FEB 1996

BeeCulture

Bee Culture
THE MAGAZINE OF AMERICAN BEEKEEPING

FEBRUARY 1996 VOLUME 124 NUMBER 2

FEATURES

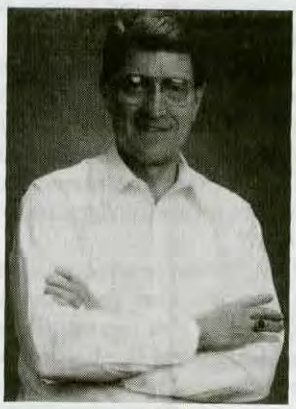
COVER
Herbs serve many purposes for bees, and beekeepers. Many are excellent sources of nectar and pollen, which will draw bees to your garden or yard – always a friendly sight and sound. But they're good to eat, good for flavorings, and good just to brush by and smell. Try some of these in your garden this year.
photo by Kim Flottum

DEPARTMENTS

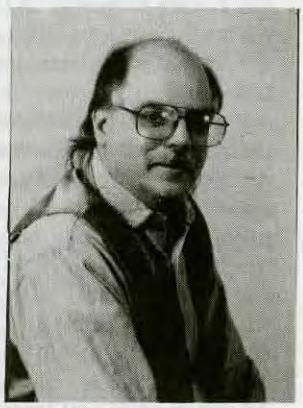
See our Valentines!

COLUMNS

Find out all about Beginner's Kits, pg. 89



JOHN ROOT
Publisher



KIM FLOTTUM
Editor

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INNER COVER

Those colonies you have that are alive this spring will need protection from mites – both kinds. Of course they also need enough food, room to expand and all the rest of those good management things you've read about in the books and magazines over the years. And requeening should be considered, too.

With healthy colonies, get grease patties on ASAP, or sooner. That's solid vegetable shortening and sugar – at a 2:1 ratio. Once on, leave it there until the honey flow starts. Actually since it's only grease and sugar, leave it on all season. You won't hurt your honey, and you'll offer good protection all season long.

The day you add patties, get Apistan strips in. And leave them in as long as the label says to. No less, and no longer. Use one strip for every five frames of bees, in each hive body. That may be four strips per colony, if your colony is big enough.

Make sure there's enough food, there's no other disease present (the patties may have TM if you suspect foulbrood, or use it for prevention), and certainly consider Fumidil-B for Nosema control.

Do all the reversing things necessary for swarm control, and do them on time. Check for queen cups and cells and watch for other swarming behaviors (see Roger Morse's article this month).

Spring management is a fundamental and critical aspect of colony care. Start the season right or you'll end the season beeless. There's thousands of beekeepers who know what I mean.

•

The National Honey Board was created by the U.S. Secretary of Agriculture to administer the Honey Research, Promotion and Consumer Information Order. The order, approved by a referendum of honey producers and importers in 1986, established a program for generic honey research, advertising and promotion. The program was continued by referendum in 1991.

Since February 1987, the Board's promotion programs have been funded by an assessment of one cent per pound on honey (domestic, imported or exported). Producers of less than 6,000 pounds of honey per year can file for an exemption from the assessment.

The National Honey Board consists of 13 elected members including producers, packers, and importers, as well as a representative of a cooperative honey marketing association and a representative of the general public. Board members and alternates represent the honey industry of the United States and Puerto Rico and serve without compensation for their time.

Board members are elected by a nominating committee, with one committee member from each state (43 are on now). Expenses are paid to attend the fall meeting in October each year where new members and alternates are nominated. State organizations can elect or appoint the nominating committee member. Each state must provide 2 selections, and the Secretary of Agriculture (the department) makes the final selection.

The assessment is paid by honey producers and importers at the rate of a penny per pound sold. The 'first handler' is charged with the responsibility of collecting and paying the assessment to the Board. If you sell your own honey out the back door you are 'first handler,' and are responsible for paying the assessment to the Board. All producers and importers are required to pay, but if the annual amount produced is 6,000 pounds or less, an exemption can be filed and the assessment waived.

If you file an exemption you must refile every year, you lose your voting privileges (for the upcoming referendum), and your name gets pulled from the mailing list. Paying the penny a pound assessment, or making a donation keeps you in the loop. I was told hundreds of small scale producers – in the 100 - 300 pound range – make a donation each year at or greater than their assessment.

For instance, if you produce and sell, say 300 pounds per year, that amounts to a $3.00 donation, and all the privileges (and responsibilities) that go with it.

Healthy Bees; The Honey Board

But no matter how much, or how little you sell (the key word here is sell), you are subject to the rules and regulations set out by the order.

The staff. The elected members of the Honey Board hire the Executive Director, who carries out the wishes of the Board. The Director, in turn, hires the staff. The Board sets the direction, the Director and staff do the work. Or, at least some of it, because the Board members do serve on committees. There are five – Advertising and Consumer Information; Product Research and Food Technology; Industry Relations; International Market Development; and the Executive Committee. The staff are paid salaries, have benefits and individual responsibilities and duties.

Next, I'd like to look at the things the National Honey Board and the Board's staff have done over the years to carry out the mandate of the Order. Then, once the basics have been established and the rules and regulations outlined, I'll look at some of the ideas expressed by those who would like to see changes in the Order, some major, some minor. Stay tuned.

Kim Flottum

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MAILBOX

In Response

The virtues of careful, comprehensive reading are the avoidance of missing what is there and not reading into a text what isn't. "I just love the new *Bee Culture*," Mr. Cyrus Hackenscmidt wrote (Mailbox, October, referring to an article of mine from the August '95 issue). But does he read it? Carefully?

By his statements, Mr. Hackenscmidt impugns the thousands of hobby beekeepers who find it neither necessary, desirable, or practical to have a separate building or even a separate room for each activity, who also do their extracting in the kitchen. Invariably, all tell of splats of wax that get onto the floor no matter how carefully it is lined with newspapers or sheathing paper beforehand. And yes, our wives are treasure, not harridans.

The first sentence of the third to last paragraph of my August article states: "While you're at it, iron away those drips and dribbles of wax still stuck to the floor from previous sessions [of extracting]."

Mr. Hackenscmidt would benefit by rereading the third paragraph under Cleaning the Microwave Oven. "Remelting containers of . . . wax with water . . . in them is normally not a problem . . . But one must remember to bore a half inch hole through the wax . . . because . . . steam pressure builds up . . . ." You missed that gem, Mr. Hackenscmidt. Like overlooking plugging in an appliance and then being surprised because power is missing.

I prefer not to store cappings, old combs, and grungy excluders until next summer's sun.

My article did not state that I clean my excluders in the kitchen. What it did say is ". . . this . . . method . . . lets you work indoors on a rainy day . . . [as at the end of the season]." Even I'm not so stupid as to work my bees when it rains. And on the [sunny] days when I do, everything for cleaning the excluders is set up in the garage or outdoors.

Readers with adult comprehension do not need to have the bracketed comments spelled out in detail.

We don't all live in a sunny clime, and we do want to return the excluder now, not after the queen has been laying in the honey supers all day. I do have extra excluders but for reasons of my own choose to clean and return the one already on the hive. For several years I had a solar wax melter. But they "don't work so good" on cloudy days, especially in late autumn. And being aware that not everyone has a solar wax melter I offered an alternative method of cleaning.

Obviously the editor thought the article merited publication. Thank you, Mr. Hackenscmidt, you made my day by reading it, although not carefully in your eagerness to pen your remarks implying I'm the only beekeeper in the world who's never even heard about solar wax melters.

As an example of egregious misreading, let's take Mr. Hackenscmidt's last sentence. "It will not only melt your wax while you are at work, but make your queen excluders like new and no beeswax on the kitchen floor!" Does this mean that if you're just relaxing, not away at work, the solar melter won't function, your excluders will remain grungy, and your floor a mess: Of course it doesn't, but it could be (mis) read that way.

And perhaps a book on geography, and a basic one on weather would help. By the end of the honey harvest in northern Vermont the sunshine isn't as plentiful as it is in Florida. I read carefully enough to note he kept bees in the Chicago area which does get cold, but then, I am also aware enough of weather patterns to know that the mere 23 west-east miles between the Champlain and Lamoille valleys is a difference of two weeks in spring's [late] arrival and summer's [early] departure from the latter. yet both are at the same latitude.

The bracketed words are for those who might get an inverse impression of seasonal changes.

I've avoided becoming a self-righteous fool by rereading, if/when/as necessary, to make sure I understand what the author said, not merely what I thought or hoped he said, or what I might at first blush have read into it. Or missed!

Remember this from some years back?

I believe
you think you know
and understand
what I said.
But,
I'm sure
you do not realize
that what you think I said
is not what I meant.

Sometimes I compare myself to Diogenes and his search for an honest man. Except that my search has been for a man, unlike myself, who never makes mistakes. I'm still searching.

L. Edwin Rybak
Morrisville, VT

Exhibit Needs Support

The Apiary Inspectors of America has become aware of a beekeeping exhibit that is being planned by the U.S. Department of Agriculture. The Bee Research Laboratory, headed by Dr. H. Shimanuki, is working with the Agricultural Research Service's (ARS) information staff to develop this exhibit for display at the ARS National Visitor's Center in Maryland. This bee exhibit is a "pilot test" to see whether user groups such as the beekeeping industry would show their support of bee research by contributing. The construction of this project is estimated to cost $3,000.

Continued on Next Page

MAILBOX

We feel this is a worthwhile project that should be supported by the beekeeping industry, and would like to urge individual beekeepers, local and state beekeeper associations to consider making a donation towards this worthwhile endeavor and show support of bee research by the ARS.

The USDA can not directly accept donations from the public. However, donations may be made to the Friends of Agricultural Research – Beltsville (FAR-B) that will funnel 100 percent of donated funds to specified projects. Donations should be earmarked for the bee exhibit – National Visitors Center, and should be made out and sent to FAR-B, c/o Mr. Bill Bailey, Treasurer, P.O. Box 1061, Beltsville, MD 20704-1061.

Robert L. Cox
President, AIA

Purple Loosestrife

In the article "Strictly Perennials" on pages 699-701 in your December issue I must take exception to the picture on page 701 captioned "common purple loosestrife." Whomever provided the photos for this article fell off the beehive on this one. Purple loosestrife is a noxious weed that grows in swampy areas and waterways, preferring wet feet and has a tall slender spike of definitely purple flowers. It is worse than cattails in creating congestion of waterways and will choke off the flow of water in a fairly short period of time. Beekeepers in the Eastern portion of Washington State fight over purple loosestrife for bee pasture as it produces a good nectar source after the thistle and sunflower is finished and provides winter stores. According to Frank C. Pellett in American Honey Plants loosestrife produces either a dark, strong, tobacco-flavored honey in New York State or a honey light in color and of good flavor in Massachusetts or William Sumnick in Orange and Ulster Counties of New York reports honey strong in taste that looks green in the comb. So it depends on who you talk to. Farmers here in Washington State look upon Purple Loosestrife as a serious problem that needs to be eradicated.

The picture itself is Mountain Fireweed which flourishes in clear cut logged areas, usually the second year after clear cutting, and continues until the other vegetation has re-grown and choked it out. The flowers are a lavender pink and turn hundreds of acres of logged off areas a lovely color. Fireweed produces a fine, light, mild-flavored honey and in years when the weather co-operates, a good flow in July and August producing surpluses in excess of 100 lbs. per colony. Beekeepers that have the capability of moving hives will move up in elevation to take advantage of the later bloom providing a larger surplus.

I find your magazine invaluable, keep up the good work. Now if the Post Office would take better care of my copy so it would arrive in better condition. It looks pretty shop worn by the time I receive it.

Jean Bassett
Everett, WA

Editor's Note: *Yes, you and several other sharp-eyed readers caught this. The wrong photo went to the printer and the error wasn't caught until too late. Thanks for the background on both plants. There is a variety of loosestrife that is sterile, however, and will not spread once planted. That plant was supposed to be in the photo.*

Swarm Treatments

I enjoy the *Bee Culture* very much and wish more beekeepers would subscribe to it. It would keep everyone so much more informed on what's going on in this crazy world of industry.

Last year I tried something different. After I caught each swarm and brought it home I installed one Apistan strip in the center of the hive. The results were very good, I lost none of the swarms and they seemed to build up much quicker. I even got some surplus honey off of the early swarms.

L.E. Spangler
Landrum, SC

Correction

Recently I have been receiving requests for our catalogs due to an article by Steve Taber stating that we have free honey plant catalogs to give away. This is not true. We are a small, family operated nursery specializing in seeds and plants for the honey producer plus

MAILBOX

a listing of exceptionally fine books available nowhere else. But our catalog is not free.

Thank you.

Garry De Young
Box 76 - Rt. 1
Stark, KS 66775-9727

Too Much Hops

I totally enjoy receiving *Bee Culture*, and when it arrives usually everything goes on hold until I have read it cover to cover.

As a hobby beekeeper, I have been into mead and beer making for several years to utilize some of my surplus honey. The article on Making Honey Beer in the November '95 issue was well done and should be of great use to anyone headed in that direction.

However, an apparent typo in the recipe for Carl's Crystal Honey Lager on page 640 will lead to disastrous results if followed directly; i.e., the second ingredient listed in the recipe calls for **3.5 lbs. Northern Brewers Hops (boiling).** This should probably read as **3.5 lbs. Honey** and 2 or 3 ounces of hops. Not only would the resultant drink be unfit for consumption, it would also be very expensive for 3.5 lbs. of hops. Please present this correction so that no one follows the mistaken recipe.

My personal favorite is Rocky Raccoon's Original Crystal Honey Lager recipe which I've adjusted to use 3 lbs. light dry malt and 3-1/2 lbs. honey. The Papazian book *New Complete Joy of Homebrewing* is an excellent resource, and one you might consider carrying with your bookstore.

Rick Frey
Kendalville, IN

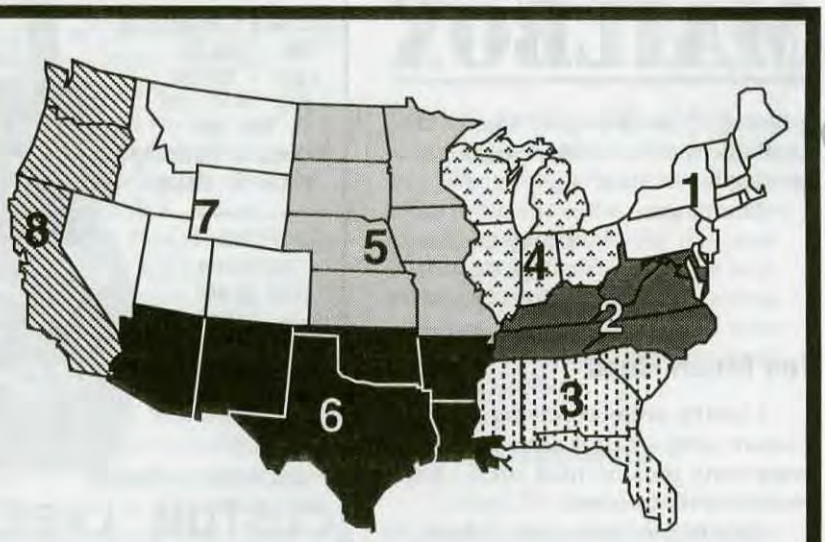
Editor's Note: *Good eyes, and thanks. The correct recipe for Carl's Crystal Honey Lager is below:*
3.5 lbs. extra light dried malt extract
3.5 lbs. clover honey
1 oz. Northern Brewer's hops (boiling)
1 oz. Hallertauer hops (finishing)
1 pkg. lager yeast
3/4 cup corn sugar (bottling)

FEBRUARY Honey Report

FEBRUARY 1, 1996

REPORT FEATURES

Prices shown are averages from many reporters living in a region, and reflect that region's general price structure. The Range Column lists highest and lowest prices received across all regions, from all reporters.



	Reporting Regions								Summary		History	
	1	2	3	4	5	6	7	8			Last	Last
Extracted honey sold bulk to Packers or Processors									Range	Avg.	Month	Yr.
Wholesale Bulk												
60# Light	49.58	51.00	49.50	48.90	46.05	42.40	50.00	42.75	36.00-69.00	47.98	47.90	41.95
60# Amber	48.18	46.67	57.60	48.50	46.27	40.15	47.50	39.53	34.00-58.00	45.61	47.46	39.89
55 gal. Light	0.68	0.67	0.73	0.78	0.78	0.55	0.68	0.68	0.52-1.01	0.67	0.69	0.57
55 gal. Amber	0.62	0.55	0.69	0.80	0.79	0.53	0.65	0.61	0.42-0.78	0.62	0.64	0.51
Wholesale - Case Lots												
1/2# 24's	21.41	23.18	20.00	22.97	22.62	22.38	25.50	24.00	19.75-25.00	22.50	23.75	22.59
1# 24's	32.31	34.90	16.20	35.25	33.84	38.18	32.10	33.84	16.20-37.90	32.57	33.26	30.61
2# 12's	31.57	32.93	30.40	32.75	30.60	35.81	34.50	29.04	28.50-33.80	30.89	30.22	28.81
12 oz. Plas. 24's	27.57	27.05	29.54	29.24	30.58	27.63	27.95	27.60	24.72-38.40	29.02	29.51	26.65
5# 6's	30.95	32.83	36.00	33.55	33.90	28.08	31.50	32.00	21.00-36.95	31.78	33.13	30.55
Retail Honey Prices												
1/2#	1.41	1.63	1.77	1.33	1.19	1.65	1.29	1.30	0.98-3.50	1.52	1.48	1.53
12 oz. Plastic	1.71	1.92	2.38	1.66	1.60	1.79	1.75	1.56	1.38-2.50	1.74	1.78	1.65
1 lb. Glass	2.01	2.18	2.57	1.98	1.86	2.14	1.95	1.88	1.19-2.75	2.00	2.05	1.87
2 lb. Glass	3.36	3.45	3.73	3.52	3.29	3.78	3.25	3.29	2.89-4.00	3.43	3.41	3.26
3 lb. Glass	4.35	4.91	5.25	5.00	4.24	4.11	4.50	4.64	3.50-5.80	4.59	4.64	4.35
4 lb. Glass	5.25	5.70	6.25	6.50	5.77	5.25	5.45	5.77	4.95-6.30	5.62	6.11	5.60
5 lb. Glass	6.08	7.37	7.00	6.10	4.10	6.11	6.95	6.77	5.50-9.75	7.08	7.28	6.94
1# Cream	2.59	3.49	3.02	2.01	2.24	2.86	2.75	2.54	1.58-3.95	2.57	2.52	2.35
1# Comb	3.42	3.23	3.50	3.50	2.50	4.39	4.50	2.99	1.95-5.00	3.35	3.47	3.23
Round Plastic	3.23	2.75	4.00	3.57	3.00	4.06	3.63	3.27	1.70-5.00	3.05	3.10	3.05
Wax (Light)	2.16	1.56	2.42	3.85	2.15	1.72	1.80	1.75	1.00-3.95	1.88	2.22	1.57
Wax (Dark)	1.75	1.39	1.78	3.00	1.94	1.35	1.75	1.53	0.75-3.25	1.54	1.90	1.30
Poll. Fee/Col.	27.05	24.00	19.50	32.50	37.00	15.50	35.00	33.00	10.00-55.00	30.25	31.27	30.00

MARKET SHARE

Beeswax imports totalled 222,000 pounds in September with a value of $294,000, or an average value of $1.32 per pound. Beeswax imports, year-to-date, totalled 2.12 million pounds, or an increase of 40% compared to last year. Imports are on the increase due to lower domestic production of honey and beeswax. In addition to increased imports of honey, China is the leading source of beeswax imports accounting for 35% of September imports and 27% year-to-date. Argentina, the world's 4th largest producer of honey, is the second largest source of beeswax.

Region 1

Bulk prices up, reflecting regional shortages and continued demand. Wholesale prices steady, but promose to increase, since all commodities running short. Colony conditions seem good now, but some fall losses were in the 75-90% range.

Region 2

Bulk prices still climbing, but wholesale yet to catch up. Demand steady to increasing slowly, but supply getting shorter. Prices will still climb. Colony conditions strong, if treated, but hot spots still exist. Early spring inspections will tell.

Region 3

Strong prices across the region both wholesale and retail, and only looking better. Demand increasing steadily, which, with decreasing stocks will move prices more. Colony conditions appear average, but a bit higher winter loss, already, showing up.

Region 4

Wholesale prices increasing, retail still steady. Demand only steady as prices rise, and may even be leveling off to dropping. Colony conditions seem O.K., but winter has been cold and snowy, and it's hard to tell. Check ASAP.

Region 5

Wholesale prices steady to increasing slowly, but demand only steady at increased prices. Shortages will help prices, but demand may continue to wobble. An iffy market to predict. Colony conditions mostly unknown as winter has been hard. Mites seem under control.

Region 6

Reported prices only steady, both wholesale and retail, but conventional wisdom indicates they are higher than earlier in the season. However, demand only steady to lower, so reports may be correct. Colony conditions appear O.K., but it's still early.

Region 7

Prices, and demand steady. But limited reports make prediction difficult. Colony conditions strong, but early spring inspections will tell.

