GLEANINGS IN BEE CULTURE FEB '89

BEE CULTURE

INSIDE

CALIFORNIA DREAMING . . .

FEBRUARY '89 CONTENTS

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NEXT MONTH

The business of pollination has changed considerably in the past 20 years or so. Next month, we have the results of a just completed national survey on this critical aspect of beekeeping. The facts are startling and everyone is going to be interested in this story — from the USDA right down to those of us with only a few colonies. The $20 billion figure is going to change, and in a *Bee Culture* exclusive, we'll show you why!

But that's not all. We have an excellent piece on harvesting pollen, looking at several types of pollen traps, with a good analysis of each style. Dr. Michael Roling leads us through the pollen trap maze.

But that's still not all. Dan Meyer takes a look at apple pollination problems in Washington state — certainly known for apples. It's good to hear from the NW again.

Two short pieces on blueberry and cranberry pollination follow, along with a piece on strawberry requirements, and even an avocado pollination story.

It's going to be a fertile issue next month, so don't miss it. Pollination Business — a *Bee Culture* exclusive, apples, berries and traps — all in *Bee Culture*. Δ

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THE INNER COVER

Old Combs Never Die . . . They Just Look That Way

There is an ongoing discussion among some of the experts in beekeeping about the use of 'old' combs. So let's talk about combs, it seems to be a good time of year, because you still have some time to do something about them for next season.

Wax, in particular beeswax, has some peculiar properties that you should be aware of. First, it is what chemists call lipophillic, or "water repelling/oil absorbing" It doesn't dissolve in water, an obvious observation. But think of this for a moment. Honey, essentially a water based sugar solution, has other things in it that are not water soluble. They are either suspended in the honey (like stirring up the mud at the bottom of a puddle it will eventually settle to the bottom again); or are in an emulsified state (like milk, which has oil globules so thoroughly mixed in that they won't settle out). But, these particles, and some of the oil based components will migrate out of honey to the wax cell walls in your combs. There they may be strongly attracted and absorbed, just attracted and stick to the surface, or eventually be moved away by bees, or extraction.

It's those chemicals that get absorbed into the wax that give it color and odor, along with the other stuff that gets on it over time, like propolis, pupal skins, dirt, pollen, pesticide particles (like wettable powders, not EC' s or solubles), bee parts, smoke particles and heaven knows what else.

All of this is either absorbed into the wax, or is covered by the bees to make it 'clean' again. It has been said that the wax in a colony functions much like the liver in an animal. It takes all the toxic substances from a hive and compartmentalizes them. The advantage of the liver of course is that there are means to get rid of this toxic load. Wax, on the other hand, doesn't have this release. It keeps absorbing, and being covered with junk.

Eventually, like a sponge, it becomes full. There is no more room! So what happens? Well, nothing exciting unfortunately. No neon lights shouting "WARNING, YOUR COMBS ARE FULL OF JUNK"; no error message on the screen that says "Comb Is Full, Please Replace"; no bells, whistles or fireworks. And this is why there is such a difference of opinion among the experts.

If bees aren't dying by the truck load people tend to not get excited I guess. But there's a term here that is used by the pro-change group that I really like — Sublethal. It means less-than-lethal.

But even here there is controversy. One side says that sublethal doses of toxins slowly kill, and definitely slow down, organisms. Thus, when your old combs are full, the added toxins just hang around, slowing, and slowly killing your bees. That makes sense to me.

However, the other side says, "Balderdash!" Small amounts aren't important because the bees can tolerate them. They get covered, or absorbed, or removed and aren't a problem. There seems to be something to say about this argument too, and I can't completely discount it.

Well, I don't have a whole lot of proof either way. But I do have some. First, there are reports from Europe of 'processed, refined wax, made into foundation, having enough pesticide still in it to KILL the bees it was introduced to'. Second, in unofficial tests run by the USDA awhile back, every known pesticide was found in new foundation purchased from all three big suppliers. (Results NOT published). Third, candle makers in FL

Continued on Page 118

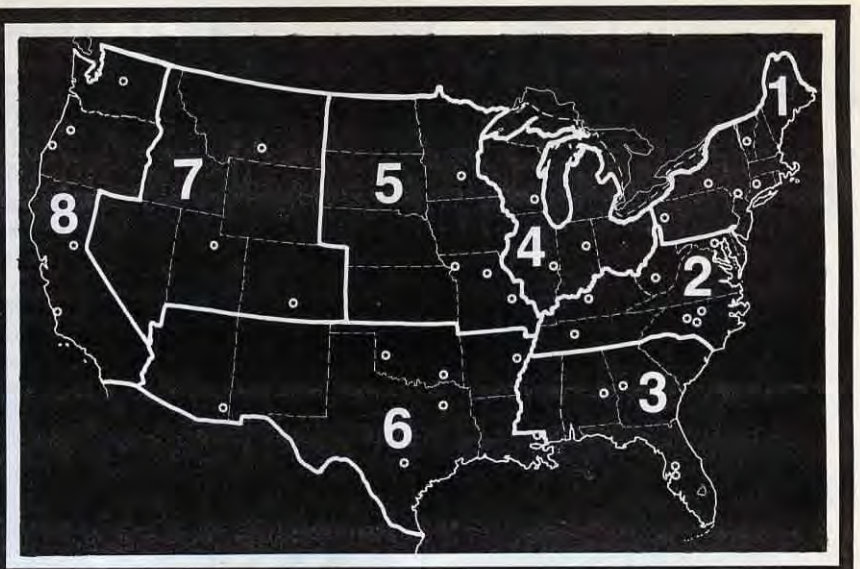
COVER . Hyacinths, spring flowering bulbs belonging to the lily family, provide color and fragrance for us, and nectar and pollen for honey bees. Primarily an ornamental, wild cousins can be naturalized under proper conditions. Blooming from late February on in the south and starting as early as April up north, they are excellent for cut flowers, spot color in early spring, or in beds and borders around the house. Bulbs should be planted in the fall and divided every few years.

photo by Diana Sammataro

FEBRUARY Honey Report

February 1, 1989

These figures represent current prices from our contributors. They are based on reports from many states and averaged for each region. Where insufficient information is received, no price is shown.



Wholesale Extracted	Reporting Regions								Summary		
Sales of extracted, unprocessed honey to Packers, F.O.B. Producer. Containers Exchanged	1	2	3	4	5	6	7	8	R	A	L
60 lbs. (per can) White	44.50	39.33	40.00	33.60	37.50	36.00	38.63	40.50	31.20-45.00	38.62	39.67
60 lbs. (per can) Amber	42.50	37.10	36.00	28.80	35.00	31.92	35.75	36.00	28.80-45.00	35.78	36.83
55 gal. drum/lb. White	.50	.43	.41	.42	.36	.61	.60	.59	.36-.65	.52	.55
55 gal. drum/lb. Amber	.51	.32	.37	.36	.36	.53	.57	.50	.32-.60	.47	.50
Case lots — Wholesale											
1 lb. jar (case of 24)	28.55	27.95	23.04	24.12	26.00	24.54	26.95	26.55	20.40-34.80	26.15	25.97
2 lb. jar (case of 12)	26.85	26.33	26.00	21.58	23.50	28.15	28.75	26.88	20.40-33.00	26.42	25.05
5 lb. jar (case of 6)	30.30	24.38	23.04	24.73	26.75	27.25	26.60	25.65	23.04-30.60	26.26	26.36
Retail Honey Prices											
1/2 lb.	.93	.91	.79	1.18	1.05	.87	.90	.87	.79-1.50	.94	.97
12 oz. Squeeze Bottle	1.50	1.57	1.19	1.27	1.48	1.03	1.20	1.37	.95-1.89	1.34	1.37
1 lb.	1.55	1.62	1.29	1.75	1.50	1.55	1.60	1.45	1.29-1.99	1.56	1.64
2 lb.	2.85	2.95	2.80	3.37	2.75	2.42	2.87	2.25	2.25-3.89	2.81	2.76
2-1/2 lb.	3.55	3.90	3.50	3.55	3.25	3.08	3.71	3.50	2.65-4.85	3.53	3.54
3 lb.	4.20	4.02	3.45	3.25	3.50	3.70	3.83	3.50	3.15-4.30	3.78	3.80
4 lb.	5.25	4.83	4.50	4.25	4.60	4.54	4.70	—	4.30-5.25	4.75	4.71
5 lb.	6.40	5.65	5.49	6.00	6.25	5.25	5.87	5.63	5.25-6.50	5.76	5.81
1 lb. Creamed	2.00	1.20	1.35	1.55	1.50	1.73	1.76	1.52	1.20-2.00	1.65	1.64
1 lb. Comb	2.37	1.86	3.00	2.25	2.25	1.92	2.70	2.25	1.75-3.00	2.20	2.32
Round Plastic Comb	2.00	1.72	2.00	1.85	1.85	1.72	1.85	1.75	1.25-3.00	1.81	1.90
Beeswax (Light)	1.13	1.00	1.00	1.05	.75	.86	.95	1.15	.75-1.25	1.00	1.04
Beeswax (Dark)	1.00	.91	.95	.95	.75	.79	.83	.85	.75-1.10	.87	.92
Pollination (Avg/Col)	28.75	—	—	26.25	—	18.50	23.00	28.25	18.00-32.50	25.16	24.07

Honey Report *Features*

Summary Column: There are 3 parts. **R** — Range of *all* prices reported for the month, lowest and highest. **A** — Average price for each commodity across all regions. **L** — Average price of each commodity listed *last* month.

