fast forward is that that nasty nest wasn't. They were, for all intents and purposes, invisible all summer, at least to anyone who sat on the porch all summer.

That nest, just five feet off the ground, was dead center in the middle of a barberry bush. From the front it was perfectly camouflaged, perfectly invisible...you'd never know it was there. From the vantage point of the proch it was clearly seen, once you looked for it. And, as it grew it became even more visible. The flight path was sort of up and out, in a broad sense. Foragers could be seen coming and going from the front of the top of the bush in a range of 10:00 to 2:00. Always up and out. Never, ever once back into the porch. They were very good neighbors and we coexisted quite nicely all summer.

By Labor day that nest had grown to 14 inches tall by nearly nine inches wide. Foragers routinely flew in with bits and pieces of insects and spiders and whatever for their young at home. But never did they forage on the porch. Never once did they go to the window at night with the lights. Never once did they visit the table on the porch with sodas or hot dogs or other delectables. Never once.

In retrospect, we worked together this summer. The bush planted in front of the porch provided structure, and the roof overhang gave shelter all season for those insects. Moreover, the diverse ecology of the surrounding yards and farmland enabled a season-long harvest that was abundant, consistent and protein rich.

Meanwhile, this potential ball of fury kept the entire area's insect pest population somewhat at bay, and they didn't bother to bother me all summer. It was a mutually beneficial relationship. I give. They give. Both benefit without going out of our way to do so. What could be better?

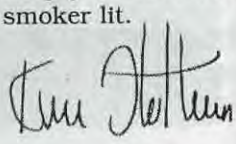
This is not unlike, I think, how honey producers and honey packers should relate. Both work hard at what they do to succeed, more or less unaffected by the other. Unaffected that is until honey needs to be bought by a packer, or sold by a producer. Then that beneficial thing needs to come into play. Remember: They give. You give. Both benefit? How can it benefit a packer to destroy the supplier of the product packed? And how can it benefit a producer to destroy the product, and thus the buyer of the product? The logic of either of these scenarios escapes me here.

Packers, by blending in foreign honey, produce a product that is less than the best they could produce. Producers, by misusing chemicals produce a product that is less than the best they could produce. Who loses? The producers because they are paid less; the packers certainly because they are producing a product that the public is not buying; and most certainly the public who has come to expect 'honey' to be the honey they bought before. And absolutely the small operator who is painted by the same brush - whether a producer, packer or producer/packer. We all lose. Just as if I had sprayed that nest way last June. Or thrown a stone at it last week.

I just can't figure it out. Can anyone explain it to me?

•

I hope you have had time to read all three of our new columnists. The Wise Guy has some pretty interesting things to say, and some insights into the honey industry that are often heard, but seldom written about. The Club Corner should benefit just about everyone, except maybe those who hide out in honey houses all the time, and Tom Sanford's Electronic Beekeeping *will* be for everyone, soon. Probably sooner than you think. Check out each this month. Your won't be disappointed, and you won't find them anywhere else. In the mean time, keep your hive tool sharp and your smoker lit.



Mutually Beneficial?

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Bee Culture

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KEEP IN TOUCH

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Obsolete Sections

I have 500 of these 4¼ x 4¾ sections which are now obsolete.

If you have window cartons for this size I would be glad to buy them.

The photo you had on *Bee Culture* last year prompted me to make this picture. Yours was a better picture, but I believe mine is better honey!

Joe Watkins
Columbus, OH

Resistant *Varroa*

I am very much for your addressing the fluvalinate resistant *Varroa* problem in the last few issues of *Bee Culture*. However, this is a complicated and serious threat to beekeeping and any misinformation concerning our understanding of these resistant mites is counter productive in the effort to find new ways of controlling *Varroa*. I mention this because John Thomas's article *Strategies* (July 1998) is based on a misunderstanding of how *Varroa* mites mate and pass on genetic traits.

Contrary to what John Thomas believes *Varroa* mites do not mate freely in the hive, thus allowing a resistant mite to potentially pass on his or her genes to a non-resistant mite and subsequently increase the size of the resistant gene pool in the colony. *Varroa* mites mate in the closed cell that they occupy. The fertile resistant female enters a cell with bee larva, lays her eggs in the cell after it has been capped, and the male and female that hatch mate in that same closed cell and the fertile female that emerges from the cell carrys a complete set of their mother's genes. Thus Thomas's theory of selective pressure being detrimental to *Varroa* control because it eliminates susceptible mites as potential diluent of the resistant gene pool is misconceived. It is a dangerous conception and if adopted would only increase the speed that *Varroa* would decimate colonies.

Also, there is no evidence that resistant mites are inferior or less competitive in self propagating as Mr. Thomas suggests could happen. We are faced now with fluvalinate resistant mites that reproduce effectively and will destroy hives with ease unless a new control is found.

Frank Bernstein
Pardiess Hana Israel

Good Job!

Thank you. Finally a magazine that gives a little old, a little new, some high brow super educated stuff, and simple how-to stuff. I know you have to appeal to all. But it's nice to fit in there somewhere. Other magazines either treat the reader as a complete idiot, or print things so far above the average beekeeper's head they feel like an idiot anyway. Love the pictures, recipes and the 'this happened to me' stuff. Keep up the good work.

Ray Dixon
Pittsburgh, PA

Shame On You, KFC

"Honey Sauce" is not honey! The KFC outlets in Bonham and McKinney, TX are both serving a concoction called "Honey Sauce" instead of the real honey that made the biscuits taste so good. This goop is packaged (at KFC's direction) by Portion PAC Inc., Mason, OH 45040. The labeled ingredients are: Honey, High Fructose Corn Syrup, Sugar, Corn Syrup, Natural Flavoring, Caramel Color. It does not have the zesty tang of real honey. It has a heavy sugar taste like Karo syrup. It has no place as a spread for biscuits.

The Colonel always stood for serving the best. He did not let Heubleins get by with mashed potatoes that tasted like "Library Paste." If you too feel you deserve real honey instead of better living through chemistry, call the KFC customer relations line at 1-800-225-5532 (1-800-CALLKFC) and let them know. Get your sons, daughters and cousins to do the same. Let the local Kentucky Fried place know how you feel (politely of course). Write a letter to the editor of your local paper. Let's get real honey with our biscuits.

Lawrence M. Backer
Blue Ridge, TX

Just For Kids?

As 4-H leaders, we are always using articles gleaned from the pages of your magazine to teach kids current things about beekeeping. We have found it a good resource; however sometimes they are a bit too technical. Have you ever considered having a column or page just for kids? Suggestions – book reviews, puzzles, cartoons, recipes, fun things to do or places to go, word finds, games, idea exchange, or articles written by or for kids in the 12 to 18 year range.

Scott & Gloria Lambert
Santa Clara, CA

Resistance Dilemma

I've tried several "mite resistant" bees from several sources. Their gentleness was comparable to that of a hive of jellow jackets, not gentle mite resistant bees. I killed all three colonies, after experiencing multiple stings by

MAILBOX

several people, just for passing or working at a distance of 50 feet or greater. So no thank you. The letter from Mr. Johansson mentioned a bee that had potential, *Apis cerana*, saying "Their potential for honey production does not equal colonies of *mellifera*, but these gentle bees seem ideal for amateurs, sideliners . . ." Well I'm a hobbyist and that is all I want, a gentle hive of bees that can make all the propolis they want or whatever, as long as they are gentle and have potential for honey surplus on occasion. So the question is where can an amateur obtain these bees. None seem to have ever been offered for sale in your magazine. They sound just like what I'd like to try before totally giving up. Could you please help us amateurs that just want a nice hobby?

Dewey Glenn
Calera, AL

Editor's Note: Apis cerana *are not in the U.S. A different species, they would not be allowed in as they could carry alien pests or predators. Sorry, but we're stuck with (or blessed) with what we have. There* are *gentle bees available so keep trying.*

Enjoys *Bee Culture*

I have greatly enjoyed my subscription to *Bee Culture*. Dr. Tew's series *Not In Any Book* continues to be some of my favorite articles. I admire his ability to look back on past mistakes as newly acquired wisdom.

Eric Warren
Vernal, UT

McGregor's Handbook

Wonderful information in McGregor's Handbook of Pollination. Thanks for making it available on-line (www.airoot.com/beeculture/book/index.html). I have already printed out the information on melons, cucumbers, crimson clover, vetch, and peaches. This information helps us grow our business.

Bobbie Wideman & Bill Phillips
Gilmer, TX

Guest Editorial, by Kim Naasz

NO MORE BEE KILL

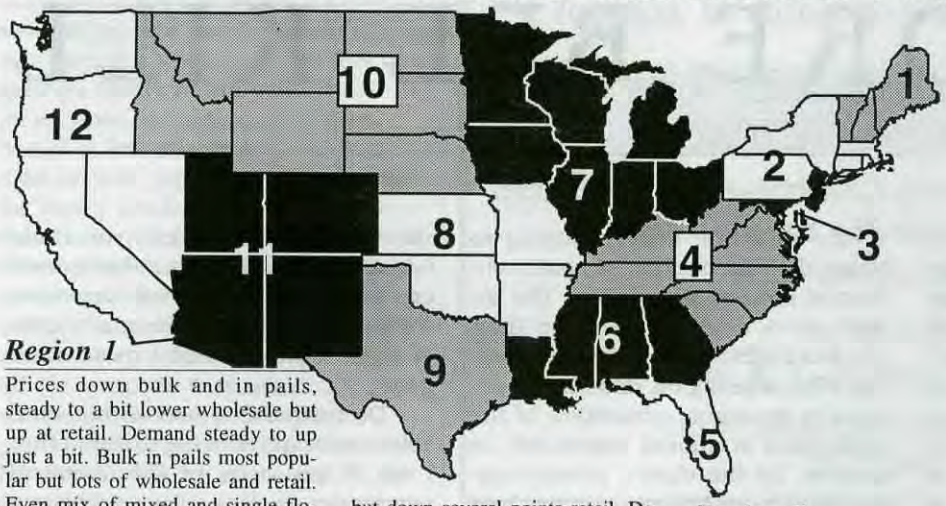
A couple of months ago, Chester Ferguson brought out eight Koehnen queens for me to make some divides, as mine were really filling up their hives. He took them down to "bank" them in my hives, but he returned shortly with bad news – pesticide kill. We found the entire work force dying and dead in every hive. Any of you who have had this happen know the feelings of loss and despair at seeing thousands of dead bees in front of the hives and no bees flying; only the young "fuzzies" were left. Being a state-certified organic food producer, I never expected this to happen at my ranch. The nearest "chemical" orchard is over two miles away. The State Pesticide Management Division was promptly called, and they came out within the hour. The investigator collected samples of the dead bees for the lab. A couple of days later he came back with the state apiarist who informed me that a pesticide kill was almost impossible to prove. The bees probably didn't commit suicide due to bad management as he has often written in past bee kills in this state. Four weeks later I was unofficially informed that methyl parathion, Penncap-M®, was detected at nine parts, yes nine parts per million – one of the highest concentrations ever seen in this area. Other beekeepers in the valley had bees dying by the millions, some refusing to report the kills because of past problems of nothing being done. The investigators come out and do their job, but nothing happens after that. The EPA labeling on different pesticides is so vague, protection of the pollinators is almost impossible to achieve. At the state's administration level, everybody who is involved seems to have their hands tied. The Washington State Horticultural Association is not passing down to the farmers the much needed information to stop the bee kills of both wild and domestic bees. When enforced the culprit receives a written warning for the first offense; the second offense a $350 fine is imposed; and if two or more applicators apply the same product within a five-mile radius no action is taken, as the courts will throw it out. The EPA clearly needs to change the labels or pull from the market those products destroying the pollinators. Perhaps it is time for beekeepers to check their pollination clients and if they use this deadly product, refuse to set hives in their crops. Methyl parathion has been killing our bees for many years in many states; maybe it's time to stop them from destroying our livelihoods! I have also raised a couple thousand bumblebees which are dependent upon pollen for food. This Spring, shortly after the bee kill, you could count the remaining bumblebees on one hand. Also baby quail were seen feeding on the dead bees; a couple of days later the baby quail were gone.

Do I expand to over a thousand colonies, or quit? Being the idiot that I am, I refuse to let the chemical companies do this to me without a fight, I am buying out a fellow beekeeper who has had enough of seeing his "girls" die a violent, UNNECESSARY death.

No one has the right to destroy these hard-working creatureS the Lord has put on this earth to feed us. Do we continue to let some companies destroy us and this earth or do we stand up and say "No More?"

There are now "softer" methods of control instead of many of the harsh products used. Insects are building immunities to many of the strong chemicals now used, so more deadly chemicals are being developed even as you read this. We are wiping out many very much needed insects for the control of a few bad ones. This will surely come back to haunt us and our children, as we are at the top of the food chain. The next time you watch a butterfly or a bee helping to pollinate the flowers you enjoy or the food you put on your table, take a good look – it may just be one of the last times you see one!

OCTOBER – REGIONAL HONEY PRICE REPORT



Region 1

Prices down bulk and in pails, steady to a bit lower wholesale but up at retail. Demand steady to up just a bit. Bulk in pails most popular but lots of wholesale and retail. Even mix of mixed and single floral source offered.

Region 2

Prices down a few points at bulk, wholesale and retail. Demand steady to increasing a bit. Mixed wildflower most commonly sold bulk and wholesale, but single floral source most popular at retail.

Region 3

Prices up to steady in bulk, up for pails, same for wholesale and retail. Demand only steady. Wildflower most commonly produced, but single flower in demand. Bulk most weight sold, but retail most often sold.

Region 4

Prices down a few cents for bulk, steady for pails, steady wholesale but down several points retail. Demand mixed, higher in the east, less in the west. Wildflower by far the most common produced, but single source most often requested.

Region 5

Bulk, pail and wholesale prices down, while retail remains barely steady. Demand only steady. Barrels and pails primary products here, but specialty retail strong also. Wildflower primarily sold in quantity, single source primarily sold retail.

Region 6

Pail prices down significantly, bulk steady, wholesale steady and retail steady to down. Demand mixed to rising for new crop. Wildflower most commonly sold, with single floral sources only moderately in demand and produced.

Region 7

Pail prices down nearly 20%, bulk down nearly that much, wholesale down about 6%, retail steady to down a point or two. Demand mostly steady, but some areas weak. Wildlfower most commonly produced and sold at wholesale and bulk scale, and mostly retail. Some single source produced, primarily clovers. Specific sources not in great demand, or produced.

Region 8

Prices down just a little across the board with the exception of larger retail containers. Demand steady to increasing just a tad. Wildflower most commonly produced and sold, as demand for single source only moderate.

Region 9

Prices down since last month across the board – bulk, wholesale and retail. Demand soft and seems to be slowing. Wildflower most commonly produced for retail, bulk generally goes to blends.

Region 10

Bulk prices steady but pails down. Wholesale down, too, but retail steady. Most honey sold in bulk here, and a fairly uniform floral source is available, though not in great demand locally, it is a premium product in other locations.

Region 11

Bulk and pail prices down since last month as is wholesale, but retail up quite a bit, at least for local sellers. Demand only steady on all fronts. Wildflower and single source both sell well here and demand for both is strong.

Region 12

Barrel prices steady but pails down. Wholesale and retail up a bit since last month. Demand steady to increasing in the north, decreasing in the south retail, steady wholesale. Single source demand good, and offered at a better price.

	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																
60# Light	53.12	56.00	57.00	69.00	55.33	42.00	43.23	55.33	56.00	55.33	64.25	53.00	36.00-75.00	54.98	58.23	68.85
60# Amber	53.60	57.00	55.00	66.33	51.00	40.20	42.80	54.90	54.00	54.22	60.40	52.50	32.40-75.00	55.27	57.01	67.13
55 gal. Light	0.67	0.68	0.69	0.68	0.66	0.71	0.62	0.76	0.79	0.65	0.68	0.75	0.61-1.50	0.78	0.78	0.96
55 gal. Amber	0.64	0.68	0.64	0.66	0.58	0.69	0.60	0.67	0.70	0.64	0.61	0.73	0.57-1.50	0.75	0.76	0.93
Wholesale - Case Lots																
1/2# 24's	29.18	27.24	31.25	31.89	31.25	27.40	29.89	31.25	30.00	31.25	28.75	34.00	21.60-42.00	30.14	30.68	30.77
1# 24's	43.13	42.28	43.20	43.77	42.00	41.50	43.09	39.44	38.00	44.00	42.65	46.10	30.00-72.00	43.74	44.15	43.09
2# 12's	39.75	38.09	42.60	43.90	53.25	38.30	38.72	38.39	42.00	41.00	33.80	43.00	29.40-72.00	40.25	40.84	39.29
12 oz. Plas. 24's	35.39	36.01	40.80	37.01	33.59	27.20	36.37	34.74	35.00	38.40	39.13	35.33	16.40-48.00	36.38	37.33	36.94
5# 6's	40.71	43.39	48.00	49.00	46.35	40.00	38.55	40.50	40.16	41.25	34.78	37.25	30.00-67.50	41.56	**42.76**	**41.46**
Retail Honey Prices																
1/2#	1.83	1.57	2.83	2.17	1.38	1.76	1.84	1.76	2.00	1.83	2.67	2.01	1.10-3.49	1.85	1.83	1.91
12 oz. Plastic	2.20	2.27	2.35	2.33	2.10	2.26	2.04	2.26	2.50	2.30	2.76	1.95	1.59-3.20	2.24	2.28	2.23
1 lb. Glass	2.79	2.85	2.60	2.90	2.53	2.66	2.57	2.77	3.00	2.41	3.41	2.84	2.05-4.95	2.82	2.79	2.68
2 lb. Glass	4.52	4.85	4.55	5.03	3.49	4.59	4.39	4.35	4.50	4.61	4.82	4.63	3.49-6.79	4.60	4.84	4.50
3 lb. Glass	6.37	6.83	6.75	6.35	7.30	6.37	6.79	6.24	6.00	6.69	6.29	5.77	4.94-10.50	6.47	6.52	6.26
4 lb. Glass	7.93	6.85	9.26	8.18	9.26	7.34	9.50	9.26	7.50	8.50	9.26	6.00	6.00-13.60	8.19	7.96	8.31
5 lb. Glass	9.35	10.64	9.80	9.82	10.51	8.80	8.50	10.00	9.25	8.46	9.40	8.27	7.00-15.00	9.53	9.36	9.40
1# Cream	3.33	3.51	3.72	3.73	3.72	2.63	2.75	3.19	3.50	3.10	4.34	2.93	2.25-5.50	3.40	3.37	3.36
1# Comb	4.11	4.02	3.50	4.25	4.20	4.00	3.60	3.66	5.75	4.20	5.15	4.95	1.95-6.40	4.25	4.10	4.15
Round Plastic	3.76	3.64	3.50	4.08	4.10	4.50	3.23	3.50	3.90	4.10	4.75	4.22	2.44-6.00	3.87	3.85	3.85
Wax (Light)	2.82	3.89	2.30	2.24	1.45	3.83	2.18	2.42	2.00	1.20	2.30	3.25	1.20-7.50	2.82	2.51	2.74
Wax (Dark)	2.47	3.06	2.08	1.88	1.13	3.50	2.27	1.90	7.50	1.10	2.25	2.33	0.95-6.50	2.47	2.16	2.39
Poll. Fee/Col.	34.96	39.50	30.00	32.40	25.00	33.17	36.86	37.50	20.00	36.94	52.00	36.67	20.00-55.00	35.81	37.13	35.43

THE WISE GUY

How do you market your honey? Do you sell it to a packer, pack it yourself, or maybe give it away? The first and last ideas may have a lot in common. As a producer, *you* should pick the packer you sell to. Study his product on the shelf; see if it fits the standards you want for someone selling your honey. Examples:

1. Do you want your honey packed in hazy, cheap, plastic containers that don't show what's inside?
2. Do you want your honey being packed by someone whose label looks like a third grader designed it?
3. Do you want your honey to be part of a blend of Chinese, Argentina, Mexican, Chilean and Martian, as put on most labels? Why does the packer have to blend these imports with American honey? Every time a packer wants to buy your honey, they tell you that they can buy the same products you have from Argentina, and the price is much cheaper. If that is true, then why don't they proudly market Argentina honey, instead of a blend?
4. Do you want someone selling your product based on price only? All they are selling is another sweetener to compete against sugar, karo syrup and corn syrup. Honey is not just another sweetener; it is and has always been considered the *premier* sweetener. The packers are lowering the added value of honey by using the producer's margin as the price reduction device.

The next time you talk with a packer and he wants you to send him a sample of your honey, ask him for a sample of his finished product to compare to your sample. Also ask for label samples to see how he markets his product.

What I am really suggesting here is that your honey can be best marketed by you. You know the floral source and the hard work it took to place it into that jar or container. Who better to sell that product than you? Sell your product based on it's qualities, not a blend of others' products, and certainly not based on price.

Cheap imported honey is just that. The product produced in the United States is far and away a much better product. Again, I don't see one packer proudly marketing "Pure China" Honey. The whole honey packing industry was up in arms about the possible blending of corn syrup with honey. That same packing industry is blending "cheap imports" with American honey, and it has the same results as using corn syrup.

There are some wonderful people in the honey packing business today, and they take pride in their product. Those are the ones you must search out and sell to, or take it upon yourself to bottle and package your product.

One last interesting fact. The Department of Commerce's tracking shows that the United States suffered an 18,202,072-pound *drop* in honey consumption in the past reported year! I believe this is the first reported decrease in honey consumption in the United States in years. Is this a trend? With cheap imported honey coming in, does this tell us that consumers don't care for that product? Put the pride and quality back into our product – American honey. BC

Roger Morse

Research Review

"Hygenic behavior selection by bee breeders had better become more important than it is now."