Region 8

Wholesale prices continue to increase, as demand rises and supplies shrink. Product hard to find in some areas no matter the price. Colony conditions mostly strong and healthy, but the spring rush will tell.

Guest Editorial by David Eyre

Things We Will See

When I started to read the article, "Things I'll Never See" by Mark Winston, I was tempted to dismiss it as the scribbling of a grumpy old man – blinkered, possessing tunnel vision, stuck in the ways of his grandfather, unable to accept change and rejecting any innovation that came his way. To suggest that he would never see "A queen finder, a better queen and any major improvement in equipment" is, to say the least, short-sighted. Perhaps he's locked in his ivory tower with little contact with the outside world. No, that can't be it because he talks of driving to one of the apiaries with his students. Maybe there are other reasons for his rejection of possible change in the beekeeping industry.

Surely the human condition has always been adopt, adapt and improve on earlier technology; otherwise we wouldn't have the wheel and everything that came after it. Perhaps if ideas were encouraged and articles like his were not written, innovation in beekeeping might flourish.

I concede that a queen finder might be difficult with our present technology, but it could be possible in the future.

The next point I take exception to: "We won't produce a better queen." In Ontario we've already done it. Under the direction of Dr. Medhat Nasr and the Ontario Bee Breeders Association, we have a better queen – a tracheal mite-resistant queen. Over the past few years, a few bee breeders have been selecting and rejecting bee stock to produce and fix the tracheal mite-resistant genes without losing the other good points.

Our testing methods have a frame of emerging brood placed in a frame trap inside an incubator. When 80 bees have emerged, they are color tagged and introduced into a hive infested with tracheal mites. After seven days they are collected, counted, etc., then killed, and the tracheal mite slice is performed on each of them. After counting the tracheal mites, resistance can be quantified. Each beekeeper tests selected queens. The selection process is up to the individual, but obviously only the best are used as Dr. Nasr's program provides for the best hive and queen selection process. Also, as a group we exchange breeding stock, looking to improve our individual strains.

I am personally involved with this whole process and as a queen breeder I would like to reiterate. "My queens produce some of the nicest bees I have ever had the pleasure of working." All the features that I look for are evident – quiet, hard-working, hygienic, good foragers. Needless to say, this is an ongoing process, but with the constant removal of unsuitable queens, we are producing better and better stock every year. Do you still suggest that we won't have better queens? All we have to do now is persuade beekeepers to change to the new queens; most seem to think that chemicals are the only answer.

The final point of the professor's article was that he didn't expect to see any major improvements in beekeeping equipment. When Rev. Langstroth designed and patented his hive, I'm sure he didn't expect to be raised to a demigod. At the time, his hive was a magnificent achievement, but all things can be improved. In my opinion, there are some major flaws in Rev. Langstroth's design: It has no ventilation at all; it's a terrible source of propolis production, the wrong shape, and heavy. Should you even suggest that there are design flaws with his hive, then expect uproar. In some areas of beekeeping, to criticize Langstroth's hive is close to blasphemy.

A further point is that there is a major change in hive design available. It has been on the market for a number of years and is selling well in the province the professor lives in, British Columbia, and the U.S. Of course, with this sort of acceptance to new ideas, then it might be another 150 years before it is readily used. BC

David Eyre is the owner of The Beeworks, inventor of the D.E. hive and can be contacted by e-mail beeworks@muskoka.net or R.R. #2, Orillia, Ontario Canada L3V 6H2.

Roger Morse

Research Review

"Colonies that swarm do not produce maximum amounts of honey."

Swarming (colony division) in honey bees is caused by congestion in the brood nest. When a colony of honey bees swarms, 30 to 70 percent of the bees, and usually the old queen, leave the hive and establish a new home elsewhere. Beekeepers work to prevent swarming because a swarming colony produces little or no honey.

But honey production does not simply come to a halt the day the colony swarms. Rather, it begins to slow eight to 10 days earlier in response to several events. Some of these occurrences are easily seen, and others are subtle. They affect honey gathering as follows: The queen starts to lose weight so that on the day the colony swarms, she weighs only two-thirds the amount she does when she is laying at full capacity. She lays fewer eggs and this reduces the future population. A normal, laying queen with enlarged ovaries is too heavy to fly. At the same time, some worker bees begin to engorge so that nearly 80 percent of them are fully engorged at the time the swarm emerges from the hive. Bees need this extra food to aid them in flying to a new location and to sustain themselves during the first days of constructing their new home; engorged bees do not forage. Their wax glands start to develop so that most of the workers in a swarm carry large, laminated (made from several secretions) wax scales and are ready to build comb in the new home. Scout bees that would normally be looking for new sources of food turn their attention to finding a new home. Most important, the queen begins to deposit eggs in queen cups. All of these activities mean that storing honey slows and may even stop during this time.

A beekeeper who wants to maximize production must diagnose congestion early and take steps to relieve it. This is best done by watching the construction of queen cups and queen cells, which are easily seen. Queen cup construction is a "universal event in the developmental cycle of the honey bee colony."

Queen cups and cells

The best paper on the construction of queen cups and queen cells is that by M. Delia Allen written in 1965, which I review here. Her research was done in Scotland over a period of four years but the data are good anywhere in the northern or southern hemisphere.

Allen followed 81 colonies, about 20 each year. This is more than enough to make a good statistical study of the events that take place. All 81 colonies produced queen cups, though not all grew queens or swarmed. Allen reports that the number of queen cups a colony would build is variable. She found it ranged between four and 62 per colony. However, small colonies had fewer queen cups and larger colonies had more but the more populous colonies showed "considerable variation." More important, she writes that the number of cups "tended to fluctuate with the amount of brood during the season."

Allen reports that colonies destroy queen cups, which may be built into queen cells, in the fall. My former student Carol Huffman and I have data to show that a normal colony has no queen cups in the winter. No one knows how bees recognize queen cups or why they tear them down. It might seem that a queen cup built in one year would be good the next year but this is not the case. I say this because queen breeders know that honey bee colonies forced to grow queen cells will accept and use homemade beeswax or even plastic queen cups as readily as those they build themselves.

The further north one lives, the easier it is to diagnose swarming behavior and to know about when it may occur. Beekeepers who live in warm climates on or close to the equator soon learn that swarming may occur over a longer period of time. But the signs of congestion are the same everywhere.

Queen age, replacement and Drone brood

Although the effects of queen age were not the main thrust of this study Allen observed that "no colony with a queen of the current year produced queen cells." They did, however, produce some queen cups. Once again we see the virtue of having colonies headed by young queens.

The production of drone brood occurs much later in the spring than does the production of worker brood. Allen writes that the production of queen cups has "a timing similar to that of the drone brood cycle." However, measuring the quantity of drone brood in a colony is much more time-consuming than is checking for queen cups.

Conclusions

Colonies that swarm do not produce a maximum amount of honey. Preventing swarming is thus one of the most important aspects of honey production. While many events take place during the time when a colony is preparing to swarm counting queen cups is the easiest and fastest. Judg-

Continued on Next Page

RESEARCH ... Cont. From Pg. 83

ing when a colony will swarm, based on the appearance and number of queen cups, is not an exact science – it is also an art because the number of cups varies.

Where do you look for queen cups? It is not necessary to check every frame, or to take more than five seconds to determine the approximate number of queen cups present. At the time swarming occurs, and when it should be prevented, the colonies should be in two or three supers. The place to look for cups is between the supers – it is the place where there is room to build cups and cells. When a large number of cups are present it is time to reverse supers, exchange weak colony positions with strong ones, move frames of brood upward, add supers, or whatever your favorite swarm control manipulation might be.

How many cups are dangerous? This is where the artistry of beekeeping comes in. The answer is probably more than 10, certainly 30 is horrible. Unfortunately, different races of bees build different numbers of cells, some more and some less, which is another factor the beekeeper must know. BC

Roger Morse is Extension Specialist in Apiculture, Cornell University, Ithaca, New York.

References:

Allen, M.D. *The production of queen cups & queen cells in relation to the general development of honeybee colonies, & its connection with swarming and supersedure.* Journal of Apicultural Research 4: 121-141. 1965.

? DO YOU KNOW ?

Late Winter Management

Clarence Collison

In the north, beekeepers will soon be checking their colonies to see how successful they have been so far in wintering their colonies. In addition to evaluating their fall/winter management strategy, they will also begin making plans for the coming spring. How well do you understand bee biology during the winter and winter/spring management principles?

Please take a few minutes and answer the following questions to determine how well you understand these important topics.

The first 11 questions are true or false. Place a T in front of the statement if entirely true and F if any part of the statement is incorrect. (Each question is worth 1 point.)

1. ___ Daily food consumption of a colony in the winter is greatest during the broodless period.
2. ___ Dysentery is an infectious disease of adult honey bees that is commonly found in late winter/early spring.
3. ___ Chilled brood is found most often on the outer fringes of the brood nest.
4. ___ Pollen, like honey, must be available in adequate amounts and be readily available to a wintering colony.
5. ___ Colonies can raise queens in February in the northern regions of North America.
6. ___ At low temperatures, small winter clusters are more vulnerable to death than large clusters.
7. ___ In late winter/early spring, the majority of food stores should be located in the lower part of the hive.
8. ___ Clustered bees prefer dark-colored combs of honey over new white combs for wintering.
9. ___ Brood rearing begins in an overwintered colony before the workers begin to forage for nectar and pollen.
10. ___ When a beekeeper receives a package of bees, the workers and queen are normally related, originating from the same hive.
11. ___ A majority of worker honey bees in the winter have fully developed hypopharyngeal glands.

Multiple Choice Question (1 point).

12. A full-depth frame that is basically filled with honey will contain ___ pounds of food.
    - A) 3 to 4
    - B) 6 to 7
    - C) 4 to 5
    - D) 5 to 6
    - E) 2 to 3

13. What are the primary functions of honey bees in the center of the winter cluster compared to those on the cluster surface? (2 points)
14. Give two advantages of having an upper entrance for an overwintering colony. (2 points)
15. Name two recommended ways of treating colonies with Terramycin. (2 points)
16. What are the two basic questions asked when overwintered colonies are examined in late winter/early spring? (2 points)
17. Why is late winter/early spring the most critical time for wintered honey bee colonies? (1 point)
18. In the late winter/early spring inspection, what action should be taken if the winter cluster is found just below the inner or migratory cover? (1 point)
19. Please identify the three types of syrup feeders. (3 points)

A.

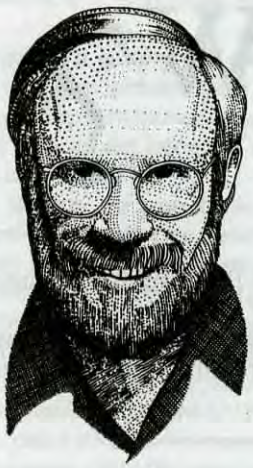
B.

C.

Answers on page 112

Mark Winston

Teaching



Phil was one of my first graduate students, but I was the one who ended up learning the most important lesson. I was really excited about Phil when I took him on as a student for a masters of science degree. He had good grades, was highly recommended by his undergraduate supervisors, seemed to be motivated, and had a great sense of humor. He was known for doing imitations, and was renowned for doing a great Elvis, although my personal favorite was Phil's imitation of a deer filling out a deposit slip at the bank, which was possibly the funniest thing I've ever seen.

Phil decided to do a research project on swarming, in which he intended to predict when colonies were going to swarm, catch the swarms, hive them, and finally evaluate how swarms of different sizes and types grew and survived. This work was right up my alley, as I considered myself a real expert on swarming, and I figured I could easily show Phil the ropes. I went out with him every day as the swarm season approached, telling him in excruciating detail what to do and how to do it, and dropping pearls of wisdom about the subtleties of swarming. The only thing was, Phil was getting nowhere in spite of my constant tutelage. I could almost see him shrinking before my eyes instead of blossoming, and he seemed to be getting denser and denser by the day. Swarming was one of my research loves, and Phil just wasn't getting it.

Finally, I came home one day after a particularly frustrating day with Phil and ranted and raved to my wife about what a nincompoop poor Phil was. She let me go on for awhile, then calmly interjected, "Why don't you just let him go in the field by himself?" I ranted on for a bit more, something about, "How can I let him go off by himself? He has no idea what he's doing; he'll totally destroy this important project; our research will go down the tubes; I'll never get tenure, . . ." Sue waited for me to finish this round of ranting, then said again, very emphatically, "Let Phil go off alone tomorrow."

Nothing else had worked, so I decided to let Phil go out to the apiary by himself the next day. I assumed he would goof up even worse, and I could tell my wife "I told you so." We were expecting our first swarm of the season to issue that day, and Phil's mouth dropped to the floor when I told him I couldn't make it and he would have to catch the swarm himself if it issued. That only took about a second, however, and Phil was out the door like a shot.

I waited impatiently all day to find out just how badly Phil had botched it up, and he finally returned just before I was ready to give up and go home. Of course, he hadn't goofed up at all; he returned carrying a swarm in a bag, grinning from ear to ear, and regaled the laboratory staff with his story of how he had bagged the swarm. More important to me, he suddenly glowed with confidence and enthusiasm, full of ideas about catching the next swarm, excited about his work. All it took was for me to leave him alone to find his own way of doing things, and to have enough confidence in Phil to let him make his own mistakes and learn from them. Phil went on to do an excellent master's degree, get a Ph.D. in plant ecology from Princeton University, and now has a good job investigating the impact of various forestry practices on aspen stands in northern Alberta, Canada.

I wonder how many Phils we have out there in the bee industry, students or employees who just don't seem to be going anywhere, an original thought rarely passing their lips, yet who act that way because we never give them the opportunity to shine. This is not just an egghead subject of concern to a few academics; most beekeepers often are in the position of having to teach, and we're all in the position of having to learn.

Think about field days you've attended, for example, where an especially pompous "senior beekeeper" is standing beside a hive with the lid open, expounding on his method of success. He probably does have something interesting to say, and because of his experience he should be leading the group's discussion, but step back from the crowd around the expounding beekeeper and look at the "students" around him. Most likely, you'll see fidgeting feet and

"Students (and employees) learn best by doing and observing others doing, and learn least when lectured to..."

wandering eyes, and not a whole lot being learned.

Now take the same field day with a group leader engaging the crowd in dialogue rather than monologue. Picture yourself in the group, having the opportunity to make comments, pose questions and contribute to the discussion. Picture our senior pompous beekeeper with the more humble attitude that he can learn as much from you as you can from him. Totally different field day, right? Now we have the excitement of ideas bouncing around, people thinking on their feet, an atmosphere where real learning can take place.

Or how about your beekeeping club's monthly meeting? Be honest, now. How often is the title of that night's talk really interesting, drawing you out to the meeting only to be disappointed by a droning lecturer who lays out the evening's program like you might set a table, with everything in the right place, but much too formal for a relaxing, engaging evening? Compare that to a speaker who asks you questions, who stimulates you to think for yourself rather than handing you the answers that work for him, but might not work so well for you.

The best teaching, about bees or anything else, is by example rather than by lecture. The old apprentice system had much to offer, and we still practice a form of that ancient teaching craft in our universities, through supervisors who are most effective when they act as mentors rather than as fountains of knowledge. I know I picked up innumerable habits from observing my own mentors at work, much more than from anything they told me directly, and any knowledgeable bee researcher can easily identify the influence of Charles Michener or Chip Taylor in my own work and that of my students.

The bee researchers and extension agents that serve the industry today received their training mostly by undergoing the elaborate rituals that make up graduate school. Naturally, some of this training came through course work, but most learning that takes place in school comes outside of the classroom, through interaction with other students and the professorial supervisor. Each of our laboratories is different, and each has a signature so characteristic that it is easily recognized in the research papers and other publications that are produced.

I can, for example, read a manuscript by any student of Gene Robinson's and recognize its laboratory of origin by the experimental design that is characteristic of Robinson's work. Similarly, I have no difficulty recognizing the signature of a Rob Page student by the focus on the genetic underpinnings to worker behavior, or a Tom Seeley publication by the von Frisch-like elegance of the work. The students of these and other mentors learned from them recurrent themes of interest, styles of writing and speaking, and a particular perspective on bees and bee research that they, in turn, propagate through their students.

The same signature can be seen among beekeeping lineages, either in families or through young beekeepers trained by more senior mentors. In my own province of British Columbia, I recognize the stamp of John Corner in many of today's practicing beekeepers who first learned beekeeping at John's feet, or the influence of a few older but progressive beekeepers who developed management systems that the younger beekeepers have emulated. These traditions of research perspectives or beekeeping dynasties represent the similar phenomenon of mentoring, one generation learning by watching how the previous generation acts, and then expanding on it.

I think back to Phil often as I encounter new students in courses and in my research laboratory, because I don't want to forget the lessons he taught me about teaching. Good teaching is not a complicated trade, but is based on a few simple ideas. Students learn best by doing and by observing others doing, and learn the least when lectured to or restricted from trying to do things themselves. As supervisors, mentors and bosses, we can best serve our own interests and those of our students by letting go, by providing them with an atmosphere for learning rather than by spoon-feeding them.

The hardest teaching is to let students go forward into what you know will be a mistake, but in the end will be a better learning experience than any pearl of wisdom you could provide. And often, you'll find that the mistake was yours, and your students or employees will succeed in ways you can't imagine by finding their own way of doing things.

I consider my finest teaching achievements to be when I was proven wrong by a student and, like Phil, these treasured moments only happen when you open the gate and let the pony run. BC

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BEGINNER'S KITS
And The Catalogs We Buy Them From

Richard Bonney

A beginner or aspiring beekeeper usually has many questions. For answers, we can tell them - go to a bee school, find a mentor or read a book - your questions will be answered. But bee schools aren't always available. It may not be possible to find a competent mentor. A book may answer the questions, but then again it may not. There are books and there are books, and a novice does not necessarily know how to find a good one.

Another source of information is the beekeeping equipment catalog. Beginners quite often depend heavily on catalogs for at least part of their answers. This may or may not be good, since all catalogs are not the same. All the catalogs we have examined offer a beginner's outfit. We can reasonably say from this that they cater to beginners. We should then expect some level of guidance to be inherent in such an offering. Some of these catalogs do a good job of that, others less so.

What is the background of beginner's outfits? Probably in years past some equipment supplier decided to offer such a kit, a move intended to increase business, since that's what catalogs and kits are all about. Other suppliers picked up on the idea, and competition stepped in. Now, all of the suppliers offer these outfits, and they have become somewhat standardized. Cost, of course, is a factor in competition. Keeping the cost low and competitive has resulted in some standard beginner outfits including items that may not be in the best interest of the buyer. The most common beginner outfits include a bottom board, telescoping outer cover, inner cover, one hive body with 10 frames, 10 sheets of foundation, a veil, a hive tool, a smoker, gloves, a Boardman (entrance) feeder, and a book. There are variations and the individual components can vary in design or construction. Sometimes a follow-on kit is offered also. Basically, this is a second hive body with frames and foundation.

Entrance feeders do not belong in a beginner's kit.

To illustrate why I believe that the standard beginner outfit is not necessarily in the best interest of the buyer, here is what I believe to be a proper beginner outfit. But first, underlying this are some assumptions.

Most (not all) U.S. and Canadian beekeepers use two deep hive bodies as their basic hive.

Most beginners get started in the spring, using package bees or a nucleus. In the spring the weather may be cold, or at least cool.

New colonies started from packages or nucs must be fed.

The feed should be available to the bees 24 hours per day.

Continuing from these assumptions, we can state some opinions. Boardman (entrance) feeders, by their nature, are not good for spring feeding. Because they are outside the hive they do not make feed available 24 hours per day. At night especially, and often during the day, in the spring it is too cold for the bees to break cluster and go outside to the feeder. For these new colonies a feeder should be internal. I like to use one or more gallon jugs over the center hole of the inner cover and contained within an otherwise empty hive body. The cluster can (almost always) extend itself to the feeder. Later, when it is time to use that hive body as the second story of the hive, it is probably warm enough for a Boardman feeder at the entrance. Other types of internal feeders and top feeders are available as well – the division board feeder, for one.

Another complaint against the entrance feeder is that it is too small. It accommodates, at best, a five pound honey jar – less than half a gallon. Feeding bees should be done massively. Gallons. Small feeders should be avoided.

Another assumption is that anyone starting with bees is in it for the long term. They want long-lasting equipment. In this respect, an

....nor do Alexander veils

Alexander veil is questionable. It has a cloth top and is not worn with a helmet. It is not a substantial veil. The elastic head band that holds it in place stretches and wears, and the veil itself does not hold its shape well. It is good as a spare or for an emergency, but a conventional round or square veil on a helmet is much better for regular use.