Comments Section. Price Index — A descriptive statistic that takes into consideration *all* commodity prices, and compares each region to the others. The region with 1.00 has the highest overall prices for the month. A region with Price Index .90 has prices, overall, at 90% those of the region with 1.00.

Region 1.

Price Index 1.00. Sales steady to increasing, prices inreasing at good pace. East coast market excellent. Bears in CT still a problem, but colonies in most areas in good condition for wintering.

Region 2.

Price Index .90. Sales steady, but overall prices declining as specialty crops supplies run low. Colonies in good condition for the most part, with soil moisture conditions improving. Winter stores generally adequate, with some feeding required but several free flight days may require more feeding.

Region 3.

Price Index .86. Prices and sales steady, with seasonal sales average. Colonies in pretty good shape for the year. Good fall flow helped for winter stores. One reporter had 134 lb. per colony average for the year.

Region 4.

Price Index .79. Sales steady for this time of year, but prices declining. Post holiday rush over and sales slowing. Colonies in good condition generally, with fall rains helping the water table, and preparing for next spring.

Region 5.

Price Index .87. Sales and prices increasing at a slow but healthy pace. Small size container gaining favor and increasing sales. Amber honey in greater demand than white. Colonies in good condition for winter.

Region 6.

Price Index .86. Sales, supplies and prices all stagnant. Actually, sales a bit slow for the season. Bees in good shape, but concern over tracheal growing, along with varroa inspection problems.

Region 7.

Price Index .92. Prices increasing along with sales for seasonal demand. Some areas still very dry but conditions seem to be improving while other areas doing fine. Winter conditions seem generally good for the whole area.

Region 8.

Price Index .88. Sales slowing and prices showing a similar drop. Northern areas dry and mild but bees generally in good condition. Some southern areas damaged by storms and areas still dry. Almond pollination looking like $30/colony.

Anyone interested in becoming a "Honey Reporter" should contact the Editor.

MAILBOX

Perplexing Problem

I have been a regular subscriber to Bee Culture for a number of years now. Can you please throw some light on a disturbing phenomenon which we (a few hobby beekeepers and myself) have been witnessing in the last few years.

Whenever we move our colonies (distances of over 8 miles) to take advantage of different floral flows, colonies generally become utterly depopulated within say 6-10 days of the move. Before we move the bees, the hives are boiling over with bees. When we go and inspect the hives, say a week later, the majority of the bees are gone! It is not due to spray poisoning since the sites are barren "brush" stretches of land. There are no dead or crawling bees in front of the hives. It is not nosema, acarine or AFB. Moreover, within another month (after, of course, the flow is over and we've missed getting a surplus!) the colonies become full of bees and brood again (which is pretty useless considering that the flow had just ended). Can it be a case of the bees going out of the hive and failing to make it back? One significant fact is that when, years ago, we used the native black, relatively vicious strain of bees, this sudden depopulation did not occur (or at least it was definitely unnoticeable). It really started to show when we began importing a certain "docile" strain from the U.S.A.

Do you have an explanation for all this? This is the third year running that we failed to get a surplus because of this sudden depopulation of colonies. The few odd colonies that do retain their working force invariably collect good surpluses. We use modified Dadant size equipment.

Joseph Buhagiar
50, Victory Street
Zabbar, Malta (Europe)

Grape Idea!

I am fairly new to beekeeping, but I can see little has changed in many years.

I suggest the beekeepers look at the American Soybean Assoc. as a guide. They are newly formed. Each producer pays a small amount per bushel of production. This goes for lobbying efforts, research, public relations, and foreign markets — $1.00 per person plus 1¢ a pound would amount to enough to have some *full-time* promoters *and* researchers.

I think one thing that needs to be changed in this fast-paced world we live in is the form honey is in for cooking. Cooks don't want anything sticky that pours as slow as molasses in January.

My suggestion would be to put it in capsules — maybe 1 teaspoon or tablespoon sizes. Then for recipes calling for 10 tablespoons of honey could have the honey popped in like grapes.

David R. Christensen
R.R.1, Box 41
Anchor, IL 61720

Methods Questioned

Each month I carefully read the latest updates on the African bee situation — to my complete dismay. If the current tactics are any indication of what the "experts" will do upon the bee's arrival, we have plenty to fear.

I read about the latest research in Venezuela or Mexico and shake my head in amazement. Argentina, the country directly south of Brazil, and having a climate similar to the southern U.S. is the place to go for information on the impact of the AHB in a temperate region (ie., above or below 33° latitude). They've had the bee in Argentina for over 15 years and it is still one of the world's biggest honey producers. I think our investigators pick the site of study by where they want to vacation that winter, not where the information is relevant.

The so-called high-tech solutions go from bad to worse. The radio transmitter stuck on a bee's back was useless; it would be humorous if it hadn't cost so much. But the idea of poisoning all bees except selected strains of gov-

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MAILBOX

ernment approved hybrids by setting out a sucrose/lactose bait is the worst idea I've ever heard. This gives a beekeeper the choice of buying USDA stock or watching his bees die off (take your pick). Just as bad is the plan of baiting bees with sirup to determine the type of honey bees in a given area; the National Parks were mentioned (*American Bee Journal,* Dec. 88). If the bees attracted are European, fine. If African, toxic chemicals would be added to the sirup. What if you have both types? Kill 'em all?

The article states, "Since there is no spraying, the risk to the environment is minimal" Leaving buckets of poisoned sirup around would kill not just honey bees, but all sorts of wild insects such as butterflies, wasps, etc., not to mention various birds. Not much risk there!

Finally, I should mention the comments of Steve Taber. He suggests that the African bee can't be studied in other countries; it must be studied here (as he claims to have done in Louisiana). Just bring a bunch of African bees to California and see what happens. That's the type of thinking that got the bee to Brazil in the first place!

Peter van Borst
Del Mar, CA

Deliberate Disaster

Thank you for sending me your recent subscription offer, but I no longer have any bees left.

The local farmers have sprayed me so many times that the bees are all dead. I've sued a couple of times, but that hasn't stopped the farmers from spraying alfalfa or sweet corn in bloom.

They are still using DDT around here. It has killed not only my bees, but there are no more quail or other birds either.

It seems no one cares anymore, so I quit! I farmed for over 30 years without killing birds or bees, but not the farmers of today. They've killed my bees, the birds, and even the grapes!

I'm out of business now, but if you don't do something about these callous farmers, the bee supply companies will be out of business, too!

George Weber
Hilltop Mobile Ct.
Bloomington, IL

Male Mail?

Your headline "Equality Questioned, Again" over my November, 1988 letter was most interesting. The thrust of my comments was that some problems are better solved at the local level, rather than the national.

The 1890 *ABC of Bee Culture,* A. I. Root, Editor, featured Mrs. Lucinda Harrison as a beekeeper of note, and contained her biography. Each week in 1890, Dr. C. C. Miller, Prof. A. J. Cook,

Continued on Page 73

MAILBOX

G. M. Doolittle, G. W. Demaree, Dadant & Son, and Mrs. L. Harrison, among others, answered beekeeping questions for readers. (Both *ABJ* and *GBC* were weekly magazines in those days.) I read a year of her comments and found her to be an excellent beekeeper, and an interesting writer. About 10 women were writing articles on items of interest to beekeepers, such as temperatures inside the hive, methods of wintering, etc.

Reading current issues of *Bee Culture* I find women writing cooking columns, crossword puzzles, and very rarely, authoring a beekeeping article. Are you unable to find female beekeepers who write, or do you consider cooking columns the appropriate subjects for female authors? Based on available evidence, you seem to be a closet male chauvinist editor.

James A. Stokes
5617 Independence Road
St. Charles, Missouri 63303

The Other Side

We recently were interviewed by a reporter for our local paper. The reporter was friendly, even eager. The story she wrote was exceptional and has led to our writing a regular column for the paper on the products we produce — royal jelly, pollen, honey — and bees.

You *can* work with your local press for the benefit of beekeeping. The press isn't *all* bad

James Hagemeyer
Madisonville, TN

Pollen Promise

All of beekeeping is concerned about the onslaught of the African honey bees. We believe this is unwarranted.

The African honey bee will be the greatest boon to American beekeeping since the Langstroth hive! Beekeeping will finally become profitable and a desired and envied occupation — the way it should be.