From the point of view of practical beekeeping, the paper I review here is one of the most important and best I have read in some time. As a result of this research we now have field data we can use to encourage queen breeders to seek out and breed from stock that shows hygienic behavior.

In these tests, it was found that bees that removed at least 95 percent of the brood from combs that had been killed by freezing in 48 hours were hygienic. In the final tests, 49 colonies that were determined to be hygienic were compared with 46 commercial colonies that were not. The test colonies were palletized with four colonies per pallet, two hygienic and two not. The data showed that the hygienic bees had less chalkbrood, American foulbrood and fewer *Varroa* mites. However, what is more important is that the commercial line produced 26 percent less honey than did the bees from the hygienic line.

The queens used in these tests were mated naturally, but from selected stock. While smaller scale tests of hygienic stock have been done before, the queens have always been artificially inseminated.

The bees used in these tests were Italians, but hygienic behavior has also been found in other races, notably the Caucasian and Carniolan races popular with a large number of beekeepers. The authors write, "Hygienic behavior occurs in approximately 10 percent of most commercial honey bee populations thus far surveyed in the U.S." (Spivak, unpublished observations).

In discussing their results, other facts come to light. There is a problem in selecting hygienic stock in that there are often inconsistencies in the assay used to determine hygienic behavior. Even under what are presumed to be the same environmental conditions there may be variations in the number of dead pupae removed. However, these inconsistencies are not so great as to invalidate the method. A honey flow may make a difference in the rate at which bees remove killed brood.

A second factor that may slow queen breeders from selecting for hygienic behavior "may be due to the common misconception that hygienic colonies are highly defensive." The authors state this is not true and in the tests reported here, the colonies were gentle and did not pose handling problems for researchers.

Spivak, M. and G.S. Reuter. *Performance of hygienic honey bee colonies in a commercial apiary.* Apidologie 29: 291-302. 1998.

Hygienic Behavior of AHB

It has been known for some time that the Africanized honey bees in Brazil are resistant to *Varroa* mites. Beekeepers in Brazil do not use synthetic chemicals to control these mites found throughout the country. It appears that it is largely the behavior of Africanized honey bees that makes the difference.

In a recent study it was found that if *Varroa* mites or feces from wax moths were present in cells with honey bee pupae there was a greater chance that the cells would be prematurely uncapped by house bees. This is the first step in removing sick or ailing bees and *Varroa* mites. "The nearly four times higher infestation rate in prematurely uncapped cells shows that the bees selectively uncap cells with *Varroa jacobsoni*."

This paper, together with that by Spivak and Reuter, shows clearly we can do much to eliminate and/or reduce disease problems in honey bees by selecting for certain behavioral traits. It would be nice to get back to natural systems to control honey bee diseases and not be dependent on chemical control methods both costly and time-consuming. More careful selection of the breeding stock we use for growing queens is clearly the answer. Beekeepers who buy queens should insist on knowing how the breeding stock for the queens they purchase is selected. Those who grow their own queens have the tools they need to make stock selection at hand. One simple guideline is to keep good records of honey production from different colonies and to use as breeder stock only queens heading high honey-producing colonies.

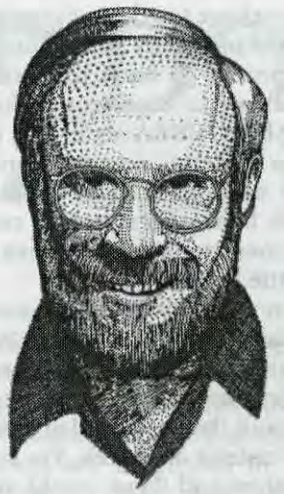
Correa-Marques, M-H. and D. De Jong, *Uncapping of worker bee brood, a component of hygienic behavior of Africanized honey bees against the mite* Varroa jacobsoni. Apidologie 29: 283-289. 1998.

Chalkbrood

Tests by Dr. Martha Gilliam, who is with the USDA's bee research laboratory in Tucson, AZ, also show that hygienic bees remove freeze-killed brood in 48 hours, while bees in nonhygienic colonies may take a week or more to do so. Dr. Gilliam, working with now retired Steve Taber III, showed a number of years ago that honey bees could be selected for this "healthful behavior" and "inherited trait" and that this was effective in reducing the incidence of chalkbrood. The evidence that we can do much to control honey bee diseases through a vigorous selection program is overwhelming.

Gilliam's research has focused on natural methods of control for this disease. She has found that certain microbes living naturally in beehives "apparently produce compounds that inhibit growth of chalkbrood."BC

Wood, M. *Microbes help bees battle chalkbrood.* Agricultural Research 46(8): 16-17. 1998.



Mark Winston

The Grass Is Always Greener

"The grass really is greener on the other side, if the other side is Britain, that is."

The grass really is greener on the other side, if the other side is Britain, that is. I crossed the big puddle last April to lecture at one of the annual meetings of the British Beekeepers Association, and I couldn't help but be impressed at the lush green foliage everywhere I went. The entire country is a sea of greenery in the Spring, overflowing with green trees, green lawns and green meadows, interspersed with blasts of bright colors from flowering plants in the gardens and fields.

Perhaps it was a week of my "grass is greener here" mood, but I also came away impressed with how well the British Beekeepers Association oversees the business and pleasure of beekeeping. I spent my week immersed in every aspect of British beekeeping, and couldn't help but notice the quality, depth, breadth and sheer enthusiasm and love for bees that the British Beekeepers Association exhibited at every turn.

Their attention to detail and quality was evident right from the start, in their national headquarters. Yes, they have a building in which their national organization has a permanent headquarters, but it's much more than an office with a few desks and computers. The head office is located at Stoneleigh, more or less in the middle of Britain near Coventry, on the grounds of their national agricultural center where virtually all British agricultural organizations have their headquarters and annual exhibitions. Here you'll find the national cattle, pig, horse, Four-H and every other office you can imagine, but of them all the bee center is in a medal-winning class of its own.

The office itself is in an isolated building located in the midst of the most tranquil bee garden I have ever seen. Inside, it feels just like your down-home honey house, cluttered with beekeeping paraphernalia, stacks of brochures ready for shipping, and a large 5-gallon glass jar of mead bubbling away in the corner. The teapot is always on, and beekeepers continually stream in and out, allegedly to conduct their business but really just to sit and chat, drinking tea while looking out the bright windows overlooking the beautiful garden beyond. The building itself was built and is maintained by beekeepers; while I was there a few of them were volunteering their time and skills back in the kitchen ripping out the old floor and putting in a new one.

I was incredibly busy at this meeting. They had me give four talks in about 36 hours, but I did have a few minutes one day to sneak off into the garden and relax. The garden is lush but immaculate, surrounded by tall hedges, with innumerable alcoves, nooks and crannies to explore, and lots of benches to sit on and contemplate the universe. There are bees everywhere, housed in hives of every description, tucked in between tiny streams and fountains, and lovingly cared for by the British beekeepers. I only had a few minutes, and perhaps it was the contrast between the hectic meeting pace and the tranquil garden, but I'm not sure I've ever been in a space in which I felt more peaceful, and proud to be a part of an agricultural profession with members who care enough to create such a wonderful environment.

The British Beekeepers Association (BBKA) is not just a pleasant building, tea and a nice garden. The organization does an extraordinary amount for its members and for the public at large, and everything they do is done meticulously and with a commitment to quality that seems old-fashioned in the hectic pace of North American life. For example, if you inquired about membership in the association, you would receive a beautifully produced package of information that includes a spectacular poster of a beekeeper inspecting a hive under the title "Would You Like to Keep Bees?", the current monthly newsletter, pamphlets about disease control and the importance of reducing pesticide damage to bees, all in a folder covered by wonderful pictures of bees, beekeepers and pure English honey.

If you join the BBKA for the ridiculously low price of about $17 U.S., you receive an incredible array of services and high-quality information for your membership fee. For example, they publish a monthly eight-page newsletter (the BBKA News) filled with up-to-the-minute news about disease problems and treatments, the latest insecticide information that might concern beekeepers, reports of research, statistics, and of course pleasant gossip about members. But, that's just the monthly newsletter; they also send out a well-produced monthly magazine, *Bee Craft*, that carries in-depth articles about anything remotely to do with the craft of beekeeping, from both a hobbyist and a commercial perspective. And if you need information about a specific topic, they produce and stock innumerable leaflets on subjects ranging from preservation of beekeeping equipment to shrubs and plants for bees, alternative *Varroa* treatments to managing live bees at shows, what to do about swarms to honey cake recipes, and much, much more.

And that's only the beginning of

Continued on Next Page

"They publish a monthly eight-page newsletter (the BBKA News) filled with up-to-the-minute news about disease problems and treatments, the latest insecticide information that might concern beekeepers, reports of research, statistics, and of course pleasant gossip about members."

what the head office provides its members. The association is knit together by local and extraordinarily active area associations, each of which meets regularly and provides a network of beekeepers throughout the country who can quickly mobilize for political action. The BBKA is an amazingly effective lobby group; they have contacts at the highest levels of government, and their direct access to Ministers and Members of Parliament gives beekeepers a voice and a political impact that is unprecedented anywhere else in the world. They also have a network of phone, FAX, Web-site, and e-mail communication that can spread the word about beekeeping events with uncanny speed. Everywhere I went, beekeepers seemed to know whatever I had done, said, and probably dreamed at my earlier stops. If the entire beekeeping community in Britain can be made aware of how much Dr. Winston likes clotted cream, imagine how quickly and effectively really important information can be distributed, and lobbying initiated.

The association also provides a seemingly endless supply of information to members. They conduct two annual meetings, and the one I attended at Stoneleigh was awesome. Attendance each year is between 1,500 and 2,000 beekeepers, with 40 to 50 major exhibitors, and I couldn't help but be impressed at the meticulous attention to detail at every turn. Even more impressive than the planning and execution of the meeting was the sheer enthusiasm at this conference; the beekeepers attending were thrilled to be there, and the level of simple fun was extraordinary. The sense I got was that, as large as this crowd was, everyone knew everyone else, and I learned later that this observation was largely correct. The BBKA sponsors so many smaller courses and conferences, holds so many meetings, and promotes such an extensive network of contacts between its local and national levels that members really do know each other. This sense of camaraderie and connection between beekeepers perhaps is the most unusual and important service that the BBKA provides for its members, and gives their meetings a neighborly feeling that I found unprecedented among beekeeping groups.

The BBKA is not just touchy-feely, however; the organization is astute about its own business, and conducts its affairs with a high level of financial acumen and corporate skill. Virtually every item they produce and event they conduct is sponsored by beekeeping-related or more broadly based businesses, and the association is highly aggressive about making the personal contacts that lead to these sponsorships. This is not a distant group of "them"; the BBKA members view themselves as "us," and are effective financially because a considerable array of volunteers do the legwork to insure that the funds are there to conduct the association's business. It also doesn't hurt that they employ full-time staff to keep the office functioning, but the commitment of volunteers provides an energetic army of beekeepers who seem to be able to accomplish almost any task they put their minds to.

Finally, the BBKA looks well beyond beekeeping. When I visited their building, they showed me a package of educational material they had put together for use in the schools, with the help of some teachers involved in beekeeping. This package just about knocked my hive tool out of my hands, and made me want to go back to elementary school just to experience education about bees, BBKA-style. The quality of this material was extraordinary, and it was not hard to see how the British beekeepers recruit continuing generations of new beekeepers from the bottom up.

I'm fully aware that I saw only the best of what was happening, and I have no doubt that British beekeepers find innumerable things to criticize about the BBKA. If I spent a year there instead of a week, I'm sure the blemishes and flaws would surface, and my view of the green grass would become colored by experience. Nevertheless, our North American industry might benefit if some of our own movers and shakers went over to Britain and spent a week or two at Stoneleigh and traveling around the British Isles visiting with some of their movers and shakers. We should be asking ourselves questions like: Why don't we have a national beekeeping headquarters in Washington, D.C., or Ottawa, perhaps integrated with one of our large public gardens, staffed by a full-time executive assistant, a secretary and a lobbyist, and including an educational display? How come our national meetings attract only a handful of beekeepers relative to the number of beekeepers in North America, and only a few exhibitors? What happened to our sense of communal membership in a beekeeping organization, and the collective feeling that, working together, there is almost nothing that we can't accomplish?

Drop in next time you're in England and have a chat; there's almost always tea and biscuits, and someone ready to gab. But be prepared: You may find yourself stuffing envelopes while you're talking about bees, and don't be surprised if you've joined up by the time you leave. The address is BBKA, National Agricultural Centre, Stoneleigh, Warwickshire CV8 2LZ, U.K., phone 01203 696679, e-mail sally@bbka.demon.co.uk. If you call ahead, they might even be able to round up some clotted cream. BC

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?DO YOU KNOW?

Honey Bee Communication

Clarence Collison
Mississippi State University

Honey bees are social insects and exhibit the highest degree of social behavior. A prerequisite of all social communities is the ability to communicate with each other. Chemical, optical, and mechanical means of communication are employed in the honey bee colony. Through their precise and highly differentiated dance languages and their numerous pheromones, individuals are able to recognize they belong to the same colony, know what position they occupy in the social hierarchy, determine the basic needs of the colony and convey the location of a food source or potential nest site.

Please take a few minutes and answer the following questions to find out how well you understand chemical communication in the honey bee society.

The first twelve questions are true and false. Place a T in front of the statement if entirely true and a F if any part of the statement is incorrect. (Each question is worth 1 point).

1. ___ Honey bees expose their Nasonov gland both inside the hive and exterior to the hive.
2. ___ The queen uses her Nasonov gland to attract drones during her mating flight.
3. ___ Nasonov pheromone acts as an orientation aid.
4. ___ The formation of queen cups appears to be a normal part of colony development, which is partially under pheromone control, and does not necessarily indicate that any occupied queen cells will be present subsequently.
5. ___ Any disturbance that causes flying bees to become disorientated often causes them to expose their Nasonov glands and fan when eventually they alight near the nest or hive entrance.
6. ___ Maximum production of Nasonov pheromone occurs in house bees.
7. ___ Immature queens in sealed cells secrete a pheromone that depresses the production of additional queen cells.
8. ___ Secretions from tiny glands found on the upper surface of the queen's abdomen serve to keep attendant bees, the "court", around the queen.
9. ___ Laying workers are able to produce queen substance (9-oxodecenoic acid).
10. ___ Laying queens are more attractive than virgin queens since they have larger amounts of queen substance in their mandibular glands.
11. ___ Alerted or stinging workers release alarm pheromones, especially isopentyl acetate, that elicit colonial defense.
12. ___ The construction of queen cell cups is partially inhibited by pheromones from mated laying queens, virgin queens, and immature queens.
13. Name the swarm-associated functions related to the queen's mandibular gland secretions. (3 points)
14. How is the exposure of the Nasonov gland by foraging honey bees different than those exposing the gland at the colony entrance? (1 point)
15. Please describe the functions of brood pheromones. (2 points)

At least 18 different chemicals have been identified which function as pheromones in the honey bee society and numerous others are yet to be identified. Several pheromones are listed below. Please select the correct pheromone for the questions that follow.

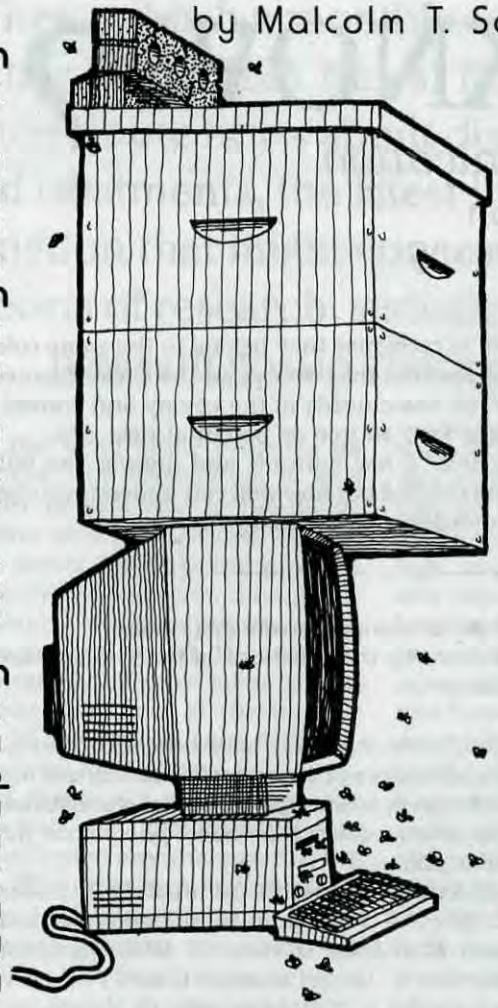
A. 9-keto-(E)-2-decenoic acid B. Geraniol C. 2-Heptanone D. Nerol E. (E)-citral F. 9-hydroxy-(E)-2-decenoic acid G. Geranic acid H. N-butyl acetate I. (E-E)- farnesol J. Isopentyl acetate K. Benzyl acetate L. (Z)-11-eicosen-1-ol M. Isopentyl alcohol N. N-Octyl acetate O. Nerolic acid P. N-hexyl acetate Q. 2-nonanol R. (Z)-citral

16. ___, ___ Two primary components of "queen substance".
17. ___ Alarm pheromone associated with the mandibular gland.
18. ___ Primary alarm pheromone associated with the sting chamber.
19. ___, ___, ___ Name 3 components associated with the Nasonov gland.

Answers On Page 56

Beekeeping In The Digital Age

by Malcolm T. Sanford



Accessing This Column On The WWW

In my last column, I threw out a bunch of acronyms like WWW, HTML, HTTP and URL. The latter stands for Uniform Resource Locator, and begins with http://, something more and more seen on television and movie screens, in the newspaper and even quoted on the radio. The URL is an address recognized by computers on the Internet that are using Hypertext Transfer Protocol (HTTP) to exchange text, graphics and sound, employing hypertext markup language (HTML). All this working together comprises what is called the World Wide Web (WWW). Confused? Perhaps it might help to review my last column.

Here's the rub; I bet you can't quickly and easily find it in your magazine file. You have to dig out that last issue of this journal, then look up the column in the table of contents, and finally turn to the appropriate page. If you were reading this on a computer connected to the Internet, and some of you might be, all that is necessary is to point to or select the following address or URL using a computer "mouse."

http://.../~MTSanford/Webcolumns/Column1.htm.

"Clicking" on the above address would instantly bring the last column directly to your computer screen to refresh your memory about those definitions. You could go further and print out the column or send it electronically (e-mail) to someone else. When finished reading, printing or mailing that column, you could return directly to this one with another click. This free movement or "hyperlinking" within documents and between them is one of the most useful and appealing features of the World Wide Web.

Navigating the Web is as simple as point and shoot. You select links (hyperlinks) that are identified in documents that point to other addresses or URLs. Let's look at the above URL again. It begins with http:// meaning that the Hypertext Transfer Protocol and Hypertext Markeup Language of the World Wide Web will be used. When viewed on the computer screen, this text is marked and has a different color and usually is underlined as well. In this column, those links that can be selected directly on the screen of the computer will be in **bold** typeface. Selecting a link tells your computer to open a path across the Internet to my server computer and look into my account (~MTSanford). The server is then directed to open the Webcolumns folder or directory that contains a specific file, Column1.html. Again, the .html ending shows that the file can be retrieved using Hypertext Transfer Protocol and read using the World Wide Web's Hypertext Markup Language, HTML. Finally, a copy of that first column is directed back across the Internet to your computer. This is accomplished in discrete packets, which means a large amount of information can be easily transferred simultaneously.

If you were using a computer, you retrieved the information in my last column in a way that is impossible using the printed page. You also had a flexible time frame to act. In fact no schedule was necessary because the document is available twenty-four hours a day, seven days a week. Unlimited access in terms of both time and content by simply selecting a URL is another reason the World Wide Web has become so popular.

The digital computer is only hardware. A keyboard and mouse are used to provide information and direction respectively to the computer processor or chip. The screen, printer and magnetic disk drive take data from the chip and display, print or store it respectively for later use. While plugged in, the computer also provides ephemeral storage in its brain, called RAM (Random Access Memory). All this hardware works together through a set of coordinating instructions called an operating system. The instructions are called software, and a discrete set of them, designed to do a specific task, is called a program or application. Software instructions to navigate the World Wide Web are implemented in programs called "browsers." Primitive browsers were only able to process text. More advanced ones, however, can now process graphics and sound. Two of the best-known browsers are **Netscape Navigator®** and **Microsoft Internet Explorer®**. Because these are in bold typeface, within a browser selecting them

Continued on Page 20

SMALL HIVE BEETLE CONTROL
USDA Initial Lab Study Results

Abstract

The toxicity of eight insecticides to the small hive beetle infesting honey bee hives in Florida was investigated. Adults and larvae of the new pest, *Aethina tumida* Murray, destroy hives by feeding on pollen, honey, and wax within the hive. Of the eight insecticides tested, five showed excellent toxicity against adult and larval *A. tumida*, causing 100% mortality: three pyrethroids (YT-1605, YT-100B, YT-1105) and two organophosphates (YT-205, OP-2). The only formamidine (YT-1903) insecticide tested showed poor toxicity on adult and larval *A. tumida*, as did another OP (YT-1701) and a neurotransmitter agonist (YT-2501).

Introduction

In June of 1998 an introduced pest beetle was discovered in honey bee hives in the Fort Pierce area of central Florida. The beetle was identified by Dr. Michael Thomas, Division of Plant Industry, Florida, as the small hive beetle, *Aethina tumida* Murray, in the family Nitidulidae. This is the first recorded occurrence of this species in the western hemisphere, far from its native home in South Africa. No information exists as to how this beetle came to Florida, but its status as an economic pest appears to be greater than is described in South African literature (Lundie, 1940). Whereas *A. tumida* is considered a minor problem in South African apiaries, recent observations in Florida have been of complete destruction of previously healthy hives, resulting in total loss of well managed beeyards. The potential exists for this beetle to become a very serious threat to U.S. beekeeping, should it spread from its present area of infestation.