A backyard beekeeper is best

Continued on Next Page

STARTER KIT COMPARISON

Company	Frame Style	Foun. Style	Inner/Outer Covers	Nails Inc.	Pins Incl.	Feeder Incl.	Veil Incl.	Helmet Incl.	Glove Style
Betterbee	wt/?	cw	yes	no	no	none - gal jar recommend	Alexander	no*	not included
Brushy Mtn	wt/db	8.5" cw	yes	yes	yes	internal	round	yes	canvas
Dadant	wt/gb	Duraglt	yes	yes	no*	entrance	round	no	not identified
Glorybee	?	?	migratory	yes	no	internal	square	yes	leather
Jones	?/gb	cw	no inner	yes	no	internal	square	yes	not identified
Kelley	wt/db	cw	plastic out wood inner	yes	yes	entrance	round	no	canvas
Lapp's	?/gb	Duragilt	yes	no	no*	entrance	Alexander	no*	canvas
Mann Lake	?	Perm'dt	yes	yes	no*	entrance	Alexander	no*	canvas
Rossman	wt/gb	8.5" cw	yes	yes	yes	entrance	round	no	canvas

Notes: Frames:
wt = wedge top bar
db = divided bottom bar
gb = grooved bottom bar
? = not indicated in catalog

Foundation
cw = crimp wired with plastic based foundation

Pins:
no = not required*

Helmet:
no = not required with Alexander veils*

served by using an inner cover and a telescoping outer cover rather than a migratory cover or an outer cover alone. A migratory cover is less weather-tight, and an outer cover alone can be difficult to open quietly and easily.

Frames and foundation must match. Some foundation does not fit properly in some frames. Beginner outfit descriptions should spell out *specifically* what design of frames are included – slotted or wedge tops, grooved or split bottoms – and what type of foundation is included – crimp wired, with hooks, without hooks, Duragilt, or whatever. Is the combination offered what you really want? Or need?

Nails, and support pins when appropriate, should always be included. Bee hives have some specific requirements for fastening, and nails that are too long or too heavy can cause problems, some subtle, some obvious. Hive bodies are best fastened with box nails, preferably galvanized or coated. Frames are best fastened with slender 1-1/4 inch nails, sometimes called berry box nails. Frame wedges call for 5/8 or 3/4 inch lengths. Bottom boards and covers have their own requirements, each depending on specific construction. These nail requirements are not necessarily obvious to a novice, and further, the particular sizes are not always available at hardware outlets.

Crimp wired foundation should be fastened to the end bars of the frame, either with cross wires through the frame or with support pins. I believe that the pins are more than adequate for a backyard operation. If someone were to move hives frequently, as in a migratory operation, then there is a case for cross wiring, but most of us don't have that need. Support pins do not add strength to the foundation. Their purpose is to keep the foundation vertically straight until the bees have drawn the comb. The vertical wires that come embedded in the foundation provide strength and prevent sag. Four pins per frame are adequate for this purpose, two in the center holes of each end bar.

I do not usually wear gloves when working bees. Although I encourage others not to wear gloves, I do not try to discourage anyone from wearing them if this allows the person to be comfortable and relaxed when working the bees. However, I believe that the gloves insulate and isolate the beekeeper from the bees in a negative way, both physically and psychologically. A bare handed beekeeper is more attuned to activities and life in the hive, and works more carefully as well.

I do own gloves, and there are those instances when they are necessary. My gloves are leather. They are reasonably thin and flexible but do offer good protection when I need it. I have used canvas gloves. I find them to be thick, stiff, and clunky. I don't like them, even for intermittent use. In spite of what I say about isolation from the bees, I encourage beginners to wear gloves during their learning period at least.

Standard hive tool length has largely been accepted as 10 inches. This is a good size in terms of grip

The Players

Betterbee, Inc.
RR 4 Box 4070
Greenwich, NY 12834
800-632-3379

Brushy Mountain Bee Farm
610 Bethany Church Rd.
Moravian Falls, NC 28654
800-233-7929

Dadant & Sons Inc.
51 South 2nd St.
Hamilton, IL 62341-1399
800-637-7468

Glorybee
P. O. Box 2744
Eugene, OR 97402
800-GLORYBE

F. W. Jones & Sons
44 Dutch St
Bedford, Quebec Canada
JOJ 1A0
514-248-3323

Walter Kelley Co.
P. O. Box 240
Clarkson, KY 42726-0240
800-233-2899

Lapp's
P. O. Box 460
Reeseville, WI 53579
800-321-1960

Mann Lake Ltd.
County Road 40 & First St.
Hackensack, MN 56452
800-233-6663

Miller Wood Products
P. O. Box 2414
White City, OR 97503-0414
800-827-9266

Rossman Apiaries Inc.
P. O. Box 905
Moultrie, GA 31776-0905
800-333-7677

Bee Culture *and the author thank the cooperation of each of these companies. You may reach them at these addresses if you have further questions, or orders.*

and utilization. There seems to be no reason why a beginner would want anything smaller, although a smaller one is included by at least one source.

Books are problematical. Two immediate problems are timeliness and scope. A beginner book must reflect current information. Further, it should not present information extraneous to a beginner's needs. Catalog producers should review their book offerings regularly and provide only the best in a beginner outfit. The books provided by A. I. Root and The Kelley Co. do a good job. They are the most up to date.

With all of the foregoing as background, here is what I think a beginner's outfit should include:

A standard *two story* wooden hive – bottom board with entrance reducer, two full depth hive bodies, 20 frames, 20 sheets of foundation, an inner cover and a telescoping outer cover. The frames may be of any standard style and the foundation should match that style, and the catalog description should spell these out. Full instructions are a must, and nails, and when appropriate, support pins, should be included, plus . . .

- A standard 10 inch hive tool
- A smoker - large, not small
- A helmet and a round or square veil
- Gloves, good ones
- A well chosen book
- A subscription to *Bee Culture*

Individuals, based on their level of knowledge, may choose to add other components. However, these additions should be chosen only with a thorough understanding of their purpose and with sure knowledge of need.

Now that we have a frame of reference, let's look specifically at the various catalog offerings. Last month we listed ten suppliers of beekeeping equipment, and talked a little about the nature of their wares and costs. How well do these suppliers meet the needs of a beginner? Of the ten sources we used, nine offer a catalog. The tenth, Miller, offers a price list only, in keeping with their desire to sell only palletized orders to larger operators or dealers. Presumably, such customers know precisely what they want and a list of items, quantities, and prices is sufficient. We will deal here only with the other nine.

The nine sources have catalogs of varying detail, some giving bare bones descriptions while others are mini-manuals. All nine offer beginner outfits; sometimes termed starter hives, so all nine cater to beginners.

"Beekeeping is a long term commitment, and a proper beginning is vital."

With this in mind, we should expect a certain level of clarity and accuracy, and some explanation. These were not always present. Furthermore, the descriptive information in a catalog often reflects beliefs of one individual. Consider the diversity of beliefs among beekeepers and read such descriptions critically. They are sometimes biased, sometimes questionable.

As a starting place, all nine sources offer only one hive body in their starter kit, and everyone offers at least an adequate hive tool and a smoker. Beyond this, as may be seen in the Table, variations abound.

Obviously, when starting a new endeavor such as beekeeping, or when expanding on an earlier start, cost is important. However, it should not be *all important*. Beekeeping is a long term commitment, and a proper beginning is vital. Work out what your direction and goals are to be then take each subsequent step with these goals in mind.

Most beekeepers have at least one, and usually two or three of the available catalogs. You should, too. Study and compare. Buy what you determine is best for you.

It may very well be that your best starter kit is one that you design yourself. It may cost a few dollars more but it will pay off later as your journey proceeds more smoothly.BC

Richard Bonney is Extension Entomologist in Beekeeping for the state of Massachusetts. He is a regular contributor to these pages.

MOVE NORTH

PRODUCING NORTHERN QUEENS AND BEES

Kirk Webster

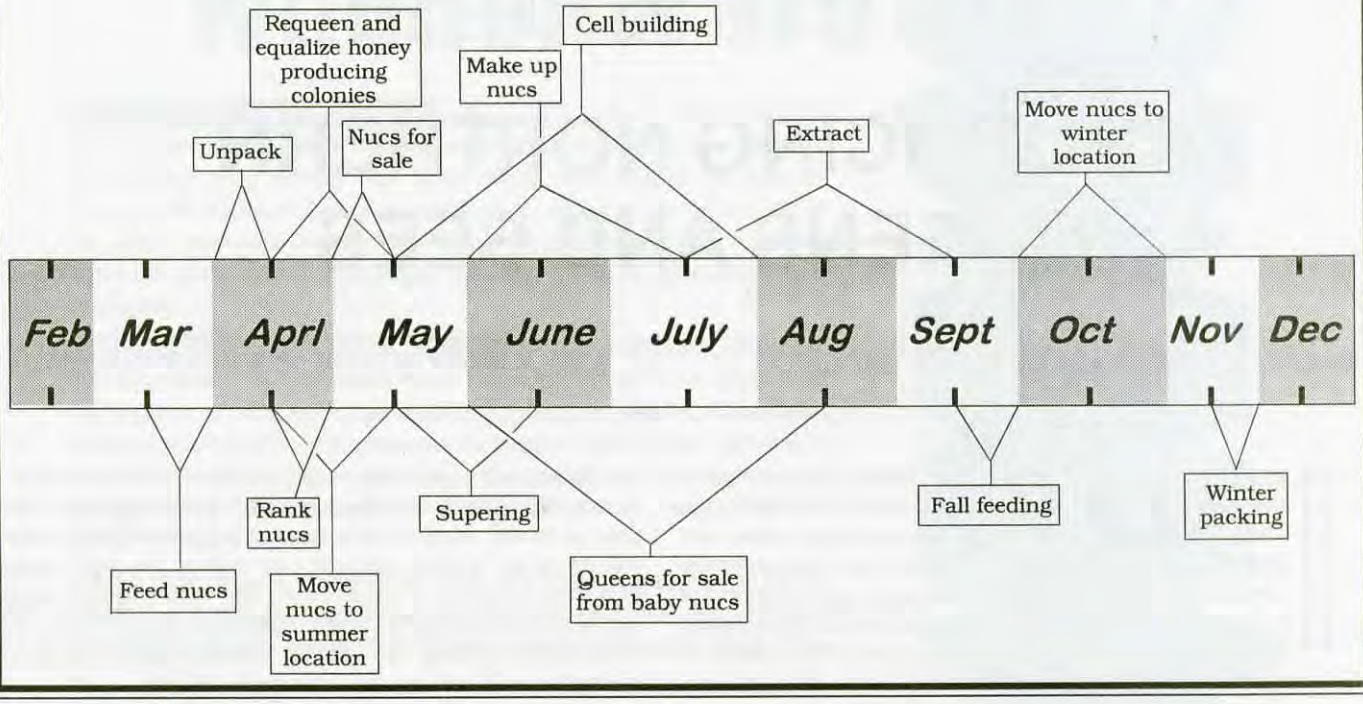
I'm not going to argue with Roger Morse or others about the economics of moving bees from North to South for the winter. With relatively cheap transportation costs, the added winter stress of parasitic mites, and the enormous advantages of late-winter splitting and queen rearing, it makes a lot of sense for many commercial beekeepers. But there are some of us who, out of either choice or necessity, are going to stay year-round in the northern states. This is what I do, and so far at least, I have not had too much difficulty maintaining and increasing my numbers with my own bees and queens, while producing a honey crop at the same time. In fact, my most rapid expansion occurred during the worst period of tracheal mite damage. I went from 100 standard colonies in 1988 to 300 standard colonies and 550 overwintering nucs in 1992. I have been selling both bees and honey since then, and last season (1995) I began selling some queens through the summer. During this time the bees received no treatments for tracheal mites, with the exception of one disastrous experiment with menthol early on. Rather, I have relied entirely on selection and propagating nucs since then. It is still unclear what the full impact of *Varroa* mites will be on my system, since it was only in the past season that they spread through all of my bee yards. At this stage I am, of course, compelled to use Apistan to control them. The future looks exciting for selecting *Varroa* resistance with my methods and locations, but only time will tell.

Selection has helped me to overcome the problems associated with tracheal mites, but the real key was the practice of making up nucleus colonies in June and July, and keeping them over the first winter on either four or eight combs. Nucs made up this way do not experience the full impact of tracheal mites the first winter. I didn't know this until I had some years of experience with those mites, and it was a stroke of luck that I was already working hard on a system using these nucs when tracheal mites arrived. I survived tracheal mites and expanded my apiary without buying bees or queens, by keeping large numbers of four- and eight-frame

Full sized colonies with nucs above - just coming out of winter

Two 4-frame nucs in hive body with feeder dividing the box

Webster's timeline for raising queens and bees in the North. This program overwinters queens and has them ready to sell, or use by mid-April - from Vermont.

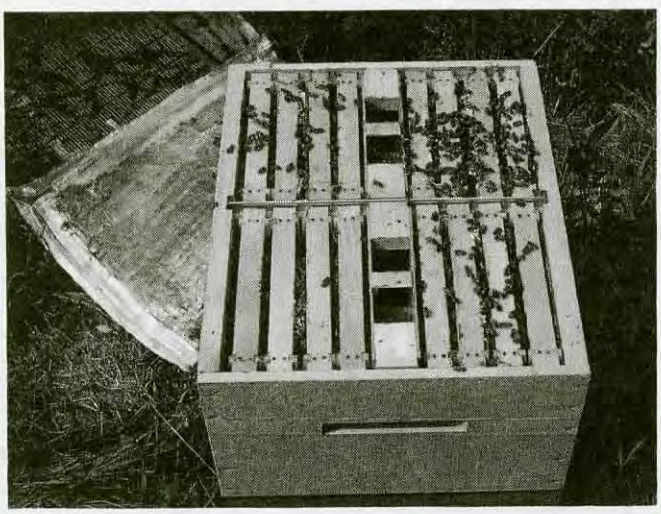


NORTH... Cont. from pg. 93.

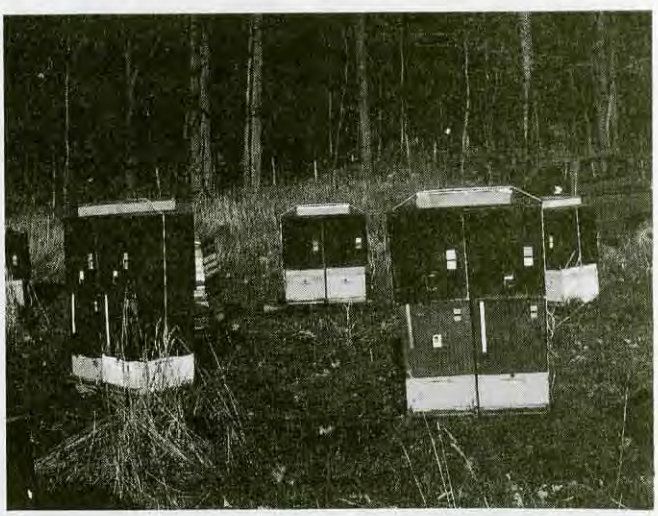
nucs through the winter.

My original intention, 12 years ago, was to have a northern apiary producing queen bees only. For my original mating nucs, I used hive bodies divided in half with a feeder, and four standard frames on each side. These were too expensive and clumsy for catching queens efficiently, but I discovered they could easily overwinter on top of full-sized colonies. This same setup, with special short

The baby nucs with feeders in standard hive body.



The season complete, new nucs on top of full size nucs, packed for winter.



bottom boards, is what I now use for all the nucs I produce. They are made up each week throughout June and the first half of July by taking one frame of brood covered with bees, one frame of honey covered with bees, one empty comb and a frame of foundation. A queen cell or a mated queen from the baby nucs is added one or two days later. In a normal year, the earliest batches of nucs will plug out in August. I lose a few from absconding if the weather is very hot at that time, but so far not an alarming percentage. The best nucs in spring are the ones filled right to the corners the fall before.

I have locations devoted entirely to these nucs through the spring and summer. During the fall, after any necessary feeding, I move them into the honey-producing yards, where they spend the winter on top of standard colonies. The "stacks" are insulated with styrofoam on top and waxed cardboard packing cases. In spring, the nucs can be "harvested" from each yard for sale, or left where they are to replace winter loss or establish two-queen colonies. Even in the years when 50 percent of the full-sized colonies were destroyed by tracheal mites, it was pretty exciting to rebuild the yards with my own bees, and still have some left for establishing new yards or for feeding.

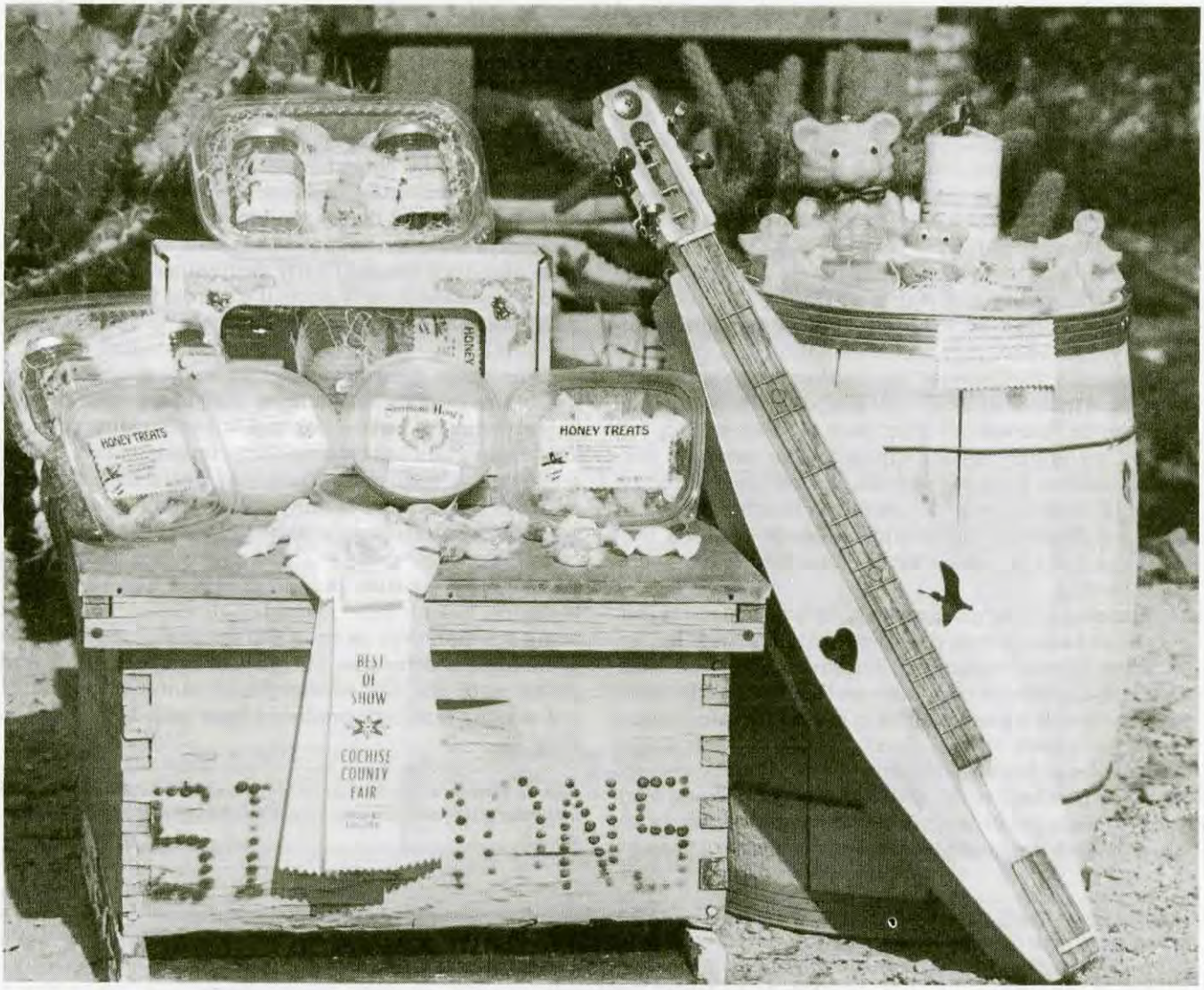
I gave up selling queens when the tracheal mites first arrived and concentrated on producing nucs and honey. Once I had a good system for this purpose, I started building special frames for baby nucs, so that I could efficiently produce at least a small number of queens for sale. I waited for years to start on this - until I was sure what size of frame and nuc box would be best for me. I finally decided on a standard hive body, divided by partitions and feeders into four separate nucs. The combs are thus full depth, but only half length. Even smaller combs are faster for catching queens, but with the size I am using, the nucs can be maintained year-round here in Vermont. I consider this to be an enormous advantage. So far, they have overwintered just as well as my standard frame nucs. They have enough room for honey storage and require very little feeding.

Right now I am only selling queens from June through early August (the optimum time for making up nucleus colonies to overwinter), and I use the overwintered queens for requeening my honey producing colonies. With this equipment however, the potential exists for selling queens from mid-April through early September. During those cold, rainy days in early April, it's a great feeling to know that your mating yard is already made up and functioning with laying queens and brood in all stages.

The other great advantage to keeping queens over the winter in nucs (of whatever size) is the opportunity to test them. Except for tracheal mite resistance, almost all the important beekeeping characteristics can be evaluated in these small units. The full potential of this kind of a beekeeping system is only realized when it's used for selecting successive generations of breeding stock.

I need a few more years of experience with *Varroa* mites to say for sure, but at this point I don't see any biological reason preventing the northern states from being self-sufficient in bees and queens if need be. The economics is debatable, but Africanized bees, increased postal rates and the advantages of winter-tested stock are making northern-produced bees look better all the time. BC

Kirk Webster is a commercial honey, queen and bee producer from Middlebury, Vermont. He comes from a rich and diverse beekeeping background.