I base this on the following conclusions:

1. The Africanized honey bee is from 3 to 10 times more active and more vigorous at nectar and pollen collecting than European or other types of bees.
2. The African bees swarm 5 and 6 and even 10 to 12 times in a 12-month period, while domestic bees seldom swarm.
3. African bees do not store much nectar in the colony because of their swarming characteristics.
4. I have been informed, and firmly believe, that if the African bee did not swarm so many times during the year it would collect several times the nectar our domestic bees do.
5. We know that *no colony has ever swarmed unless there has been an excess of pollen in the colony.*

If the foregoing facts are correct, and I believe they are, there's only one successful way to manage African honey bees when they arrive in the United States, and that is by placing a pollen trap on every colony.

- A pollen trap on every colony will strip the African bees of excess pollen, thereby reducing their swarming characteristic.
- Since the African bee is more active and energetic than our bees, they should collect and store more nectar in a colony from which they do not swarm.
- Pollen collected in the pollen trap could approach 50 to 100 pounds per colony per year.
- While this production would lower the price paid beekeepers ($3.00 to $4.00 per pound), increased pollen collection would compensate for the reduced price.
- The African honey bee has been reported to be healthier, more disease-resistant, more mite-resistant, etc., etc., than domestic bees; and if they can be controlled as herein outlined, they would give us a stronger, more profitable beekeeping industry.

Royden Brown
3627 E. Indian School Rd., Suite 209
Phoenix, AZ 85018-5126

Bee Culture Book Reviews

Old Favorite Honey Recipes and Honey Recipes Book. (2 books combined). American Honey Institute and Iowa Honey Producers Assn. ISBN: 0-916638-17-0. Published by Meyerbooks, Box 427, Glenwood, IL 60425.

This reprint of two outstanding honey cookbooks is true to the originals, and remarkably reproduces the form and format of the two.

Chock full of solid how-to and good eating tips, the low price ($3.95) makes this book an excellent gift, or give-away at club and association meetings.

And, it makes an even better gift for those who don't yet cook with honey. 90 pages, soft cover.

Kim Flottum

The Honey Bee. Distributed by W. H. Freeman and Company, 41 Madison Avenue, 37th Floor, New York, NY 10010 (212) 576-9400.

By James L. Gould and Carol Grant Gould, this book, in my opinion, is the most delightful bee book that has been released in recent years. The 239 page book, printed on high gloss paper, is replete with vivid color pictures, charts, and graphs. The text is comprised of ten chapters, eight of which pertain to various biological aspects of honey bees. The text is excellently written and is easy to understand.

J. E. Tew

Liar's Corner. Roger Welsch. Published by Plains Heritage Inc., Dannebreg, NE 68831.

The winner of the first Liars Contest held by the *Nebraska Farmer*, a magazine of some renown in those parts, was announced March 7, 1925. It went like this:

"One afternoon a whirlwind swept into our yard, struck the bee hives and played swing your pardners right and left with the bees. Then it spun the windlass of the well around like the crank on a jitney and followed the bucket and rope right down into the well. When that whirlwind reached the bottom, it shot the bucket sky high and blew the water out with a roar only to fall a second later like a cloudburst.

"Pa found the old windlass blowed chuck full of bee stingers drove porcupine-fashion right into the wood. The well was bone dry and never freshened. Finally, the county pulled the hole up by the roots and cut it into lengths for road culverts. The bucket was by the bee hive, full of honey, and a sack of flour was up in a tree only the sack was gone."

In September, 1985, Roger Welsch revived the Liars Corner and has been telling and re-telling Nebraska tales ever since.

A sample "The hay crop was so bad during the last drought that a fellow told me he had to *buy* a bale of hay just to prime the rake!" Or, "The one about the farmer who was losing $120.00 on every truck load of corn he sold. The only way out he could see was to buy a bigger truck!"

Sound a little like beekeeping? Roger Welsch also writes, when the mood strikes, a column for *Bee Culture* — *Funny Beesness.*

If you're looking for a great way to tickle your funny bone, or a store house of great stories to tell — "Liars Corner" is your best choice.

Roger would be happy to send you one for free. But he'll charge you $5.00 and postage to open the envelope. 150 pages, soft cover.

Kim Flottum

RESEARCH REVIEW

DR. ROGER A. MORSE

Cornell University • Ithaca, NY 14853

"Entomological Society discusses varroa"

The Entomological Society of America, which met in early December, 1988, included a lively symposium on varroa on its program. Varroa mites had been found in 18 states at that time. I asked one participant, Dr. D.A. Griffiths of Great Britain, who has a great deal of experience with varroa in Europe, how widespread he thought varroa was in the U.S. He said that if it had been found in 18 states it was in at least 18 more. He said further that based on his experience in Europe, he believes that is must have been here for at least four years before it was found on September 25, 1987, in Wisconsin.

Griffiths doubted that any rule-making or quarantines on the part of federal or state governments would prevent the spread of the mite in the U.S. Varroa has not yet been found in England but it is agreed that when the first mite is found there the whole country will be declared infested simply because the English understand that by the time it is found in a country it is too late to do anything about the matter. His statements echo those I have heard from other European colleagues.

Varroa Detection

One of the great problems with varroa is finding where it is and is not. The mites hide themselves in capped brood cells and between the intersegmental membranes on the abdomens of adult bees. Dr. Griffiths said that smoking a colony with tobacco (burned in a smoker) causes the mites to drop off of adult bees and kills many of them. The mites can be found if a piece of white paper or cardboard is placed on the bottom board prior to smoking the colony. He said that in his experience as few as two mites per colony (on adult bees) can be detected with the tobacco smoke method.

Milton Holmes, Senior Operations Officer with Animal Plant Health Inspection Service (APHIS) of the USDA, said he wasn't sure if it was legal for beekeepers in this country to use tobacco smoke to detect varroa. The Environmental Protection Agency has some strange laws regarding how materials that will kill insects or mites may be used. Since tobacco is a carcinogen its use may not be approved. The use of tobacco smoke for varroa detection is legal in Europe. It is also recognized in Europe that tobacco smoke has no effect on mites in brood cells and therefore is not an effective control measure. Any type of tobacco will work, according to Griffiths.

Source of the Varroa Now in the U.S.

Studies by Marilyn Houck of the University of Arizona and Dr. Mercedes Delfinado-Baker of the USDA indicate that the varroa now in the U.S. are more closely related to those in Brazil than to those in Europe. It therefore appears that the mites found their way here in an illegal shipment of bees, probably queens, that came from Brazil, probably five to six years ago. This suggests, too, that Africanized bees were brought into the U.S. at the same time, a persistent rumor that I have been hearing and think is probably correct.

Even though the varroa in North and South America may be a little different from those in Europe, there is no evidence to suggest there is more than one species of varroa involved. Still, if those in Europe are a little different it would be advisable for us to protect ourselves against an invasion from Europe that might bring a new varroa strain here.

Interstate Movement of Bees

It would appear that we may soon have an APHIS rule that will allow the interstate movement of bees provided the varroa infestation is below a certain level. I asked Mr. Holmes if, under the expected rule, a state through which bees were moving on a truck could stop those bees because mites might be present in the load. He replied that bees in interstate transit **could not be stopped** in an intervening state. Once the bees have been moved from one state to another they become subject to the rules and regulations in the state into which they have been moved. APHIS hopes to have its new rule in place by March 1.

Varroa Biology

Improved methods of controlling varroa will become available only when we learn more about varroa biology. We need to find a biological weakness we can exploit. Dr. W.A. Bruce of the USDA recently moved to Beltsville, Maryland, where he will work exclusively on varroa biology. He reported at the meeting that he has developed an artificial diet for laboratory studies of varroa. When he places some of the artificial diet and a honey bee pupa side

by side, varroa mites will feed on both. One would think that the mites would prefer the bee, their natural host, but such is not the case. This diet will enable him to study varroa feeding and other key questions more closely.

Dr. Bruce had just returned from a varroa meeting in Italy. It was reported there that the first egg laid by a female varroa upon entering a brood cell develops into a male, not a female as we had thought. Previous researchers have reported that only the second egg produced develops into a male. In any event, a female varroa mite produces only one male and the rest of her offspring are females. It is apparently common in many mite species for there to be many more females in a population.

Resistance to Varroa

No one in Europe or the Mediterranean area has yet reported having bees that are resistant to varroa, though it is expected resistance will arise. Only the Africanized bees in Brazil (and the cape bees of South Africa) have been shown to be resistant to the mites. I suspect other African honey bees races may also be resistant but there are no data.

Several Miscellaneous Points

It was asked if any natural enemies of varroa mites, especially any predatory mites, had been found and the answer was no; because of the peculiarity of varroa biology it is not likely that there will be any. Dr. Norman Gary of the University of California asked if anyone had seen any abnormal behavior on the part of honey bees because of their exposure to the miticide fluvalinate, the active ingredient in the Apistan strip, and again the answer was no. This, of course, doesn't mean that it might not occur and this should be watched for. When asked if mites might drop off honey bees onto a flower when the bee was foraging, and then attach to another bee, Dr.Griffiths replied that he thought not. Many pollen-feeding mites catch rides on bees from one flower to another in this way but there is no reason to think varroa would do so especially since they don't feed on pollen. Dr. Griffiths said that generally speaking mites did not die until they had laid all the eggs they were capable of producing. Since it has been shown that a varroa female can produce as many as 30 eggs he thought that a female might enter several brood cells, one after the other, and thus produce many offspring in her lifetime.Δ

Testing Your Beekeeping Knowledge

By CLARENCE H. COLLISON
Pennsylvania State University • University Park, PA 16802

With mixed emotions we announce that Dr. Clarence Collison is leaving the University of PA and accepting a position as Department Head and Professor of Entomology at Mississippi State. He takes over on or about March 1st.