We undertook the current study in mid-June of 1998, within several weeks of the first discovery of *A. tumida* in Florida. Given the extent of damage observed, we developed a rapid test to provide quick information on the toxicity of several insecticides. While none of the treatments is legal, the need for control data on this new pest for future recommendations is desperately needed.

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Materials and Methods

Live adult and larval *A. tumida* were collected from the Fort Pierce area of Florida in mid-June 1998. Insects were placed in 20 ml glass scintillation vials, with three adults or three larvae per vial. Additional specimens were collected in 70% ethanol for voucher deposition in the insect collection at Texas A&M University, College Station, Texas.

Vials containing live insects were transported from a beeyard to a temporary laboratory in Fort Pierce. Into each vial was placed a ¾" x 2" piece of insecticide-impregnated plastic strip (Y-Tex Corp., Cody, WY; Bayer Corp., Kansas City, MO). Each treatment was replicated 10 times, for a total of 30 adults or larvae exposed to each insecticide. An untreated check consisted of insects in vials with no insecticidal strip inserted. Treatment and control vials were held for 24 hours at 75-80°F and then checked for mortality. Both adults and larvae were considered dead if they could not move forward in a coordinated manner when prodded.

Resulting percent mortality for each treatment was transformed by the arc-sine equation and compared by analysis of variance; means were separated using least significant tests (Steel and Torrie, 1980).

Results and Discussion

Adult beetles are brown to dark black in color and are about 5 mm long. The larval stage of *A. tumida*, is white colored and about 8 mm long in later instars.

Table I shows the results of the eight insecticides tested on adult and larval *A. tumida*. All three pyrethroids (YT-1605, YT-100B, YT-1105) tested caused 100% mortality of both life stages, indicating good potential for field use. There are previous data, however, demonstrating toxicity of some pyrethoids to honey bees during cool weather (Baxter, unpublished data). Of the three organophosphates (OP) tested, two (YT-205, OP-2) gave

Table 1. Mortality of *A. tumida* exposed to several insecticides.

Treatment	Mean Percent Mortality Adults	Larvae
YT-1605	100 a	100 a
YT-100B	100 a	100 a
YT-1105	100 a	100 a
YT-205	100 a	100 a
OP-2	100 a	87.0 a
YT-1701	13.3 b	26.7 c
YT-2501	70.0 c	20.0 bc
YT-1903	13.3 b	3.3 bd
Control	4.9 b	7.0 d

Means within a column followed by different letters are significantly different ($P < 0.05$, LSD).

THE DIGITAL AGE ... Cont. From Pg. 18

would take you to these sites. This browsing capability has made the World Wide Web a far more exciting place. It is the basis for the "surfing" metaphor. Instead of using a board to try to mount the biggest wave, the browser takes one on a wild ride full of quick turns and detours through cyberspace in search of that perfect piece of information.

To access the Internet, you need a computer coupled with a modem attached to a telephone line and connection with an Internet provider. The latter usually provides a browser, communications software and technical assistance to get customers access to the Internet and World Wide Web. Actual details on hooking up can be very different based on particular equipment used. Once hooked to the Web, the best way to begin is to use the searching mechanisms provided by the World Wide Web itself.

Now that some of the basics have been explored, in my next column I will indulge in some "surfing" for specific information about beekeeping. BC

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SMALL HIVE BEETLE CONTROL ... Cont. From Pg. 19

excellent control of adults and larvae, whereas the final OP tested (YT-1701) gave only 13.3% mortality of adults and 26.7% mortality of larvae. The neurotransmitter agonist (YT-2501) tested provided some control, with 70% mortality of adults and 20% mortality of larvae. The formamidine (YT-1903) tested provided poor results, with only 13.3% mortality of adults and 3.3% mortality of larvae. It is important to note that compounds we tested that showed low toxicity may in fact be toxic at higher doses. We cannot, at this time, release the product names of each treatment, due to the formulator's request not to do so. If one or more of these treatments does appear promising in future field tests, permission to specify trade names at that time may possibly be granted.

From these results, it can be seen that several insecticides are highly toxic to *A. tumida* under laboratory conditions. The next step is to field test these compounds to determine if their toxicity remains under commercial beekeeping conditions. We have preliminary data indicating one of the organophosphates tested is highly effective in controlling the small hive beetle in a hive situation. Additionally, we have preliminary data that one of the pyrethroids tested shows great promise as a soil drench against immature beetles. Both of these field-tested compounds show little toxicity to bees. Should the decision be made by regulatory agencies to use insecticidal measures to control *A. tumida*, our data would give baseline information on the use of such insecticides.

References

Lundie, A.E. 1940. *The small hive beetle*, Aethina tumida. Dept. Agr. Forest. Entomological Series 3 Science Bulletin 220.

Steel, R.G.D. and J.H. Torrie. 1980. *Principles and Procedures of Statistics, 2nd Ed.*. McGraw-Hill, New York. 633 pp.

This article reports the results of research only; mention of a product does not constitute endorsement by the USDA. Product names are not given due to proprietary request.

Defensive Behavior In African & European Crosses

Drones call the shots when it comes to defensive behavior.

Gloria DeGrandi-Hoffman

When Africanized honey bees migrate into an area, usually the first ones to notice are beekeepers. Colonies headed by open mated queens that had been gentle and easy to work become difficult and defensive. Indeed, the most striking difference between European honey bees (EHB) and Africanized honey bees (AHB) is colony defensive behavior. EHB colonies often show a mild defensive response to intruders, but the reaction of AHB colonies to disturbance is usually extreme. It is not uncommon for hundreds or even thousands of worker bees to attack a perceived intruder when an AHB colony is disturbed.

The worker population in a honey bee colony is genetically diverse because the queen mates with up to 17 drones. This creates a population composed of numerous patrilines (i.e., groups of workers with the same drone father). When AHB establish in an area, European queens will mate with both European and African drones, so both types of patrilines will exist in colonies. When a colony with African and European patrilines is disturbed, are the responding bees primarily African? If workers with African patrilines react to a disturbance and release alarm pheromone, do workers with European patrilines also respond? If a colony is extremely defensive can the problem be solved by requeening with a European queen reared from a colony with minimal defensive behavior?

To answer these questions, we captured AHB swarms in Tucson, AZ. We hived two different swarms and used them as AHB parent colonies (hereafter referred to as AHB-1 and AHB-2). Honey bees in the U.S. are characterized as Africanized based upon morphometric analysis. Using this analysis, the AHB-1 and AHB-2 parent colonies used in this study each had a probability of Africanization of 1.0.

The EHB parent colonies were two unrelated European colonies (EHB-1 and EHB-2) carrying Cordovan (*cd*) genes for body color. These genes cause bees to be distinctively yellow-brown bees. We chose *cd* lines to represent EHB so that patrilines could be identified by body color. Next, we mated the EHB and AHB queens with both types of drones using instrumental insemination. The inseminated queens were marked on their thorax with paint, a wing was clipped to prevent them from flying, and they were introduced into five-frame nucleus colonies. The colonies will hereafter be referred to "AHB-1 x mix" and "EHB-1 x mix."

To be sure that we were correctly identifying the patrilines of the workers in the "mix" colonies, we inseminated a group of AHB-1 and EHB-1 queens with semen from just AHB-2 or EHB-2 drones. Samples of worker bees were taken from each colony using sealed brood that emerged in an incubator. The bees were preserved as voucher specimens for use in identification of patrilines. The colonies headed by these queens were included in tests to determine defensive behavior.

Two months after the inseminated queens were introduced into colonies, the worker populations consisted only of offspring from the inseminated queens. Before we started our measurements of defensive behavior, the colony populations were estimated by determining the area of all frames in each colony that were covered by adult bees. The percentage of worker bees in each patriline in the colony population at large was determined by placing cages over areas of sealed brood and recording the number of emerged bees (100-115 worker bees per colony) with each patriline. This enabled us to

Exhaling through a long tube into the entrance of a colony.

Continued on Next Page

The paper cone.

DEFENSIVE BEHAVIOR ... Cont. From Pg. 21

compare the proportion of workers of each patriline in the hive with the proportions responding after we disturbed the colony.

We measured the defensive behavior of a colony by the number of workers leaving the hive after we exhaled into the entrance three times. The responding bees were captured in a paper cone (treatment cone) with a clear plastic bag attached to the end. The paper cone fit snugly into the colony entrance, which was reduced to a hole 2.5 cm in diameter. Inside the treatment cone was a piece of black Velcro dangling from a short elastic string. The black Velcro served as a target for the responding bees. Each trial to measure defensive behavior started by first placing a cone without the Velcro patch (control cone) in the colony entrance for 30 seconds (the control period). After the control period, the control cone was removed and a cork was placed in the end to prevent the bees from escaping. Next, a clear plastic tube was placed in the colony entrance, and we exhaled into it three times. The tube was removed and the treatment cone was immediately placed in the colony entrance for 30 seconds. The treatment cone then was removed and corks were placed in the entrances of the cone and the colony. The bees captured in the cones were immediately frozen. All 21 colonies including the parent colonies AHB-1, AHB-2, EHB-1 and those headed by the inseminated queens were sampled within the same 40-minute interval once a week for six weeks.

The paper cone with plastic bag attached and black velcro inside.

Proportion of African and European Patrilines Captured in Cone Traps After a Colony Disturbance

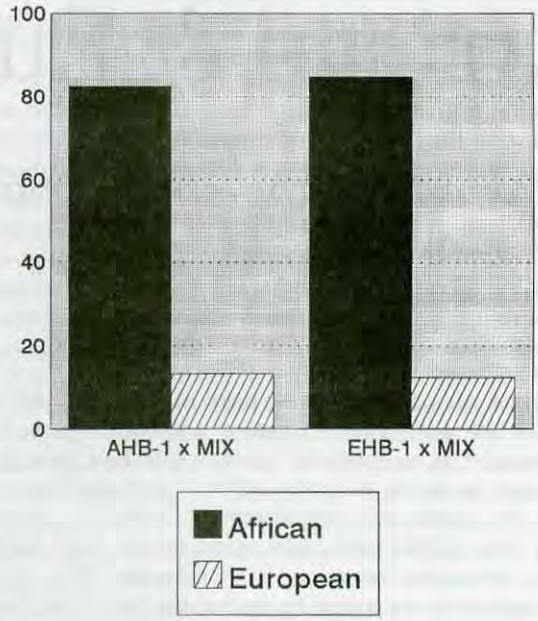

Table 1. Mean numbers of honey bees captured in the cone traps before (Control) and after (Treatment) a colony disturbance.

Colony[z] colonies	#of	Mean number of captured worker honey bees ± S.E.[y]	
		Control	Treatment
AHB-1 parent	1	6.2 ± 3.2 a	172.4 ± 26.4 b
AHB-2 parent	1	8.4 ± 5.4 a	252.2 ± 22.4 c
EHB-1 parent	1	0.9 ± 0.5 a	47.7 ± 20.2 d
AHB-1 x EHB-2	2	1.1 ± 0.5 a	74.0 ± 13.8 b
AHB-1 x AHB-2	3	5.6 ± 2.7 a	190.9 ± 37.9 c
EHB-1 x AHBB-2	3	3.0 ± 1.0 a	191.2 ± 24.2 c
AHB-1 x mix	4	1.6 ± 0.5 a	110.2 ± 22.1 bc
EHB-1 x mix	6	1.3 ± 0.3 a	96.7 ± 13.4 b

[z]The "mix" were headed by queens inseminated with semen from African and European drones.
[y]Each colony was tested six times. A separate analysis of variance was conducted with just the parent colonies. Means followed by the same letter are not signficantly different at 0.05 level of probability.

When we exhaled into the colonies through the plastic tube, the worker bees instantly responded and rushed out into the treatment cone. The colonies differed in population size by about 1,200 worker bees so the counts of honey bees captured in the cone traps were adjusted based upon the relative population size of the colony. Of the three parent colonies, AHB-1 and AHB-2 were the most defensive (Table 1). Regardless of the queen type (AHB and EHB), the most defensive colonies of those headed by the inseminated queens were those containing workers fathered by only AHB-2 drones (Table 1).

Colonies containing both AHB-2 and EHB-2 patrilines were equally defensive. Colonies headed by AHB-1 queens inseminated with only EHB-2 semen were the least defensive. In fact, all colonies containing EHB patrilines (AHB-1 x EHB-2; AHB-1 x mix; EHB-1 x mix) were less defensive than those containing only the AHB-2 patriline.

The AHB-2 patriline comprised the majority of bees captured in the treatment cones in colonies containing both patrilines (Figure 3). The proportion of AHB-2 patriline bees captured in the treatment cones was significantly greater than their proportion in the hives. Apparently, the African patriline workers that responded to us exhaling into their colonies did not incite their European patriline half-sisters into exhibiting defensive behavior during the 30-second sampling interval. If they had, the proportion of workers with EHB patrilines in our samples would have been the same as that in the colonies.

We captured an average of about 5 percent of the colony population in the first 30 seconds after the disturbance. If this proportion is representative, an average sized colony of 30,000 bees could mount a defensive response of 1,500 bees in 30 seconds after a disturbance.

The most defensive colonies in our study were those with AHB patrilines, yet colonies with African queens mated to just European drones were the least defensive. These findings were similar to those reported by of Guzman-Novoa and Page (1994) in which most of the workers responding to colony disturbances were AHB hybrids. Apparently, the type of queen in a colony has a limited effect on defensive behavior. What seems to be most important is the type of drones that mate with the queen. Consequently, requeening a highly defensive colony with a virgin European queen in an area where she could mate with African drones will probably have little affect on reducing the colony's defensive behavior. BC

References:

Guzman-Novoa, E. and Page, R.E. Jr. (1994) *Genetic dominance and worker interactions affect honey bee colony defense.* Behav. Eco. 5: 91-97.

Acknowledgements

The author thanks Joe Martin, Sarah Machtley, Nicole Morales and Mark Templin for their excellent technical assistance. This is a popularized version of an article appearing in the *Journal of Insect Behavior* (DeGrandi-Hoffman et al. 1998). Nest defense behavior in colonies from crosses between Africanized and European honey bees (*Apis mellifera* L.) (Hymenoptera: Apidae). J. Insect Behav. 11: 37-45.

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A SHORT HISTORY OF
THE EXTRACTOR

Richard Dalby

Today the extractor is one of the basic tools of beekeeping. Unless you produce only comb honey, chances are you own an extractor. It may be a gleaming, stainless steel beauty that handles dozens of frames at a time, or it may be a little two-frame, hand-crank job with non-reversible baskets, or it may be something in between, like one of those esoteric parallel radial outfits. But whatever kind of extractor you use, it has a genealogy, a developmental history, that traces back to the 19th century, when the possibility of using centrifugal forces to throw honey from the comb was first recognized.

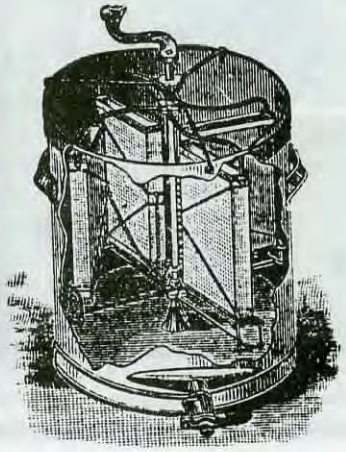
Above, one of the earliest Novice extractors, from 1880 ABC. Below, a later version of the Novice from an 1893 catalog.

The year was 1865, a year that saw the end of the American Civil War and the assassination of Abraham Lincoln. In Vienna, an Austrian known as Major Hruschka gave his son a piece of comb honey. One assumes he gave it to the boy to eat. But, boys being boys, the Major's son had other ideas. He put the comb honey in a basket and proceeded to swing the basket in a circle, perhaps at the end of a short rope. Major Hruschka, obviously an observant man, noted that some of the honey had been removed from the comb as a result of the circular motion. It was an observation destined to change beekeeping.*

Major Hruschka soon built what is generally regarded as the first extractor. It was basically a metal funnel, rectangular at the top to hold a frame, with a small outlet at the bottom for removing the extracted honey. In operation, the device was swung in a circle at the end of a rope.

Soon word of Hruschka's discovery reached America. American beekeeping pioneers, including Langstroth, A.I. Root, Moses Quinby, Charles Dadant and others, were quick to grasp the implications of using centrifugal force to remove honey from the comb. Langstroth is credited with building the first extractor made in America. In later years he lamented that he himself had not grasped the principle of the extractor from his own observations.

A Cowen reversible. Not completely automatic.



A Stanley automatic reversing machine, available in 2,3 and 4 frame size. From the same 1893 catalog.

At first the new machines being built to remove honey from the comb had no standard name. The first term used was "honey-emptying machine." Then came "Honey Slinger" and others. Soon the single descriptive word "extractor" became the common term. Langstroth stated that the extractor should have been called a Hruschka to honor its inventor.

In his autobiography, *An Eyewitness Account Of Early American Beekeeping*, A.I. Root gives a detailed account of his "honey-emptying machine," built in 1867. (This book is still available from the A.I. Root Company, publisher of this journal, at a bargain price. Highly recommended.) Root notes that other machines he knew of used a wooden container. He favored metal, so he procured a can some two feet high and 18 inches in diameter. He fashioned baskets of wire cloth. A thick piece of shaped wood served as cross-member and top bearing. The handle and gearing were appropriated from a cast-iron apple peeler. In Root's words, his machine "worked to a charm."

Moses Quinby made his first extractor from a machine – a fanning

mill – designed to clean grain. When he saw that his new creation, though somewhat crude, actually threw honey from the comb, he was grandly delighted. He soon set about improving on his first design.

This was the great age of American ingenuity, and soon backyard inventors had come up with dozens of different devices using centrifugal force to remove honey from the comb. One such device was Draper's dollar extractor. It consisted of a metal pan covered with a piece of wire cloth onto which the comb was placed. Then, holding on to four cords, attached one to each corner, the beekeeper spun the whole contraption around his head to create centrifugal force. Reports were that the crude device worked, but what a way to extract a large crop.

Many of these early extractors were written up in the journals, along with detailed descriptions which would allow anyone interested to make one. A.I. Root, in the second issue of his new bee journal, laid out in great detail how to make an extractor for less than $5. Soon he offered readers the gearing and revolving parts ready-made for $3.50. Then, in 1870, H.O. Peabody announced the availability of his Peabody extractor, the first complete extractor available commercially in the United States. This machine was distinguished by the fact that the entire can revolved on a central pivot. It was described thus: "The machine consists of a tin cage, in shape somewhat resembling a common wash boiler, adapted to receive frames of any size, across either end, and is made to revolve upon a central stationary spindle, set in a cast iron base." This extractor, patented in 1869, was available for a number of years, but apparently was never very popular, perhaps because of an inherent design problem. Honey thrown from the combs would not run down the sides of the can until the extractor was stopped.

Other machines soon came to market, often bearing the name of the maker, such as "Gray's Honey Slinger" or the Muth extractor, few of them representing any real improvement over earlier machines. Soon after Peabody, A.I. Root came out with his Novice honey extractor, the result of much experimentation with design and materials. It was a solid, well-constructed machine and sold well. The metal can was taller than wide, and only the inside framework and baskets revolved, one revolution of the hand crank producing three revolutions of the reel. The Novice extractor set a standard for its time, and different models, both hand and power driven, were offered by the A.I. Root Company for many years.

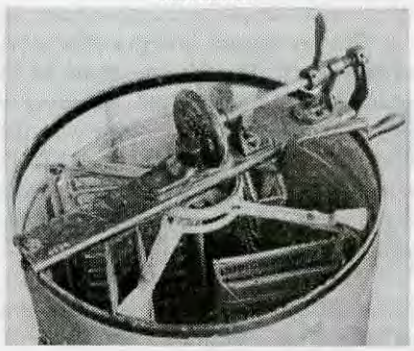
All of the early commercially available extractors had one feature in common. After the honey had been removed from one side of the combs, the frames had to be lifted out, turned, and replaced in the extractor before the honey could be extracted from the other side. A significant design improvement came with the introduction of so-called reversible baskets. Such baskets were hinged on one side, enabling them to reverse. When one side of the combs was extracted, the baskets were flipped by hand and the honey removed from the other side. Credit for this advance goes to Thomas W. Cowan, then editor of the *British Bee Journal*, who was the first to build a machine with hinged baskets. Machines utilizing Cowan's improvement came to be known as Cowan reversible extractors. Reversible baskets made it possible for a beekeeper to extract more honey in a day with less effort.

With the original Cowan reversible basket extractors, it was necessary to slow or stop the machine and reach in by hand to reverse each basket. This entailed some loss of time. Also, even at slow speed, there was a tendency for the baskets, because of centrifugal force, to reverse rather forcefully, sometimes causing breakage of new or unwired combs. What was wanted was a machine that would allow mechanical reversal of the baskets at full speed with little comb breakage. The key to such an extractor was to mount each basket on its own centered pivot. Reversal of the baskets could be accomplished at any speed with almost no comb breakage. Because such central-pivot reversing extractors were power driven and ran at higher speeds than earlier hand-crank hinged-basket machines, they removed a higher percentage of honey from the combs.

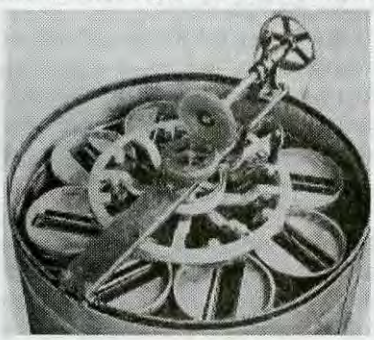
Credit for the concept of the central-pivot reversing extractor seems to belong to T.W. Livingstone of Georgia, who built such a machine for his own use in 1909. In 1918 the

A 1926 45-Frame Simplicity Radial Extractor. 2 Full catalog pages described its advantages and the glowing reports of previous users.