SIMMONS HONEY RANCHITO

Bessie Mathewson

"Cochise County, Arizona, is a *huge* area to cover for a small beekeeper, probably much bigger than most in the East would like to cover," Ray Simmons said as we settled into his beeswax-scented kitchen. His three younger children sprawled comfortably on the couch, watching "So Dear To My Heart" on the VCR as we talked. His wife, Kerry, was away teaching their first-grade daughter, Elizabeth, and her cousin, Titus. "There are only four major economic centers for my business here in the land of Cochise," he continued. "There are the Douglas, Sierra Vista, Benson and Willcox areas. Douglas, Sierra Vista and Willcox are the best areas for my business."

The Simmons Honey Ranchito, run almost entirely by Ray and Kerry, may be small, but the selections you can find at the Ranchito are extremely diverse. "We've only been in the beekeeping business for five years, but one of the things I've learned is that some products succeed, some don't. We don't have a computer running our operation, but we have such a small inventory line that it's easy to know what's moving and what's not. Our best movers are the quart jars of honey and the one-pound creamed honey containers of catclaw and mesquite."

Five years ago, when Ray Simmons decided to go into the bee business, he had three yards of about 10 hives each, and homemade labels on his containers. From those humble beginnings, he moved up rapidly until he had 400 hives in several yards spread out over Cochise County. After the Rattlesnake fire in the Chiricahua Mountains last year, however, his two yards closest to them were destroyed by bears. From there he's scaled down greatly, running only 150 hives now, in eight yards. But business hasn't dropped much. People in the county know where they can get the best unprocessed honey around!

A friend custom makes computer labels to replace the homemade labels that first graced the Simmons' honey jars.

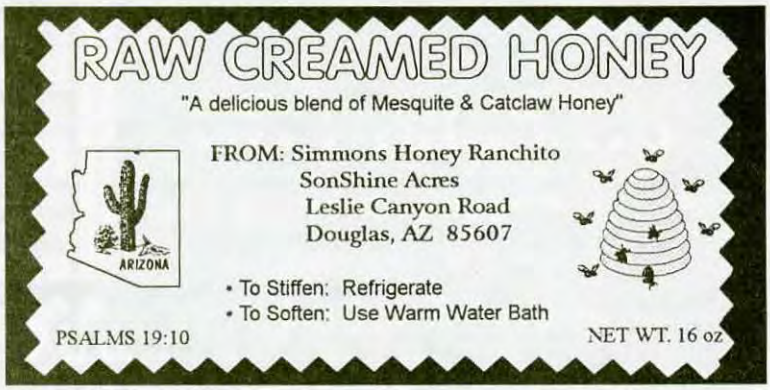
"We try to package our products in a nice display," Ray explained. "The display, in marketing the honey, makes a big difference. I try to stress that with my accounts. Some of them want to keep just a little bit on the shelf. Well, if they keep a little bit, they'll sell a little bit." Gift packages, containing a selection of several of their honey, beeswax and honey candy products, are also available at the Ranchito. "People like to see a variety. A diverse display catches their attention and gives them something to choose from.

"I want to keep my business self-run and not have somebody else dictating how I should do it," Ray went on. "I don't want that pressure, forcing me to make decisions." He deals with 35 retail outlets and four direct outlets. Many of the retailers are "mom and pop" stores in tourist towns.

The Simmons' direct outlets are the chambers of commerce in Douglas and Willcox, the Wildwood Gallery in Willcox, where they rent a mini-mall space, and the McClain's co-op in Douglas. The Wildwood Gallery is their best market.

"Cochise county has a large tourist market, causing a lot of businesses to try to get too much money for their products," he continued. "The thing is, the tourist season lasts for only a few months out of the year. What is the business going to do the rest of the year? It has to bring in local and regular customers to buy the honey. But when the honey is marked up that high, local customers would rather go somewhere else to get it. Those businesses are chasing the local clientele right out the door. The locals are our biggest market; they're the ones we need to cater to."

And cater to them he does! With customers from all over, including different states such as California



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Everybody helps at Simmons' Ranchito, even Sarah, Ray's "smallest" honey.

Ray Simmons, outside his honey shed. The "Pita Por Miel" sign is for his Hispanic customers, and means "Honk for Honey."

Simmons... Cont. from pg. 97

and New York, Ray has learned a lot about the words "customer service." Known around the county as the "Honey Man," he travels to most of the festivals and fairs held by various organizations and cities.

The biggest is the county fair, held on the third weekend of September every year. The whole family goes along for the fun. Six-year-old Elizabeth is a help to her mom, who, with Deborah, four, Sarah, two and 15-month-old Jeremy to watch after, needs all the help she can get.

Other festivals Ray attends include the Willcox Apple Fest, Family Fun Fest in Fort Huachuca, Elfrida Harvest Fest, Patagonia Fall Festival, and others. Ray sees the fairs as a great way to keep personal contact with his regular customers. "Eighty percent of my customers call me (personally) because they want my honey. My honey is pure, raw and unprocessed. I don't blend my honey, so it's about 12 percent moisture, which is pretty low."

Among Ray's biggest attractions, especially at fairs, are "honeysticks." "It took about six months for them to take off, but now they're a real mover," he said. "Even the adults like them, though they won't admit it."

There is also a great demand for the pollen stocked on their shelves. "Pollen is good as a health supplement, so we've gotten orders for it from as far away as New York," Ray went on as he peeled a banana for Deborah. "Our pollen is collected in areas where there are no pesticides sprayed. There's very little agriculture here, so it's guaranteed that there is no spray residue on the pollen. You could pretty much call this high desert pollen." The other children walked over to us to get their share of the banana, Jeremy slowly making his way by grabbing the furniture for support.

Every once in awhile, Ray has done beekeeping demonstrations for various schools and libraries. Usually the mothers will come along with their kids, so he covers a wide audience. He brings along honeysticks to delight the children, and the newest addition to the repertoire, his homemade dulcimers, to entertain the parents.

Ray started making the old-fashioned instruments two year ago when he created one as a present to his wife for her birthday. "I had so much fun," he said, "that I decided to make another one!" Soon, he was making them to sell. In 1994 he sold two. Last year, he sold 25. "They're real attention-getters at the fairs," he said. People come up to the stand saying, "How do you play that *guitar thing*?" Ray then lays the flat, wooden instrument across his lap and strums out a tune for them.

The Simmons also sell a wide variety of candles and beeswax creations. Their most popular style is the rolled candle. Most of the beeswax ornaments and candles are more popular during the holiday season. A new product they sell is beeswax refrigerator magnets.

When asked whether or not he has made any major mistakes in his business, Ray answered, "I can't think of any major financial blunders we've had. That's one of the beauties of staying small!" he laughed.

The Simmons are very busy with the fairs, bee yards, honey processing, serving their outlets, and other activities they participate in in their community and their church. "As a Christian, I want God to direct my paths," he said. "I believe God's blessed the honey business, and met my financial needs. I don't want to get too busy to give time to anything else. I want to keep my family first.

"I believe it's God's will for me to be in the honey business right now," he continued. The customers that prefer Simmons' honey to others probably agree. BC

Bessie Mathewson is a free-lance writer living in Douglas, Arizona.

If you ever want to contact Ray, you can drop him a postcard at Sonshine Acres, RR 1 Box 232-M, Douglas, Arizona 85607. He'd be happy to hear from you.

How To Handle COLD LATE SPRINGS

Linda Batt

Last spring we moved beds, sofas and beehives from Connecticut to upstate New York. We're now so far upstate that if we went any farther north, we would be in Canada. The winters here are rumored to be cold and long. Adjusting to the new climate might be a challenge for the bees and me, I thought.

"What can we do for our much-loved little insects if spring comes late and is cold?" I asked my Connecticut contact and several North Country beekeepers. The advice was so practical that I decided to pass along their suggestions.

Mark Berninghausen, a New York state bee inspector, and Steve Fenton, a keeper with 50 colonies, both live close by and have wintered bees and nursed hives through long, cold springs. "Bees don't die from the cold," they both told me. "They die from starvation and poor ventilation."

Ed Weiss, Connecticut beekeeper and author of *The Queen and I*, explained winter feeding patterns so I could understand the spring starvation problem. Bees born in September are the only ones to winter over. They live longer than bees live during the gathering season.

"They don't have to forage. They only sustain the hive," Weiss told me. "They have nothing to do but eat, shiver and make heat."

The bees cluster to keep warm. "There's a two-inch layer of insulating bees around the queen. The bees rotate places in the insulating pattern and bring honey in with them," Weiss explained.

In late January, the queen begins laying eggs again, and the colony suddenly needs increased pollen and honey stores. By February, up to three times the stores used in November and December are being consumed. Pollen is capped over in cells above the cluster and provides protein. Stored honey gives the bees carbohydrate energy. To rear new bees for the upcoming summer work season, bees in the hive need both protein and carbohydrates. During cold, late springs, the bees eat their stores and can't find food outside the hive.

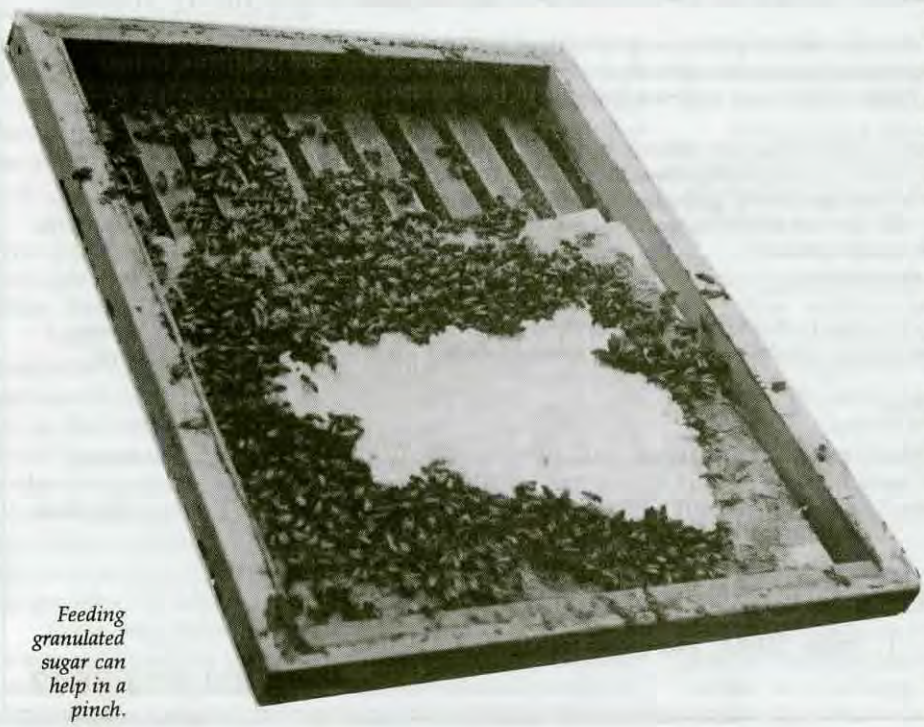
All three keepers said they check on stores in the spring. Mark Berninghausen first picks up the hives by the handholds and makes an assessment according to weight. A light hive means the stores are dangerously low. Ed Weiss selects a warm, windless day with temperatures in the upper 50s, if there is such a day, and takes off the outer and inner cover. "I look down. If I don't see cappings, I know I have a food problem," said Weiss.

Steve Fenton warned that North Country springs can be so cold that I shouldn't open a hive. "I don't want to chill the bees," he said. "I don't disturb the hives until a warm day in April." He tries to address the problem in advance by taking off less honey and leaving his bees plenty of their own stores. "I leave them two deeps and feed them heavily in the fall," he said. But he still worries about food stores if spring is late and cold.

All three keepers fed granulated sugar as emergency rations when nature didn't supply pollen and nectar and temperatures were so low that other feeding was out of the question.

In April of '94, there was still deep snow on the ground where Fenton had his hives. "I couldn't get my truck to my hives. I carried in granulated sugar and sprinkled it on the inner covers," he said.

Ed Weiss also sprinkles granulated sugar on the top of the inner covers of his hives. "Put the flat side of the inner cover down. That makes a place to sprinkle sugar and gives insulating air space between the inner and outer covers," he advises. "If



Feeding granulated sugar can help in a pinch.

I see the sugar disappear, I know there's a food problem," he said.

Mark Berninghausen feeds more granulated sugar than Weiss or Fenton. After heavy losses, he winters his 200 hives in South Carolina. "I rip old supers and make 1-1/2 inch rims," he said. This rim is placed over the top frames. A piece of newspaper is put at the bottom of the rim and folded up around the edges. "I put five pounds of granulated sugar per hive on top of the paper. The bees eat through the newspaper to get to the sugar," he said.

Bees must reconstitute granulated sugar with water, but all three keepers felt their bees had no trouble finding the needed moisture.

If the spring was late and stores low, all three said they would consider feeding their hives even as the weather warmed and bees began to fly. Now they suggested I should feed syrup made from granulated sugar and water. The spring syrup should be a one-to-one solution by weight which means five pounds of sugar mixed with two quarts and one pint of water. "Don't boil the water or add the sugar to water on the stove," Weiss cautioned. Burned or caramelized sugar makes bees sick. I should add my sugar to heated water and stir it to mix.

These beekeepers used a variety of feeders but easiest for me to obtain turned out to be one suggested by Berninghausen. "Ask the local restaurant to save one-gallon jars for you," he said. "Poke six or seven holes in the top of each jar with a threepenny nail." I should take out the cardboard liners in the lids because they will clog up with solution. When my feeders are filled and ready, I should invert them and place one lid side down on the top frames of each of my hives. The bees will suck out the syrup. The jars need to be covered with an empty deep super.

Ed Weiss, unlike either of the two other keepers, also feeds pollen patties to help strengthen his hives in the spring. He makes the pollen patties from a pollen substitute along with whey, sugar and water. The ingredients can be purchased from a number of distributors.

"I combine a bag of whey (1/2 lb.) and a bag of pollen substitute (1-1/2 lb). Then I mix in 21 ounces of water. I work it together until it's the consistency of caulking compound," he says. Then Weiss pours in 2-3/4 pounds of granulated white sugar and kneads it smooth. When it's smooth he rolls it out between sheets of wax paper. "The wax paper I use is 12 inches wide. I tear off pieces 36 to 40 inches long and roll my mixture between the sheets until it's about 1/4-inch thick," he explains. "I put one patty on the top frames of each hive. Bees never seem to have enough pollen stored," he said.

Sugar syrup, fed in jars works well for spring feeding.

My mentors also told me that feeding my hives would prevent starvation, but if my food supplements were to benefit my bees alone, I had to watch for robbers. During a late, cold spring, not just my bees but all bees would be hungry and unable to forage. Strangers might invade. I learned that sugar and sugar syrup were less likely to attract robbers than feeding honey, and there were precautions I could take to prevent theft. I should be careful not to spill the sugar or the sugar solution outside the hive. I should watch my hive activity every day. I could spot robber bees full of food leaving the hive because they would climb up the face of the hive, a behavior pattern not used by foraging bees, to get extra

Continued on Next Page

Ed and Nita Weiss run a bee supply company in Wilton, CT.

SPRING ... Cont. From Pg. 101

height for a heavy takeoff.

The easiest way to control theft when it is observed is to reduce the entrance hole to the size of one bee, Weiss suggested. Guard bees can defend the hive if the entrance is small.

The discussion of hive entrances shifted these keepers to their next valuable piece of advice. According to all three, I need to make certain my bees can get out of the hives if spring comes very late. "I always make an entrance at the top of the hive. The bees need to get out. Sometimes there are several feet of snow when the bees start flying," says Fenton. In 1994, Fenton remembers snow covering the bottom entrances into April. Beekeepers drill a 3/4 to 1-inch hole under the handhold in the top super.

The top exit helps prevent the second cause of death in hives: Poor ventilation. "Hives covered with snow are insulated, but you have to be careful about air circulation in the hives," said Berninghausen.

Bees' respiration releases moisture. Without proper ventilation the respiration condenses and freezes in winter. In the spring, it can drip ice water on the bees, Weiss told me. Berninghausen emphasized, like a good realtor, location, location, location. "Nothing beats a good location," he said. The hives need to breathe. "Air should circulate around hives, but wind shouldn't blow through." He recommended that my hives be placed in a spot with good air drainage and given a northwest windbreak. "Even a snow fence will stop the wind," he said. Something as simple as a few bales of hay can act as a windbreak, according to Weiss. A beekeeper needs to watch in a cold, late spring. If the location seems wrong, the hives should be moved before another season, I was told.

"Some beekeepers wrap the hives with tar paper to keep out wind, but you still have to make sure there's air circulation. It's like cows: Close up cows and they'll get pneumonia," said Berninghausen. Tar paper placement should allow for top ventilation and top and bottom entrances, cautioned Berninghausen.

Ed Weiss, too, stressed the importance of air circulation and proper ventilation. He suggested securing four little wedges 3/4 inch square and 1/16 inch thick at the corners of the inner cover to raise it slightly off the top frames and to create an air current. "I carry a knife with me when I work. If the bees glue up the area with propolis, I cut it loose. I run the blade of my knife around," he said. Weiss also cautioned me to make sure outer covers are pushed forward so the half-moon holes on the inner cover will be open (if they have them).

If ventilation remains a problem, he suggested I insert a moisture releasing board. He makes his boards from insulite. The board allows the respiration up through but not back down again onto the bees. He cuts a 1/2 inch wide and 3/8 inch deep groove in the insulite and places the board between the inner and outer covers so that the groove in the insulite matches up with the center oval hole in the inner cover and the oval hole in the ledge walk-out. Bees can crawl out through the groove. Four chips 1/4 to 1/2 inch thick are spaced along the front between the moisture board and the outer cover to tilt the outer cover back. Water runs off and away from the hive and the bees remain dry, Weiss said.

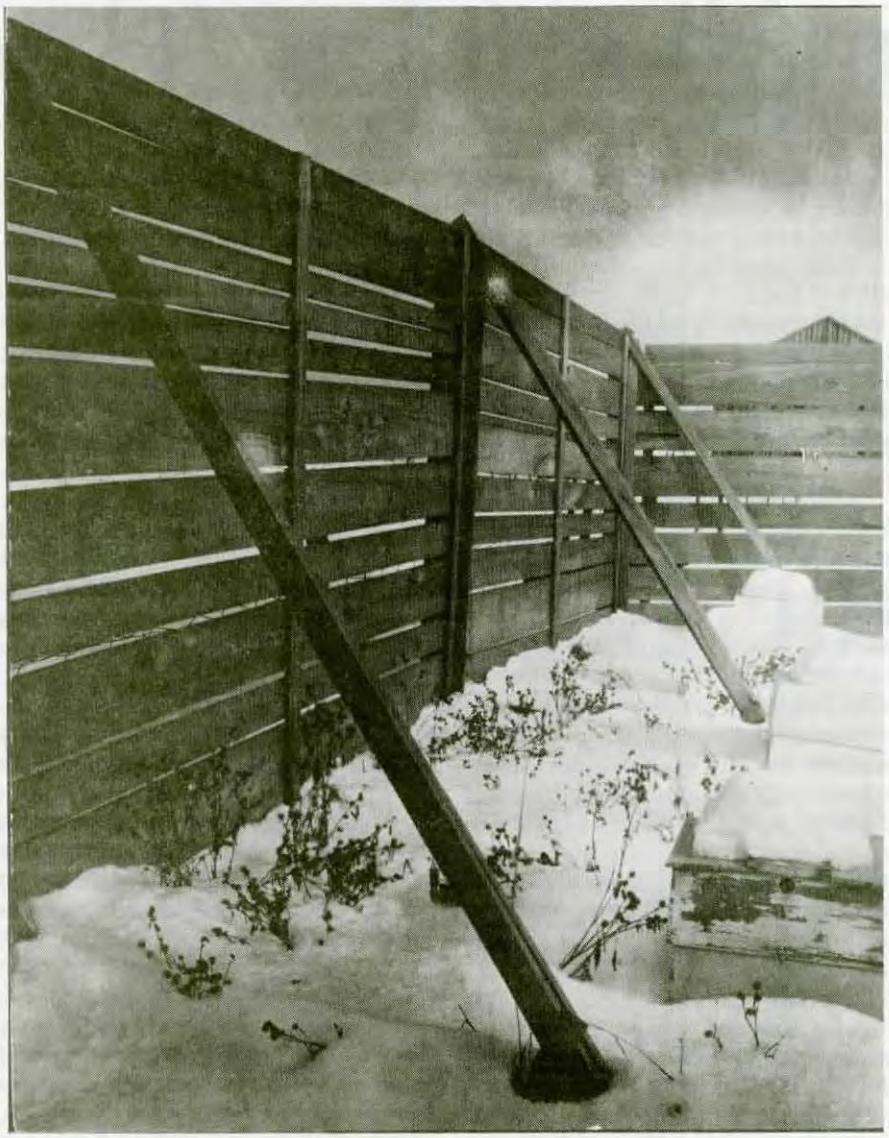
If I keep the bees dry through a cold, late spring, they will keep themselves warm, the keepers assured me. Remember, they all said again, bees don't die from the cold, they die from starvation and lack of proper ventilation. I can't control spring temperatures, but I can control the food supply and excessive moisture in the hives.