During the transition he reports his column may be a bit late for a couple of months and asks us to be patient.

We congratulate Dr. Collison on his promotion, wish him well with his new responsibilities, and ask him to please hurry back!

While beekeepers are starting to make plans for the up-coming year, honey bees throughout most of the United States are still in tight winter clusters, waiting for the first warming trend which will allow them to take a cleansing flight. Even though the cold temperatures have kept them basically confined to the cluster, they have already started replacing the bees that have died during the winter. How well do you understand basic bee biology in relation to wintering and proper management techniques that will enhance winter survival and rapid buildup in the spring? Please take a few minutes and answer the following questions to see how well you understand these important topics.

The first 13 questions are true and false. Place a "T" in front of the statement if entirely true and an "F" if any part of the statement is incorrect. (Each question is worth 1 point)

1. ____ Large honey bee colonies are able to regulate temperatures within the winter cluster more efficiently than small colonies.
2. ____ During the winter, the winter cluster slowly eats its way downward until it reaches the bottom hive body.
3. ____ The presence of drones in the hive during the winter is an indication that the queen has continued to lay eggs throughout the fall and winter.
4. ____ Prior to taking flight, honey bees must elevate their body temperatures to activate their flight muscles.
5. ____ Consumption of pollen by adult bees in the fall is extremely important for survival of the colony during the winter.
6. ____ Combs in colonies that die during the winter and combs that are stored in damp areas often have molds growing on the surface that are harmful to bees and the wax.
7. ____ Bees winter better on dark combs than combs that have been recently drawn from foundation or combs that have only been used for honey storage.
8. ____ Honey bees are unable to form a winter cluster over frames of capped honey and on comb foundation.
9. ____ Freezing temperatures kill all stages of wax moth.
10. ____ Colonies wrapped with building paper or are insulated begin brood rearing a few days earlier than unprotected colonies.
11. ____ The position of the winter cluster within the colony is affected by solar radiation from the sun.
12. ____ Brood found in the center of the broodnest develop faster than those located on the broodnest periphery.
13. ____ Tracheal mites have the greatest impact on colonies during winter confinement.

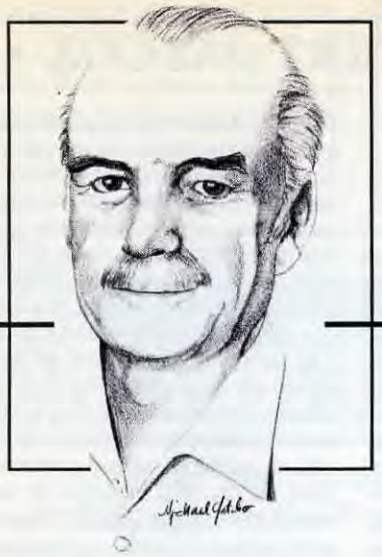
Multiple Choice Questions (1 point each)

14. ____ Colonies that are wintered in environmentally controlled buildings are maintained at: A) 49-52°F; B) 45-48°F; C) 41-44°F; D) 37-40°F; E) 53-56°F
15. ____ Honey bees seal the interior of the hive with: A) bee glue; B) honey dew; C) propolis; D) brace comb; or E) burr comb
16. ____ The size of the winter cluster expands and contracts in relation to exterior temperatures that range between: A) 0°-57°F; B) 20°-60°F; C) 32°-45°F; D) 32°-57°F; E) 20°-45°F
17. ____ When a bee's temperature drops below ___°F, it becomes immobile and will die within 2 days. A) 15°F; B) 45°F; C) 35°F; D) 55°F; E) 25°F
18. In the northern part of the United States, a minimum of ____ lbs. of honey is recommended for overwintering honey bee colonies: A) 90; B) 40; C) 60; D) 100; E) 50
19. What is the principle reason that both upper and lower hive entrances are recommended during the winter? (1 point)
20. Please explain why it is important to use a candy thermometer when making sugar candy to feed bees. (1 point)

EXTRA CREDIT QUESTIONS

21. Why is it important not to over insulate a colony when preparing it for winter? (1 point)
22. The individual honey bee has its primary heat receptors located on the: A) Exoskeleton; B) Antennae; C) Front Legs; D) Proboscis; E) Neck
23. Honey bees are able to sense temperature differences as small as: A) 3°F; B) 1.5°F; C) 0.45°F; D) 2°F; E) 1°F
24. Explain why treating colonies infested with varroa mites is considered most effective after the bees have formed their winter cluster.

ANSWERS ON PAGE 119



THE BEE SPECIALIST

ELBERT R. JAYCOX

5775 Jornada Road North • Las Cruces, NM 88001

*"Yes, you **can** find the queen, but there are some tricks that will help."*

Early in the year, finding queens in overwintered colonies is not as difficult as it is later, yet many beekeepers have problems doing so, especially with black bees and mean colonies. Part of the problem is lack of practice and experience; part of the problem is lack of information on the subject as well as poor techniques. I recently searched for information about finding queens in 20 beekeeping books from nine countries. Most of them had *no* specific instructions to use when you have difficulty in finding queens. The usual reference to queen finding relates to introducing queens and invariably says, "After finding the queen ." You are expected to learn without help!

Rather than a full-blown discourse on finding queens, I would like to give you some ideas on things to try this season, things I will also be testing to see how they work for locating queens more easily. They should help also for handling colonies that are a little "pecky" or downright mean.

In his book, *Queen Rearing*, L. E. Snelgrove has a chapter on finding, securing, and introducing queens. He points out the obvious, that finding queens in large colonies is much more difficult than in small ones, particularly after the hive has been open for some time and after repeated smoking. He emphasizes that you need reasonably quiet bees, going about their business, when searching for the queen. Disturbed, running bees can make queen finding an impossible task. Snelgrove says you can reduce that problem by allowing the bees two or three minutes to ingest honey after you first smoke the colony. For ill-tempered bees, he suggests waiting a full five minutes. This advice, written in 1949, is supported by the 1968 report by David C. Newton who found that bees' engorging reaction peaks at two minutes after smoking and continues for at least six minutes. The number of guard bees is reduced for nearly 10 minutes. Similar numbers of field and house bees engorge after being smoked.

Snelgrove's advice makes sense also for ordinary hive inspections. If you are impatient, as I am, you probably jerk off the lid while you are smoking the entrance. John Gleed, in *The Beekeepers Quarterly*, October, 1988, thinks there are more bad beekeepers than bad bees, and we don't "subdue" our bees properly.

Once the bees get the upper hand, as they may when we open the hive too quickly and roughly, we are subject to more stings, we use too much smoke too late, and we may not accomplish our mission such as finding the queen. Gleed makes a good point that bees can fill up with honey readily on being

smoked if there is a flow on and nectar in the combs. In the spring, stores can be "thick and tacky" so that response to smoking takes longer. At such times, Gleed waits five minutes before opening the hive. Smoked bees will open sealed cells to get at honey if there are insufficient open cells.

Snelgrove has directions for finding queens in single and double brood chambers. In single chambers, he suggests first putting the outer storage combs into an empty nuc box before examining the brood combs for the queen. Looking at the next comb as you withdraw one, and scanning the combs at an angle rather than head-on, also can make it easier to find the queen. For the larger brood chambers, Snelgrove recommends smoking through a full entrance, or beneath the raised bottom box, and waiting three minutes. Smoke again and wait another two minutes. By this time the queen will be on the brood in the *upper* box. At that point, remove the top brood chamber to examine it or look at it in place after slipping an excluder beneath it. Snelgrove used the method for many years and "invariably" found the queen in the top box. More recent writers have said the same thing.

For vicious bees, Snelgrove put the hive in a new location in the apiary leaving an empty hive with combs at the old site. After one day of good flying weather the original colony has lost its cranky old field bees and the queen is readily found. I cannot vouch for these techniques but they make a lot of sense and I plan to test them. It is probably better to smoke several hives at a time and wait several minutes before opening them than to spend the same or more time in a fruitless search because the bees are out of sorts from being opened too quickly.

When searching for queens early in the year, be aware that not every colony has only one queen. Brett Cameron, writing in the B.A.C.A. *Bulletin* for August, 1987, reported that he closely monitored the requeening of 112 colonies in late spring and early summer in Central Arizona. Of the 112 colonies, 33, or approximately 30%, had two laying queens at the same time, probably a mother/daughter relation-

Continued on Next Page

ship after a supersedure. Such colonies cannot be successfully requeened unless both queens are removed, regardless of their quality of physical condition.