An early Root fully automatic reversible extractor.



Left, a 1922 Buckeye full speed reversing extractor, 4 frame. Right, an 8 frame Buckeye



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EXTRACTOR ... Cont. From Pg. 25

A.I. Root Company built a trial central-pivot extractor, which was tested and improved during the next two years. In 1921, this eight-frame machine, termed the Buckeye, first appeared in the Root catalog. Reversing was accomplished through a clever arrangement of sprockets and pinions, actuated by a reversing lever. Another central-pivot eight-frame extractor appeared in the United States in 1922, marketed by the G.B. Lewis Company as the Lewis-Markle extractor. This and Root's Buckeye extractor were quite popular in their day, but the arrival of a new concept – the radial extractor – brought an end to the popularity of the central-pivot design.

The historical record indicates that the radial concept was actually not all that new, appearing soon after Major Hruschka's initial discovery. Radial extraction was discussed in the French beekeeping journal *L'Apiculteur* as early as 1867. And T.W. Cowan of reversible-basket fame built his first extractor using the radial design, exhibiting the machine in 1874 at the Crystal Palace in England. C.N. Abbot, editor of the *British Bee Journal*, described Cowan's design as follows:

Instead of the combs of honey standing at right angles with the radii of the circle as with others and forming two sides of a square within the circle in which they revolve, and which necessitates the reversal of their positions, as each side of the comb is operated upon, they stand perpendicular as radii from the center of the machine in the same plane with its spindle; and the argument appears to be, that inasmuch as the cells point slightly upward toward the top bar of the frame of comb, if the frame is placed on end with its top bar outermost, the cells will have their inclination outward, and at the angle which most facilitates the escape of the honey from them.

A few other beekeepers built radial extractors for their own use, including a California beekeeper named Bohn, whose 14-frame machine was described in *Gleanings in Bee Culture*, in 1893.

Nonetheless, the radial design languished until its rebirth in the 1920s. By then, the advent of large-scale beekeeping had created a demand for an extractor capable of handling dozens of frames at a time. Wired foundation had made comb breakage less of a problem in the high-speed radials, and the widespread availability of gas and electrical engines solved the problem of how to power these large-capacity extractors. Then, too, technology had advanced to the point that making an extractor capable of higher speeds and greater forces was now feasible on a commercial scale. Enter the radial extractor.

In 1923 Arthur Hodgson of Canada built a 48-frame radial extractor modeled on the Bohn extractor. S.P. Hodgson & Sons obtained a Canadian patent on a radial extractor in 1924. In 1926 the A.I. Root Company catalog offered a new 45-frame radial dubbed the Simplicity. Other manufacturers followed suit, and soon the radial was established as king of the extracting world. Radial extractors do away with the necessity of reversing the combs, since the honey is thrown from both sides at the same time. Also, the radial design results in less comb breakage with thick honey than is sometimes the case with reversible-basket extractors. And for sheer capacity, the radial rules, some machines handling over 100 frames a load. Another advantage of the radial machine is that it requires less operator attention than other extractors because almost all radials are now equipped with electronic devices that automatically advance the speed of the reel for maximum efficiency. There is even available what is termed a parallel radial extractor, the shaft being horizontal rather than vertical and the combs being spun vertically. Such machines take up very little floor space.

The coming of the extractor, in all of its manifestations, changed the course of beekeeping. In tandem with Langstroth's movable-frame hive, the extractor made it possible for a beekeeper to remove the honey from the combs without ruining them, then return the combs to the hive. Gone were the old days when the combs had to be cut from box hives or log gums and sold as is or the combs crushed and the resulting liquid honey strained through coarse cloth. This product, then known as "strained" honey, was typically not of the highest quality, often containing stray bee parts, pollen pellets and macerated brood, as well as leaves and other debris.

The liquid honey obtained with the extractor and movable frames was clean and typically lighter in color than the old "strained" honey. But, ironically, this new and superior product aroused more suspicion than enthusiasm in the beginning, because consumers were used to the old "strained" product, and often believed that the new extracted honey was really sugar syrup, being so clear and light in color. This situation was not helped by the fact that adulteration of extracted honey by unscrupulous merchants was a common practice until passage of the Pure Food and Drug Act in 1906. Then, too, the general public did not understand that unheated liquid honey tends to granulate, and sometimes took this as a sign that it was not pure, when just the opposite is true. But slowly, over time, extracted liquid honey came to be the dominant product in the marketplace. Today, comb honey, once the typical product, has become the rarity.

The extractor and the movable-frame hive made beekeeping on a grand scale possible. With these two great beekeeping advances, beekeepers were routinely amazed at the amount of liquid honey they could produce. Yields per colony increased dramatically, as did the number of hives per beekeeper. This would not have been possible without the ready availability of an efficient machine to remove the honey from the comb.

Today, a beekeeper can choose from dozens of machines of varying size and complexity and price when buying an extractor. But they all still make use of centrifugal force to remove the honey. And they all owe something to earlier designs and concepts. That's something worth remembering the next time you're extracting. BC

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*Not everyone accepts this story as the truth. But there seems to be general agreement that, however it happened, Major Hruschka was the first to realize that centrifugal force was the key to removing honey from the comb, which led to his invention of the extractor.

Richard Dalby extracts honey and writes from his home in Levan, UT.

Fix Or Repair II

Richard Bonney

Hive maintenance requires attention from the very top to the very bottom . . . and never stops.

Last month we were poking around the hive looking at what can go wrong with the equipment, and what can be done to fix those wrongs and perhaps prevent some of them from happening in the future. I mentioned my small chests of standard tools and supplies that travel with me when I work bees, and I mentioned their contents in general terms. One of the items I did not mention was little blocks of wood. I'll mention them now.

I carry a handful of these little blocks. They measure 3/8" x 3/4" by about 4". The precise length is not important: the lesser dimensions help preserve bee space in certain situations, as will be seen as we proceed here. I slice these blocks from a larger board. If you don't have an appropriate saw to do this yourself, ask a woodworker friend to cut a few for you from scrap wood, or if you have some spare frame bottom bar material, that will work when cut to length. These do not require fancy woodworking. As we proceed here you will see how some of these might be used.

Last month I mentioned the inner cover in passing. It is worth another look. The inner cover is a relatively simple piece of equipment, but at least two things can happen to it in use. First, it can come apart, and second it may warp and sag. The inner cover is a simple thing, a flat panel, preferably of wood but often not, with a wooden rim all around. Most of them are of inexpensive materials and too often are inexpensively made, with the center panel made from masonite or thin plywood. Both materials tend to absorb water and sag, so that when on the hive the center of the cover comes to rest on or very close to the top bars of the frames underneath, a violation of bee space. Propolisation results, and propolis is a strong glue in such a situation. Each time the cover is peeled off in opening the hive, the masonite shreds a little. This is not catastrophic but it can lead to early demise of that cover.

Tool chests – This pair of watertight plastic chests, ready to load on the truck, will hold most routine hive maintenance materials.

A fix for this problem can be relatively simple. Take one of those small blocks of wood and lay it across the top bars so it will hold the cover from sagging. You could even glue it permanently in place on the cover.

The other problem with this cover is those corner joints. They are usually simply made and often have inadequate fastening: they often loosen or come apart. Again, we have an easy fix. Either when new, or after a problem has arisen at the hive, reinforce the joint. Be sure the joints are tightly together, then take some overlong nails and hammer a couple into each corner from top to bottom. Use a nail that is about 1/8 to 1/4 inch longer than the thickness of the cover. On the other side, peen that nail point over so the nail cannot pull out.

Moving along, last month I mentioned that you should inspect the surfaces where hive bodies come together, where hive tools can cause minor damage leading to more significant damage. I said watch, but I didn't say what to do if you find a problem. Here we are looking primarily at repair rather than prevention. If you catch it in time, rotting wood in the corner can be stopped by cutting away the damage and splicing in some new material. Here again we have those little blocks of wood, and a couple of basic tools. It is not a difficult job, but it is best done with a small tenon saw and a sharp chisel. Using the saw to cut cross grain and the chisel to cut along the grain, remove enough wood so that you can fit in one of the blocks. If your cuts are smooth you can glue

and nail the block in place. If you are a novice, your cuts may not be as smooth and the glue surfaces may be rough. Instead, use a little caulking to seat the block and nail or screw it in place. The bees will eventually propolize over the new joint on the inside.

Another possible solution for a rotted out hive body edge, if the damage has gone beyond a minor repair, is to cut the box down a size. Make it into a shallow or midsize extracting super. This modification assumes you have access to a table saw. Further, it works best if you are dealing with the bottom edge of the box. If you trim the top edge you will remove the frame rests, and recutting them leads into a higher level of woodworking. Trimming some inches off the bottom is easily done. Set the rip fence of the saw to the appropriate depth dimension for the new super you are about to create, and make four passes across the saw, one for each side of the box. You are done. However, you may have to cope with nails. If your cut line may intersect nails at the corners, use a carbide tipped blade (or remove the nails before cutting).

Feeders are another area of maintenance, the wooden hivetop feeders that is. The joints often leak. Sometimes the moisture in the syrup will cause the wood to swell and the leakage will stop after a bit. More often it will not. Syrup may leak into the brood chambers causing a mess, and it will probably leak outside the hive as well, attracting robber bees and other insects. Finally, some immeasureable quantity of feed is lost and you are never sure how much the bees were able to store. Seal those joints, and periodically reseal them. When not in use, keep them stored where they are not exposed routinely to hot sun and other extremes of temperature so as to minimize the swelling and contracting of the wood.

Different materials can be used to seal feeders, caulking, for instance, but there is always the question of toxicity of the material. I like to use beeswax. The difficulty here is that you cannot have an effective and lasting seal by just pouring molten wax on the joints. Without some assistance, the wax will not penetrate the wood and bond. Think of candle wax spilled on a smooth, hard surface. If you allow it to set you can usually peel it off. When sealing joints you want the wax to penetrate the wood a little.

The answer here is simple though not always simply achieved. Heat the wood first. Two ways come to mind. If you have a solar wax melter that is large enough, put the feeder in it until the wood becomes hot, really hot. Then remove it from the melter and pour a stream of molten wax along the joints. If you don't have a solar melter, it is possible to jury rig a hot box for this process, maybe even putting the feeder into a closed automobile in the sun on a hot day. Think of how hot that steering wheel can get at times.

The second method is to heat the joint with a propane torch, passing the flame along the joint several inches ahead of a stream of wax. This is a little trickier but I have done it successfully. In theory it is possible to inadvertently set the wax afire, but this has never happened to me.

Now that we have the propane torch out, let's think about another area of routine maintenance. Disease is a fact of life with bees. Eventually, any hive will contain disease organisms—foulbrood, chalkbrood, sacbrood, and more—even in a colony that is routinely medicated. As long as the colony is kept routinely healthy and maintains a good population, the bees will keep the hive clean and the disease under control. If the colony becomes stressed the bees work less efficiently and disease organisms build up to where they can begin to do damage. You can help.

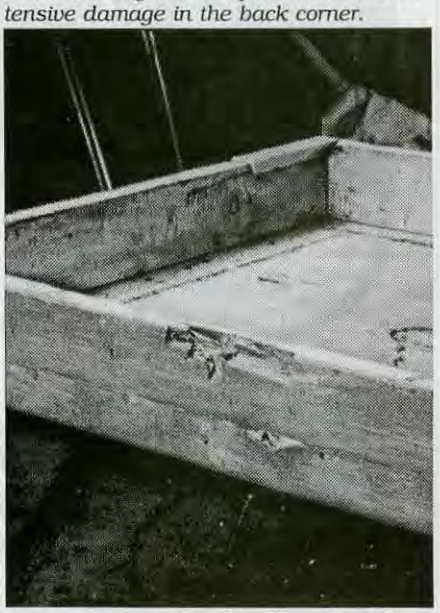
Periodically, remove each brood chamber from the hive and scrape and sterilize it. You might do this on a casual basis, carrying a spare hive body to the beeyard on occasion so that you can switch a particularly well used one off a hive while you work on it. Just move the frames and bees from one box to the other and carry the one to be worked on away from the yard a little way while you scrape and sterilize. Then the now clean box can be put back in its original position, or it can be used to switch off another box somewhere needing attention. Alternatively, carry that box needing attention back to the shop and give it a more

Top feeder – A bead of molten wax around the heated seams of this feeder will take care of leakage problems for at least another season.

thorough overhaul—scraping, painting, sterilizing.

How do you accomplish this sterilization? The simplest and quickest way I have found is to use a propane torch. After scraping the inevitable buildup of excess propolis and wax from the box, pass the flame from the torch over all the interior surfaces. Pay particular attention to cracks and crevices in the wood and around any metal frame rests. Do not overdo, however. There is no need to burn or char the wood. Your goal is to singe it. The wood will darken a little, and the residual propolis and wax that did not scrape off will melt and ooze into the wood, smoothing the surface. The bees will probably like this. This treatment need not be restricted to hive bodies. Any part of the hive with an interior surface — supers, covers, bottoms — can benefit from such sterilization.

Outer cover – This cover was damaged by a bear. You can see teeth marks in both the wood and metal of the closest edge. A small block of wood repairs the more extensive damage in the back corner.



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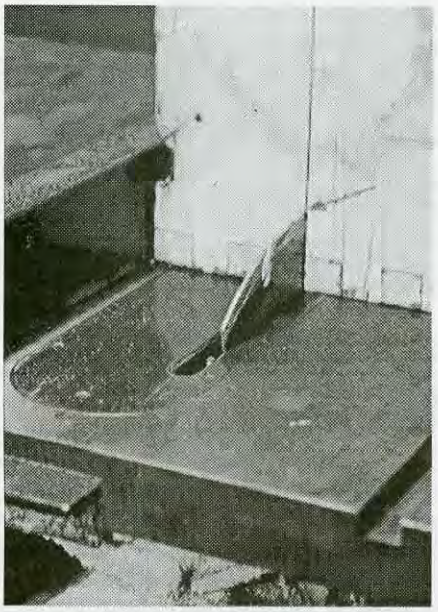


Hive body on saw table – With the bottom few inches sawed off, this damaged hive body will go onto serve a continuing useful life as a shallow super.

So far we have been looking primarily at the hive itself, and how it is affected by the elements and by our own ministrations. It is worthwhile to think a little here about another influence on the hive, that is, its the immediate environment of ground and vegetation. Most often, hives are set on the ground on some kind of stand, frequently wooden. Soil is yielding. Over time the heavy weight of a hive can cause the stand to sink a little into the ground, bringing the hive down with it. Dampness penetrates the wood of both. The fix here is primarily preventative. Select your hive stand or base carefully. If of wood, use treated wood. Whatever the material, make it broad based so that it resists sinking (or tilting.)

Then, keep the grass and vegetation well trimmed. A hive stand or bottom board constantly surrounded by damp growth is going to deteriorate and the hive itself is likely to have a more damp interior, never a good thing. Further, the underpinnings of the hive become a haven for insects, some of which can be detrimental to both the hive and the colony. Solutions other than trimming are often used to keep the vegetation down. Plastic sheets, pieces of old metal or fiberglass roofing, asphalt shingles, scraps of carpeting, all have been used by someone, somewhere. Any of them can be effective, but whatever is used must not allow a saucer to develop so that the hive stands in collected water for periods of time.

As we think about moisture, let's also think about shade. A shady situation enhances the deleterious effects of excess moisture, but beyond that, heavy shade may bring another problem. There is some evidence that bees in the shade tend to be more aggressive. Keep vegetation cut back so that the bees have a reasonable amount of sun and breeze to maintain comfort.

As is apparent, hive maintenance requires attention from the very top to the very bottom, and it is an ongoing chore. Such maintenance is well worth the effort, however. You can add years to the life of your equipment. BC

Richard Bonney is the retired Extension Educator for the State of Massachusetts, and a regular contributor to these pages.

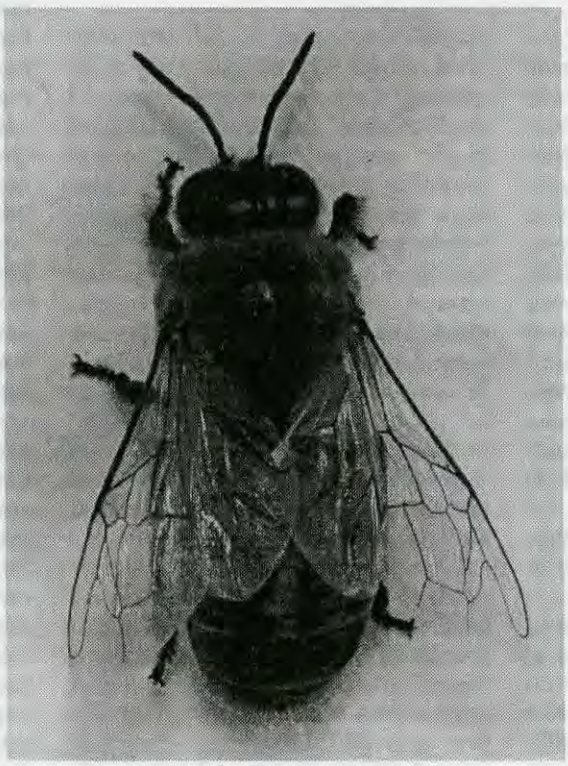
NOT IN ANY BOOK

Transitions. What Should You Expect, Really?

James E. Tew

I actually like boiled okra, grits, and raw oysters - though not all at once. I expect some uninitiated hardy souls could learn to get by on grits late in life, but learning to enjoy raw oysters and boiled okra are foods that should be tried while still an infant, before becoming aware that some foods can be obnoxious. The repulsiveness of raw oysters to most people is self explanatory, but for those have not tried boiled okra, it is a slimy, mucilaginous vegetable having a very bland and unexciting flavor - aside from the slime. I think I like boiled okra, not because of the flavor or some perceived health benefit, but because of all the little memories that have become amalgamated into one big memory of my Alabama youth. It's formed by all the late summer/early autumn Sunday dinners at my Grandmother's house. The weather is hot and the season is beginning its transition. "If I eat a good dinner", I can be off on my way with my Daisy BB gun mounted on my 24" Western Flyer bicycle up and down rural unpaved, dusty roads. Okra was a common component of that Sunday dinner, and now, 42 years later, okra tastes like autumn. It's a good taste. Milk tastes like grade school, but that's another story.

In a comparable way, I have beekeeping memories of Autumn. In just a few short weeks, Nature will begin to evaluate our beekeeping efforts for the previous season by testing our hives during Winter. Honey crops have been made, plants were pollinated that are now passing through maturity. Some of the season's goals were met while others were challenging failures. All around there are the sounds of katydids in the air. Humming birds are visiting senescing flowers in your garden and the tomato plants are dropping their leaves (and their tomatoes). The season is clearly finishing. Yet if Autumn is underway, Spring is not far away. The pleasant memories of Autumn become one blended, pleasant memory of my beekeeping experience. This aspect of beekeeping - memories that become a part of you - is not in any book.



This guy's days are numbered now.

Crowding Much like a dog chasing a car, what does he do with it when he catches it? You have spent the entire season trying to get a large population of bees. After all, every book tells you to "Keep your colonies strong and vigorous." Now that you have an abnormally large population of bees and you have removed the honey supers, what do you do with the excess bees? Honestly, there is little you can do. If you have extra equipment, put it on or put the supers back on as soon as you can, but realize that removing the crop from the bees is a trauma for them. Expect a good deal of confused drifting and even some aggressiveness - not because the bees are "angry", but because they are trapped outside with little to do other than be testy. A fall flow will go a long way to quickly settle them down, but only if they have storage space. If not, they hang on the outside of the hive whiling their remaining time away. You decide what to do. You could, if equipment and time permit, place an old super, sans frames, *under* the broodnest to give 'em space. Slatted racks do the same thing. But they both require extra equipment, cost and time.

Seasonal decline Even if you didn't "rob" the bees, there would be a natural population decline as the Winter season approached. It's more economical for the wintering cluster to reduce its size. That population decline can be obvious or it can be insidious. There can even be noticeable piles of dead bees in front

Continued on Next Page

Guard bees challenge, but for the most part aren't fanatics.

of the colony looking like a pesticide kill. If fact, some of the bees may very well have died from pesticide exposure, but the point is that their numbers were not replaced, regardless of the reason for the death of individual bees. The hive consciously downsizes itself in the Fall. It's not in any book that the newer beekeeper feels a sense of frustration with the declining Autumnal population. After all, we are indoctrinated to increase, not decrease, hive populations. Rarely is it recommended to expect natural population declines.

During one of my first beekeeping Autumns I was dismayed - even frantic - when I realized that all my hard work getting large populations of bees - and then controlling swarming - was fading away for no obvious reason. I fed sugar syrup (which they didn't take very well). There was a weedy stench in the air so I treated for diseases (which they didn't have). I lost confidence in the queens (which they probably didn't deserve). It was all perfectly normal. I just didn't know it.

What is that smell? I think beekeeping is inherently a pleasant smelling occupation. Isn't it ironic that good things in beekeeping smell good, while things that smell bad in beekeeping are, in fact, bad. I love the smell of wax - in any form. The odor of honey being extracted is exquisite. It's a rare moment when I don't think of new bee hives as I cut pine boards for other reasons. Smelling like bananas or cherries, even bee pheromones smell good. When package bees arrive, the odor they give off is like that of a clean animal. Collected propolis smells good. Alternatively, the smell of decaying brood, due to pesticides or disease, is typically *foul*. "Bee Go", an idea of olfactory-deprived beekeepers and used to drive bees from honey supers with concentrated stink was not the bees' idea. Isn't it surprising that the fall honey crop can have an odor of questionable nature? Is it a good or bad smell? As I was telling you a couple of paragraphs above, there is frequently a "smell" in the Autumn apiary that approaches stink. Not to worry. It's just your fall honey crop being processed. I have no idea why it smells so strongly. I remember my first whiff of it. I was certain that my entire yard was engulfed in all kinds of foulbrood diseases. After all, there were dead bees, lowered populations, and the pervasive stink. Yet, it is all within the natural scheme of things.