With these precautions, emergency food, a top exit and proper ventilation, my bees should be able to weather the weather and live to gather nectar in the North Country for another season. Now there's only one unanswered question: Will *I* make it through 40° below zero temperatures and howling winds? BC

Linda Batt is patiently waiting for spring, and writing about bees, from her home in Rensselaer Falls, New York.

February Wind

Julie Sobchack



The wind has just come up, a fine, soft wind from the south. It is beginning to melt the snow that has covered the garden since early December. Sitting at the kitchen table with the seed catalogues, looking out over the white expanse, I see a dark line against the base of the north fence, the warmest spot in the winter garden; my first sight of soil in three months. The attack of spring fever induced by the catalogues rages out of control, driving me to grab my coat and boots and rush outside.

My heart lifts as I near the exposed soil and see the green noses of early bulbs, coming up to search for sun. I hunker down next to them and lean against the warm wood fence. I remember the day I planted those bulbs, a day late in autumn, full of yellow sun and droning bees.

I had spent that whole long-ago day cutting off dead flower heads, dividing overgrown perennials and planting the last of my spring bulbs. We had enjoyed a long and unseasonably warm autumn, but I knew it wouldn't last forever. As the sun disappeared behind the trees along the west fence, I took another stroll amongst the blue-shadowed flowers and herbs. My eyes were drawn to a darker shadow in the patch of cosmos and I stepped closer to investigate.

It was a honey bee, pollen sacs bulging, too far from her hive to make it back before dark. Her legs were buried in the yellow of the blossom, and I wondered how tightly she was holding on. I leaned closer, my breath stirring her iridescent wings.

She was beautiful, so soft looking. I stroked her wings with a careful finger and felt an elemental thrill of kinship when she didn't fly away, just burrowed deeper. I saw the others, then, two or three big bumblebees also seeking a night's lodging in the flowers.

I thought of them all through the night, especially after a cold wind arose, whispering dark hints about the winter to come.

In the morning, I went outside as soon as the sun flooded the garden, heading straight to the patch of cosmos. The bees were still there, benumbed by the cold. Had it been too much for them? I sat on the bench to wait, hot coffee cup in hand.

In a matter of minutes, the sleepy bees began stirring, lifting off into breezes still redolent of summer. I thought about the cycles and the seasons, and how such small creatures as bees respond to those intricate turnings much more acutely than we larger inhabitants of this planet.

And now, here I stood in the ragged tatters of February's snow, trying to rein in my spring fever, waiting for the season that would return bee and butterfly and new life to my garden. BC

Julie Sobchack is a free-lance writer and gardener from Salt Lake City, Utah.

All About HERBS

B.A. Stringer

Steeped in history and lore, herbs are generally cultivated for their culinary or medicinal uses, or for perfumery ingredients. They are mostly aromatic and can do double duty by also providing a floral snack for your bees. Herbs are obliging plants, easily grown in containers, herb gardens or interspersed with other plants. When growing these plants, bear in mind that the essential oil contents, and thus the aroma and flavor components, are usually highest just at the beginning of the bloom. Commercial crops are harvested at this time, removing the flowers from bee use. In your garden, you may choose to let some herbs flower for the bees while harvesting others for your own use. Except for chives, all of the herbs discussed here belong in the mint family of plants, the *Labiatae*. These plants are characterized by square stems, pairs of leaves growing opposite each other, and whorls of flowers in spiky clusters. Most are excellent nectar producers, and some supply a little pollen.

Let's begin with mint and the *Mentha* species. These freshly scented plants can be a good late-summer nectar source as they produce large quantities of nectar during their August-October bloom. On a field scale, such as in Oregon where crops are grown for the essential oil, the mints may produce a honey surplus. This honeyis amber with a minty flavor which decreases in time. In the home garden, mints may be invasive, spreading by underground stems and reappearing in many places. The tendency to wander can be curbed by placing the plants in pots which are sunk in the ground, or by burying barriers around the herbs. Mints like wet soil and will produce best in a moist, sunny spot.

Probably the best-known mints are spearmint, *Mentha spicata* and peppermint, *M. piperita*, both common flavoring ingredients. They have finger-long, purple flower spikes that are very attractive to bees. Spearmint is often used for flavoring lamb or vegetables, and looks nice in apple jelly or as a garnish. Both mints supply oil which is high in menthol, commonly used in toothpastes, chewing gum, soap and perfumes. Synthetic menthol, however, has been produced from thymol, present in thyme leaves. In the home, consider two of the many uses for fresh, leafy tops: They can be brewed into hot tea or "scattered about to keep mice away!" Other mint flavors grown include apple mint, pineapple mint and orange mint.

Another mint of special interest to beekeepers is pennyroyal, *M. pulegium*. The honey from these small blue flowers is used as "seed" for creamed honey in New Zealand because of the smooth, fine grain with which it crystallizes. While pennyroyal has spread to become a weed in New Zealand, it is useful on a garden scale as an aromatic ground cover. Its small, shiny green leaves are also used medicinally.

Sometimes the name alone conjures up the aroma of a culinary herb. Almost everyone recognizes the smell of the savory herb sage, *Salvia officinalis*, which is commonly used as a flavoring for fatty meats, sausages, poultry and stuffings. A 1937 book suggests also that "the leaves rubbed on teeth . . . clean them and strengthen gums." The fragrant flowers are very attractive to bees for nectar and, where abundant, are the source of fine, light honey that is slow to crystallize. Originally from the Mediterranean region, sage is a perennial which adapts well to culture in rock gardens or containers. The plants grow to about two feet, with cloudy green, wrinkled leaves, although some varieties may have attractive variegated foliage. The violet-blue flowers appear from late spring to mid-summer and are well worked by bees.

The herb sage has a hybrid cousin, *Salvia x superba*, which is a border plant worthy of note. The intense blue flowers with purple bracts bloom for a long time through summer, and have been described as "swarming with bees." These plants must be propagated by cuttings or division as they do not set seed. Try combining *Salvia x superba* with silvery-leafed lamb's-ears in the garden for a display that looks beautiful and attracts bees.

Blooming through spring and summer, rosemary *Rosmarinus officinalis*, is the main component of the famous Narbonne honey from France. This honey, with an aroma reminiscent of the herb's fragrance, is water-white

to white and granulates rapidly with a fine grain. Nectar and pollen in the abundant pale blue flowers are highly attractive to bees. Native to the Mediterranean, rosemary is at home in dry soil, full sun, even salt air, but it must have good drainage. However, the plants are not reliably hardy, although some of the many varieties can survive moderate winters. Apart from the well-known blue-flowered forms, there are some with white or pink flowers, ranging from dwarf trailing plants to the spectacular six-foot "Tuscan Blue." Rosemary leaves are used in seasoning soups and stews, and also in potpourri. Oil distilled from the fresh leafy shoots is used commercially in perfumes, cosmetics and soaps. Pinch the tips of branches to shape the plant and make a rinse with the leaves to make hair shine. At home, try putting sprigs of dried rosemary in with woolens to deter moths.

Throughout early summer, myriad pink flowers are sprinkled over thyme, *Thymus vulgaris*, a hardy perennial herb with strongly fragrant foliage. The bloom is extensively worked by bees for nectar and a little pollen. Wild thyme, *T. serpyllum*, also called Mother of thyme, grows abundantly in the hills of Greece and is the main contributor to the honey from Mount Hymettus, famous from classical times. This honey is golden amber, minty in flavor and slow to granulate. Wild thyme grows with marjoram, another good bee plant, and you might want to try the combination in your home garden as well. Thyme thrives on the dry side in sunny spots, and looks nice in rock gardens or around stepping stones. Several ornamental varieties, including lemon and caraway-scented types, with silver and gold variegated leaves, or grey, woolly foliage, are also good nectar sources for bees. The pleasantly aromatic leaves blend well with meats, poultry and fish dishes. Thymol, extracted from the leaves, is bactericidal and commonly used in toothpastes and gargles, perfumes and deodorants. Herbals also list thyme as a vulnerary, an herb judged through time as being effective in treating battle wounds. Low growing, evergreen and aromatic, the various types of thyme are easy to cultivate and are favorites with bees.

Mints are only one of many herbs that bees and people enjoy.

Marjorams are valuable for their copious nectar production and long flowering season. The wild marjoram growing with thyme, which contributes to the honey from Mount Hymettus, is *Origanum vulgare*, also known as oregano or pot marjoram. In bloom from July to September, the purple masses of flowers produce one of the most concentrated nectars known. The nectar sugar concentration is 76 percent, endowing the high-quality honey with a good flavor and aroma. These plants grow only 12 inches tall and thrive on limestone soils. To encourage succulent growth of the medium-sized leaves, the plants should be trimmed often and the flowers removed. If you cultivate marjorams for their leaves, remember to grow some extras to let bloom for your bees. While we use the herb in many Italian and Spanish recipes, the leafy tops were also formerly used to scent furniture polish.

The aromatic leaves of sweet marjoram, *O. marjorana*, are also used for flavoring food. A tender perennial that is usually grown as an annual, it reaches knee-high and blooms at the same time as pot marjoram. However, sweet marjoram appears to secrete nectar only in the mornings, and few bees are seen on the white flower clusters after midday. The tiny leaves of sweet marjoram have been used as a flavoring from classical times, seasoning meat dishes, stews and soups. The distilled oil may be added to sausages for flavor. In your garden, watch for the overlapping flower bracts which give the appearance of tiny pine cones as the bloom progresses.

Does the thought of lavender turn your mind to lace handkerchiefs and very decorous old ladies? This herb has been used for centuries in perfumes and soaps, sachets and potpourri, as well as being a medicinal plant from early times. Even now, lavender-scented items remain popular despite a wealth of aromatic competition. Where it is grown on a field scale, lavender, *Lavendula* species, is also a major honey plant, supplying a very pleasantly flavored dark honey which granulates with an extremely fine grain. In Europe, the plants grow wild on chalky, well-drained soils. An ideal site in the home garden for lavender to produce nectar freely is a sunny spot with limed soil. They need little fertilizer or water and must have fast-draining soil. Try growing lavenders together with catmint, *Nepeta* species, and rosemary which need similar conditions.

Native to the Mediterranean, lavender is salt-tolerant and has been described as a "highly desirable fragrant shrub for hedge or rock garden." The flowers, which cluster closely at the ends of thin stalks, should be picked just as the color shows for maximum fragrance and hung to dry in a cool, shady place. Branches clad in grey-green aromatic leaves may be trimmed after flowering to keep the plant neat. The most highly scented species is the classic "English lavender," which may be offered under several names: *Lavendula angustifolia, L. officinalis, L.*

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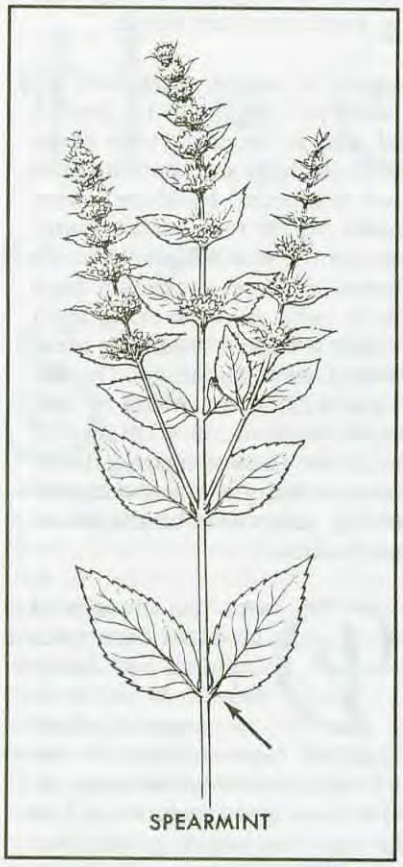
"Herbs are obliging plants, easily grown in pots, herb gardens or mixed in with other plants."

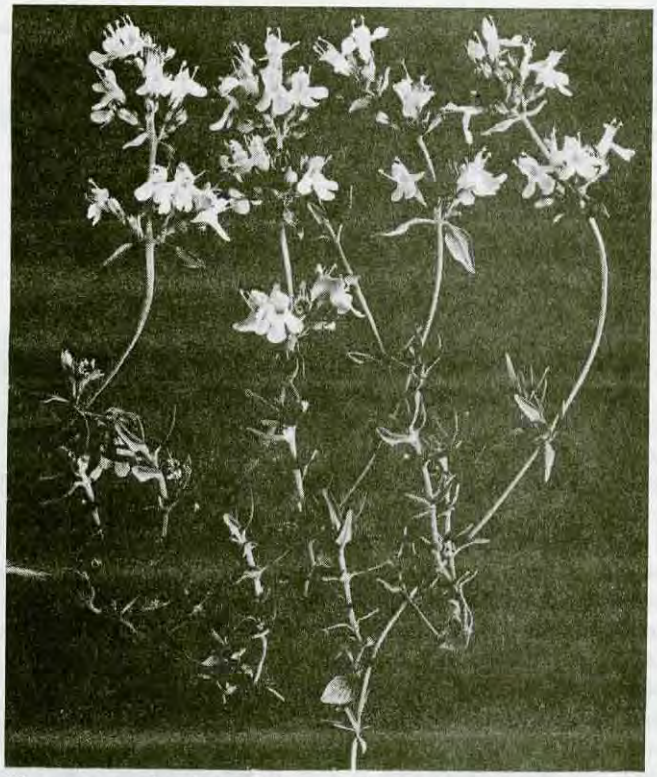
HERBS ... Cont. From Pg. 105


SPEARMINT

vera, or *L. spica*. The lavender-blue flowers are the source of oil, obtained by steam distillation, which is used in perfumery and soaps. Within these species, there are many varieties with different growth habits. You may wish to try "Munstead," an earlier blooming, dwarf plant with dark purple flowers. On the other hand, "twickel purple" grows as tall as three feet and bears long, fanned-out flower spikes. Spanish lavender, *L. stoechas*, is also fragrant but bears quite a different flower. There are two large bracts on top of the deep purple flower cluster, giving the appearance of rabbit ears. French lavender, *L. dentata*, is the least hardy of the readily available types. It is characterized by square-toothed leaves and tufts of bracts above the densely packed flower heads. On the whole, lavenders are regarded as excellent nectar sources within their range, which is defined by the severity of the winter. They may freeze out at temperatures below about 10°F.

Chives are the only plants in this herb selection that do not belong to the mint family. Along with onions, garlic and leeks, chives are part of the *Allium* genus of the lily family, or *Liliaceae*. These, and also numerous ornamental alliums, display the same flower makeup of many florets clustered atop single stems. All alliums, culinary or ornamental, are good bee forage because of the density of flowers in each flower head. The nectar yield is better in a moist site, and the plants grow best in rich, moist soil in full or part sun.

Chives, *Allium schoenoprasum*, bloom in late spring and early summer and are avidly worked by bees for nectar. A small amount of pollen may also be gathered. The flower heads are light purple spheres consisting of many tiny florets packed tightly in a one-inch ball, ornamental in their own right. The slim, tubular leaves are chopped finely for use in egg and cheese dishes, and soups and salads, where they impart a delicate onion-like flavor. The plants are pretty enough to be part of a flower garden border and are often interplanted with roses to deter aphids. Except where they are grown for seed, chives are generally harvested before they bloom and the flowers kept picked off. Garlic chives, *A. tuberosum*, are a lesser known variety with strap-like leaves and looser heads of white flowers. As suggested by their name, the scent and taste of the leaves is that of mild garlic, but the flowers will surprise you with the fragrance of violets.


There are several varieties of thyme that bees enjoy and that work well in the garden, in the landscape or in pots on porches or windowsills.

Garlic and onions (*A. sativum* and *A. cepa*) are close relatives of chives that probably need little introduction. When grown commercially for seed, the honey from these herbs is light amber and of good quality. It sometimes has a strong onion smell when fresh, but this fades in time. In kitchen gardens, we generally grow alliums for the bulbs or leaves rather than for the flowers. Try letting some bloom for the bees, after which you can dry the flower heads to add to dried flower arrangements.

In this sampler of herbs, we've touched on a few of the most commonly grown and used. Cultivate them for your own enjoyment and the pleasure of your bees. BC

B.A. Stringer writes about and raises herbs and other bee plants from her home in Blodgett, Oregon.

TALKIN' BEES

Introducing school kids to bees, and beekeeping, is good for both teacher and student.

Howard Scott

Beekeepers enjoy going into schools and talking about bees. It has become a time-honored tradition. Since beekeepers are an idiosyncratic lot, their talks are wholly their own. While we don't want to tamper with these individualistic approaches, we offer these guidelines, so that the presenter may incorporate good information and practical hints into his presentation.

Going into classrooms is a great public service that benefits schools, students and beekeepers. Schools gain by tapping outside knowledge and community involvement. Students enjoy an outside presenter, and are exposed to a subject they probably wouldn't learn about otherwise. And beekeepers benefit because we are exposing future consumers to the pleasures of eating honey. Moreover, we just might be planting the seeds for future beekeepers, entomologists and researchers, which can only increase the knowledge of the field, not to mention the tolerance for the practitioner.

Generally, most beekeepers go into schools because they have children there. They meet the teacher at a teachers' conferences, mention their hobby, and the teacher asks them to come in. Occasionally, bee clubs organize school visits. But the eager beekeeper might call a school and offer to come into every fifth grade class, for example. Or he might send out a circular to a school. Often the school secretary will facilitate the visit, or she'll tack up the notice on a bulletin board. And, since teachers are always looking for guest speakers, you might be swamped with requests. Although elementary schools really welcome this kind of offering, it seems to me that the topic would make a good discussion in a high-school general science course.

Here are some preliminary guidelines. Gear your talk to your audience. Simplify for youngsters, get into the science for junior-high students, and present the big picture for high schoolers. You might try out your talk beforehand on an age-appropriate friend or neighbor. Find out if the students have studied the subject beforehand and gear your discussion appropriately. Ask how much time you have and stay within that limit. Also, find out in advance how many students you will have. In general, you will do better with classes of 25 or fewer. Decide in advance whether they can ask questions during or after your talk. Generally, young children, with short attention spans, should be able to interrupt. But be prepared to limit questions, for youngsters can go on and on. Older students will ask more cogent questions, testing your knowledge. Answer as best you can, but if you don't know, admit ignorance and say you will get

Continued on Next Page

How a hive is constructed, the parts, bee space and the rest is a good thing to discuss.

Handling the equipment, feeling the wax, and smelling the hive is an eye, and sensory experience.

Stand up, talk slow and easy, use props, allow questions, and if you don't know, say so and promise to find out.

An observation hive is undoubtedly the most exciting prop you can use. Keep it covered until the end, oryou'll lose their attention. Have a marked queen, and make sure it is bee tight.

back to the teacher with a response. And follow up. Make sure the teacher will remain in the classroom, or if he/she won't, be prepared to reprimand the uncooperative student. This can be a sticky situation. Avoid if possible.

Here's what you want to communicate . . .

Get across that bees are an amazing society, with their own rules and their own methods of survival. Convey that behind all the surface "grossness" of insects is an ordered, highly refined world. And although we humans might seem to live more advanced lives, bees have been around a lot longer than we have, and will probably continue after we are gone, as proof of who has the superior wisdom.

Discuss the bee cycle, from spring buildup to swarming, to honey flow frenzy and harvest to the winter cluster. Showing the stages and how one leads into another conveys how the forces of nature compel the insect society to transform itself over and over, in order to survive. Explain that the swarm is the societal transformation, resulting from crowding or some other disturbance, but ultimately leading to expansion of the species – which is good. Point out that the hive survives the winter by forming a bowling-ball size cluster, maintaining a constant warm-enough temperature in the center where the queen is, and that the cluster moves around inside the hive box, Pac-man-like, consuming its food – honey.

Delineate the bee's organizational structure. This is one of the most fascinating things about these creatures – their ability to harness insect power and get things done. To compare a hive's output to human scale, it might be equivalent to the accomplishments of both the Greek and Roman empires in terms of world domination, as well as in advances in architecture, transportation, leisure, warfare, law and the arts.

Explain how there is only one queen who is the colony leader, spiritual core and sole progenitor, laying upwards of 1,000 eggs a day. Discuss how the 40,000 to 50,000 worker bees have specific jobs that include serving as guards, gatherers, scouts, processors, queen attendants, fanners, housekeepers and brood tenders. Mention that they work so hard in the summer that their wings wear out, and they only live six or seven weeks. Point out that only the few hundred males – the drones – do nothing in the hive except mate with other queens once, in the spring. By September, they are so useless that the workers remove them from the hive to die outside. What a morality tale that is!

Mention that, above all else, a bee lives for the hive. Almost always, the only time it stings is when its life is threatened or it senses that the hive is in danger. When one stings, it is a kamikaze gesture, for in pulling out the barbed stinger, the bee pulls out its entrails and dies.

Relate how workers, sensing the queen weakening, will begin to raise replacements and create a new queen. This new queen will emerge, fight the old queen, often killing her or banishing her from the hive, then destroy the remaining queen cells, broaching no competition. Then she will rule for as long as she remains strong, often three or more years. A human revolution works the same way. The people, sensing a weakening or a lack of confidence in their leader, create a new leader from within their ranks.

Explain how beehives exist in the wild – in trees, rock crevices or old buildings and the like, and that the

FOCUS

K through 2: Emphasize the magic of bees; describe their bodies; talk about the hive and how the bees build it; discuss different bee jobs; let students smell and feel things – hive tool, honey, frame with fully-drawn wax; let students tell their bee stories.