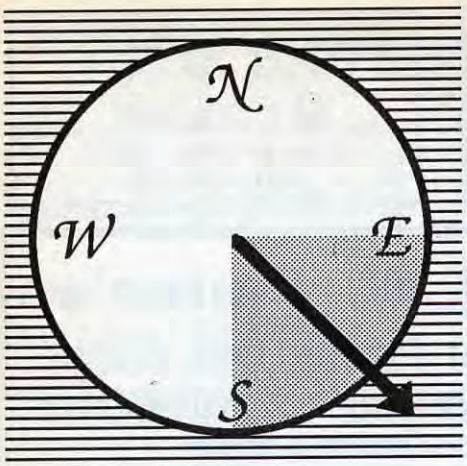
We Have The Mites, Where Are The Bees?

At the meeting of the Arizona Beekeepers' Association in Tucson, December 10-11, 1988, Dr. Marilyn Houck, University of Arizona, reported on her study to learn more about differences among the populations of *Varroa jacobsoni* mites in different parts of the world and on the two species of *Apis, A. cerana* and *A. mellifera*. This was done using 462 female mites collected from bees in 17 countries around the world. She measured body lengths and widths as well as other body features of the mites. Using a sophisticated computer technique called discriminate function analysis, Dr. Houck attempted to separate, but also to relate, the 17 different groups.

She found that the mites on *Apis cerana* are smaller on average than those on our European bees, *Apis mellifera*. Also, that the Varroa mites in Europe and the Mediterranean areas are very close in their body characteristics. Similarly, those of North and South America are closely allied. Dr. Houck has concluded that there is only one species worldwide and that our introduced Varroa mites are from Brazil. She also believes there are three biotypes among the mites. The first is on European bees and it kills the colonies while affecting both drones and workers. The second, the type on *Apis cerana*, is removed by the workers and affects drones primarily. The third biotype, associated with African bees, damages colonies but does not cause mortality as does the European strain. In this country the Wisconsin and Florida populations of *Varroa* are not identical, according to Dr. Houck.

This study brings out an important question. If the Varroa mites in the United States came from Brazil, where are the African bees or queens on which they came in? Are they already blended into the honey bee population in Florida as they could easily be? Assuming the imported stock was selected, gentle stock as is found in some areas of Brazil, the resulting crosses should be a valuable addition to the gene pool of bees in the U.S. However, if a single colony identified as African threatens the entire country, as we were told in the California incident, then APHIS, part of the U.S. Department of Agriculture, should be searching for those bees.

The whole California affair of the "Africanized" colony at Lost Hills takes on a new look after five feral colonies, clearly Africans according to their body measurements, were identified but not killed, in different areas of that state. And we are still plagued by overstatements: in a "Pest Profile," Sarah Locke and Norman Gary have dragged out the old threats made by C.D. Michener back in 1975 that we will not be able to use our parks and outdoors when African bees reach California. And pet animals will be injured and killed along with our wildlife. This has not happened elsewhere and it will not happen in the United States. One important thing to remember body measurements are NOT a measure of behavior and many productive, manageable bees are the same size as the African bees of ill repute.Δ



Southeast Exposure

"Florida's Extension"

DR. TOM SANFORD

Extension apiculture in Florida has a long and somewhat checkered history. Over the last four decades, there has been a continuous outreach by the University of Florida to the state's beekeepers. Specifically, this means publication of the monthly newsletter, *Hum Of The Hive,* and instruction at the annual Beekeepers Institute. The extension apiculturist of longest standing was Mr. John D. Haynie. His retirement in the early 1970's brought in Dr. Dan Minnick, followed closely by Dr. Freddie Johnson. The current extension apiculturist, employed since 1981, is Dr. Tom Sanford. He received training at the University of Georgia under Dr. Alfred Dietz and was extension apiculturist at The Ohio State University from 1978 through 1980.

Florida is one of only a handful of states to have a 100% effort of one person dedicated to apiculture extension. A recent calculation showed that by adding all the percentages of individuals' times together spent on extension apiculture, the nationwide figure came to *only* seven fulltime-equivalents. To this author's knowledge, only three states have a fulltime commitment at present: Florida, California and North Carolina.

The cornerstone of the extension program in Florida continues to be the monthly newsletter. It was renamed from *Hum of the Hive* to *APIS- Apicultural Issues and Answers* in 1984. It has a mailing list of over 2000, is mailed to Florida residents only and, as is most information published by Florida Cooperative Extension, distributed free of charge. This is a significant departure from many states where extension information often carries a nominal charge.

Several circulars are available to beekeepers in Florida, all authored by Dr. Sanford. These include *Protecting Honey Bees From Pesticides, Diseases and Pest of the Honey Bee* and a full color pamphlet, *Florida Bee Botany*. Perhaps the most popular publication is *A Florida Beekeeping Almanac*. It details a description of yearly management procedures necessary to effectively keep bees in Florida.

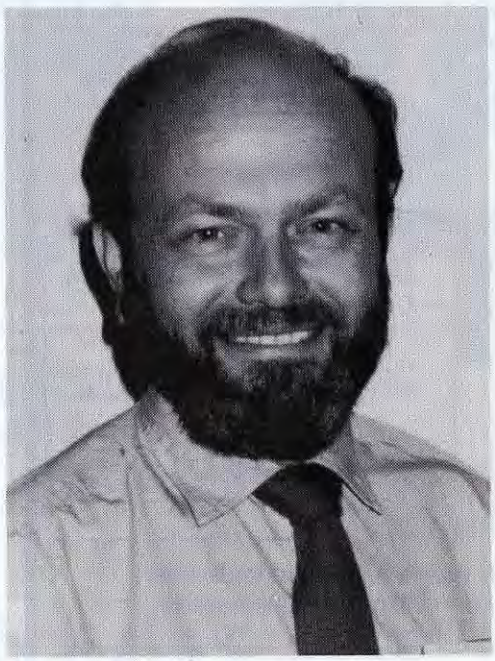
Some 29 numbers of a series of occasional information sheets under the title **Hints for the Hive** are now published by the extension apiculturist. These are distributed to the 67 county extension offices in Florida. Issues of *APIS*, and **Hints for the Hive** are also accessible through the IFAS Computer Network. They are, therefore, available on a 24 hour basis to any extension employee having a user name on the network.

A focus of Florida's apiculture extension program is profitability. A circular entitled *A Study in Profitability for a Mid-Sized Beekeeping Operation* is now available. An outgrowth of this effort is the computer program, A Profitability Model of a Mid-sized Beekeeping Operation, which consists of several linked spreadsheets. The program will help a beekeeper do a detailed economic analysis of his/her operation. The spreadsheets are in Multiplan Version 1.0 format (MSDOS and requiring 128K memory).

The model is available to persons inside and outside Florida by contacting the person listed below. Only the spreadsheet templates are distributed. Users must purchase an appropriate copy of Multiplan to read the templates.

The highlight of the year is the annual Florida Beekeepers Institute. It generally is scheduled in August at a 4-H camp in the state. The event continues to attract an international audience at all levels of beekeeping expertise. It begins Friday afternoon and ends Sunday noon. During this period, activities are scheduled all day. Friday evening an informal fair is held with several concurrent presentations. The highlights of the institue are several open-hive demonstrations.

Dr. Sanford teaches a credit course at the University on Apicultural topics and also cooperates with several agencies within the state. He also assists in the training of state apiary inspectors and is now working on a plan with the Department of Agriculture to launch a public awareness campaign on the African honey bee. He is a member of the Florida Farm Bureau's Honey Advisory Committee and the Division of Plant Industry's African



Dr. Tom Sanford,
Florida Extension Apiculturist

Continued on Page 84

PACKAGE PERILS

KAREN J. GOODWIN

"Yes, Things CAN Go Wrong"

The hive was ready. The extra holes in the hive body where I tried to nail it to the bottom board barely showed after caulking and painting the hive white.

At random I chose an apiary out of *Gleanings in Bee Culture* and placed a call for honey bees. When I ordered a two pound package with queen, I was asked if I wanted the queen marked. I said, "yes."

And then I waited for my bees. After several days, the postmaster notified me of their arrival. Being very excited, I unfortunately drove somewhat over the speed limit. The motorcycle officer gave me a ticket and also a blank look when I told him I was in a hurry to pick up some bees. I'm not sure he believed me. I should have realized then it was to be a memorable day.

On arriving home with the package I placed it in the shade of a large grapefruit tree. The summer heat was already stifling so periodically I sprayed them with a small amount of water. Later, thinking the little creatures would like some sugar water I splashed the mixture on the screen big mistake. From out of nowhere bees I never knew existed decided to land on the package. I was concerned that by late afternoon when I was ready to place my bees in their new home I would have to contend with this extra swarm of bees. At the same time, I was alarmed at the strange bees, not only for my welfare (since I was still uneasy around bees) but also because I didn't want the vagabonds to give my 'certified' mite free bees any parasites or illness.