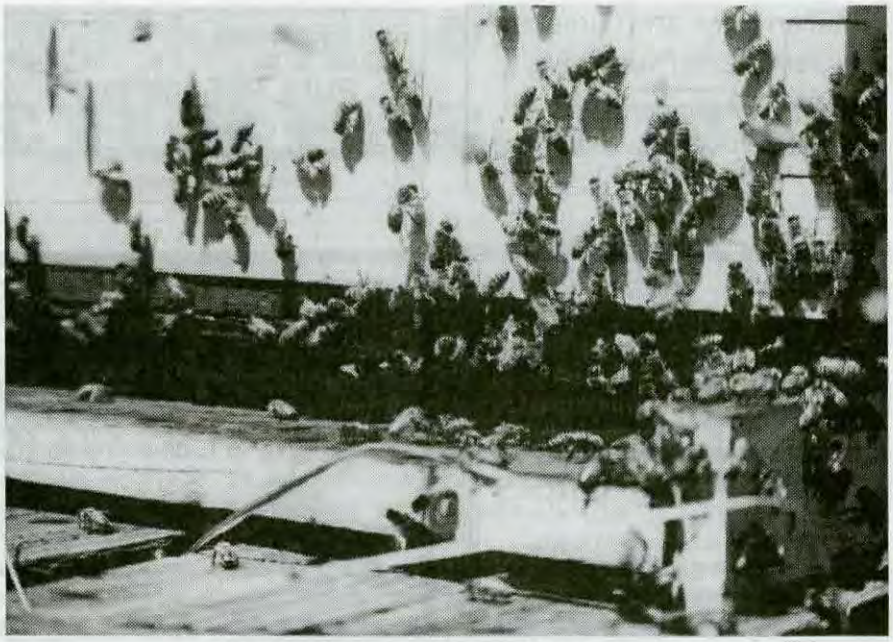
The appearance of vigor It's hard to describe, but the Autumn colony just does not look as wholesome as it did just a few months ago. During spring months, virgin snow-white wax seemed to come from nowhere and large populations of capped brood could be found on every brood frame. Everything was clean and neat within the colony then. Now as Winter approaches, the drone brood has apparently been torn down and both the immature carcasses and adult drones are piled in front of the colony uselessly dead. Though a natural state of affairs, in my opinion, the colony has *lost some of its vigor.*

Could I ask you to compare the developing colony in the spring to a perennial plant in your garden? In early spring, both organisms begin the season and grow at an impressive rate. Just as with a flowering plant, the hive produces a crop made available for harvest. Then, as the season progresses, the plant begins to show signs of waning, just as the bee hive does. Both the plant and the hive begin the process of preparing for winter. Though disconcerting, the Fall sacrifice of drones is within the natural scheme of things. Queens will not be taking nuptial flights during winter so why bother keeping expensive drones around?

During this time, the stored honey and remaining brood can take on an odd appearance also. After all flows are over, all nectar will be processed. Indeed, if the fall flow is weak or non-existent, stores can actually be used before the winter season starts. White cappings quickly lose their pristine appearance and begin to change to beehive brown. As fall progresses and winter comes on strong, the cappings on individual honey cells may actually dip a bit. All your white comb is losing its whiteness, never to get it back again. All the while, brood populations are declining. Clearly, the hive has lost some of its enthusiasm that was so evident just a few months earlier. Try as you might, I'll bet that your eagerness for beekeeping dips a bit, too. Though there's still much you need to do, the hive demands on your time decrease. You may find that you don't look as forward to bee meetings as you did in the frantic spring. You don't rush to read every word in *Bee Culture* as you did earlier. It's just a normal season of slowing down. That's good (except the reading part). You and the bees both can use the break.

The Hotel Hive Throughout the summer months, populations of other insects have been increasing. Expect to see yellowjackets, bumble bees, and other bee relatives trying to feed at your hive's table. The whole world loves honey. Frequently, the bodies of the unwelcomed visitors are seen in the trash heap in front of the colony. You see more of these hive visitors in the Autumn simply because there are more of them to see. They don't do your hives any service, but neither are they great pests either. In their own entomological way, they, too are preparing for the upcoming winter and the ensuing spring. Each year, anxious beekeepers contact us asking what should be done about the intruders. There's very little you can do except understand that this is a normal, annual event. As has been so frequently said, strong colonies can defend themselves.

Recently, much has been said about the hive beetle that has been found in Florida, Georgia, and South Carolina. The hive beetle's pest status can be the topic of future articles, but you should know that beetles similar to the hive beetle, but not considered to be hive pests, have been calling the wintering hive their home long before the hive beetle showed up. Corn sap beetles (a cousin of this new pest) have been observed in hives in the Midwest and are considered common. In fact, we did preliminary observations on the sap beetle many years ago in an effort to determine if beehives were common over-wintering sites for the corn sap beetle. Other types of scavenging beetles such as Dermestids and carpet beetles will routinely forage amongst the hive detritus on the bottom board. "But I thought there were guard bees to keep out such intruders?" There are entrance guards and they do a good job, but they are not fanatics. Under the right conditions, even a wax moth can brazenly walk right in the front door and make themselves at home. A surprising number of animals live in bee hives with the resident bees. What's my point? Just because you see beetles in your hive, don't axiomatically jump to the conclusion that you have the (nearly) infamous hive beetle.



Bees hanging around the outside are normal.

Unethical Bees Expect inter-colony robbing during the dearths that accompany the Fall season. Just because hives are neighbors, don't expect them to be friendly neighbors. If given the opportunity, bees will shamelessly rob their neighboring hive leaving a scattering of disoriented resident bees and leaving you with a hive that has no chance of winter survival. If a hive is already under-sized, no harm will be done in installing the entrance reducer a bit early.

Unethical Mice Installing the entrance reducer well before the first frosts occur will also keep out mice that are looking for cozy winter quarters. What obnoxious hive intruders mice are! They urinate within the colony, chew up comb and frames and keep the hive agitated throughout the winter. All mice need a home too, but let them find it somewhere else - maybe in your basement.

You and your hives are passing through a transient period, finishing one season, going dormant for a while, then preparing for the next spring season. Then it all starts again - and again - and again. You should always be helpful - never hurtful. Don't fight the seasonal flow of events, but roll with them. Take advantage of your winter months to learn more about your tiny charges. You might even try something different-like learning to eat okra. After all, it is an insect pollinated plant. BC

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20th Anniversary

BETTERBEE, INC.

Mary & Bill Weaver

Many northeastern beekeepers who know Bob Stevens as the owner of the innovative Betterbee bee supply company are unaware that he is also a successful commercial beekeeper, operating 600 colonies with the help of fellow beekeeper Derek Woodcock.

Bob is active in all aspects of commercial beekeeping. He moves 300 hives to pollinate seven apple orchards in Massachusetts and New York, sells about 250 nucs each Spring, treats 350 of his hives to a Winter vacation in Florida, and extracted about 90,000 pounds of honey last year.

Bob begins making nucs in about mid-April most years, when his Florida bees have completed their 1,550 mile trip back to New York. Bob sets high standards in nuc production, and the fact that his nucs are usually sold out by February 1, shows that his customers appreciate the quality.

First, he uses only comb drawn from foundation in the past year or two, not ancient combs he just wants to get rid of. Combs which are selected must be free of holes and drone comb. And Bob doesn't simply plop in the frames of bees, brood and honey, add a queen in a cage or a queen cell, and call it a nuc ready for sale.

No nuc is sold until the queen is actually laying and the original brood is hatched, and the cells are filled with eggs so he can check the brood pattern. "Hobby beekeepers are frequently very concerned about the lateness of nucs in relation to packages," Bob said. "Nucs can be three or four weeks later, depending on the season. But a four-frame nuc with brood and a laying queen purchased May 15 is easily equal to a package purchased April 15."

Bob has developed an interesting method of making a lot of splits quickly. The speed of his method is the result of not having to look for the queen – at all! In addition to a nuc box, the only other equipment you'll need to try this method is an empty hive body and a queen excluder for each hive to be split.

First, Bob takes three or four frames of brood, bees, and honey from the parent colony. Then, he shakes all the bees off those frames, back into the parent colony. Yes, every last bee comes off: So you know, without a lot of time spent looking, that the queen has to be in the parent colony, not in the split.

Next, Bob puts an excluder on top of the parent colony and an empty hive body on top of that, and places the beeless frames of brood and honey in the empty hive body above the excluder.

When he comes back to that hive three or four hours later, the frames for the split will be covered with young nurse bees who've come up through the excluder and who, when the frames are transferred to a nuc box, will accept a new queen readily.

In early May, it's time for Bob to move some of his hives from his home base near Albany, New York, north to the limestone belt around Lake Champlain and the St. Lawrence, a location that gives him a nearly white honey from alsike, white Dutch and sweet clover and some alfalfa.

The hives at his home base generally yield a darker wildflower honey, 75 to 80 pounds average, from sumac, clover, basswood, locust (in some years), and other wildflowers. "This year," Bob said, "the basswood yards sent 125 pounds on, but some years the basswood doesn't yield at all."

But the home yards with their varied nectar sources are dependable. "We've never had a crop failure here," Bob commented, "whereas with the monoculture of clover farther north, the flow is less dependable, and it can be feast or famine."

The 300 hives Bob moves for apple pollination are palletized and moved by flatbed and forklift. When pollination is over in June, during the honey flow, Bob makes a second set of splits using two-frame nuc boxes. Each split contains just one frame of brood, bees and honey and one empty frame.

The one-frame splits are a way of getting new queens started, while still producing honey from the parent colony. Filching just one frame of brood and bees per hive doesn't take from the honey crop of the parent hive, Bob believes, and even these small splits build up nicely on the honey flow. In about three weeks, when the empty frame has been filled, Bob moves the nucs to a five-frame nuc box, and in mid-July, to a one-story deep. These fresh hives, then, with their new, young queens, will be taken to Florida the coming Winter.

The Betterbee Business

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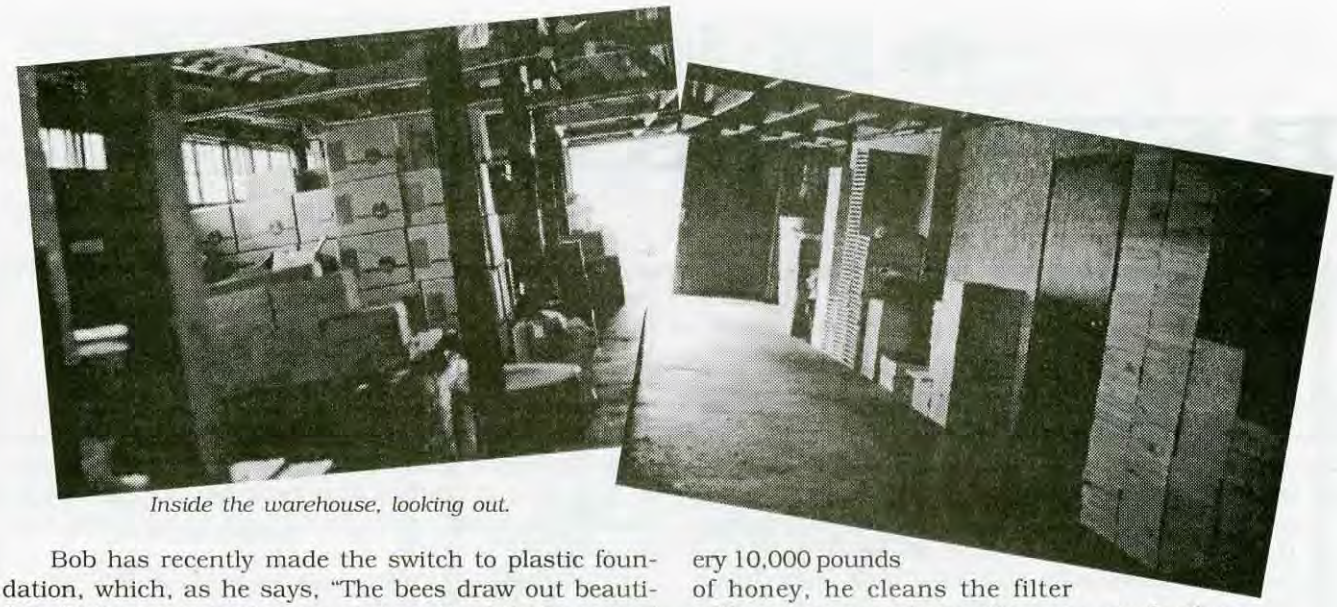


Inside the warehouse, looking out.

Bob has recently made the switch to plastic foundation, which, as he says, "The bees draw out beautifully." Like many beekeepers, he's noticed the bees tend to propolize plastic comb excessively, making it difficult to separate the hive bodies when working the bees. He's discovered, however, that the problem is alleviated by running a ¾-inch piece of masking tape along the top of each plastic frame. "Evidently, the bees don't like walking on the plastic," he says, "so they propolize it. With the masking tape, propolizing is kept to a minimum."

For extracting his 90,000-pound honey crop, Bob has a Dakota Gunness uncapper, a Cowan cappings spinner and a Cowan automatic extractor. Just one employee handles all the extracting, and can fill 12 to 15 barrels in seven hours of extracting.

After the honey is heated in the sump, it's filtered to bottling grade before even being bottled, using, of all things, a remarkably trouble-free, easy-to-clean, Israeli-designed water filter: The filter is made of a series of plastic rings. The honey goes through grooves in the edges of the rings, "and everything that's not honey stays outside," Bob says.

The rings on the model Bob uses are equivalent to 140 mesh, and models are available equivalent to 120 mesh, and up to 180 mesh and higher. After about every 10,000 pounds of honey, he cleans the filter with a pressure hose. He uses no further strainer bags or filters when bottling.

Some of Bob's honey is bottled and sold at his shop, a considerable amount is made into mead, but the bulk is sold in 60-pound buckets to other beekeepers as they run out of their own honey.

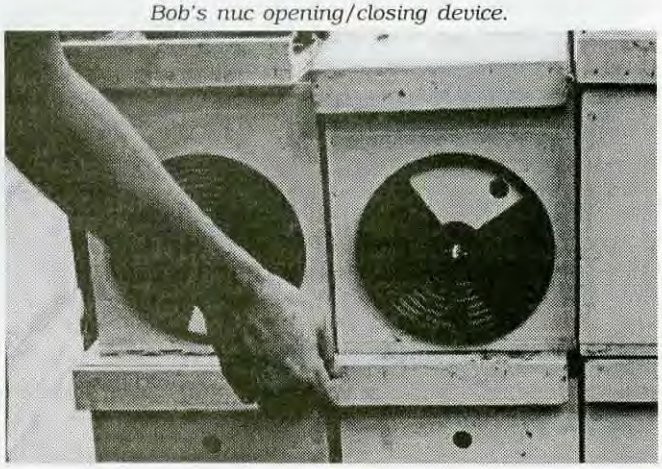
For New York's bitter Winters, Bob top-insulates his hives. Over the two hive bodies and the inner cover he puts an empty deep, insulated with either dry leaves in a feed bag, 3-1/2 inches of fiberglass, or straw. For the empty hive body, he uses old equipment, which generally has plenty of cracks and holes for good ventilation. If he happens to use a hive body without holes he puts a few stones on top of the hive body to lift up the telescoping cover just a bit so moisture that wicks up through the insulation can escape.

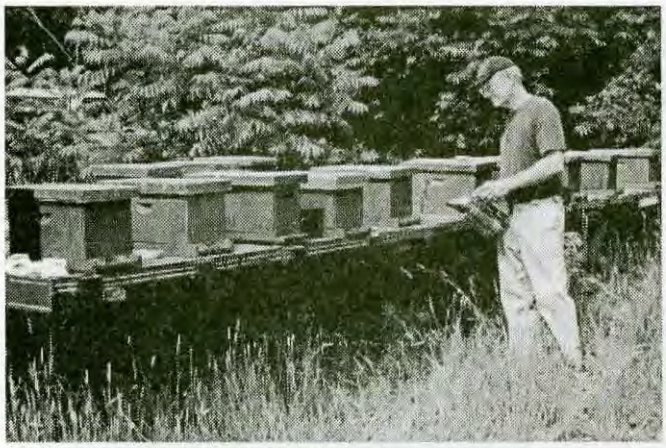
Bob does not wrap the sides of all his colonies – only those in yards not sheltered from the wind. No insulation is put on the sides of the windswept hives that get wrap. Only the tops are insulated.

Bob is as innovative in his bee supply business as he is in his beekeeping. He developed and makes, for example, a circular closure for nuc boxes, one section of which is open, one section is screened, and the third section is a queen excluder. He paints these closures different colors to help the bees identify their own nuc boxes.

The people of Betterbee – Back row; Bob & Justin Stevens; Front row; Rose O'Donnell, Paula Liddell, Brenda Lynch, Holly Brownell, Derek Woodcock, Margaret Stevens, Phyllis Thomas, Chuck Gaa.

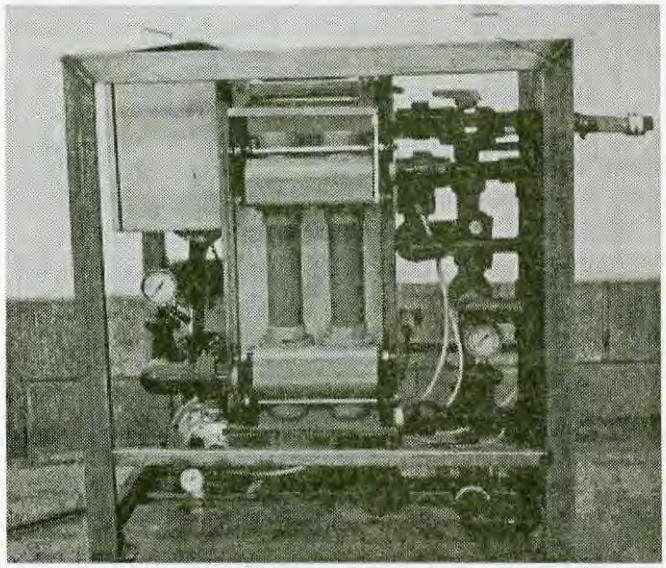
Bob's nuc opening/closing device.





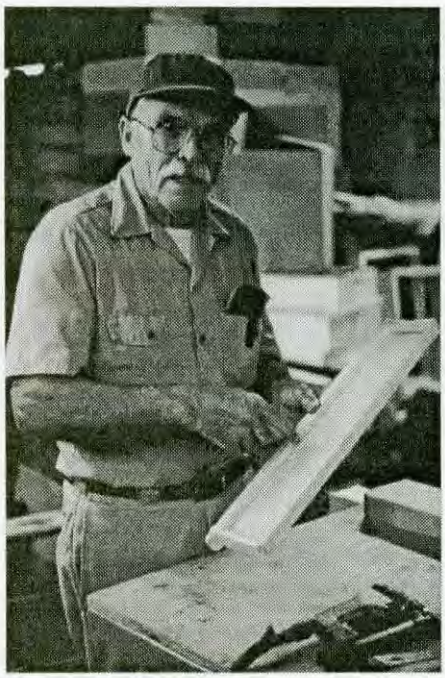
Bob Stevens examines his nucs.

Bob's extracting set-up – neat, clean and efficient.



$12,000 microfiltration machine for mead making a la Bob Kime. It consists of hollow filaments in canisters, and works by osmosis through the filaments.

He also developed the Maxant uncapping plane, the nine-frame spacing tool and the pail holder now offered by several bee supply companies. Betterbee offers more sizes of coverall bee suits and more sizes and styles of plastic bears than any other company, and offers hive bodies made of 7/8-inch stock (the competition uses



Employee, Chuck Gaa asembling frames for the beekeeping part of the operation.

¾-inch stock and even 5/8-inch for seconds) which are made from eastern, rather than western pine. Bob believes the eastern pine, because it is less brittle, is easier to assemble, makes a tighter fit on the inside, and has less breakage on the corners.

The fact that Bob is himself a successful commercial beekeeper puts him in an excellent position to evaluate items for inclusion in his catalog. This is his 20th year in the bee supply business. Betterbee is licensed to produce formic acid gel for mite control, developed and patented by the U.S. Department of Agriculture, if all goes well, which, Bob expects to have available next Spring.

Bob is also in the mead making business. His was, he believes, the first meadery in the United States dedicated to making only mead. "Others were watching," he says, "and today there are about 36." He started in the mead business in 1989, with a large wine cellar, a microfiltration unit and a spacious mead house, which doubles as a meeting place for New York beekeeper get-togethers.

In addition to regular mead, he makes raspberry, blueberry, spice and apple. "For two years, we sold 3,000 gallons of mead a year," Bob said, mostly at his shop. Then problems developed. When we spoke with Bob in early July, he was looking forward to getting the problems ironed out and the mead business up and running again.

Bob learned the basics of beekeeping as a boy, from hanging around a beekeeper living nearby. After graduating from Brown University, he joined the Peace Corps, doing agriculture work in India. Returning to the United States, he taught social studies and English for 10 years near Providence, ran a small vegetable farm, and commuted to the old home place to keep bees starting in 1973. He started Betterbee in 1979, and the rest, as they say, is history. BC

Mary and Bill Weaver are producer/packers from Pennsylvania.