3rd to 4th grade: Focus on one-year bee cycle; talk about what a beekeeper does to insure the hive is healthy; tell some personal stories from your beekeeping experience; point out the partnership between bees and man and nature; encourage questions and provide answers.

5th to 6th grade: Show the poetry of bees – how they create honey, how the hive perpetuates itself, how flowers are pollinated, how a queen is superseded; describe a bee life in detail – drone, worker, and queen; provide statistics – how much bees work to create a crop of honey, how many pounds of honey a healthy hive can create, etc.

7th up: Emphasize the science; give a brief history of beekeeping through the ages; talk about L.L. Langstroth's brilliant insights and contributions to the activity; discuss beekeeping's sideline income possibilities; review diseases and discoveries to cure the diseases.

movable-frame hive is man's invention to harvest honey and examine bees without killing the hive. Point out that 150 years ago, beekeepers kept skeps – woven baskets – and when they wanted to extract honey, would kill the hive and take all the remaining honey. Talk about the inventor of the modern beehive, L.L. Langstroth, who, in 1853, saw that creating a box with bee spaces around movable frames would allow the bees to do their thing, and yet, allow man to manage them.

As for equipment props, at minimum, bring in a fully drawn frame. What I do is stick a red half-circle over the cells on both sides to show where the queen lays eggs and where the workers store nectar, to show how bees plan for their needs. You might also bring in an empty honey super filled with frames to demonstrate the structure of the hive. Also bring your hive tool. Show how useful the tool is by pointing out all the different ways it can be used – as a scraper, a lifter, a prod and a crowbar. State that this simple device is a good example of how simple, yet elegant, beautiful tools really are. If you have the chance, bring in a drone in a vented vial, and display it in the palm of your hand. Let students come up to pet the insect.

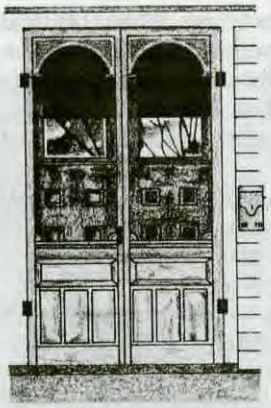
Talk about bee food – the product of this great labor. Display a jar of the product. Explain that it is made from the nectar of millions of flowers, stored in hive cells, and most of its liquid content evaporated by the fanning of bees' wings. When this food is properly ripened, the bees cap the cells, and pure, unprocessed food is ready for eating. Offer that it takes 10 bee hours to produce one drop of honey.

Provide a sampling of the product. One way is to hand out popsicle sticks and let each student come up and dip his or her stick into a honey jar. Another option, particularly if you have a helper, is to provide Ritz crackers spread with honey for the students. A third possibility is to hand out honey sticks. Discuss different honey tastes and colors.

Stand up while giving your talk. Talk with your mouth, not your hands. Speak clearly, slowly, unhurriedly. Hands-on is always best, so if possible, pass around the props. Try to create visual pictures. For example, the workaday hive is a remarkable sight. Portray the complex goings on inside the hive by encouraging the children to imagine them. If possible, throw in some humor, which helps maintain students' attention. Finally, if you think it is reasonable, you cannot sell product by handing out promo sheets, but you can mention that you sell honey.

What I like best about school talks is that I always come away exhilarated. Try it and see. BC

Howard Scott keeps bees, and talks to kids around his home in Pembroke, Massachusetts.



Ann Harman

Home Harmony

Valentine's Day - The Perfect Honey Holiday

Valentine's Day is a perfect holiday for beekeepers. Although it is getting late in the honey year, be certain you save enough honey each year to make sweets and candies to give to your Valentine. Or you can wrap up a jar of honey, decorate with a bit of lace and red ribbon and attach an appropriate card to create a wonderful Valentine's gift. Don't forget the appeal of squeeze bears. These can be dressed for the occasion with a red ribbon necktie, or you can hang a little Valentine's card or red heart around his hat. Of course, I highly recommend some recipes to accompany a jar of honey.

Unfortunately many cooks, even very good and creative cooks, believe candy making is a special project to be undertaken with lots of special equipment and made when one has lots of time. Here is where honey comes to the rescue! Many honey candy recipes are quick and easy. Children can stir up a batch and have a wonderful time presenting Valentine sweets to friends and relatives. Someone with school-age children may wish to help prepare some honey candies for the school classroom.

Honey candies should be presented individually in those little fluted papers because honey candies can be sticky. I have seen those little candy papers in shops selling party supplies or kitchen supplies. As an alternative, wrapping each piece in some plastic wrap will make handling easy and non-sticky. Some of the plastic wrap comes in colors now and quite a decorative box of candy can be created.

Many people think of a "box" of candy. Have you thought of a small basket? Baskets are quite popular, and many sizes and styles can be found. A simple basket can be dressed up with the addition of ribbon, little hearts – yes, even with some of those favorite little heart candies that say "Be Mine" or other appropriate sayings.

There's enough time to shop around and get some ideas so that you can present your Valentine's honey candy at its best. Be creative!

Honey Drops

The next two recipes are suitable for very young children to make since they do not require cooking.

1 cup powdered milk
1 cup graham cracker crumbs
1 cup raisins
1 cup honey
1 cup peanut butter

Combine powdered milk and crumbs. Add honey. Mix. Add peanut butter and raisins. Mix well. Shape into balls. May be rolled in coconut or dipped in chocolate.

Cooking With Honey
Kansas Beekeepers Association

Honey Yum-Yum Balls

2 cups Rice Krispies cereal
1/2 cup peanut butter, creamy
1/2 cup raisins
1/2 cup honey
1/2 cup confectioners' sugar

Mix together all ingredients except the confectioners' sugar. Form tablespoon-sized balls. Roll in the sugar. Refrigerate until firm. Or the mixture can be pressed into a shallow pan. Chill and cut into squares. Yield: 24 balls.

Honey Recipes
North Carolina State Beekeepers Assn.

Special Occasion Candy

This next recipe is excellent but requires baking, so some children may need help with that. However, Valentines of all ages can make and appreciate this candy.

1-1/4 cups oatmeal
1 cup chopped walnuts
1/2 cup toasted wheat germ
1/2 cup chopped dried apricots
1/3 cup sesame seed
1 teaspoon cinnamon
1 cup honey

Combine all ingredients in the order listed, mixing well. Spread in a 13 x 9-inch greased pan (I like to line the pan with cooking parchment). Bake at 350° for about 25 minutes, stirring 2 or 3 times. Turn out immediately onto greased foil. Cool. Break into small pieces.

Nature's Golden Treasure Honey Cookbook
Joe M. Parkhill

Sesame Honey Candy

Do you like sesame seeds? This recipe, an easy one, features them.

1/4 cup butter or margarine
1/2 cup sesame seeds
1 cup finely grated coconut, unsweetened
1/2 teaspoon vanilla
1/4 cup honey

Melt the butter in a heavy saucepan over low heat. Stir in the sesame seeds and coconut and continue cooking and stirring for 5 minutes. Take the pan off the heat and add the honey and vanilla, mixing well. Cool until the dough is stiff enough to shape into balls. You can hurry the cooling by putting the mixture in the freezer for about 20 minutes. When the dough is stiff, roll into little balls about 1" in diameter. Store in the refrigerator until ready to eat. Another nice thing about making Sesame Honey Candy is the softening beauty treatment you give your hands in the process. Yield 2-1/2 dozen balls.

Joy With Honey
Doris Mech

Almond Crunch Candy

Now for a recipe for almond lovers. Be sure to thank honey bees for pollinating the almonds so we can make some delicious foods such as this candy. By the way, this recipe was a prize-winner in both 1986 and 1988. That's a good recommendation!

1/3 cup butter
3/4 cup slivered almonds
1/4 cup honey

Butter an 8x8x2-inch baking pan. (You can use cooking parchment if you wish.) Melt butter in heavy skillet; stir in honey and almonds. Cook over medium heat, stirring constantly until mixture turns golden brown, about 5 minutes. Spread in prepared pan, working quickly. Cut with sharp buttered knife. Cool and store covered in refrigerator.

Kansas Honey Producers Cookbook

Chocolate Burrs

No, the chocolate lovers are not forgotten. Chocolate and honey are great companions in cooking. Fast, easy and inexpensive.

2 squares unsweetened chocolate
3 tablespoons honey (light, mild variety)
1/2 teaspoon vanilla
few grains salt
3 cups corn flakes

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

A Honey Cook Book
The A.I. Root Company

Pralines

I realize that I promised you candy recipes that do not require fancy equipment. However, pralines are one of my favorites and this recipe for pralines is so good that I wanted you to try it, too. I do recommend a candy thermometer for this recipe unless you are good at judging the "soft ball" stage. Pralines are really quite easy to make, and they will make quite an impressive Valentine's gift.

1/2 cup honey
1/2 cup buttermilk
1/2 teaspoon soda
dash of salt
1 tablespoon butter
3/4 cup pecan pieces

In a saucepan, mix honey, buttermilk, soda and salt. Cook over high heat for 5 minutes. Add butter and continue to cook, stirring frequently until mixture forms a soft ball when dropped into cold water or reaches 234°. Remove from heat and cool for 5 minutes. Beat with an electric beater until creamy. Add nuts. Immediately drop by the tablespoonful onto buttered wax paper. For storing, wrap each praline in plastic wrap. Yield 1 dozen pralines.

Naturally Delicious Desserts And Snacks
Faye Martin

You now have quite a few recipes for honey candies. Make an assortment for the holiday season. Halloween is also an ideal time for some honey candy. Look for honey candy classes at county fairs and beekeeping organization honey shows so you can enter and win some ribbons. Then you can add "Blue Ribbon" to the title of the recipes. Good luck – and Happy Valentine's Day!

?Do You Know Answers?

1. **False** The quantity of honey that is necessary to sustain a normal, healthy colony through the winter months will vary, depending upon latitude, altitude and local climatic conditions. During the broodless period in the winter, the colony consumes the smallest amount of food stores daily, since they are not maintaining temperature conditions conducive for brood rearing, only survival.
2. **False** Dysentery is a non-infectious disorder of adult honey bees. While the condition can be aggravated by various infectious adult diseases, it normally occurs when the rectal contents of bees become about 30-40% of total body weight. This is usually due to the accumulation of water, because there is too much water in the food the bees are consuming. This situation is most likely to occur during the winter when honey bees are unable to take regular cleansing flights.
3. **True** Chilled brood is most often found on the fringes of the brood area rather than in the center where the cluster is concentrated. This condition often occurs in late winter/early spring when brood nests expand rapidly and there is a shortage of adult bees to cover all the brood.
4. **True** The presence of pollen in the hive during the winter is extremely important when the colony is rearing brood. A wintering colony must replace its fall population with young bees and have a large active brood nest by the time natural pollen is available in early spring. A dwindling spring population can be due to insufficient pollen to support normal brood rearing. In the north, colonies should enter the wintering period with an equivalent of three to five combs well-filled with pollen.
5. **True** Colonies raise queens anytime there is a stimulus to raise them and there are eggs and young larvae present. In February there would be brood present but in many areas of the country there would not be drones or conditions present for mating.
6. **True** The contraction and expansion of the winter cluster is the principal mechanism used by bees to sustain a favorable environment, as long as they have contact with their food reserves. At any given low temperature, small clusters are more vulnerable than large clusters as they must maintain higher inner cluster temperatures than do larger clusters. They have fewer bees to produce heat and form the insulating shell.
7. **False** In late winter/early spring the majority of the food stores should be located in the uppermost hive body. A colony will starve in mid winter even though there is plenty of honey in the lower brood-food chamber(s), if there is too little honey in the upper food-brood chamber. Over the winter, the cluster slowly eats its way upward and there should always be food above and to the sides of the winter cluster.
8. **True** The winter cluster invariably moves up among the dark brood combs and tends to avoid new white combs of honey as it slowly eats its way upward in the hive during the winter.
9. **True** In the temperate regions, the honey bee queen normally stops laying eggs in October and resumes sometime in January, long before natural sources of pollen and nectar become available.
10. **False** Within a package of honey bees, normally the workers and queen do not come from the same hive nor are they related. The package bees are taken from a colony with surplus bees, and the queen is taken from a mating nuc. All of the queens from any commercial supplier are likely to be raised from two to three breeder queens.
11. **True** In the winter the hypopharyngeal glands (brood-food glands) of the majority of bees are fully developed, just as if they were nurse bees. This is believed to be a mechanism which allows the bees to store protein and raise a generation of brood when conditions will not allow them to break cluster to feed on pollen.
12. D) 5 to 6
13. Honey bees in the center of the winter cluster generate heat, while those on the surface serve as insulators.
14. Serves as an emergency exit when the lower entrance is blocked. Ventilation above the broodnest in the winter retards condensation of water vapor, thus keeps the interior of the hive drier. The heat given off by the cluster tends to rise in the hive and will carry some excess moisture with it.
15. Mixing the Terramycin with powdered sugar and sprinkling the mixture on the top bars in the brood chamber.
    Incorporating the Terramycin with vegetable shortening and sugar to form an antibiotic extender patty.
16. Is the colony dead or alive?
    Does the colony need feeding?
17. Later winter/early spring is the most critical period for wintering honey bee colonies. Consumption of food reserves increases dramatically to satisfy the needs of a rapidly expanding brood nest. Even though food stores are being depleted rapidly, weather conditions and lack of floral sources often prevents the bees from replenishing their food stores. Many colonies will end up starving to death under these conditions.
18. When the winter cluster is found just below the inner cover or migratory lid in late winter/early spring, this is the cue for the beekeeper that emergency feeding or rearrangement of food stores is needed. It is necessary to keep food above and to the sides of the winter cluster during this time period.
19. A) Miller-type feeder, Collins feeder, Hive top feeder
    B) Boardman feeder
    C) Division board feeder

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

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

Richard Taylor

Bee Talk

"Some plants, no matter how beautiful, can make some not-so-nice honey."

Have you ever gotten bad-tasting honey from your hives? There are hundreds, or, I suppose, thousands of different nectar sources and, accordingly, that many different kinds of honey. Almost all of them are good, and many exquisitely delicious, but some are not good and, once in a while, you come upon one that is positively foul tasting. Honeys from tropical regions are quite variable, many of them very dark and strong, and I have encountered several of these which I did not like at all. Virtually all the honeys from the northern latitudes, on the other hand, are mild and good. But there is the occasional exception.

This past summer I got some beautiful, snow-white comb honey that I did not like at all. I suspect it was from the privets. It reminded me of bad perfume. My wife Connie thought it was O.K., but I felt uncomfortable in the realization that I had no way of distinguishing it from the other beautiful light comb honey that I put out on my honey stand. That is one problem with comb honey beekeeping - you cannot easily sample it, and, once in a while, the comb honey that looks perfectly beautiful is not so good to taste. This is, to be sure, quite rare, at least in these parts. But this past season (1995) was so crazy with respect to the honey crops that all the usual rules seemed to break down.

It seems to be something of a metaphysical truth that evil easily overwhelms goodness. Just a tiny bit of it corrupts a vaster whole. You see illustrations of this everywhere. A bushel of apples will soon be ruined by one rotten one. A community filled with good and decent people, can be brought to ruin by the presence of a small pocket of corruption and crime. Or, getting back to honey, you will have noticed how an entire crop of light, mild honey will be made dark and strong by the addition of just a small amount of dark, strong honey, whereas even a vast amount of light honey will not significantly improve a tank of dark honey. I do not mean to imply by this that dark honey is not good. Some of it is not the very best but, conversely, some of the best honey is very dark. Still, the illustration works as a metaphor of how goodness is so easily overwhelmed by the bad.

And certainly this is true of really bad-tasting honey. A very small amount of it will ruin barrels of otherwise fine honey. And quite apart from honey that is downright bad-tasting, all this illustrates a more general problem that beekeepers have. That is the problem of maintaining uniformity.

Sometimes people will leave a note at my honey stand saying that the honey they got there a month ago (or perhaps last year - whenever) was so good that they had to come back for more. This always disturbs me, for I am quite sure that what they get on the return visit is not going to be what they got the first time. It will probably be good, but it won't be the same. And, I have discovered, a lot of people don't even know that there are different kinds of honey. If you are producing strained honey, then the honeys from different sources are apt to get mixed together so that there will be a degree of uniformity, at least in the honey that is extracted at any given time, but that is not so with comb honey. Even supers of comb honey that are harvested at the same time can be quite different, especially if they come from different apiaries. But what makes it worse is the difficulty of sampling, for to sample a section of comb honey to see how it tastes is to ruin it so far as sale is concerned. I overcome this problem to some extent by sampling the burr comb.

Here we should note that, while the lack of uniformity is a problem for the backlot beekeeper, there is a real advantage in it, too. The honey you buy in a supermarket is apt to be all the same, to be sure, but it is also apt to be bland - something that is perfectly acceptable, but not distinctively delicious. It is basically clover and alfalfa honey from the Midwest. But the backlotter can sometimes offer honey that is unique and delicious, like black locust honey. And while some people do not like the dark buckwheat honey, there are others who are constantly on the lookout for it. You can't find that in the supermarket, except, perhaps, in the specialty foods department.

A couple of years ago, a reader sent me a sample of comb honey as beautiful as any I have ever seen - snow-white. But it was foul tasting, and even that seems an understatement. It was downright sickening to the taste. He was dismayed that he had several supers of it and wanted to know what it was. I had never seen anything like it, so I solicited opinions from readers. I got back five letters, some of them several pages long, and each writer was fairly sure he knew the answer. Trouble is, only two of the five had come up with the same answer - which illustrates again how difficult it is to know the sources of the honey our bees make. You often cannot tell just by noting what is in bloom or what plants you find bees working on. They constantly fool you.

The foul-tasting honey had come

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BEE TALK ... Cont. From Pg. 113

to me from Prestonburg, Kentucky, which I believe is in the Appalachian Mountains. Mr. Paul Leach, in Cincinnati, declared it must be from wild cherry, and he defended his opinion at some length, drawing from his and others' experiences. Mr. Vernon Mullins, in West Virginia, declared with similar confidence that it had to be smartweed or heartsease, while Mr. Nathanial Mann, in Tennessee, came out for privet - a plant that, while it smells nice, has always had a reputation for yielding bad-tasting honey. Mr. Clifford Beckwith, also in Tennessee, said it had to be from the redbud tree, and he defended this diagnosis with 4-1/2 handwritten pages. Mr. Kenneth Cook, in Michigan, had the very same view - redbud!

Redbud does not grow around here, but, notwithstanding what I have said about the difficulty of diagnosis, I decided that Messrs. Beckwith and Cook were probably right. I think that honey was from redbud. It is, I understand, an ornamental tree that blooms very early, so the honey the bees get from it usually is used up in their spring buildup. Mr. Beckwith said that the problem of redbud honey is therefore solved by not supering early. Wait until the redbud bloom has gone. He found that this always works.

I checked this out in Pellett's American Honey Plants, where redbud (or Judas tree) is described, but not a word is said about its yielding a bad honey. It is a shrub or small tree common in the Southeastern states. In Alabama it blooms in late February and in southern Iowa in April - very early, it will be noted. Mr. Pellett notes that it is valuable to the bees for early buildup, and for this reason is rarely a source of surplus, or honey that is harvested.

Apart from those rare cases of bad-tasting honey, is any honey downright poisonous? This, I think, is certainly not a problem on this continent. There have been reports that the honey from mountain laurel, which is common in the mountainous regions of the eastern United States, is toxic. This bad reputation rests upon reports - quite rare, in fact - of people becoming ill from eating it. And apparently this can happen if one eats a huge amount of it all at once. There is, however, no danger whatever from this honey becoming mingled with honey from other sources, nor, apparently, is there any problem if one consumes it in a normal way. There is, so far as I know, no authenticated case of anyone ever suffering death from eating this or any other honey, at least on this continent. BC

Richard Taylor is a philosopher and lifelong beekeeper who lives in the Finger Lakes region of New York. You can reach him at Box 352, Interlaken, NY 14847.

Questions?

More Honey

Q **You and others have indicated that over the past few years, you have been getting record honey crops. That has been my experience too. I have been getting over 100 pounds of honey from each hive, harvesting it in mid-July. There has also been a great decline in stray swarms. Five years ago, I was getting about 10 calls to gather swarms in May and June. I have received no calls for the past two years. Could all this be because mites have destroyed all the wild colonies, leaving that much more nectar for our domestic bees?**

George L. Fetrow
York Haven, PA

A No one knows for sure, but I strongly suspect this is true. Certainly there has been a great decline in calls to collect swarms, and the improved honey crops have coincided exactly with the spread of parasitic mites. Perhaps the mites are eliminating the competition in a significant way.

Poor Placement

Q **Last summer, I harvested about 100 pounds of honey from my one hive, and at one time had four supers on it. After the harvest, I put two Apistan strips on the top bars, having left abundant stores for the winter. After 42 days, I removed the strips, and found not a single bee in the hive, nor was there any brood. There were no signs of foulbrood. My guess is that the queen failed and the bees died from attrition.**

Verne M. Marshall, MD
Geneva, NY

A No, your bees almost certainly died from *Varroa*, which was devastating last year (1995). Your mistake was putting the Apistan strips over the top bars. These strips have a surface contact miticide, and to be effective, the bees must be in constant contact with them. Hence, the strips need to be right down in the brood chamber or right into the cluster. Putting the strips on the top bars, or any place in the hive other than where the bees are concentrated, is wasted effort.