Several hours before sunset I decided to get ready for the big event. I put on my newly purchased and just ironed white coveralls over my blue jeans and t-shirt and tied the bottom of my pants legs over my knee-high rubber boots. With helmet and veil adjusted and gloves on I grabbed my bee brush, hive tool, matches, smoker loaded with pine needles, and headed out the door.

Picking up the package I started out across my five acres surrounded by a swarm of buzzing bees. Cows ran in all directions thinking, I suppose, they were being invaded by something from outer space.

By the time I reached the hive I was soaking wet from the heat and nervous tension. Setting down the various items I proceeded to pry the wooden top off the package. I made a mistake by not removing the staples and nails. Taking out the metal can of sugar syrup next, the bees started coming out in droves. Reaching for the queen cage, I realized it had fallen to the bottom of the package. I retrieved it and attempted to replace the lid over the remainder of bees in the box. Alas, the nails and staples held the lid up so that bees continued to escape. No problem I thought . . . I'll hurry and put the queen in the hive and dump the remainder of the bees. Knowing to remove a cork from the queen cage, I did so. Another mistake. First, I wasn't directly over the hive and second, I removed the cork from the wrong end! The queen fell out on the ground.

I grabbed the queen, in all probability too roughly since I didn't have any tactile sense with the heavy gloves, and by then was in a total state of panic. I put the queen in the hive and as I reached for the package I turned around to see the queen, complete with green dot, climb out of the hive. I was thankful at that moment that she was marked, otherwise I wouldn't have noticed her among all the bees. I brushed her back into the hive and started dumping bees. Again, the queen climbed out so I pushed her back and dumped in what I could of the remainder bees. By this time I barely could see because of the sweat in my eyes.

I was *so-o-o-o* shook up that before closing the hive I stopped to place the empty queen cage between two frames. I then replaced, with difficulty, the three frames previously removed . actually with *great* difficulty because most of the bees were in a large mound at the bottom of the hive.

By the time I replaced the cover, bees were everywhere and I almost ran back to the house. About an hour later I returned to the pasture and noticed a small swarm of bees around my hive. What really shocked me was the large mass of bees in the woods behind my pasture. The majority of *my* bees were entering an old dead tree!

When I called for a replacement package of bees I asked that the queen be marked, her wings be clipped, and if possible a leash placed on her.Δ

K. J. Goodwin lives in Melbourne, Florida. She is a Registered Dental Hygienist, Bookkeeper, Rancher, Organic Gardener, Writer, and of course, Beekeeper. She now has several hives and plans to increase her colonies this spring.

Southeast . . . Cont. from Page 82

Even the Florida Highway Department takes honey bees seriously in Florida.

Honey Bee and Varroa mite task forces. On a national basis he has taken a leadership role as charter president and current Secretary-Treasurer of the American Association of Professional Apiculturists (AAPA).

Besides these activities, Dr. Sanford is conducting applied research in Florida's panhandle in cooperation with the Florida Department of Agriculture. He also cooperates and consults with other apicultural researchers at the university. This includes current projects on Varroa mite detection and control under the direction of Dr. Harvey Cromroy, and DNA polymorphism analysis of African honey bees, administered by Dr. H. Glenn Hall.

The extension apiculturist is presently experimenting with various technologies that characterize the "information age." Available to county agents and beekeeping associations is a full-day seminar using video tape productions. The extension apiculturist is either present in person to discuss the visuals or more often communicates by telephone conference call. This has been successful in several counties with an associated savings in travel expenses and time. In addition, a pilot program on the use of a public domain remote bulletin board system (RBBS) is being conducted. This should enhance the ability of beekeepers to directly access information on a 24-hour basis.

Later this spring, Dr. Sanford will cooperate with Dr. James E. Tew of the Ohio Agricultrual Technical Institute on a satellite video conference. The use of CD ROM for large data bases and laser disks coupled to computers for instructional purposes is also being explored. On the far horizon, the Florida extension apiculturist of the future may in fact be a computer program. It will have learned enough information to answer most routine questions on the craft.

A typical apiary setting in North Central Florida near Orlando.

In short, the Florida extension apiculture program continues to be one of the most intensive and progressive in the nation. This reveals the continuing commitment of the university in its outreach to the beekeeper. It also is the concrete result of the support provided by a network of strong beekeeping associations within the state. Δ

For a copy of the computer program mentioned in the article, contact Dr. Dennis Watson, IFAS Software Distribution, Bldg. 120, Gainesville, FL 32211. The cost is $20.00.

The Flowers That Bloom In The Spring . . . Tra La

(With Apologies to Gilbert and Sullivan)

STEVE TABER of Honey Bee Genetics

P. O. Box 1672 • Vacaville, CA 95688

"The California Buckeye is a real PAIN, and I've got an idea!"

Yes, I know it's not springtime, now, but as I write this and contemplate what I write, it's the middle of May in California and it's spring. All of our fruit trees are done blooming and the vetch which comes right after fruit bloom is gone, too, because we are having a dry year. To those of you who don't know about California's climate, that is, the part of California where I live, it's very different from Ohio or any other place. It rains here, hopefully in the winter, and does not rain in the summer. I mean, from May through October, we rarely average an inch of rain.

The California buckeye in bloom is a beautiful tree and the blossoms are very attractive to honey bees.

Honey bee working on the buckeye blossom.

Beginning to bloom about May first is a beautiful flowering shrub that is death to bees. It is called the California buckeye, *Aesculus californica*. Yes, it's kin to the Ohio buckeye, *Aesculus glabra*, which, as far as I know, is not toxic to bees.

A week or so after this plant starts to bloom, dead bees begin showing up in front of hives. Worse, the toxic effects of the pollen either kill outright or maim the brood so that deformed bees emerge without wings or legs. These deformed bees are called "buckeyed bees."

I raise queens and drones during the six week flowering period of this shrub, and to counteract the effects of the toxin I feed bee-collected pollen placed in combs adjacent to the queen cells. But, I will tell you, it's a pain to live and keep bees in an area with a naturally occurring pesticide, or rather a naturally occurring bee killer. Why, then, did I pick this place in which to live and keep bees I was warned by experts at the University at Davis, but I like living here.

Eckert and Shaw, in the book *Beekeeping* (1976), present the only research I know of on this plant. Conducted by G. Vansell, U.C. Davis, it examines the toxic effects this plant has on the queen, the adults and brood.

When I first moved here I asked several commercial beekeepers about the effects of California buckeye. Most of them told me they ignored the problem or didn't consider it serious. On the other hand, my friends at the University warned me that it would be a mistake to move into buckeye territory.

Continued on Next Page

Bringing home a killer.

Whereabouts is "Buckeye" territory? California has many major agricultural valleys; but, by far, the largest and most well known is the Central Valley or the Sacramento-San Joaquin Valleys. They are in combination, about 150 miles wide and 600 miles long north to south. The valley floor itself is about the flattest land I have ever seen, and it is almost entirely devoted to intense agriculture of a very diverse nature. Commercial queen and package production is centered toward the north end of the valley around Redding. Surrounding this great valley are foothills and small mountains with mostly small farms and ranches, and that's where the buckeye flourishes.

The seed of this plant is huge, almost as big as a fist. This is about four or five times the size of the buckeyes from that Ohio tree. A few years ago I was talking to the Ohio Beekeepers and I took a sack-full of our California buckeyes so they could see what a really large buckeye looked like.

The plant, when mature, may be fifteen feet tall and probably twenty feet or more in diameter at the base. The leaves are a brilliant green and begin appearing in the late winter, during early February, before the almonds bloom and when the pussy willow is in full bloom. Flowering begins about May first and continues for a month and a half to two months. After blooming, the leaves begin to wilt, turn brown, die and drop. The plant looks like it has died. Here it is, the middle of summer, dry as can be, and you think — hooray! They are all dying because of the dry weather! Well, let me tell you, none of them ever die.