Improving Honey Sales

Jim Puvel

Fundamentals play a big role when trying to improve your honey sales.

Throughout my years as a beekeeper attempting to sell honey at a retail source, I have heard this question time and time again: "What can I do to market my product better?" Well, there are as many answers to this question as there are beekeepers; some work and some don't. Here are those I found that work and are proven successful product promoters.

START WITH A GOOD PRODUCT!

Your primary and most important concern should be your product. If you don't put a high-quality product in a jar, then you might as well stop reading this article and sell your honey in bulk or give it away. Therefore, selling the product starts during extraction time. Make sure the area where you extract your product is clean. Remember, you are producing a food product. If you are a small beekeeper and extract in a basement, garage or other outbuilding (notice I didn't say outhouse), make sure the area is free of chemicals, solvents, oils and other contaminants. I know a beekeeper who uses a heavy constructiontype paper, which comes in three-foot wide rolls, to cover the floor of his honey house. The paper serves a multitude of purposes, including cleanup, keeping propolis off the floor, and protecting the integrity of his product. The honey house is used not only for extracting, however; it is used year-round as a showroom for honey sales. This beekeeper washes the room down prior to extracting, but the paper gives that added protection and makes cleanup a snap.

Your process should be scrutinized for flaws. Make sure honey flows continuously through your system no matter what size your operation. One of the first few years I extracted, we used a two-frame extractor my partner motorized which worked extremely well. However, with only two frames extracting at once and a hot knife as an uncapping tool, the operation got bogged down at the extraction process. So we used another four-frame, manually operated extractor to speed up the process. The only problem, besides fatigue, was the honey gate at the bottom of the four-frame extractor was too small and didn't empty the honey out quickly enough. Needless to say, the bottom of the frame holders in the extractor met the honey, and caused a whipping action, adding a whole bunch of tiny little bubbles to our honey. We didn't realize the extent of the damage until we bottled the honey and noticed how cloudy it was. That portion of our inventory was relegated to bulk honey sales that year.

Another area of consideration is the filtering system. The industry sells many different types of filtering systems from bucket strainers to large, expensive systems, and we've used some of those. However, with a little imagination you can use other things. The most commonly used are new women's nylons, which do an excellent job in filtering out wax, propolis and bee parts. Also useful for filtering honey are paint strainers, which can be purchased at any paint supply store. They usually come in one-gallon and five-gallon sizes and are very durable. I have heard of people using cheesecloth, but this sometimes adds to the problem while remedying it. Tiny strands of fabric can sometimes end up it the final product, taking away from the appearance. Pride in your product can only enhance the industry you are representing.

LABELS

Once you put a superior product in the bottle and you intend to take it out to the marketplace, you need to dress it up. I've seen all types of labels; from professionally done to computerized to handwritten. If you've taken the time to properly process your product, then by all means give the label some attention. Again, the supply catalogs have some very attractive labels, and some companies will even customize the label with your name. If you feel creative you can use a computer, which by now is in one out of five homes in America, and design your own label. I've produced our label on a graphics program, keeping the coloring and design simple. We took the design to a label maker and had it made into the labels we apply to our jars. Since then, we modified the design with some minor adjustments and have been complimented on our label. I've also seen some labels produced from a computer that have made me envious. For a small operation, the detail and coloring can't be beat.

Most labels you purchase, whether out of catalogs or from a label manufacturer, will be pre-pasted. If you apply your own glue, make sure the glue used is also of good quality. I recently went into a store and saw someone else's honey with the label peeling off. Would you buy a can of beans or any other product in a food store if the label were half off the container? What does this say about the contents or the way the product was packaged?

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"The product you display in the market should *directly* reflect what *you* stand for."

On the label?

In most areas, it is best to check with your county or state department of Consumer Affairs or Weights and Measures to make sure you follow the proper rules and regulations. In most cases, your name and phone number are required and naturally the weight of the product. Normally, honey is sold in pounds or increments of pounds and this must be displayed on the label. Some areas require the weight to also be in the metric equivalent. But don't rely on this article when designing your label. Check out the rules and regulations before going retail so that you don't find yourself in a bind.

Perhaps one of the most important items for repeat sales is the telephone number. Even if you sell your honey wholesale, your telephone number on the jar may turn those wholesale sales into retail sales. They may even produce more wholesale sales.

I once attended a lecture concerning the designs you would and would not put on the label. The lecturer made good sense when she said not to put a bee on the label. What you have to remember is that we beekeepers know and understand the signs and symbols of the industry and what we find attractive because it reflects our hobby or business may not be attractive to John Q. Public. Some of the items may be objectionable or intimidating to the public. She also said not to use the industry standard honeycomb design on your label because some of the public interprets this as chicken wire. I use the honeycomb design on my label and have yet to have someone question it. However, be careful what you use. Flowers are nice, but do they portray your product? Skeps are also widely used on labels, but not all understand what they are or were used for. You may want to be creative in naming your honey or simply use your name, followed by the word "Honey," as the title. The most important thing to remember is that the label is the key, which may or may not open the cash register drawer. Don't go overboard, but select one that will be appealing.

Other Labels

In the state of New Jersey, there is a program called "Jersey Fresh" which is a Department of Agriculture program designed to promote the sale of New Jersey produce. The program was extended to the New Jersey honey industry, and for a small annual fee, you can apply the "Jersey Fresh" label to your product. Programs like this can only add to the sales of your product because they symbolize a quality product.

Another simple and extremely effective label I added contained two little words that paint a thousand pictures. They are: LOCALLY PRODUCED. I purchased some small labels, 1/2" X 1-3/4" that come 80 to a sheet, printed those two little words on them, and applied them to the jars above the regular label. Both customers and wholesalers love them because they tell the customer that this honey was produced in the area. How many times do customers ask if the honey they're considering is local? Furthermore, if you're concerned about the validity of the additional label when selling to wholesale outlets because the product may be going out of the area or state, don't apply them!

Finally, I believe it's always a good policy if not the law, to label what type of honey you are selling. For instance – Goldenrod, Spring Wild Flower, Autumn Gold. You can apply this to the label by means of a rubber stamp, pressure sensitive label or like I do, a small sticker on the lid. Again computer-generated labels are a plus because of the coloring and the continued decrease in expense.

Where?

The most advantageous place to sell your honey is where other food items are sold. I've had much success selling my honey at a roadside farm stand. What better theaters to promote a healthy, tasteful and attractive product than alongside farm-fresh produce? If you can talk your way into a local food store, even better. The food store is open all year round and sales will continue to grow as the weather becomes cooler. The important thing to remember is no matter what type of store you put your honey in, the biggest three words to remember are LOCATION, LOCATION, LOCATION! Talk to the store manager and make sure your product gets primary exposure. You may even want to agree to return to the store periodically to dust the jars if the store employees don't. There is nothing worse than going to a retail outlet and seeing jars of honey with a quarter-inch of dust on the lids. I certainly wouldn't buy a product in that condition.

But let your imagination flow when it comes to places to sell your honey. I've seen honey sold in drugstores, hardware stores and at feed and seed stores. The main thing is that you should return to these locations to check on the progress of your sales. If the honey doesn't move, and crystallizes, and you don't return to at least offer an exchange, do you think the store owner will allow honey sales in his/her store again? Besides, if the honey doesn't move, perhaps this is not the place you want to sell your honey. The honey will only end up on the back of a shelf looking ugly and lonely. This does not reflect the honey industry (or you) in a positive light.

Another good place to sell honey is at local fairs. Many times, the cost for a table or space is inexpensive, and a number of the people there may know you. They will trust your product if they trust you and will become repeat customers. How many times have you heard, "I didn't know you were a beekeeper?" Observation hives draw a good deal of attention, but make sure you have some assistance in selling while you explain the finer points of beekeeping. Again, keep your display simple, organized and neat. Most important, make sure you have an ample supply of product on hand. There is nothing more disappointing than running out of a product at a fair, with an ample supply at home and no way to get it. You

may want to use some poster board to announce what you're selling. We draw attention to our product with the commonly used flags that have a variety of designs, and we are instituting the use of a windsock.

How much?

When I first started to sell my honey, I checked with other beekeepers and set my price accordingly. I averaged the prices out and used my best judgment.

One beekeeper once told me that he has three prices: retail, wholesale and bulk. Whichever way you decide to go, maintain a constant price for all customers to avoid problems in the future.

Another good way to figure out what to charge is to check the prices for your area in the this magazine. It offers a great barometer for monthly prices by area. Now I'm not saying your honey prices should fluctuate with the market prices. Conversely, stability in prices equals higher sales. You can also do your own market research by checking out the prices of honey in the supermarket. Most industry people say that local honey should sell at a premium price and a price that is higher than the supermarket prices. I have found that by setting a fair market price and making every attempt to maintain that price, you will sell most of your honey. I have found that my prices are usually about the same as supermarket prices and consistently lower than those listed for my area in *Bee Culture*. Once in a while the prices are a little higher, but keeping the price steady is imperative.

Certainly one factor to consider is 'what does this cost'? You may be meeting, or beating the competition, but if the price you set does not allow for a reasonable profit what have you gained? Besides, setting a price by comparing prices means you are comparing products. Is your product only as good, or even not as good as the other bottles on the shelf?

Finally, use good business sense and tact when dealing with those who are selling your product for you. For some of us, they are our only source for sales. Remember, the product you display in the market should directly reflect what you stand for and what the rest of the honey industry is capable of producing. BC

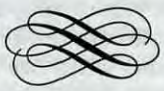
Jim Puvel sells honey, and keeps bees in Crosswicks, NJ.

CLUB CORNER

by Jerry Goodwin

MENTORING PROGRAM

A series of articles designed to provide ideas, guidance and a roadmap for regional beekeeping clubs. Prepared by members of The Back Yard Beekeepers Association (BYBA). Founded in 1993, the BYBA's membership consists of 150 hobbyist beekeepers from Fairfield and Litchfield Counties (Connecticut) and Westchester County (New York). www.fairfieldweb.com/byba



We can all remember back to the time when we decided to keep bees. No matter how we first got interested, whether it was through a friend, a nature documentary, or reading an entrancing article about their fascinating lives, to start out felt like a most daunting task. So much basic knowledge had to be acquired – knowledge about the proper type and use of equipment; how to assemble the hives; the proper timing and methodology in hiving the bees; how to protect the bees from both varieties of mites and other common diseases; proven ways to avoid early swarming; how to know the queen is healthy and producing.

Climbing on top of all this information can seem, at least initially, like a totally impossible goal. And after all, the last thing we want to do is to plant the seeds for the bees' demise through our own lack of education and understanding of their life cycle. A weighty responsibility, indeed!

So, what do we do?

Can't get too much information Most of us read a lot before we began beekeeping. Everything we could get our hands on. Many wonderful treatises exist that offer helpful suggestions. Many of us had lengthy conversations with friends who were beekeepers. Some visited local nature centers in the hope that a seasoned beekeeper might be on the staff. Others were lucky enough to find a bee club to join, which is perhaps the very best way to ensure a constant supply of answers to the many questions we have when we start out (and later on, too).

A bee club has the answers The benefits of a bee club to beekeepers are obvious and many. One of the more important, however, is providing a forum for support. Not only is this true for novice beekeepers, but even for more experienced folks. Bee clubs may exist for many reasons, be they for community outreach and education, or for the ongoing education and support of their members, or both. But certainly one of the more logical purposes is providing a community to foster beekeeping dialogue. This, of course, is particularly helpful to those beekeepers just getting started.

Although an informal exchange of information was never a problem with the Backyard Beekeepers Association, the club's board decided to put a bit more structure in the process by formalizing a mentoring program. The club especially wanted new members (who were novice beekeepers) to know they had specific, seasoned beekeepers to whom they could turn for answers and assistance.

Here's a summary of the approach we used.

Put someone in charge We began by asking one of the board members to head up our mentoring initiative – me. Our first objective was to publish a mission statement and action plan for the mentoring program:

- Why should we have a mentoring program?
- What would it hope to accomplish?
- How would it be organized?
- Who would be responsible for the specific activities?
- How would we know if we had been successful?

This document also included key dates for each of

the action items identified. What would be accomplished ... by whom ... and by when? The proposed plan was presented for discussion and approval at the following month's board meeting.

Establish guidelines and relevant criteria Key to the success of a mentoring program is committee deliberation on the qualities that identify a good mentor. If the club is going to provide mentoring help, then we want reasonable assurance that the mentors are knowledgeable beekeepers and competent teachers. We identified qualities such as:

- Level of beekeeping experience
- Willingness to help others
- Accessibility and availability
- Degree of patience
- Ability to express ideas clearly

By developing this basic set of criteria, the committee automatically backs into a position description that is extremely helpful in identifying (and approving) likely mentor candidates.

Get volunteer mentors After clarifying what it was we were trying to accomplish and what kind of help we were looking for, we announced the program to the general membership. A sign-up list was distributed at the next three general meetings, looking for those who would be interested in serving as mentors. This list was reviewed and approved by the committee. An official list was published, complete with the names, addresses and telephone numbers of the volunteer mentors.

Get the word out Most bee clubs produce a monthly newsletter for members. The club's list of mentors should be published in each issue of the newsletter, and posted at every general meeting. Your club should also include the list with every new member's information packet.

Elevate the mentors to a special status One aspect of a mentoring program for consideration is whether to provide mentors with special recognition and status within the club. This could be accomplished in many ways. For instance, a test could be developed to gauge their degree of beekeeping knowledge. By passing this test, the committee would be assured that each mentor possessed a certain minimum level of expertise before instructing less experienced members. By meeting the job description criteria and passing the test, mentors would automatically assume a certain degree of recognition within the club. This status could be easily reinforced by an identification sticker on mentors' nametags, by issuing each mentor a special certificate, press release to local newspapers, etc.

Leverage the mentoring program If your bee club is involved with outreach and education programs, your stable of mentors may come in handy. Provided they have decent speaking skills, your club's mentors are natural candidates for delivering presentations at other clubs, nature centers and schools. Our club has a speakers' bureau in place, and has even developed a standard slide show. The club has also invested in various presentation tools and props (such as beehives, smokers, color photos, etc.) The going rate for a presentation in our area is $100-$200. Half the fee goes to the speaker and half to the club's treasury.

So far so good This very simplified system appears to be working well. The list of mentors has expanded monthly, and professional ties are developing between experienced and newer members. Not only is the mentoring process easy to initiate, but it works wonders in building stronger bonds between club members. It helps new members overcome their initial apprehensions, while making experienced members feel pretty good about lending a constructive hand. BC

Jerry Goodwin resides in Weston, CT, and has kept bees since 1978. He has been a board member of the Backyard Beekeepers Association, Inc., since its inception five years ago, and served as its first president. You can reacy Jerry by email at jerry@asiasoc.org

OVERWINTERING NUCS by Don Wardell

I have over wintered carrots by piling them on the ground and covering them with leaves. One time I tried to keep carrots by putting them in an insulated crate in the garage. They froze. From my experience with carrots, I wondered if ground heat could be used to help in over-wintering nucs.

With the bees well-insulated and close to the ground, the temperature surrounding the Winter cluster would be around 30°F even in zero weather. I once read that bees could have a temperature of 90°F inside a Winter cluster and it could be 0°F two inches away. The following method has been found successful to overwinter small nuclei of three frames of bees and less in my part of northern Indiana. Further south and you may need less packing. More northern areas may need more packing and more bees.

ADVANTAGES Packing nuclei makes it possible to have some extra queens available early in the Spring should you have queen failures.

Nucs can be used to make an increase in the number of hives by adding brood from strong hives early in the spring. The insulation encourages an early rapid spring buildup. It is likely better than buying packages in the spring.

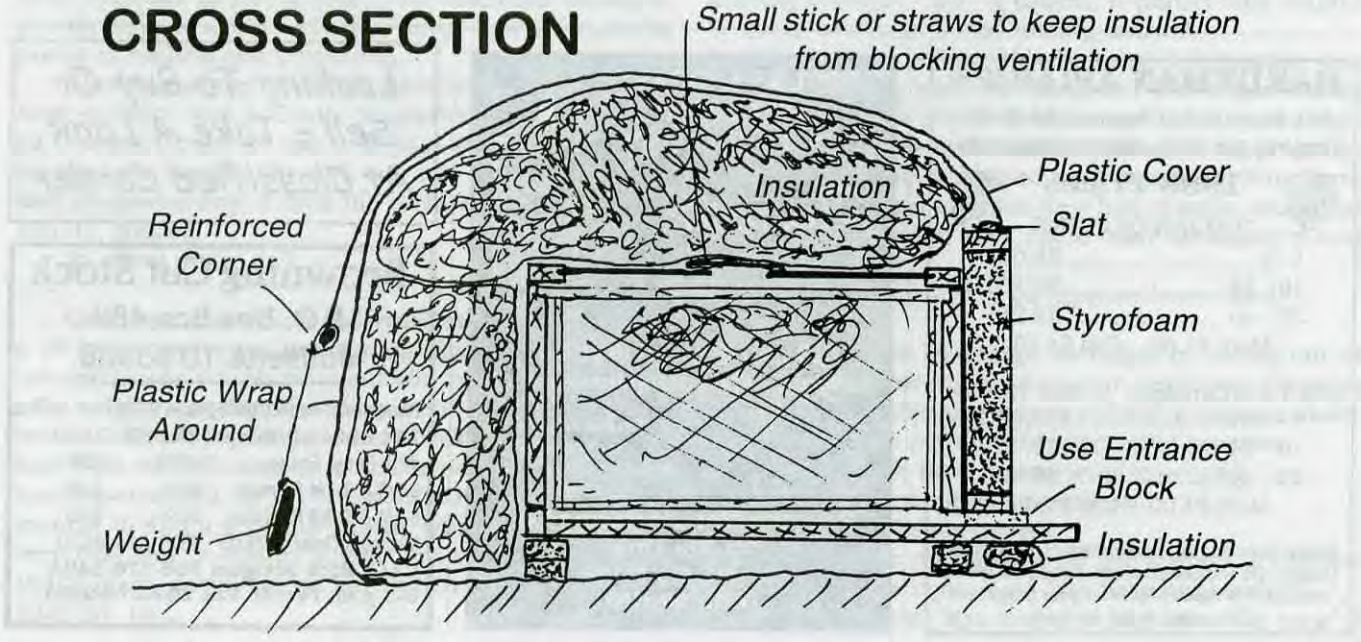
It reduces the amount of honey needed for feed, both in respect to the number of bees and the factor of the insulation. Instead of a recommended 50 pounds of honey for Winter stores, a nuclei might use from five to 10 pounds.

This form of packing can be opened and closed in a few seconds which saves inspection time if a large number of nucs are use. To open the packing, raise the cover and throw the weights over the left or right front corner. Unwrap the top plastic and remove the top packing bag. Easy as 1, 2, 3.

EQUIPMENT I use a large brood super to winter the nucs instead of a small box. This provides room for extra frames if the nucs are being used to make a strong hive in the spring.

Make a frame of three quarter inch lumber, two inches wide with outside dimensions of 16 inches wide by 14 inches high. Cut a piece of Styrofoam or beadboard to fit inside this frame. Wrap the Styrofoam in black plastic before putting it in the frame. Friction will hold it in place if it is a sung fit. This frame goes in front of the super. Use thin strips of wood to staple the ends of a piece of black plastic (3' X 7') to the front of the sides of the frame, leaving about six inches at the bottom so that there will be a couple of inches on the ground. This should leave enough on the top side to fold over the insulation on the top. Staple a piece of plastic to the top of the Styrofoam frame (3' X 3') so that it covers the top of the packing. Tape two small sticks to the loose corners and tie short pieces of wood to these corners to hold the top plastic sheet in place, as in the diagram.

For packing, use 30 gallon trash bags stuffed with dry leaves or other insulation material. Place bags around the sides and back. These should hold the front frame in place. Place another bag of insulation on the top. Fold the sides and back part of the plastic sides over the top and bring the cover over it so the weights hold it in place. If there is a space under the front of the hive, plug it. The object is to keep cold air from circulating underneath the hive. This equipment can be saved in



the spring and if stored carefully be used for several winters.

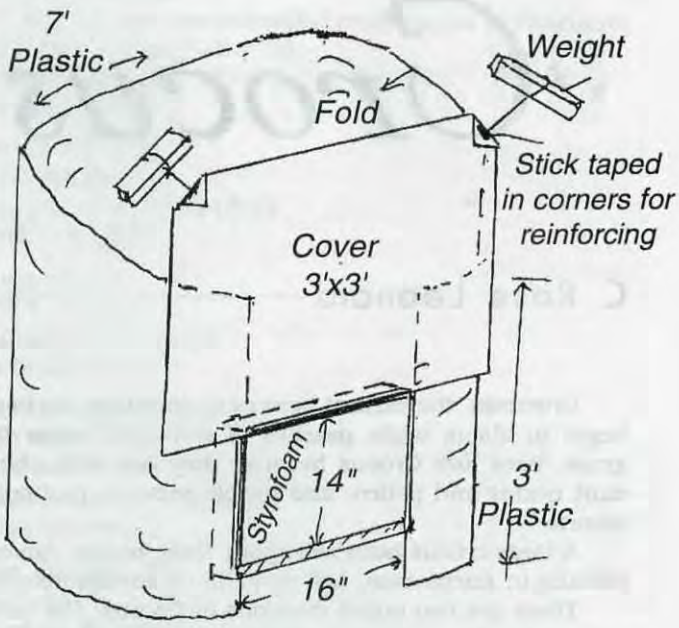
FEATURES With the bees close to the ground and no cold air circulating below the hive, heat from the ground can be utilized. The black plastic over the Styrofoam in the front panel lets the bees take advantage of the heat from the sun on a warm Winter day. At the same time, the insulation prevents the hive from overheating.