Lima Bean Honey

Q **A farmer five miles away planted 80 acres of lima beans. Is this a good honey source?**

Charles Walli
Marengo, IL

A The lima bean plant, unlike most bean plants, can be an excellent source of nectar. The honey is very light and of excellent quality. Some beekeepers have reported very large harvests from this source. It would certainly be worth moving a few hives to that area (you should not expect the bees to fly five miles to get it) to see what happens. You might get no honey at all, or you might strike it rich, depending on the weather. Check for pesticide usage on the crop, however.

Sting Reaction

Q **I have handled bees for two years and have had no serious reaction to occasional stings until this fall, when a sting caused my face to swell and itch very badly for several days. Why is this, and what should I do?**

Maurice E. Pouliot
Cambridge, VT

A That reaction could be a prelude to a systemic reaction in the future, which could be serious. Sometimes persons who have kept bees for years develop, quite suddenly, an extreme sensitivity to stings. You should be alert to this possibility and, possibly, be prepared for emergency treatment. However, some stings, in some places (the face, for instance), can cause a more severe local reaction than, say on the hands. Check with an allergy doctor to be sure.

Plastic?

Q **What is your opinion of plastic foundation or plastic comb?**

Name omitted by request

A I do not use plastic combs or foundation containing plastic, because these are expensive, unnecessary and in a sense, unnatural, but I know of beekeepers who use plastic combs and like them very much. You have a real headache if you try to melt down old combs containing plastic foundation.

Seed Source

Q **Where can I get seeds for the Chinese evodia or "Bee Bee" tree?**

Henry Vazquez
W. Covinor, CA

A I will be glad to send some seeds and instructions to anyone who sends a stamped, self-addressed envelope, to Box 352, Interlaken, NY 14847.

Honey Flow?

Q **There were a couple of weeks this summer when I saw no honey plants of any kind in bloom, so I did not bother to check the supers on my hives. When I did finally have a look, I found practically all of them filled with honey. I do not know where they could have gotten it. How can you tell whether there is a honey flow in progress?**

A Drawing conclusions from apparent bloom, or lack of it, is the least reliable way to find out whether there is a nectar flow. Bees very often make little or no honey when things are in full bloom all around them, and lots of it when you least expect it. The most reliable way to tell is with a scale hive, when you see the weight change dramatically in a single day. Another test is the behavior of the bees. When flight

Continued on Next Page

is desultory, and especially when the bees are hanging out on the front of the hive, there is little nectar coming in. When, on the other hand, there is a steady stream of bees in and out of the apiary, then you've got a flow. Of course you can also peer into a few supers, but this only tells you whether there has recently been a flow.

Overwintering Apistan

Q If winter should come before I can get the Apistan strips out of the hive, would they be harmful to the bees if left there all winter?

Andrew K. Watson
Freeport, MI

A Apistan strips are supposed to be left in the hive only a certain number of days, but I know of beekeepers who have left them in the hives all winter. It is believed by some experts that this practice can hasten the development of a resistant strain of mites, however, and, the label says it is illegal.

Old Honey

Q I recently acquired some old bee equipment, and among it was over 400 pounds of honey in 12-pound jars. Does this honey have any market value, and can it be used for anything except feeding my bees?

Don Mason
Roswell, NM

A The fact that the honey is 10 years old does not, by itself, mean that it is not all right for table use. Try it at breakfast a few times. It probably has not fermented, for if it had, it would have burst the jars. If it does not, from your samplings, turn out to be first-quality, then feed it to your bees. This runs a small risk of transmitting foulbrood, so to be safer, feed it to only one hive the first year. You may need to dilute it for feeding, in which case it will be prone to fermentation fairly fast.

Swarm Queen?

Q I have always understood that the queen which accompanies a swarm is the old laying queen, and that such a queen never leaves the hive except with a swarm. This spring I hived a swarm, and five days later the queen was seen by two beekeepers flying back to the hive like a newly mated queen. There were no queen cells in the hive into which we had introduced the swarm. What is the explanation?

Joel New
Corinth, KY

A You do not say how large the swarm was, which would be some indication of whether it was a prime swarm or an after swarm. It is true that the first or prime swarm to emerge from a hive, which is usually a large one, is headed by the old queen, who is fecund and, indeed, the mother of the entire swarm. But often the hive will then, a day or two later, throw a smaller "after swarm" containing one or, usually, several virgin queens that have emerged. Sometimes several such after swarms emerge, at varying intervals. So my guess is that the swarm you hived was an after swarm.

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

Answers!

Richard Taylor

Gleanings

FEBRUARY, 1996 • ALL THE NEWS THAT FITS

BEE CULTURE CONTRIBUTOR WINS SEVERAL AWARDS

Mark Headings has received a 1995 Outstanding Teaching Recognition Award from The Ohio State University College of Food, Agricultural, and Environmental Sciences and is also the recipient of The Ohio State University Agricultural Technical Institute's 1995 Distinguished Teaching Award. An Associate Professor of Entomology at Ohio State ATI, Headings has 22 years of experience in the field of entomology and has been involved in international work over a span of 38 years.

Mark Headings

Headings earned his bachelor's degree in biology from Goshen College and his master's and doctorate degrees in entomology from Michigan State University. Since joining the Ohio State ATI faculty in 1978, Headings has taught over 10 different courses, developed several new course offerings, and developed and taught a number of short course offerings for industry personnel. He has also taught courses in Swaziland, the Dominican Republic, Guam, South Africa, and Andros Island in the Bahamas. Headings specializes in entomology and pesticide-related courses.

Prior to his employment at Ohio State ATI, he served as an assistant professor entomology and pesticide training coordinator at The University of Guam. He has also held positions as the project leader for insecticide development for the agricultural division of Rhodia (Rhone Poulenc) in New Jersey; the director of community development at Grande Riviere du Nord, Haiti; and he served as a community development worker in Germany, Austria and Greece.

Headings is a member of the Entomological Society of America, the OH AgriBusiness Association, the National Assn. of Colleges and Teachers of Agriculture, the Caribbean Food Crops Society and the Tri-County Beekeepers' Assn. He and wife, Mary, reside in Wooster, OH.

NEW USDA RESEARCH BOSS

Catherine Woteki has been named deputy under secretary of agriculture for research, education, and economics, Secretary of Agr. Dan Glickman announced (Dec. 21). As deputy under secretary, Woteki will assist in the management of the U.S. Dept. of Agriculture's Agricultural Research Service; the Cooperative State Research, Education, and Extension Service; the Economic Research Service; and the National Agricultural Statistics Service. She will help oversee national and international research and educational activities in pest management, livestock diseases, food safety and nutrition, improved crop and livestock production, and sustainable agriculture. Prior to her appointment as deputy under secretary, Woteki served as the acting associate director for science at the White House Office of Science and Technology Policy. She joined that staff in 1994 as the deputy associate director and provided leadership on the administration's policy relating to science and technology.

NOMINATIONS SOUGHT

The James I. Hambleton memorial award was established by the Eastern Apicultural Society of North America to recognize research excellence in apiculture. The EAS Student Apiculture award was established to recognize students studying apiculture at the undergraduate or graduate level in a recognized college or university in the United States or Canada. The awards for 1996 will be presented at the annual meeting of the society in Harrisonburg, Virginia, July 29-August 2, 1996.

Nominations are now being accepted for both awards. This is an excellent opportunity for the beekeeping industry to recognize the research excellence of its members. Undoubtedly, many deserving researchers are bypassed for this recognition for lack of a sponsor.

Each award nomination must include a biographical sketch of the nominee, a list of his/her publications, specific identification of the research work on which nomination is based and an evaluation and appraisal of the accomplishment of the nominee, especially of work in the last five-year period for Hambleton award nominees (or a shorter period for Student nominees). Two letters of recommendation supporting the nomination are also required.

Nomination and letters of recommendation should be sent to Clarence H. Collison, Box 9775, Mississippi State, MS 39762 and received no later than March 1, 1996.

AAPA STUDENT WINNER

The American Association of Professional Apiculturist (AAPA) has initiated a $1000 student research award. The first winner is Hannah Fraser. Ms. Fraser is currently pursuing a master of Science at the Univ. of Guelph, Guelph, Ontario, Canada, under the direction of Dr. Cynthia Scott-Dupree. The subject of her research involves behavioral analysis of the volatile sex pheromone components released by the male greater wax moth, *Galleria mellonella* (L.), and an evaluation of their use in trapping systems. The AAPA is pleased to to offer this award to assist and encourage students doing research on important apicultural problems.

1996 NC CALENDAR AVAILABLE

The NC State Beekeepers Association is continuing its tradition of publishing an annual beekeeping calendar and the 1996 edition is available to interested beekeepers.

Each month of the calendar contains information on honey plants and recommended management practices. The information is particularly applicable to the middle Atlantic states but it is of general use throughout the country. In addition there are in-depth articles on topics such as the History of Foundation, *Varroa* Mite Disease, Pollen, and much more. All of this is complemented by very attractive and accurate drawings of selected honey plants.

The price of each calendar is $6.00. However, by paying $10.00 dues to the NCSBA for 1996 you will receive both a 1996 calendar and a 1997 calendar when it is published at the end of next year, plus all the other benefits of membership in the NC State Beekeepers Association.

Send checks payable to NCSBA (please note number of calendars or NCSBA dues), 1403 Varsity Drive, Raleigh, NC 27606. Postage and handling are included in the calendar price.

ROYAL JELLY STUDY FUNDED

A scientific study has begun in Britain to see if Royal Jelly can alleviate arthritis.

The study, funded by Irene Stein, an importer of Royal Jelly, is being conducted at the Oldchurch National Health Service Hospital in Romford, Essex.

"I've never had so many reports back from customers as on arthritis," Stein said. "Of 9,000 customers who have taken it to help with their arthritis, 25 percent of them say they are still getting benefit from it.

"What I want to do now is to turn the large amount of anecdotal evidence we've collected into something more concrete," she said.

"We now are looking at setting up a trust to carry out other trials on Royal Jelly to be a natural remedy and not an expensive but worthless indulgence made up of water and sugar with compounds of unknown composition.

"One of the problems has been that there have been so few funds for research," said Exeter University's Prof. Edzard Ernst, an authority on complementary medicine.

"Manufacturers say they are too small, and they have a lot to lose if the results come out negative," he said. "Anecdotal evidence isn't very convincing as people do get better by themselves. But there is sufficient anecdotal evidence to form a hypothesis worth testing."

Some 200 patients will take part in the study and preliminary results are expected to be announced next summer.

GROWN IN CYBERSPACE

Now you can grow in cyberspace. **Horticulture in Virtual Perspective (HVP)**, an interactive Internet site, offers you horticultural data bases, searchable fact sheets, a plant dictionary, links to other gardening resources, and much more. It was created by OARDC scientist Tim Rhodus and was recently ranked among **the top 5 percent** of all Internet sites by Point Survey, a free service that rates and reviews World Wide Web sites. It's located at [http://hortwww-2.ag.ohio-state.edu].

NEW ID SYSTEM FOR BLACK BEES

Three schoolgirls whose research has led to a new classification system to improve the native status of the Dark European Bee have won the Young Scientist of the Year Award.

Elsie O'Sullivan, 15, Rowena Mooney, 15 and Patricia Lyle, 14, a year ago wrote to beekeepers all over Ireland asking them to donate 30 bees each.

The replies were impressive – they were sent 20,000 bees.

"Some of them were alive when they arrived because we could hear them buzzing," Patricia Lyle said. "We put them in the freezer."

Many bee stings later they entered a project in the award competition called "The Perfect Queen Bee."

The teenagers spent last summer examining their bees. The main focus was on the right fore-wings which were mounted for further study. By examining the veins on the wing they were able to identify which breed it was.

This first of its kind research in Ireland and Britain resulted in the development of a new classification system that can be used to subdivide Ireland's bee population into three categories.

Apiarists said the research will form a comprehensive basis for the creation of a breeding program to improve the native status of the Dark European Bee and could make a significant impact on honey output.

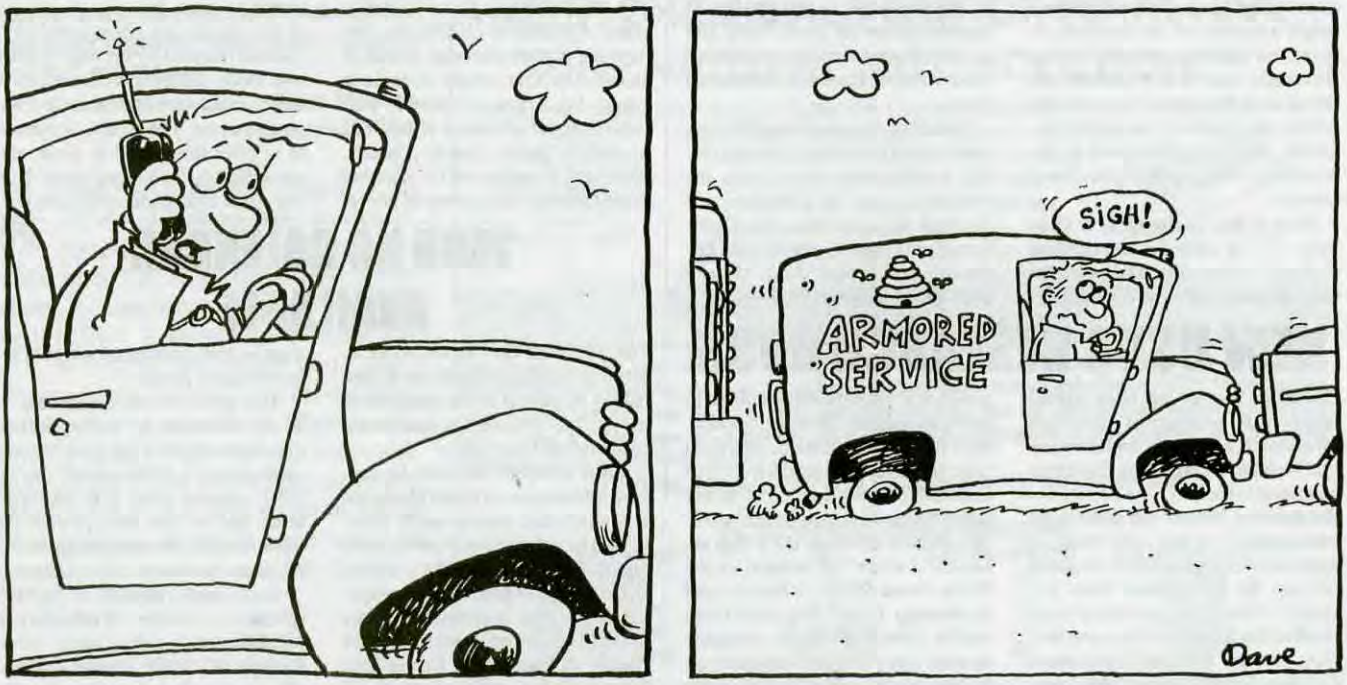
A judge, Prof. Michael Hennerty, said he was amazed that three teenagers could come up with such a result. The research had not been done before, he said, "because it would have been too much work for a professional scientists."

During that research the three girls became hooked on beekeeping and now have their own hives.

"In the beginning we didn't know a bee from a wasp," Elsie O'Sullivan said.

Now they have been made honorary members of the British Isles Bee Breeders Assn. and will represent Ireland next Sept. in the European Union Science Contest in Finland.

(To Be Decided)



"You want this load of honey delivered downtown to what bank for storage?!?"

CALENDAR

♦INTERNATIONAL♦

The International Arab Beekeepers Congress will hold their first meeting Aug. 16-19, 1996 at the Aquarium Hotel in Jounieh, Lebanon. Research reports will be presented. The meeting will be held under the auspices of the Lebanese ministre of agriculture and the Ministry of Environment.

For information, contact Rashid Yazbek, P.O. Box 90-1404 Jdeidet Beirut, Lebanon. Tel: 01-890644 FAX: (961) 1888678.

International Conference on Bee Products will be held in Israel May 26-30, 1996 at Dan Panorama Hotel & Convention Center, Tel Aviv, Israel.

For reservations or additional information, please contact: Ms. Hagar Saad Dan Knassim Ltd., Exhibition Dept., P.O. Box 1931, Ramat-Gan 52118, Israe, Phone 972-3-6133340, FAX. 972-3-6133341.

The Seventh International Symposium on Pollination will be held in Lethbridge, Alberta, Canada, June 23-28.

For information contact K.W. Richards, Lethbridge Res. Center, Lethbridge, Alberta, Can. T1J 4B1, (403) 327-4561. FAX (403) 382-3156.

The 1996 Bee Masters Course will be offered February 19-24 at Simon Fraser University, Burnaby, British Columbia, Canada.

Lecturers for the 1996 course include Rob Currie, Cynthia Scott-Dupree, Maryann Frazier, Mark Winston, Paul van Westendorp, Doug McCutcheon, and others.

For information contact Athena Roussinos (604) 291-3649 or Penny Southby (604) 291-3854, Conference Services, The Halpern Centre, Simon Fraser Univ., Burnaby, B.C. Canada V5A 1S6, FAX (604) 291-3420.

♦ALABAMA♦

Auburn University and the Alabama Beekeepers Association is offering a one-day workshop for beginner and intermediate beekeepers at Auburn on Saturday, February 10.

Instructors include Dr. James E. Tew, entomologist, and David Heilman, Apiculturist and Master beekeeper, both of Ohio State University. The workshop will be a series of practical demonstrations and lectures intended to increase the skill of basic and intermediate beekeepers in the areas of hive management, honey bee management, honey production and processing, and pollination services.

For information, contact Frank Little, President, AL Beekeepers Association, 5728 Belleridge Trial, Irondale, Alabama 35210.

♦CALIFORNIA♦

The Sacramento Area Beekeepers Association offers two beekeeping workshops in the early spring 1996. Beginning Beekeeping is taught by Randy Oliver, a commercial beekeeper and queen producer from Grass Valley. It is a one day workshop, Saturday March 23, 1996 8:00 a.m. to 4:00 p.m. at the Sacramento County Cooperative Agricultural Extension Auditorium, 4145 Branch Center Road, Sacramento, CA. The cost is $25 per person or $40 for a family of two or more (parents and children).

The Intermediate Beekeeping instructor is Dr. Eric Mussen, the Extension Apiculturist at the University of CA at Davis and noted authority on beekeeping. The Intermediate workshop is one day, Saturday, March 30, 8:00 a.m. to 4:00 p.m. at the Sacramento County Cooperative Agricultural Extension Auditorium, 4145 Branch Center Road, Sacramento, CA. The cost is $25 per person or $40 for a family of two or more (parents and children).

Please register as soon as possible. For information telephone Pam or Nancy at 916-451-2337, Tuesday through Saturday between 10:00 a.m. – 4:00 p.m.

♦FLORIDA♦

The second ever meeting of New York State beekeepers in Florida will take place on Saturday, February 10 at the Archbold Biological Station. The Station is south of Lake Placid which is in the south central part of the State. To reach the Station go south on route 27 to highway 70 that goes east and west across the state. Go west on route 70 for about one mile and turn south on Old State Road 8 just before the railroad tracks. The Station entrance is one mile south.

The meeting will start at 10:00 a.m. and last through about 3:00 p.m. Empire State Honey Producers Association President Jim Doan will preside. Florida Chief Apiary Inspector Lawrence Cutts, University of Florida Professor Tom Sanford, *Bee Culture* Editor Kim Flottum, New York Senior Apiary Inspector Paul Cappy, will be present. For information contact Roger Morse c/o Archbold Biological Station, 123 Main Drive, Venus, FL 33960 (813-465-2571).

♦GEORGIA♦

The Spring meeting of the GA Beekeepers Association will be February 17 at the Farm Bureau Building, Bass Road, exit #56 off I-75 north of Macon.

Registration begins at 8:00 a.m. Dr. Tom Webster of Kentucky State University will speak on The Secret World of Queen Rearing, Nosema, and Beekeeping in Ecuador. Mr. Robert Taylor of Ponchatoula, Louisiana will speak on The Frugal Beekeeper, and Running a Bee Removal Business. This meeting will feature the new Barg-O-Rama – a chance for beekeepers to buy and sell new or used equipment.

♦HAWAII♦

The WAS invites you to join them in Hawaii in August of 1996. The annual meeting will be held on the big island of Hawaii close to the center of Hawaiian commercial beekeeping. A full program of local, national and international speakers, combined with beekeeping tours and visits to the grandeur of volcanoes and tropical forests will take place during the period August 5-9, 1996. An ocean fronted commercial hotel will be the venue for our meeting.

For more information contact Michael Burgett, Department of Entomology, Oregon State University, 2046 Cordley Hall, Corvallis, OR 97331-2907, (503) 737-4896, email: burgettm@bcc.orst.edu.

♦ILLINOIS♦

Midwest Beekeeping Symposium, Saturday, March 9, 1996 at McHenry County College, Crystal Lake, IL.