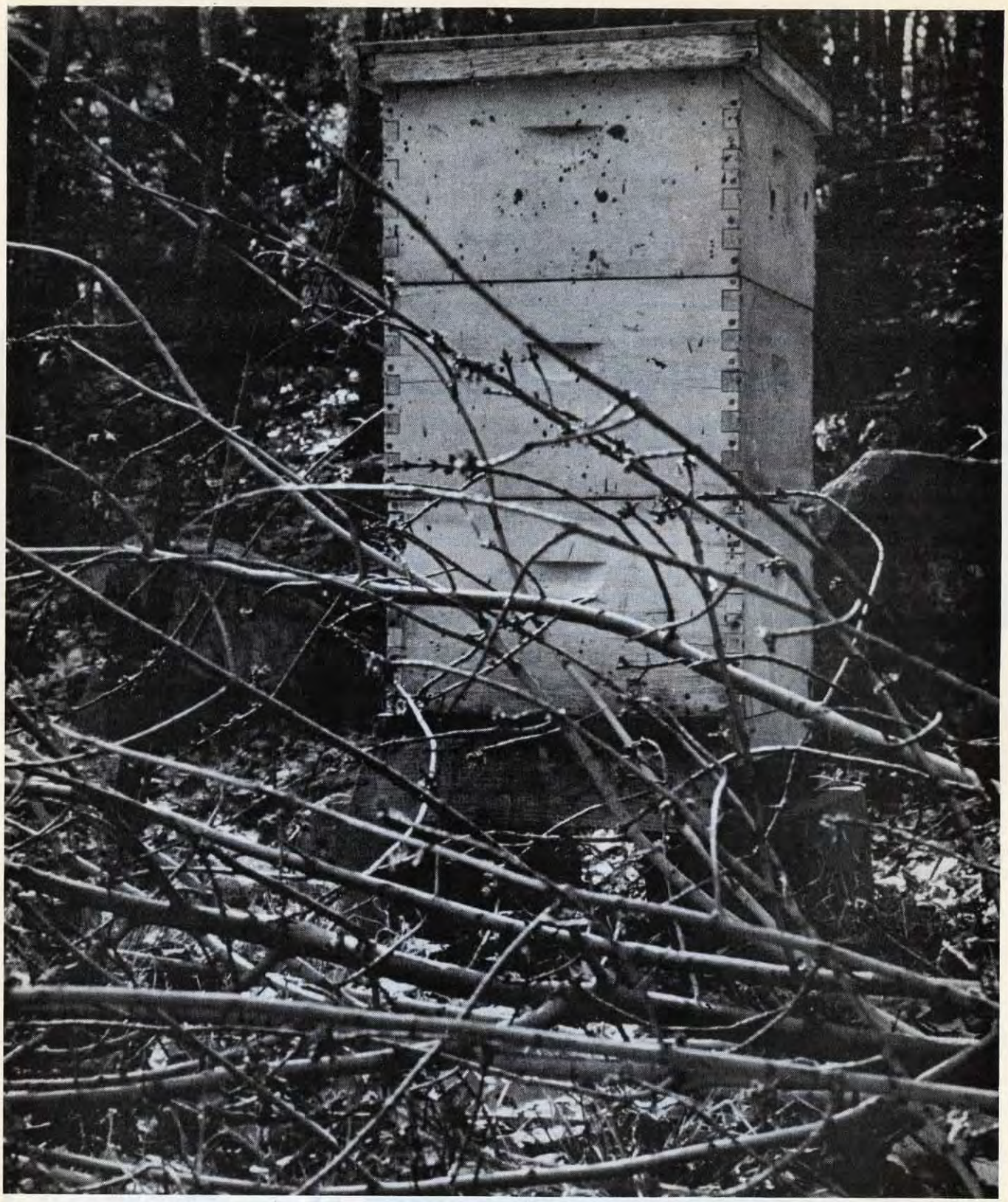
The seeds hang on to the ends of the leafless branches, big green globs, and fall during wind storms in November and December. They stay on top of the ground and begin germinating around January first.

Someone told me that no animal eats the seeds because they contain toxic material. At any rate, there are lots of squirrels here and one of them couldn't even pick one up. But, if it was edible, it would show teeth marks on it, and I have picked up hundreds of the buckeyes and have never seen a toothmark on any of them.

If the seeds are so big and round and made for rolling down hills, how in the world do they ever get moved up hill? I would think they would have to be carried up hill by some animal because they almost always have their heaviest growth on hillsides, and steep hillsides at that. None of the people I have talked to can even guess at an answer.

During the dry summer, the hillsides are covered with grass (now golden brown), oaks and buckeyes, which are frequently subjected to fires. The fire kills the oaks but the buckeyes seem to branch out from the roots more vigorously than ever. Because of its fire hardiness, I have seen it recommended in horticultural articles as a desired planting for fire prone canyons.

In my own speculation, I wondered if I could place one of those pollen inserts at the hive entrance and fill it with a herbicide instead of pollen. Hive inserts were developed thirty years ago to hold frozen, hand-collected pollen. The bees crawl through the pollen as they leave the hive. When they get to the apple orchard, or what ever crop is being pollinated, they have all this viable pollen on their bodies they got from the insert at the hive entrance. On some of the real old orchards with really big trees this was found to affect the pollination. So, during the bloom of the California buckeye, I fill the pollen insert with a dry herbicide mixture, the bees distribute it to all the growing buckeye plants, and I *will kill all of them.*Δ



In spring, by waiting to cut maples until they're in bloom and sap is running, it gives bees an early nectar source (March), particularly when done near the hive. When cutting near a hive, I either leave the branches or haul them close to the hive, as in this photo, so that on days warm enough to come out, but too cold to go far, they have something to do.

FORESTS

With Bees In Mind

ANNE WESTBROOK DOMINICK

The other day making my rounds of our wooded acres I stopped by one of my hives to decide what trees to cut so it would have more early morning sun. Standing were a young (20 feet high each) Canadian hemlock and white pine, a 16 inch diameter straight oak, and a maple of equal size with an injury at its base.

My first thoughts were to cut the oak and maple for firewood and leave the hemlock and pine which aren't known heatsters. Then I decided "no, too much permanent shade on the bees, keep the oak and cut the rest." Or better, I thought, "flatten them all." Finally I realized my priorities were awry. Forest management is a far cry from what it was, even in the '60s when: if it's crooked — "cut it," if it's poor or injured — "cut it," if it makes lousy lumber — "cut it," if it's in our way — "cut it bleeping down." Now a woodland owner's personal interests govern these decisions, and one of my interests is *bees*.

I have five hives, not together in an apiary, but here one, there a couple, all backed against a woodlot to the north, facing a clearing and open access to hay fields a half mile or so away. The tree mix nearby, though, can be a good supply of nectar and pollen if exposed. I could keep my beloved woods and up bees' foraging material at the same time. The maple stayed. The rest went. Why the maple?

I remembered spring when that maple and another young one close by were blooming with patches of snow still on the ground, the entire tops were a-hum with collecting workers. The weather was cool and gloomy but pollen and nectar were within feet of the hives. Only various willows can beat maples to early flowering. Re-assessing what I realized could be an important food source the first part of the year for my bees, I changed my chain-sawing policy. All the hives have conifers behind them for winter wind protection and bees can go to them (and they do) whenever they feel the need for whatever evergreens supply: from propolis to honeydew. The rest of what is left standing when a choice has to be made are the better bees' harvest source.

> ***"Forest management is a far cry from what it used to be."***

Black locusts are plentiful in this area, to the point of being weedy. Locally called "honey locust" it grows over 75 feet tall and has flashy lavender-pink flowers unlike any mentioned in my field books. Some years, such as this past one, beekeepers make a May harvest attributed to the miles of ledges brightened by this good fence-post tree. Although plenty are within my colonies' radius I have found none on my property. I have transplanted some along a fence-row to bring in a pretty tree with an abundance of nectar that should prosper in this habitat.

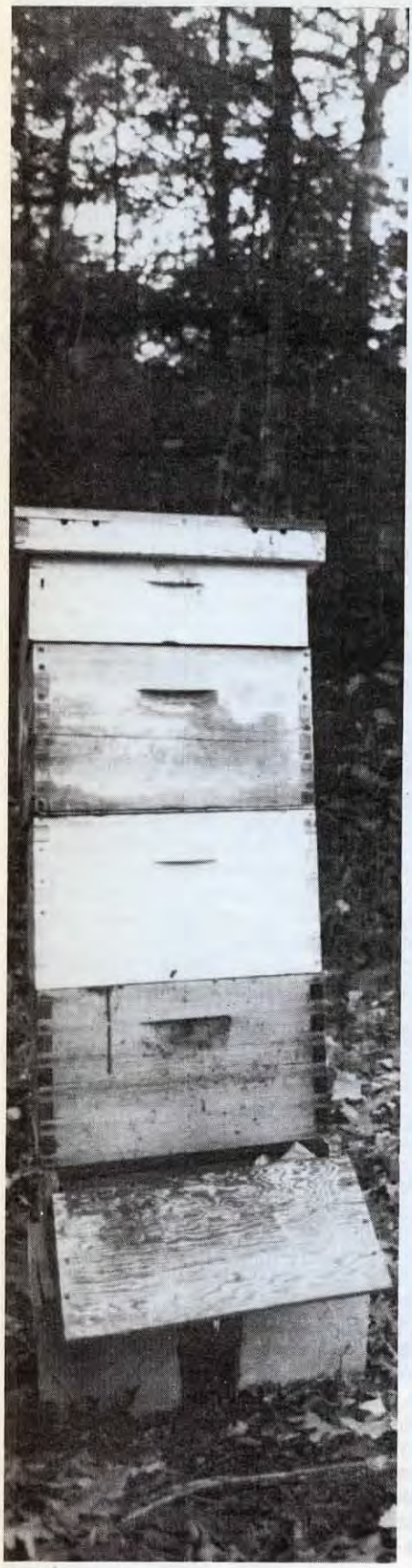
Basswood or linden, a late bloomer and an excellent bee tree, is not common in this area but when our land was lumbered before we owned it one was cut. It's sending up shoots, now treeling size. Since where that tree had been was cleared, grey birch, an all-around worthless tree, is making a strong bid to take over. Yearly I cut away the birch which encourages blackberries loved by bees for the flowers and me for the fruit, and thinned the basswood back to two saplings — one on either side of the 28 inch stump. Bees cover them when in bloom, though they're too small yet to offer much harvest.