This form of packing can be opened and closed in a few seconds which saves time if a number of units are used.

SPRING CHECK Check the nucs on a warm day in late winter for food consumption. Having a few frames of honey on hand may be useful. In the early spring, likely in March, if you wish to increase the strength of the nucs quickly add frames of sealed brood from strong hives. Do this on days followed by warm nights to help avoid chilled brood. BC

For comments or questions, contact the author at Box 325, Winona Lake, IN. 46590.

Don Wardell keeps his bees warm in Winona Lake, Indiana.



FRONT VIEW

Crocus Power!

C. Rose Leonard

Crocuses, the earliest flowers to entertain our bees, begin to bloom while patches of snow still cover the grass. Bees love Crocus because they run with abundant nectar and pollen, and purple seems a particular favorite.

A large crocus bulb will spout three or four blooms usually in succession, but sometimes simultaneously.

There are two major divisions of Crocus. The earliest are the Snow Crocus which begin blooming about two weeks before the advent of the Giant Crocus.

The Snow Crocus are smaller and more delicately colored with fascinating stripes and color mixtures seen in few other flowers. The earliest of the Snow Crocus is "Vanguard" which is a grayish lilac in color. "Prince Claus" is white inside and purple outside, and "Ladykiller" is very similar. The Siberian "Triclor" is mostly blue.

The latest of the species of Snow Crocus to bloom are the "Bunching Crocus" which are pure white ("Snowbunting"), yellows and dark purples. They bloom more prolifically than any other Crocus. They also spread faster. Bunching Crocus like wet banks. "They like their feet wet, but not their ankles."

The second group of Crocus are the "Giant Crocus." These are the oldest cultivars. These are the Crocus with which we are most familiar, and they are the easiest to grow. The "Giant Crocus" bloom two weeks later than "Snow".

The new named varieties are truly twice the size of the older "Giant Crocus." For example, "Yellow Mammoth" has flowers double the size of the old gold type.

The new white "Jeanne d'Arc" is a very rich pollen source. Some other whites are "Snowstorm," and bees love the blues and purples. The old "Purpurea" is the blackest purple. The new "Flower Record" is a true purple. "Remembrance" is the most readily available, but it is a lighter purple, almost blue.

Buying Crocus follows the seasons. The best variety and lowest prices come from companies such as Bundles of Bulbs in Maryland which supplies the public mail order catalogs. But you should write your order by the end of June.

The Van Bourgondien and Van Engleden catalogs come a little later. These full color catalogs give a good idea of what you're buying. Other good catalogs are Holland Bulbs, Brecks and Dutch Bulbs.

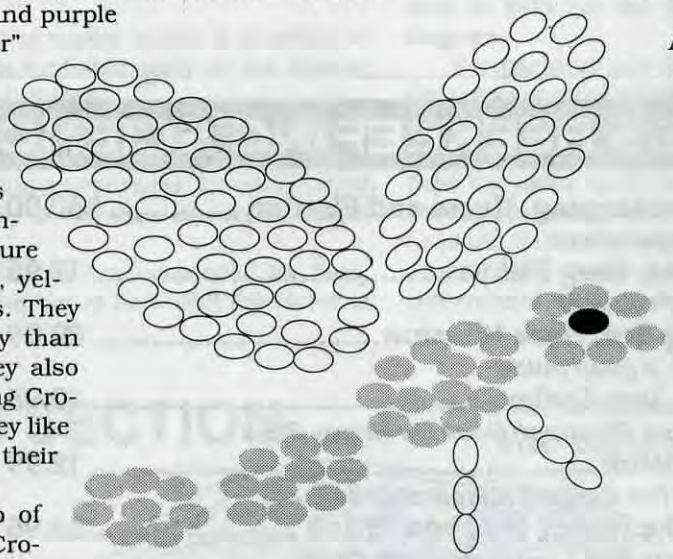
The Michigan Bulb Company, which advertises in many Sunday papers is very inexpensive. The bulb companies specialize in tulips which do not much interest my bees.

In general, the catalog companies sell Crocus bulbs for $25-30 per hundred.

K-Mart, Lowe's, Wal-Mart and Agway sell bulbs from September to December. Prices of 50 cents per bulb can drop to five cents per bulb in December.

Bulbs kept in warm stores start to sprout. This brings us to a generally unrecognized source of Crocuses. Those little pots of Crocus flowers are "forced" to bloom out of season. They are often sold in greenhouses and groceries. Yes, these bulbs can be planted outdoors after the flowers wither, and they will bloom again. Crocus bulbs are much tougher than tulip bulbs.

Crocus bloom longer in shady spots. For example, houses shade them from the sun's heat since trees are not yet in leaf, and 100 bulbs will reproduce to 1,000 in a few years when planted in a damp, shady place.



Plant a Crocus honey bee using yellow Crocus for the body, white or lilac for the wings and purple for the eye. Use about 75 bulbs.

Heat stops Crocus blooming, although they are the most reliable bloomers of Spring. For example, three days of 60°F will end the Crocus bloom. But a cold snap followed by snow will start them blooming again when the snow melts.

A massed Crocus bed is a beautiful sight, especially to bees. But they can also be planted throughout your lawn. *Crocus bloom and die down before the grass is long enough to mow.*

Nothing is that perfect, now, is it? Warmth makes

the grass grow just as it withers the Crocus blossoms. Watch for the Crocus leaves to turn yellow which will occur about two weeks after the flowers finish. Mow the grass after this. Crocus bulbs have lasted for 80 years at my place following this regimen. But then grass does not grow as lushly in the shaded places preferred by Crocus.

The yellow, white and purple Crocus are symbolic Easter flowers. You can make beds in the shape of crosses, bunnies, lilies and Easter eggs in your yard.

Victorians often spelled their name in Crocus across their front yard. We can plant ours in the shape of golden honey bees.

Crocus bulbs are usually planted in September and October. They bloom in April and early May. However, early Springs can produce worthwhile blooms in mid-March. Crocus bloom begins with the snow melt.

The natural enemies of Crocus bulbs are mice and squirrels. Planting miniature bulbs amidst the Crocus will deter rodents. Daffodil bulbs are as alkaloid as poison ivy when growing. The presence of daffodils confuses squirrels and mice.

I am so happy to have planted more Crocus when I watch the hungry Spring bees enjoying them. I hope fresh nectar acts as a tonic to eclipse their Winter blues.

Warning. Many species of Crocus are near extinction in the wild because gatherers are paid for every one they dig. The Bundles of Bulbs catalog advertises they have raised their bulbs commercially.

BULB SOURCES

Bundles of Bulbs
(all bulbs grown commercially) (only source of Vanguard)
112 Greenspring Valley Rd.
Owings Mills, MD 21117
(301) 581-2188

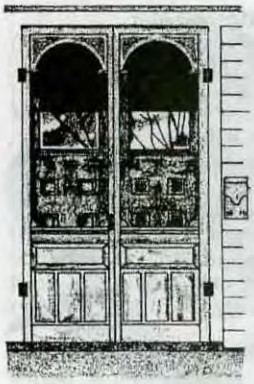
Dutch Gardens
P.O. Box 200
Adelphia, NJ 07710-0200
(800) 818-3861

Jung Seed Co.
335 S. High St.
Randolph, WI 53957
(800) 692-5864

Van Bourgondien Bros.
245 Route 109
P.O. Box 1000
Babylon, NY 11702-9004
(800) 622-9959

Van Engelen, Inc.
23 Tulip Dr.
Bantam, CT 06750
(860) 567-8734

White Flower Farm
(offers all lavender mixture)
P.O. Box 50
Litchfield, CT 96759-0050
(800) 411-6159



Ann Harman

Home Harmony

Comfort Me With Apples

Song of Solomon

We are fortunate today to have so many different varieties of apples available in our roadside stands and supermarkets. Some, of course, are best for eating, but some are best for cooking. This month we are going to use some of those cooking apples and explore different ways of preparing them.

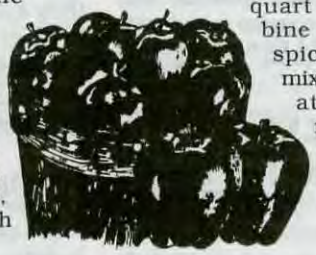
Apples have a very long history. Back in 255 B.C. a Roman playwright coined the phrase, "Don't upset the apple cart." The first American orchard was planted in the early 1600s on Beacon Hill, Boston. Let's hope there were enough honey bees around by that time to do a good job of pollination. In Colonial America the economic well-being of a town was measured by the number of barrels of a mildly alcoholic apple cider put aside for the Winter. Apple slices were also dried for preservation. Now we have sophisticated methods of storage, and fresh apples, of good quality, are available year-round. Today over 10 billion pounds of apples are produced annually, and slightly over half of these are eaten fresh!

The ideal temperature for storing apples is 32-40°F. This means that you can store them in your refrigerator. A plastic bag helps keep the apples moist in the fridge, but put the bag in the crisper section. Use the apples with defects, such as bruising, first. If you wish to store apples for a long time in a cellar or other cool place, select only the most perfect apples, wrap each in a piece of newspaper, and do not let them touch each other. In this way, if an apple begins to decay, it will not contaminate the rest.

One pound of apples is about equal to: four small apples, OR three medium apples, OR two large apples. One pound equals three cups diced apples. Use two pounds of apples for one 9-inch apple pie. For a pie, it is best to peel the apples, but if you are making a salad, leave the peels on and use both red-skinned and green-skinned varieties for a colorful effect. Dipping apple slices in lemon juice prevents them from darkening.

BAKED APPLES - WITH A DIFFERENCE

For this first recipe, choose an apple suitable for baking - golden delicious, Granny Smith, Rome beauty, Stayman or York.



Now, instead of your usual baked-apple mixture, try one of the following using 2 tablespoons for each apple: peanut butter, chocolate chips, onions, grated cheese, cream cheese, water chestnuts, butterscotch chips or your favorite jelly.

Oven method: Place in a baking pan with just enough boiling water to cover the bottom of the pan. Cover and bake at 375° for 35 to 40 minutes or until apples are tender but still slightly firm.

Microwave method: Place stuffed apples in individual bowls. Cover with waxed paper and microwave on HIGH as follows:
1 apple - 2 to 4 minutes
2 apples - 4 to 5-1/2 minutes
3 apples - 6 to 8 minutes
4 apples - 9 to 10 minutes

Apples Rappahannock Style
Rappahannock County 4-H

BLACK CURRANT WINTER COMPOTE

Apples combine very well with other fruits. In this next recipe you can use pears, which are in season now. The two flavors combine very well. In fact, if you wish to make an apple pie with a difference, use pears to replace some of the apples in your favorite recipe.

1 cup boiling water
4 black currant herb tea bags
1/2 cup dried pitted baby prunes
1/3 cup dried apricot halves
2 medium pears, peeled, cored, cut into wedges
2 medium apples, peeled, cored, cut into wedges
1-1/2 tablespoons honey
1 teaspoon ground cinnamon
1/4 teaspoon ground nutmeg

Pour the 1 cup boiling water over the tea bags, cover, and let stand 5 minutes. Remove and discard tea bags. Combine all the fruit in a 2-quart baking dish. Combine the tea, honey and spices. Pour over fruit mixture. Cover and bake at 350° for 40 to 50 minutes or until fruit is tender. Yield: 8 servings.

Cooking Light
Oxmoor House

PUMPKIN-SHELL DESSERT

For this next recipe I highly recommend a "pie pumpkin" or cooking pumpkin and not one of the tasteless jack-o'-lantern pumpkins. You do not need a large pumpkin; be sure to select one with undamaged skin since it is your cooking pot.

1 3-pound pumpkin
2 cups apples, peeled, cored, chopped
1 cup pecans (4 ounces), chopped
1 cup (5 ounces) raisins
1/3 to 1/2 cup honey
1 teaspoon lemon juice
1/4 teaspoon cinnamon
1/4 teaspoon nutmeg
1 cup whipping cream (optional)

Wash and dry pumpkin. Slice off top for lid, scrape out seeds, and set lid aside. Fill pumpkin with apples, pecans and raisins. Add honey, lemon juice, cinnamon and nutmeg. Mix well. Replace lid on pumpkin. Place on cookie sheet and bake at 350° until apples are tender, about 40 minutes. To serve, spoon filling and some pump-

Continued on Next Page

HOME ... Cont. From Pg. 51

kin from the shell into each serving dish. Whipped cream can be spooned over the top.

The Farmer's Cookbook
Mitzi Perdue

SAUCY APPLE GOOSE

This next recipe can actually be used for any bird that is to be roasted, but if you are lucky enough to have a wild goose, the basting sauce will make it perfect. When using honey in a basting sauce, be careful that it does not burn.

1 wild goose (or other poultry)
2 apples
1 can applesauce
3/4 cup currant jelly
1 teaspoon cinnamon
1 teaspoon nutmeg
1/2 cup honey

Place the two cooking apples, peeled and sliced, in the cavity. Bake at 350° 20 to 25 minutes per pound. While baking, baste frequently with a sauce made by heating together the applesauce, jelly, cinnamon, honey and nutmeg. Serve with the sauce as a gravy.

Wild Game Cookbook
ed. L. W. Johnson

TOFFEE APPLES

There is nothing better than the combination of apples and vanilla ice cream. You may like your apple pie a la mode, but now it's time to try it a different way. You need some very good vanilla ice cream - made with honey, of course. Then you will serve it with the apples.

2 large, crisp, green, eating apples (like Granny Smith)
2 tablespoons butter
2 tablespoons honey
7 tablespoons cognac

Cut the apples into quarters, leaving the skins on. Remove cores and slice the apples wafer thin. Melt the butter in a large skillet, add the apples and sauté for 3 to 4 minutes. Add the honey and cognac and heat until bubbling. Continue to cook over medium-high heat for 15 to 20 minutes until the mixture is a rich golden brown. Keep warm. Spoon toffee apples on the side of a helping of ice cream. Serves 4.

A Taste Of Honey
Jane Charlton & Jane Newdick

CHINESE CABBAGE AND APPLE SLAW

When cooks hear the word "slaw," they automatically think of cabbage. Try this quickly made variation from traditional cabbage and carrots. It is delicious. You might like to take it to a potluck supper.

1/3 cup each sour cream and mayonnaise
2 tablespoons cider vinegar
2 teaspoons honey
1 teaspoon Dijon-style mustard
salt and freshly ground pepper
6 cups thinly sliced or shredded inner leaves Chinese cabbage
1 red-skinned apple, cored and diced

For dressing, mix together sour cream, mayonnaise, vinegar, honey, mustard and salt and pepper to taste. Place shredded cabbage and apple in a bowl and pour dressing over. Mix lightly. Serves 6.

When The Good Cook Gardens
Ortho Book Series

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"...comfort me with apples..."
from the Song of Solomon

Richard Taylor

Bee Talk

"I have long since decided that having a sense of your own absurdity is one of life's great blessings. It is too bad that it is not more generously bestowed."

Old people not only have a great store of memories, they also see the world differently than the young. Trees that I planted as whips, barely reaching my waist, now tower above the rooftop, driving home to me the vast span of time. We also see other old people in a new light, and sometimes wish we could recall to life our dear parents, now that we finally understand them. These are, indeed, the golden years.

I'm going to inflict some memories on readers this one last time and, in the process, get back to the subject of bees in an oblique sort of way. When I left off last time I was about to got to sea in the Pacific submarine force.

There isn't much to say about that. It was for the most part a lonely time. Before the war's end I was a staff officer for a submarine squadron operating out of the Philippines. Sometimes this involved long night watches, when my only job was encoding and decoding messages to and from the submarines prowling the seas. These all bore the names of fish, and I know them all. Sometimes highly secret information would arrive from spies, giving the complete projected course of an enemy merchant ship, and I sent this on to the appropriate submarine commander, knowing that Japanese seamen would be drowning in a flaming sea. Perhaps this should have troubled me, but it didn't. War destroys all conscience. When, not far away, an atomic bomb destroyed a whole city in one flash, burning up thousands of innocent people, I rejoiced, my only thought being "I'm going home!"

I was still thinking about bees during those years. My *Gleanings in Bee Culture* kept coming, albeit irregularly, and in Honolulu I had found a used-book store with bee books. I read Maeterlink's *La Vie dos Abielles*, which in its English version had inspired me as a boy. It is still one of the great classics of bee books. This also improved my French, which I would someday need to prove to examiners that I could read, though I do not believe I have read a word in that language since then.

I also read, during those sometimes lonely hours, Frank Pellett's *Productive Beekeeping*, further fueling my dreams. I read philosophical books with less success. One title, in particular, sticks in my mind: *Realms of Being*, a big book by a Harvard philosopher. I spent many hours on this one, with much underlining of what seemed to be its profounder passages, only to realize at the end that I didn't have the remotest ideas what it was about. I learned, years later, that no one else did either, and the general view was that the author himself didn't know what he was talking about. This was an interesting preview of things to come.

My active beekeeping still had to wait another four years while I returned to my patiently waiting wife, whom I hardly knew, and graduate studies. Here I found that large part of my life that had nothing to do with bees. I began publishing philosophical articles while still a student, and those won me a fellowship in England and, soon after, an Ivy League professorship and lots of chances to teach in various places. It was an exciting time, and to all this was added the births of my first two children, now grown men who have made me a grandfather several times over.

My academic standing rested on my writing and very little else, and this, I think, resulted largely from the fact that I could not take it, or myself, very seriously, for reasons not unconnected with beekeeping, as I shall shortly explain. In addition to the philosophical articles I wrote books, some of which were highly successful, the reason for this being that they were provocative. I had developed a knack for "proving," with apparent geometric exactitude, theories that sometimes bordered on the absurd, and this caught the attention of other academics. They made their students buy them so they could kick my ideas around and have lively class discussions. The index at the end my most widely used book is so filled with levity that several popular magazines have published it by itself. (Anyone wanting to see it can get it by sending me a SASE.) I'm quite proud of that index, though it has hardly been noticed by the philosophers.

In the Spring of 1953 I had a visiting appointment at a college in Pennsylvania where, one day, I found in the library von Frisch's book on honey bee communication. This, with great suddenness, reignited my passion for beekeeping and, returning to Rhode Island, I sent off to Montgomery Ward for a beehive, veil, smoker and all, and one package of bees. Soon I was thinking about bees all the time and gathering stray swarms. My apiary expanded, a second one was started, and then a third. I read every book on bees that

Continued on Next Page

BEE TALK ... Cont. From Pg. 53

I could find, and those I found in stores, usually for less than a dollar, together with the ones I had found in England, were the beginning of what would one day become a very large and valuable bee library. I sold it a few years ago, intact.

Now, to wind up this chronology, I held an appointment in the graduate division of Columbia University for two years, meanwhile keeping bees at my Summer place in upstate New York. Columbia is in the heart of New York City, but I even had a hive of bees there, on my balcony, seven stories above 116th Street – not very good beekeeping territory, but my bees actually made a decent crop there, from nearby parks.

In 1965 I moved to the University of Rochester, because it is prime beekeeping territory up there, and I already had apiaries in the Finger Lakes region nearby. Soon I had several beeyards, about 150 colonies altogether, and I was producing honey by the ton. I have cut back a lot now, to spend more time with my family – a new wife, and two little boys, 10 and 12.

I have lived these decades in two very different worlds, and they complemented each other. My university duties were always essentially over by early May, when the students began preparing for exams, these then being administered, and graded, by assistants, and I didn't return until Mid-September – over four months to spend with my bees. And it was the world of beekeeping that kept me from taking myself very seriously in the academic world. Professors often lead isolated lives, sometimes referred to as an ivory tower. They talk, and write, mostly for each other. In my beeyards and at bee meetings I have always been refreshingly aware that I was in the real world, but at academic gatherings and faculty clubs I knew that what was going on usually cast no shadows at all in that real world. Few of my colleagues had that priceless perception. They took themselves, and their work, very seriously indeed, and had deeply distorted views of both. If you make a mistake in your beeyard or honey house you pay for it. Lessons there can be costly and hard. You know you are in the world of reality. But a professor of philosophy, or literature, or art, or history – anything that is not a science – can go on chasing the same fond and silly notions for his or her whole career, and salary checks keep right on coming. It is astounding how far off the track one can get and never have the least inkling of it. But, because my life was not lived entirely in that world, I know that what I was doing there was exciting, but sometimes ridiculous, and this made writing easy for me – I didn't have to take it too seriously. I have long since decided that having a sense of your own absurdity is one of life's great blessings. It is too bad that it is not more generously bestowed.

There is no doubt in my mind which of these two worlds might have some lasting significance. My philosophical writing – 11 books and a lot of articles – largely forgotten already, even by me, though students are still compelled by their professors to buy one of the books for reasons already given. I suspect, though, that my books on beekeeping will still be around for awhile.

My seriousness is now reserved for my family and my religion, referred to last time, and that in the philosophical wisdom I gleaned initially from Thoreau, back in the theological seminary, and then from Socrates and the ancient writers he inspired. There are no gods in my religion, for which I rejoice, and I live by it, deeply and earnestly. Outside of that, there is lots to laugh about. BC

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

Questions?

Chinese Evodia Seeds

Where can we get Chinese Evodia seeds? And where can one buy the Evodia seedlings?

I plan to distribute seeds again this Winter. Readers wishing to get them should follow exactly the directions below. Reports from past distributions indicate that many readers have been totally unsuccessful in getting the seeds to germinate. Apparently they need special soil conditions for germination. They come up by the dozens in the flower bed under my Evodia tree, and I am going to try to find a way to ship these little seedlings come Spring, at which time I shall report on my degree of success. To get Evodia seeds: Address your envelope "SEEDS, Box 352, Interlaken, NY, 14847" enclosing three stamps and your name neatly printed on a slip of paper, which will be the mailing label. No other enclosures – no notes, no money, nothing else. No requests after December 1, please.