Researcher and author, Dr. Keith Delaplane from the University of Georgia will be the featured speaker plus workshop sessions on a wide range of subjects related to bees and their husbandry. For registration information call (815) 455-8697. Symposium

Continued on Next Page

sponsored by the Northern Illinois Beekeeper's Association and McHenry County College.

♦IOWA♦

Beginning Beekeeping Class in Des Moines. An 8-week beginning beekeeping class will be taught at the Des Moines Botanical Center starting March 11th. This class is sponsored by the Iowa Department of Agriculture, Iowa State University Extension and the Des Moines Botanical Center.

Pre-registration is required by February 20th and a fee will be charged. For more information call Bob Cox, State Apiarist, Iowa Department of Agriculture, Wallace State Office Bldg., Des Moines, IA 50319. Phone (515) 281-5736 Fax (515) 242-5015.

♦KENTUCKY♦

Kentucky State Beekeepers will hold their Spring Conference on March 30 at the Campbell County Extension Office, 3500 Alexandria Pike, Highland Heights, KY.

Registration begins at 9:00 a.m. and meeting starts at 10. The program will feature information for "Beginning Beekeepers" and should be of interest to all beekeepers regardless of age and experience.

For more information contact James E. Davis, (502) 857-2272 or Dr. Tom Webster at (502) 227-6351.

♦MICHIGAN♦

ANR Week Beekeeping Program will be held at Michigan State University, East Lansing, MI, Kellogg Center - Lincoln Room, Friday and Saturday, March 8-9, 1996.

The program will cover a wide range of beekeeping and beekeeping problems. Speakers include apiculturists, scientists and beekeepers for an extensive two-day workshop on beekeeping. Current beekeeping problems of parasitic mites, stimulating honey bee populations, New World Carniolan Bees, Spring Management, as well as other topics of interest to beekeepers. Guest speakers include Susan Cobey from OH State Univ. and Anthony Jadczak from the ME Dept. of Agriculture. Others include Roger Sutherland, Roger Hoopingarner and Larry Conner.

Registration for the two-day meeting is $5. Room reservations at the Kellogg Center may be made by calling (517) 432-4000.

Southeastern Michigan Beekeeper's Association, in cooperation with the Schoolcraft College Beekeepers' Club, will hold it's 58th Annual Bee School on Saturday, April 20, from 8:00 a.m. to 4:00 p.m., in the Waterman Center Building at Schoolcraft College, 18600 Haggerty Road, Livonia, MI.

Specially featured again in this year's bee school, is a series of "Beginner Workshops" each dealing with a different aspect of beekeeping to help the new beekeeper get started.

For information, please call Roger Sutherland (313) 668-8568 or Joe Peczynski at (313) 464-4517.

♦NEW YORK♦

Western New York Producers Association will hold their annual winter meeting February 17, from 9:00 a.m. to 3:00 p.m. at East Aurora Presbyterian Church, Corner of Main St. and Payne St., East Aurora, NY. Beginning beekeeping, including patties, *Varroa* and tracheal mite control and hive construction are included.

For more information contact Bob Harkison, (716) 691-7382.

♦NORTH CAROLINA♦

The North Carolina State Beekeepers Association Spring Meeting will be March 1-2, 1996 at the Wake County Commons Building in Raleigh, NC.

For more information call Dr. John Ambrose, Extension Apiculturist at (919) 515-3140.

The summer meeting is July 18-20 at the Ramada Inn, Burlington, NC.

♦OHIO♦

The Tri-County Beekeepers Association of northeastern Ohio and The Ohio State University Extension will hold their 18th Annual Beekeeping Workshop on Saturday, March 2, 1996 in Fisher Auditorium at the Ohio Agricultural Research and Development Center. OARDC is located at the junction of State Routes 83 and 250 in Wooster, Ohio.

This year's program includes two keynote addresses; Dr. Eric Erickson of Tucson, AZ, will speak on mite research and Ann Harman will speak on international beekeeping.

Pre-registration is $8.00 per per person ($9.00 at the door). Lunch is available for $3.50, but only by pre-registration which must be received by February 24, 1996. Mail check for $8.00 or $11.50 per person with name and address to Norm and Sue Sharp, 3906 Campbell Street, Sandusky, Ohio 44870. For more information call (419) 625-9495.

The Butler County Extension Office, Scarlett Oaks Career Center and the Southwestern County Beekeeping Organizations will hold their regular Spring all-day workshop meeting March 30, at the Scarlett Oaks Career Center, 3254 East Kemper Road, Cincinnati, OH located one block off I-275 on the Moteller exit, north of the city. Registration begins at 8:00 a.m., and the fee is $14.00 each adult, $9.00 each child, including lunch. Any 4-H member receives free registration.

To register, contact Steve Bartels at 513-887-3222 (8-4:30) by March 1, 1996.

♦OREGON♦

The Lane County Beekeepers Association will be having a one-day beekeeping school covering the essentials of beginning and advanced beekeeping, March 9, Saturday, from 8:00 to 5:30 p.m. at the Lane County Fairgrounds, Lane Extension Building, 950 W. 13th Avenue, Eugene, Oregon 97401.

For information contact Bill King, 541-746-3839. There is a $15 registration fee, which includes a beginning book, materials and slides. ($20 Maximum for two people from one family.)

♦SOUTH CAROLINA♦

The South Carolina Beekeepers Association will hold their spring meeting Saturday, March 2, at the Farm Bureau Building, 424 Knox Abbott Drive, Cayce, (West Columbia) SC. Registration begins at 7:45 a.m. and the meeting will get under way at 8:30 and end at 3:00 p.m.

For further information, call Mike Hood, Executive Secretary, South Carolina Beekeepers Association, (ph. 803-656-0346).

♦TEXAS♦

The 9th International Palynological Congress will be held in Houston, TX June 22-29, 1996 at The JW Marriott Hotel.

Symposia topics and field trips for the 9th IPC are still in the planning stage.

For information contact Sarah Damassa, 3 Ridge St., Winchester, MA 01890.

BOOKS & NEWSLETTERS

AN EYEWITNESS ACCOUNT of Early American Beekeeping by A.I. Root. The pioneers of beekeeping as close your bookshelf. Cat. No. X1, $3.69 postpaid. The A.I. Root Co., 1-800-289-7668. (TF)

PERIODICALS

RURAL HERITAGE – bi-monthly how-to, dedicated to preserving the traditional rural lifestyle, with emphasis on farming & logging with horses, mules, & oxen. Sub. includes THE EVENER Workhorse, Mule & Oxen Directory; $19 for 6 issues; $34 for 12 issues; sample $6. Rural Heritage, 281-B Dean Ridge Lane, Gainesboro, TN 38562.

WANT INFORMATION ON EXOTIC animals & the marketplace? Subscribe to Wings & Hooves. $16 yr. Dept. 1, Rt. 1, Box 32, Forestburg, TX 76239-9706.

THE SCOTTISH BEEKEEPER. Magazine of The Scottish Beekeepers' Assoc. Rates from D.B.N. Blair, 44 Dalhousie Rd., Kilbarchan, Renfrewshire, PA 10 2AT, Scotland, U.K. Sample $1.

DIE NEUE BIENENZUCHT Monthly magazine for beekeepers interested in German beekeeping. Hamburger Str. 109, D-2360 Bad Segeberg, West Germ.

IBRA: INFORMATION AT YOUR FINGERTIPS. IBRA is *the* information service for beekeepers, extension workers and scientists. Our members support this service and enjoy the benefits of belonging to IBRA, which includes *Bee World*. We need your involvement - join IBRA - support this important information network and extend your beekeeping horizons. For more information contact: IBRA, 18 North Road, Cardiff CF1 3DY, UK. Telephone (+44) 1222 372409. Fax (+44) 1222 665522.

SCOTTISH BEE JOURNAL. Monthly magazine. Sample copy from Robert NH Skilling, FRSA, 34 Rennie St., Kilmarnock, Scotland. $4. per annum.

BEE CRAFT – Monthly journal of British Beekeepers Assn. Subs., including postage is £13.68 surface mail to L. Connor, P.O. 817, Cheshire, CT 06410.

THE AMERICAN BEEKEEPING FEDERATION needs your support in efforts to stop adulteration, improve marketing conditions and encourage research on African Bees and Varroa and Acarine Mites. For information, membership application and sample of bi-monthly News Letter write to: THE AMERICAN BEEKEEPING FEDERATION, INC., P.O. Box 1038, Jesup, GA 31545-1038.

IRISH BEEKEEPING. Read An Beachaire (The Irish Beekeeper) Month. Subs. $15./year, post free. Seamns Reddy, 8 Tower View Park, Kildare.

THE AUSTRALASIAN BEEKEEPER. Published month. by Pender Beekeeping Supplies Pty. Ltd. The Australasian Beekeeper, PMB 19, Maitland NSW 2320, Australia. Sub. $US27. per annum, Surface Mail (in advance). Pay by Bank Draft. Sample on request.

RARE BREEDS JOURNAL. Bi-monthly journal about exotic, minor & rare breeds of domesticated animals & their owners. $18.00 (U.S.)/year, $24.00 Foreign; $2.50 for sample copy. Rare Breeds Journal, Dept. Bee, HCR 1, Box 45, Hebron, ND 58638 (701) 878-4970.

CANADIAN BEEKEEPING. The news media of the Canadian Honey Industry. One year sub. (10 issues) in Canada and U.S. $20. Foreign subscribers send $40. Canadian Beekeeping, Box 678, Tottenham, ON, Canada, L0G 1W0.

BRITISH BEE JOURNAL. Monthly single copies 33p + post. $15/yr. U.S. Annual subscription postpaid. Subagent: 46 Queen St., Geddington, NR Kettering, Northants, NN14 1AZ, Eng.

Bee interested. For beekeeping information read the AMER. BEE JOUR. New editorial emphasis on practical down-to-earth material, including question & answer section. For information or free copy, write to: AMERICAN BEE JOUR., Hamilton, IL 62341.

THE AUSTRALIAN BEE JOUR. Monthly, SeaMail $30.00 (Aus.), AirMail $50.00 (Aus.). Write to: Victorian Apiarists' Association Inc., Editor, Ms. Judy Graves, 23 McBride Rd., Upper Beaconsfield, Victoria, 3808, Australia. Sample $3 (Aus.) on request.

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THE NEW ZEALAND BEEKEEPER. published 11 times a year Feb - Dec. by the National Beekeeper's Association of NZ. Write for rates & indicate whether airmail or surface mail. NZ BEEKEEPER, Farming House, 211-213 Market Street South, P.O. Box 307, Hastings, NZ.

THE GIBSON LETTER. A monthly newsletter that takes another look at beekeeping news. Edited by Glenn Gibson. Subscription - $48/year. The Gibson Letter, P.O. Box 368, Minco, OK 73059.

BOTTOM BOARD ... Cont. From Pg. 124

near the town of Samarang, close to the north coast in central Java. Exactly when he did this is unknown, but it was probably sometime in 1902 or 1903. He sent four adult female specimens to a Mr. C. Ritsema who was a conservator for the Leyden Museum in Holland. Ritsema forwarded the mites to Oudemans, who at the time was a teacher in the Dutch town of Sneek.

Why Oudemans chose *Varroa* as the genus name of this new mite will probably never be known. However, it was at least an interesting choice. A quick check of the dictionary comes up with the historical Roman figure Marcus Terenius Varro, who was a scholar and writer who lived during the period 116 to 27 B.C.

Beekeepers all over the world have now incorporated the word *Varroa* into their vocabularies. The spread of this remarkable honey bee parasite is testament to the hazards of non-regulated honey bee movement between continents. If anyone ever questions the reasons for the existence of regulations designed to control movement of plants and animals, you need only cite the story of the human-assisted dispersal of *Varroa jacobsoni* Oudemans throughout the world.

Display Index

What's In A Name?

Michael Burgett

The movement of parasitic mites to new countries and continents has generated great concern for the health and welfare of our colonies and of our beekeeping industry as a whole. Because these mites are "new" to us, we have found our knowledge of their biology and parasitic habits to be inadequate. The lack of easily understood common names for these mites has confused us further. A recent letter to the editor in a U.S. beekeeping trade publication exposed some real misunderstanding about scientific names and their origins. Specifically, I would like to discuss the origin of the name of the Asian brood mite, *Varroa jacobsoni* Oudemans.

Insects and mites dominate the world, both in biomass and in the number of species. There are close to one million species known thus far, and it is estimated that there may be as many as 30,000,000 now sharing our planet with us. With such an abundance of creatures, properly naming them is vital if we are to be sure that we are all talking about the same animal. Carolus Linnaeus, a Swedish botanist, resolved this problem for us more than 250 years ago when he proposed a "new" system of naming plants and animals: a system we term binomial nomenclature, a fancy way of saying a name composed of two words. The system Linnaeus proposed was quickly adopted by biologists all over the world. So let's explore the name *Varroa jacobsoni* Oudemans.

Many plants and animals have common names as well as Latinized scientific names. *Varroa jacobsoni* does not yet have a widely recognized common name, or at least not a short one. It is sometimes called the Asian honey bee brood mite (far too long), but this is not particularly descriptive. It does have an Asian origin, but so do a number of other brood mites that parasitize honey bees. It now appears that all honey bee species, except our Western honey bee *Apis mellifera*, have their individual brood mite parasites; some bee species actually have more than one species of brood mite attacking them. These other mite species are not familiar to most beekeepers, especially to those of us outside of Asia. But indeed we have come to know *Varroa*.

The native host for *Varroa* is the Eastern honey bee, *Apis cerana*. This honey bee species is the closest living relative of our Western honey bee, *Apis mellifera*. Because these two bee species are so closely related, *Varroa* was able to adopt the Western honey bee as an alternative host following the introduction of the Western honey bee to eastern Asia (before humans began moving bees around, *Apis mellifera* and *Apis cerana* did not share any overlapping geographical areas). Because *Apis mellifera* had never hosted a parasitic brood mite during the course of its evolution in Africa and Europe, it developed no natural defenses against *Varroa*.

Varroa was first discovered in the early years of the 20th century. A 1904 paper written by a Dutch mite specialist gave the first description of *Varroa*. This unusual mite was so different from other mites that Dr. A.C. Oudemans (the man who named the mite) opened his short descriptive paper with the following words: "This most **remarkable** genus probably belongs to the subfamily of Laelaptinae." This mite was so "remarkable" that not only was it recognized as a new species, but also as a new genus of mites as well. Near the end of his paper, Oudemans comments: "At all events the discovery of these female mites is a fortunate one and a **brilliant** contribution to parasitism." Most beekeepers today would seriously question Oudemans' use of the words remarkable and brilliant. Who was this man that named *Varroa* and why did he assign it the name of *Varroa jacobsoni*?

Anthonie Cornelis Oudemans was born in 1858 in the Dutch East Indies, in the town of Batavia (present-day Jakarta, the capital city of Indonesia). While he was still a young boy, his family returned to Holland. Oudemans studied botany and zoology at the University of Utrecht and received his Ph.D, in 1885. For a number of years, he was a conservator at the Zoological Museum at Utrecht and director of the Zoological Gardens at The Hague.

Sometime shortly after the turn of the 20th century, Oudemans received specimens of a heretofore unknown mite collected on the island of Java. At that time, Java was part of the colonial empire of Holland, and, as one would imagine, was populated by a large number of Dutch expatriates. History tells us little about the Dutchman who actually collected the mites from a colony of the Eastern honey bee *Apis cerana* in Java, but Oudemans acknowledged him in two ways; the first was in his 1904 paper where he states that the mites were "Collected by Mr. Edward Jacobson . . . ." Oudemans further honored Mr. Jacobson by Latinizing Jacobson to *jacobsoni* for the species name of the mite. Naming a mite species after its original collector is frequently done by taxonomists who receive interesting, and in this case "remarkable," specimens of new species.

Jacobson collected the mites from an Eastern honey bee colony

Continued on Page 122

Controlling Bacterial Diseases With Terramycin

Honey bees are susceptible to numerous bacterial infections, and are regularly treated twice a year (at the beginning of the spring and fall) to prevent the spread of the common bacterial infections known as American foulbrood and European foulbrood. American foulbrood, caused by the bacterium *Bacillus larvae*, is a more severe and devastating disease than European foulbrood, caused by the cocci *Streptococcus pluton*. However, both conditions can cause colony losses and require the application of systematic preventative measures.

Terramycin has demonstrated over the years to be a reliable, effective treatment for prevention of these bacterial infections in honey bees. Terramycin Soluble Powder and Terramycin-100D are approved for control of bacterial infections in bees. The special formulation of these products make them the right choice for bee medication. Because they have different ingredients that may harm the insect body systems, *other formulations of Terramycin are not recommended for use with bees, and do not have FDA approval for such use.*

Terramycin Soluble Powder contains 10 grams of oxytetracycline hydrochloride per 6.4 ounce packet, or 25 grams per pound of product. Because of this concentration, it has historically been referred to as Terramycin-25 (TM-25) although that is not the correct name for the product. Terramycin-10 (TM-10) is no longer available.

Though Terramycin Soluble Powder (6.4 oz.) and Terramycin-100D (50-lb. bag) have been used for a long time in the honey bee industry, there is still confusion and misunderstanding in how they should be used. The following directions explain how to administer Terramycin by dusting, and in extender patties.

Dusting

To administer Terramycin by dusting, mix Terramycin Soluble Powder or Terramycin 100-D and powdered sugar according to the amounts shown for the number of colonies you are treating. Apply this mixture by dusting the outer parts or ends of the frames with one ounce of the mixture. Usually three applications at four- to five-day intervals are required in the spring and/or fall. To prevent contamination of marketable honey, *complete all treatments at least four weeks before the main honey flow begins.*

Dusting Dosage Guide

Terramycin Soluble Powder # packs (6.4 oz.)		Powdered Sugar (lb.)	Colonies Treated (1 oz/colony)
1	+	2 lb., 12 oz.	50
2	+	5 lb., 7 oz.	100
3	+	8 lb., 3 oz.	150
4	+	10 lb., 14 oz.	200
Terramycin-100D (lb.)		**Powdered Sugar (lb.)**	**Colonies Treated (1 oz./colony)**
1.75	+	50	828
3.50	+	100	1626
5.25	+	150	2484
7.00	+	200	3312

Extender Patty

To administer Terramycin in an extender patty, mix Terramycin Soluble Powder and vegetable shortening/powdered sugar into patties using amounts shown for number of colonies you are treating. Place the patties on the top bars of the brood nest frames.

Because Terramycin 100-D has such a high concentration of oxytetracycline, an intermediate mixture of Terramycin 100-D and powdered sugar must be prepared (see Table). This intermediate mixture contains approximately 200 mg. of oxytetracycline hydrochloride activity per ounce. It should be combined with the shortening and remaining powdered sugar at the rate of 4 ounces per 6 oz. of vegetable shortening and 12 oz. of sugar. Place the patties on the top bars of the brood nest frames.

Extender Patty Dosage Guide

Terramycin Soluble Powder # packs (6.4 oz.)		Vegetable Shortening (lb.)		Powdered Sugar (lb.)	Colonies Treated (1 oz/colony)
1	+	4 lb., 9 oz.	+	9 lb., 2 oz.	14
2	+	9 lb., 2 oz.	+	18 lb., 4 oz.	28
3	+	13 lb., 11 oz.	+	27 lb., 6 oz.	42
4	+	18 lb., 4 oz.	+	36 lb., 8 oz.	56
5	+	22 lb., 13 oz.	+	45 lb., 10 oz.	70
Terramycin-100D (TM 100-D/pow. sugar) (lb./lb.)		**Vegetable Shortening (lb.)**		**Powdered Sugar (lb.)**	**Colonies Treated (1.3 lb./colony)**
14 oz./25 lb.	+	37 lb., 10 oz.	+	75 lb., 4 oz.	103
1 lb. 12 oz./50 lb.	+	75 lb., 4 oz.	+	150 lb., 8 oz	207
3 lb., 8 oz./100 lb.	+	150 lb., 8 oz.	+	301 lb.	414
5 lb., 4 oz./150 lb.	+	225 lb., 12 oz.	+	451 lb., 8 oz.	621
7 lb./200 lb.	+	301 lb.	+	602 lb.	828
8 lb., 12 oz./250 lb.	+	376 lb., 4 oz.	+	752 lb., 8 oz.	1035

Since Terramycin 100-D is so highly concentrated, make sure the drug is thoroughly mixed with the other ingredients. If you do not have the proper equipment to mix large batches of medication, prepare smaller batches. Less than thorough mixing will yield a product that does not medicate all colonies evenly. All mixtures of Terramycin should be fed in the spring or fall and consumed by the bees before main honey flow begins to avoid contamination of production honey. Honey stored during medication periods in combs for surplus honey should be removed following final medication of the bee colony and must not be used for human food. Honey from colonies that are likely infected with foulbrood should not be used for preparation of medicated syrup supplements. It may be contaminated and may result in spreading the disease.

Remove Terramycin *at least four weeks before main honey flow.* Do not use in a manner contrary to state apiary laws and regulations. Each state has specific regulations governing disease control and medications. Contact the appropriate official or state departments of agriculture for specific inter- and intrastate laws and regulations.

This information has been produced and supplied by Pfizer Technical Services Department, and Mid-Con Agri-Marketing.