Is Darker Better?

I have read that darker races of bees have better resistance to *Varroa* than lighter ones. Why would that be?

J.B. Barrett
Gaston, IN

Some races of bees are more resistant to *Varroa* than others, but I am not aware that this is associated with color. There are various theories about this, one of them being that some bees more readily attack the large *Varroa* mites.

Do It Yourself?

I make my own hive covers. They are about two inches deeper than standard and I glue a sheet of two-inch thick Styrofoam into them. Is this a good idea?

Walter E. Senn
Essex Junction, VT

It probably is a good idea. It would be easy to test it: Have the sheet of Styrofoam in the covers of half your hives and not in the other half and see which Winter better. Opinions are divided on the value of insulation for hives. Those who wrap their hives with tar paper usually put a layer of straw on the top, under the tar paper, and this would have a similar effect, though it would not be as good insulation as Styrofoam. On the other hand, ventilation of hives is terribly important, especially in Winter, and beekeepers who make sure their hives are very well ventilated *at the top* report excellent wintering. Bees give off a great deal of moisture, and if this is not ventilated out of the hive it puts the colony under severe stress, especially if it condenses at the top of the hive and then drips down. I recently delivered about 20 bees to a friend who was using them for apitherapy, and even though the cap was ventilated, a great deal of moisture had accumulated in the jar within a couple of hours.

EFB Immunity?

Do larvae become immune to European Foulbrood after a certain time, as they do in the case of American foulbrood?

J.B. Barrett
Gaston, IN

Larvae are susceptible to EFB only when very small, about the first four days, after which time the ingestion of the spores does not kill them.

Apistan Toxicity

If Apistan strips lose their toxicity over time and become ineffective, then what is the harm in leaving them in the hive?

J.B. Barrett
Gaston, IN

It is believed that having strips in the hive with less than a lethal dose will encourage the emergence of mites resistant to Apistan, moreover, continued exposure facilitates wax contamination.

Winter Mouse Guards

You have mentioned using quarter-inch hardware cloth for Winter mouse guards. Do you leave these mouse guards in the entrances all Summer?

Donald Steinke
Wapakoneta, OH

Yes, they can stay in year 'round, unless you need to clean off the bottom board in Spring, which is seldom necessary if the hive goes through the Winter tipped slightly forward.

Old Honey

I was recently given about five gallons of honey that is two or three years old. Is it safe to feed this to the bees in the Fall? If so, should it be diluted with water?

Gary Collins
Georgetown, IN

Honey tends to lose flavor with age, but it is still perfectly suitable for human consumption provided it has not begun to ferment. In any case, it is quite safe to use it for Fall feeding for the bees. The likelihood of infecting your bees with foulbrood this way is minimal, especially in the Fall. But it should be diluted with water. Bees are very slow to take undiluted honey from a feeder.

Questions are eagerly solicited. Send them to Dr. Richard Taylor, Box 352, Interlaken, New York 14847 (not Medina) and enclose a stamped envelope for direct response.

Answers!

Richard Taylor

?Do You Know? Answers

1. **False** Workers expose the Nasonov gland and disperse the odors by fanning in a number of orienting situations, including nest entrance finding, forage marking and swarming. The gland is never exposed inside of the hive.
2. **False** During the exposure of the Nasonov gland (scent gland), the worker honey bee usually stands with its abdomen elevated and fans its wings, drawing air over the exposed gland and canal to facilitate dispersal of the Nasonov pheromone. The gland is absent in queens and drones so Nasonov pheromone is not involved in the attraction of drones to the queen during her mating flight.
3. **True** The Nasonov pheromone is used primarily as an orientation aid. The pheromone is often produced by bees that have temporarily become disorientated and upon finding the hive entrance, expose their Nasonov glands to guide other bees that are still disorientated to the safety of the hive. The pheromone is also involved in the clustering and movement of a swarm.
4. **True** Nearly all colonies possess queen cell cups throughout the period of the year when queen rearing is likely to occur, but only a small proportion are ever used to rear queens.
5. **True** Foraging honey bees that have found the entrance to their hive after being temporarily disorientated release Nasonov pheromone at the hive entrance.
6. **False** Production of the Nasonov pheromone varies with the age of the honey bee and with the time of the year. Newly emerged workers have little or no secretion in their glands, but production increases rapidly during the next four weeks reaching a maximum when workers are foraging.
7. **True** Not only does a mature queen produce queen substance that inhibits the rearing of new queens, immature queens in sealed cells will also depress the production of additional queen cells.
8. **True** Tiny glands found on the upper surface of the queen's abdomen secrete a pheromone that interacts with the mandibular glands to attract workers who feed and tend to the queen. The abdominal glands are active only on direct contact and serve to keep the attendant bees, the "court" around the queen.
9. **True** Queen substance has been found in the mandibular glands of some laying workers, which indicates that the mandibular glands are capable of producing it.
10. **True** Newly emerged queens have little queen substance in their mandibular glands but the amount increases until they are about 10 days old. Laying queens are normally more attractive than virgin queens due to the larger amounts of queen substance present.
11. **True** The pattern of defensive behavior commences with the alerting of the colony by the guard bees. This is followed by numerous bees taking flight in defense of the colony. Alerted or stinging workers release alarm pheromones (especially isopentyl acetate) that elicit colonial defense.
12. **True** The construction of queen cups is at least in part inhibited by pheromones from mated laying queens, virgin queens, and immature queens, the first being the most effective.
13. Attract workers to the swarm cluster
    Stabilize the swarm cluster
    Aid in swarm movement to a new nest site
14. Bees expose their Nasonov glands when foraging, but without fanning so the pheromone release is non-directional, whereas, at the hive entrance the bees face the entrance and fan the pheromone away from the nest.
15. Brood pheromones are believed to help nurse bees recognize stage of development (age), sex, and caste, a prerequisite of brood care and progressive larval feeding.
16. A.) 9-keto-(E)-2-decenoic acid
    F.) 9-hydroxy- (E)-2-decenoic acid
17. C.) 2-Heptanone
18. J.) Isopentyl acetate
19. B.) Geraniol
    D.) Nerol
    E.) (E)-citral
    G.) Geranic acid
    I.) (E-E)- farnesol
    O.) Nerolic acid
    R.) (Z)-citral

There were a possible 25 points in the test this month. Check the table 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 Mississippi State University, Mississippi State, MS.

Gleanings

OCTOBER, 1998 • ALL THE NEWS THAT FITS

Supports 75¢ Minimum Bid

MID-U.S. HONEY PRODUCERS MEET

The Mid-U.S. Honey Producers held their annual meeting, August 21 in Pierre, SD. The producers attending the meeting, represented 8,600,000 pounds of quality Midwest honey. "Our prime directive is to ascertain crop situations here at home and to plot our marketing based on that and the current world crop and market information at the time of the meeting," said President Darrel Rufer, Waverly, MN.

A crop survey taken at the meeting showed a 98% normal crop production with very little committed at the time. Offers from buyers are in the 65 to 72-1/2 cents for white honey, with 484 drums of new crop already shipped. Worldwide, however Argentina has been off the market for over 3 months. Rain and flooding has delayed reports from China, and very little is being reported at this time. Canada is up slightly over last year.

President Rufer stated, "The Mid-U.S. supports a 75 cent minimum bid for quality white honey to have a viable beekeeping industry and all honey producers should consider this in their marketing plan." He added "Some packers are asking our producers to carry them on their honey purchases which we could accept only if the packers pay the going interest rate on the unpaid balance. This is only fair, because without it, we would feel a softening affect on the market." He concluded, "We only want our piece of the pie and we wish the best to all honey handlers as they too must enjoy a profit."

The Mid-U.S. Honey Producers meet annually in August, anyone is welcome to attend the meeting. Marketing updates are mailed to members during the year and a Honey Hot Line has been set up for general use. The Hot Line has a recorded message on the current market and a place for the user to leave a message about his/her marketing information to further update the hot line for future users. "We've had a tremendous response to the Hot Line," Rufer said. You can reach it at 612-658-4193.

COUNCIL ON FOOD SAFETY FORMED

President Clinton has signed an Executive Order creating a President's Council on Food Safety to be co-chaired by the Secretaries of Agriculture and Health and Human Services, as well as the head of the White House Office of Science and Technology Policy. Agriculture Secretary Dan Glickman said, "Basically, the President has ordered that we move toward a seamless government-wide strategy that cuts through bureaucratic barriers to improving public health, and abides by what the best science tells us is in the best interest of America's families. That our various food safety budgets reflect this more coordinated approach; that we work closely together to strengthen existing efforts while also ensuring that federal resources target areas of highest priority. And, that we work together to advance national research priorities by using the best minds and resources that each government agency and the academic and private worlds have to offer."

Baton Rouge Lab Entertains

ABRC MEETS WITH HONEY PRODUCERS

The 1999 American Bee Research Conference (ABRC) will be held in Baton Rouge at the Hilton Hotel Jan. 4-5. All interested persons are welcome to attend, and researchers from all countries are invited to present papers. The conference is sponsored by the American Association of Professional Apiculturists (AAPA). This year's meeting will be held immediately prior to the annual convention (Jan. 5-8) of the American Honey Producers' Assn.

Research presentations will be given Monday, Jan. 4, 1:30-5:30 p.m., and Tuesday, Jan. 5, 8:30-5:30 p.m. The AAPA business meeting will be Monday morning at 8:30. Titles for student papers need to be submitted at the designated deadline for the ABRC. Graduate or undergraduate students wishing to participate need to notify the President of AAPA upon arrival.

The Hilton Hotel at 5500 Hilton Avenue, Baton Rouge, LA 70808, 15 minutes from the airport, from which there is a free shuttle. Call 225-924-5000 (or 800-445-8667); for reservations, tell the reservations clerk that you are with the American Bee Research Conference.

Titles for papers must be received by December 10, 1998. Please send titles to: Robert Danka, USDA Honey Bee Breeding, Genetics and Physiology Laboratory, 1157 Ben Hur Road, Baton Rouge, LA (tel. 225-767-9294, fax 755-9212, email rdanka@asrr.arsusda.gov).

Betterbee Gets License

FORMIC GEL GETS USDA PATENT

Beekeepers could soon have an alternative way to save their hives from *Varroa* mites, pests that are becoming resistant to the standard control, fluvalinate, sold as Apistan. A new treatment – a gel containing formic acid – has been licnesed to industry by the USDA's Agricultural Research Service.

Apistan-resistant mites have been found in parts of the U.S. ARS scientists at the Bee Research Lab in Beltsville, MD, developed the formic acid gel and have applied for a patent. In field tests, the formic acid gel killed up to 84 percent of *Varroa* mites and 100 percent of tracheal mites, another bee pest.

ARS issued a license to Betterbee, Inc. of Greenwich, NY. The company must obtain approval from the Environment Protection Agency once they develop a product. The formic acid gel could be available to beekeepers next Spring. An improved delivery system is being developed by Betterbee, Inc.

The gel formulation can ease the path to EPA registration because it reduces the risk of exposure to formic acid compared with the spray used in Europe. The spray is effective, but the highly toxic acid evaporates quickly. This puts bees and beekeepers at risk if spraying is done incorrectly. Also, spraying must be repeated, unlike the gel.

The new treatment is composed of formic acid mixed with a food-grade gelling agent and sealed in a small plastic bag. Beekeepers would simply slice open the bag and leave it in the hive. After the acid evaporates, it leaves a harmless residue that won't contaminate the hive or the honey.

PLANS UNDERWAY FOR 1999 ABF IN NASHVILLE

Now is the time to begin making your plans for Nashville and the 56th annual convention of the American Beekeeping Federation.

The American Beekeeping Federation is set for January 7-12, 1999 at the Loews Vanderbilt Plaza Hotel in Nashville, TN. The hotel is west of downtown adjacent to the Vanderbilt University campus. It is easily accessible from Interstate Highways 24, 40 and 65.

Thursday, January 7 will see the ABF attendees on a trip to the Walter T. Kelley Co. plant in Clarkson, KY. At Kelley's, the ABF will help the venerable bee supply manufacturer kick-off its 75th anniversary celebration. Plans include tours of the facilities and lunch on site.

The traditional start of the convention will be on Friday when a full day of programming is planned. Following the early-morning meeting of the ABF Directors, the convention opening session will get underway at 10:00 a.m.

Saturday, a variety of educational and social activities are planned. The popular ABF Educational Workshops will operate in the morning and in the afternoon, the ABF Special interest Groups will allow you to get close up to the subject of your choice.

On Monday, the ABF members are joined by members of the Apiary Inspectors of America for a portion of the day. This morning, too, the ABF Auxiliary will hold its annual meeting.

The annual business meeting will be Tuesday and the annual banquet will conclude the convention activities.

To make your hotel reservation, call the Loews Vanderbilt Plaza at (615) 320-1700 or (800) 235-6397. The ABF convention rate is $85.00

Special air fares and car rental bargains are available through Association Travel Concepts, call 1-800-458-9383 or check their website at <www.assntravel.com>.

As the convention approaches, more information on the Nashville convention and program will be published and will be posted on our website <www.abfnet.org>. For Tennessee tourist information, call 1-615-741-2158 or access <www.state.tn.us/tourdev/>. For Nashville tourist information, call 1-615-259-4730 or access <www.musiccityusa.com/>.

For information on Trade Show and advertising opportunities contact the ABF Office at 912-427-8447.

A FOOL & HIS HONEY

Is there something wrong with this picture?

This is the back of my honey stand, as seen from the nearby highway. I live on the wine trail in the scenic Finger Lakes region of New York, a magnet for tourists. I think three-fourths of my customers are tourists. I actually see very few of them, because the honey stand is run on the honor system, to the astonishment of most of them, especially those from large cities. Every Summer they leave notes of appreciation, so the inside of the stand gets plastered with these, stuck there with thumb tacks. My sign is the source of lots of giggles. Perhaps people think I'm an idiot, but I remember the wise advice of Walter Kelley, which was, "Make a big fool of yourself and everyone will remember you," to which he added, "I did, and they did." – *Richard Taylor*

NCBA Gives Awards
RACKLEY, BRADLEY HONORED

Two local Edgecombe County (North Carolina) men were honored by the North Carolina Beekeepers Association.

Irving Rackley was presented with the McIver-Haas lifetime achievement award in recognition of his service to beekeeping and to the North Carolina Beekeepers Association. He is a NC Master Craftsman Beekeeper (the highest attainable level in North Carolina) and has kept bees for most of his life. He is also president of the NC State Beekeepers Association.

Also honored was Art Bradley, Edgecombe County Agriculture Extension Agent. Mr. Bradley was honored as Agriculture Extension Agent of the year. He was chosen for the award from 40 County Extension Agents nominated.

Mr. Bradley is active in the Coastal Plains Beekeepers Association where he serves as Program Chairman.

From Tucson Lab
MICROBES COMBAT CHALKBROOD

Helpful microbes that live in the hives, stored food and bodies of healthy honey bees might hold the key to protecting tomorrow's bees from chalkbrood disease. The disease, caused by the harmful *Ascosphaera apis* gungus, can be costly to beekeepers, growers and consumers. According to USDA agricultural research scientists, microbes such as certain bacteria, yeasts and mold apparently produce compounds that inhibit growth of the fungus. To date, promising candidates include certain Penicillium, Aspergillus, and Bacillus organisms. USDA scientists hope these microbes become the basis for a commercial product to fight this disease.

PESTS, PREDATORS BOOK WINS AWARD

Honey Bee Pests, Predators, & Diseases, published by the A.I. Root Company and edited by Roger Morse and Kim Flottum has received the prestigious "Useful Publication Award" from *Beekeeping & Development,* the journal for sustainable beekeeping. *B&D* is published quarterly in the United Kingdom. *B&D* considers *'Pests & Predators'* "required reading and a practical guide for everyone involved in beekeeping, entomology or honey bee science worldwide."

OBITUARIES

On August 24th Esther (Mrs. Henry) Piechowski died at the age of 80.

Esther is remembered for many things. She was an avid member of the American Beekeeping Federation and the Wisconsin Honey Producers Association. In the early 1950s they(her and Henry) brought the first Honey Queen to the American Beekeeping Federation convention, beginning the American Honey Queen Program. Esther also served as President of the American Beekeeping Federation Auxiliary. Together with family, they owned and operated a 2500-3000 hive "Henry's Honey Farm" until 1985 when the business was purchased by the John Piechowski Family. In 1996, she and Henry were recognized by the Wisconsin Honey producers Association with the Pioneer Award for their pioneering work with the winterization of colonies, honey queen program, and activity through her years of involvement in the industry.

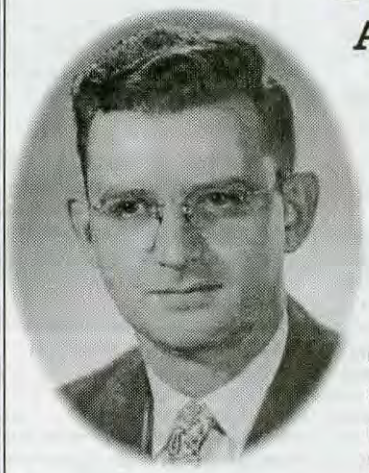
Esther is survived by her 10 children, 10 stepsons and daughters, and 22 grandchildren.

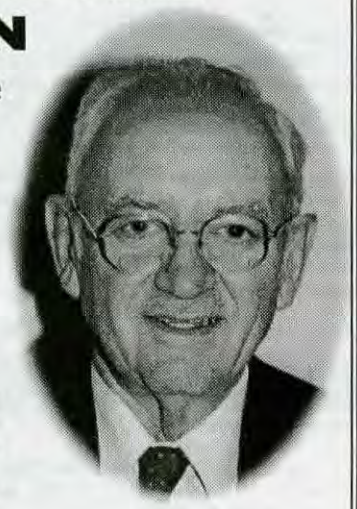
•

R.V. (Zeke) Harrell, 68, a resident of Hayneville, AL, died July 22, 1998 in a local hospital. He was a member of the Hayneville Christian Church and a retired beekeeper, and had served many years as an officer with the state beekeepers association. Survivors include his wife Carolyn; sons, Richard, Jr., Sandy and David, all of Hayneville and Bruce of Wetumpka.

40 YEARS OF BEES, BEEKEEPING AND GRADUATE EDUCATION

A Tribute To Roger A. Morse





A special conference to honor Roger A. Morse will be held at the 1998 Annual Meeting of the Entomological Society of America, Sunday, November 8 at the Las Vegas Hilton Hotel from 1:00 - 5:00 p.m.

Dr. Morse has had a long and extremely distinguished career as Professor of Apiculture at Cornell University. In addition to achieving great things as a researcher and extension apiculturist, Professor Morse trained over 30 graduate students, many of whom are prominent today in the fields of apiculture and bee biology. This conference will bring together former students of Professor Morse who will speak on important and timely topics in the fields of apiculture and bee biology. Speakers include: Tom Seeley, Norm Gary, Gene Robinson, Kirk Visscher, Scott Camazine, Francis Ratnicks, David De Jong, Dewey Caron, Pongthep Akratanakul, John Harbo, and Mike Burgett. Co-organized by Gene Robinson and Tom Seeley.

For registration information, do not contact the co-organizers. Instead, please contact the Entomological Society of America (301) 731-4535; FAX 731-4538; email: esa@entsoc.org

Display Advertisers

Smoke Gets In My Eyes

Ed Hughes

We just got back from working on our bees in 100° weather. One of the mixed blessings of owning bees is smelling like wood smoke after sweating all day. Given a choice, I'd rather smell like old smoke than old sweat. For that reason, I make sure to apply plenty of smoke to both the hive and myself.

I also take pride in my ability to start the smoker. I think that the same instincts men have for starting the barbecue and getting the coals just right apply to starting the smoker.

I begin with a fine selection of combustibles. My concoction consists of a secret mix of dried grass, walnut bark, pine cones, oak shavings, 20 or 30 matches, dried sunflower stalks, and the Denver Post Sunday comics. After years of trying this or that recipe, I finally got the response I was waiting for when, after a long hot day, Bobbalee told me I smelled like a hickory-smoked sausage gone bad. This highest of compliments meant that my years of testing were nearing an end.

I have not, however, found any way to minimize the sweating I do. On your average 90° day with no breeze, I can sweat a gallon an hour. I could win a sweating contest if they had one.

Occasionally, I forget to take my glasses off before I put my helmet and veil on. When my glasses start sliding off my nose, I usually manage to push them back up by poking my finger through the veil, but I can't do anything about the waterfall that runs down the lenses of my glasses.

While I cannot see that well without my glasses, I can see practically nothing with sweat trickling down in front of and behind my lenses. I have tried letting my glasses slide to the end of my nose and blowing the sweat up toward the tops of my lenses with short puffs of exhaled air. It doesn't work very well.

Because I can't see, I am ideally qualified to run the smoker. If it looks tall and white, I blow smoke at it. To the thoughtful passerby, it is my billows of smoke, shot in many directions at once, that draw the most attention. In fact, my deftness and skill with the smoker is often quite captivating and I have even received some critical acclaim.

"Mommy, how does the man know where to blow the smoke?" I heard one curious passerby saying to the other.

"Because, dear, he's a very smart beekeeper. Do you see how he can blow smoke at two hives at once?" said the big passerby to the little passerby.

Knowing I had an appreciative audience, I redoubled my smoker efforts, even dousing a bunch of departing bees in a puff of my special incense.

"Mom, why does the man blow smoke right up the nose of that other beekeeper?" wondered my admiring passersby to the other as I accidentally mistook Bobbalee for a stack of white boxes.

"Cough, cough," she said, "what are you doing?"

"Oh, sorry, dear. I thought you were the hive."

"Gimme that thing."

But in a minute or two, she sets it down and I pick it back up, always anxious to do my part.

BOTTOM BOARD