Even New England has tupelo, the black gum (*Nyssa sylvatica*) which, although not as productive as the southern white tupelo, bees use. A half dozen are growing around a puddly pond just off a clearing monitored by one of of my hives. Actually it's a tree I "saved" from the beginning because I happen to like its shiny leaves and stiff horizontal branches. Bees work it, some years a lot more than others depending, I think, on how field flowers, especially dandelions, are blooming at the same time.

Some other trees that stay, are even opened up, when a cutting choice has to be made are black and choke cherries, poplars, sassafras, hawthornes (which are pretty enough on their own without the added benefits of blossoms bees visit when easily accessible), and shadbush. Since bees supposedly like willows and I have some wet areas, I've started a couple weeping willows. I'm waiting to see.

Forests work in many levels and around clearings a "border" or "land-in-transition" a variety of bushes and shrubs develop. Between forest and meadow they're bee important during periods when the clearings and neighbor's fields are unworthy. Although I have no willow *trees*, there are many shrub varieties. They prefer damp soil and I brush cut a section every year to keep shading trees from taking over. The willows come back as vigorous as ever while the trees take a few years to reappear. By then the rotation will bring me back to cutting that section again. I've seen bees exuberant on pussy willows on warm sunny days in early

Continued on Page 93



Forest Fix-It

JUDY WAKEFIELD

Cutting firewood from your woodlot saves money and improves the condition of the woodlot, according to forestry specialist Randall Heiligmann.

"The woodlot's quality and capacity to produce firewood or other products can be enhanced by properly harvesting firewood," Heiligmann says. "If you want to cut wood for a fireplace, several medium-sized trees will be enough. You probably won't need more than two cords."

Heiligmann says this type of woodlot management will have relatively little impact on the productivity of the woodlot as a whole. He calls this casual cutting.

"Generally, the casual cutter's selection of trees can be guided by a preference for a particular species of firewood and tree quality. The casual cutter can simply remove trees of obvious poor quality."

Poor-quality trees may be deadwood, hollow trees, or those with crowns much larger than the surrounding trees. They may be damaged, crooked, severely leaning, diseased or insect-infested. Trees with a small crown, a low fork in the trunk, multiple stems or low branches may also be undesirable.

When cutting trees, you should also consider leaving some that meet the needs of wildlife, such as those with denning holes or nuts. Two or three trees per acre should be left standing to benefit wildlife. "And don't forget about those trees that produce havens that bees like," he adds.

"A common woodlot has had little or no management activity for years and contains many different sizes and several different species of trees of varying quality," Heiligmann says. "If the woodlot owner is managing for wood products, there are usually more trees to the acre than is desirable for good growth." Such a woodlot is in need of an improvement cutting to enhance the quality and growth of the remaining trees.Δ

FORESTS . . . Cont. from Page 91

March and three feet of snow on the ground.

Other brushes that like moist earth and bees harvest are sweet pepperbush *(Clethra alnifolia)*, spicebush *(Lindera benzoin)*, and winterberry, some times called "black alder" *(Ilex verticillata)*. These are common in parts of New England but since I found none nearby I introduced some specimens. Bees worked the winterberries regularly, but the pepperbush has been in too much shade for more than an occasional bee's visit. Cutting a few trees has exposed them to more sun and next year I'll see what the bees think of them. The spicebush was just put in this year. Maybe next year it will flower, if not in two years it will.

Working a maple blossom.

On dry lands sumac loves to grow and spread inbetween locations. Last summer bees completely covered an entire grove on a piece of wasteland down the road. On land, particularly poor land, not scheduled for any other planting sumac is a natural. If it doesn't appear on its own it transplants easily. Sumac is also colorful year round.

The whole genus of *Rubus*, raspberries, blackberries, dewberries, and brambles also love dry land in transition; bees love the flowers, and the birds and I love the berries. Any place that has either been cleared or is going wild they will show up before anything else. They'll continue to grow in that border lane for as long as trees are kept from dominating. Blueberries are another bee and bird favorite. Bees will actually go well into the forest for the low blueberries that cover many sections of deciduous forest floors, particularly if kept fairly open-glade-like.

Collecting pollen from a pussy willow.

More bushes and trees than those mentioned here can be encouraged and nurtured to keep a woodland and bees compatible. Careful placing of the hive and close attention to what's growing and how insures good honey harvesting. This past year two of my colonies were new so no honey was taken but they are vigorous and filled two and a half bodies by fall's end. Two of the mature hives yielded about 75 pounds of honey and one over 100 pounds by mid-July. The nearest real fields or open land is a bee's line three-quarters mile away.Δ

Ann Westbrook Dominick is a beekeeper, forest manager, and free lance writer from Hinsdale, New Hampshire. We have several of her stories on tap for 1989.

HOME HARMONY

By ANN HARMAN
6511 Griffith Road
Laytonsville, MD 20879

"Happy New Year!"

It's time for a celebration! The exact day does not matter, but you do want to invite lots of friends. The excuse for the party is Chinese New Year. This holiday, like Easter, is set by the phases of the moon, therefore it does not fall on the same date each year. However, it does occur around the end of January or the first half of February.

Traditionally, the Chinese New Year is welcomed by noisy parades complete with prancing "tigers", popping firecrackers, and beating drums. Of course, no celebration is complete without a feast. The best feasts have many people attending, so that many different dishes can be enjoyed.

Therefore, you want to invite many friends and have each of them bring a dish in the Chinese tradition — a nice potluck dinner. Nobody has to be an expert with hot pot or wok to produce a tasty dish in Chinese style. The same basic recipe can be entirely different when different meats and vegetables are used. Keep it simple and it will be fun.

Since red is the color of good luck, use a red tablecloth or napkins. You probably have some left from Christmas or Valentine's Day. If there are too many guests to sit around a dining table, serve buffet style. Buffets are easy with Chinese food since the meats and vegetables are in bite-size pieces and do not have to be cut up. If you decide to supply guests with chopsticks, a Chinese restaurant is usually happy to provide very inexpensive ones.

Unfortunately, honey is not an important ingredient in Chinese cooking. However, I have found it substitutes very well for sugar in many recipes. Therefore, if you have a favorite Chinese recipe that calls for sugar, don't hesitate to substitute the same quantity of honey. Most Chinese menus include rice, but noodles can be used also. Although Chinese serve soup during a meal, most people serve tea with a Chinese meal. Since dessert is not traditional, feel free to fix a dessert anyway.

If you can find Sesame Oil in a store, buy a small bottle of it. This oil is truly the "secret ingredient" of Chinese cooking. This oil gives Chinese cooking its characteristic taste. I do not recommend using it in every single Chinese dish you cook, but definitely use it in meat and salad dishes. Sesame oil is not used as a cooking oil, but rather as a flavoring. Sprinkle a few drops over the prepared dish and stir in just before serving.

This recipe would be called a salad but the Chinese call it a "cold-mixed" dish. It is delicious any time of the year.

Oriental Meat and Vegetable Salad

Simmer half a large chicken breast in lightly salted water, about 15 minutes, until done. Drain and cool. Remove skin and bones. Shred into bite-size pieces. Beat 2 eggs well and fry in 2 or 3 thin sheets. Cut in lengthwise strips. Peel 1 cucumber. Cut in 3" lengths, then cut into thin strips. Slice 1/2 head Chinese cabbage thinly. Spread the cabbage in a layer on a serving plate or salad bowl. Arrange four layers on top, one each of the chicken, eggs, cucumber, and ham. Just before serving, pour dressing over and stir.

Dressing

2 Tbls. soy sauce
2 Tbls. vinegar
1 tsp. dry mustard
3 Tbls. salad oil
2 tsp. sesame oil
2 tsp. honey

Combine all ingredients and blend until smooth.

Adventures in Oriental Cooking
Janeth Johnson Nix

Vegetables can be cooked in Chinese style and served with any meal throughout the year. Use a skillet (unless you have a wok) for your stir-frying.

Hot Sweet-Sour Carrots

1 big bunch or 2 small bunches carrots
1-1/2 to 2 Tbls. oil
1 tsp. salt
1-1/2 cups water
2 Tbls. vinegar
2 Tbls. honey
1 Tbls. cornstarch

Wash carrots. Cut into slices. Heat the oil in a skillet and stir-fry the carrots for about 1 minute. Then add the salt and 1/2 cup water. Let the carrots simmer for 5 minutes, or until tender. Mix the vinegar, honey, cornstarch and remaining 1 cup water. Add to the carrots and cook, while stirring, until sauce is translucent.

How To Cook and Eat in Chinese
Buwei Yang Chao

Stir-Fried Green Beans Shanghai Style

1 pound fresh green beans
or frozen beans
2 tsp. sesame seeds
2-1/2 Tbls. oil
1/2 tsp. salt

If using fresh green beans, boil for 2 minutes. Drain and cool. Heat sesame seeds in a dry frying pan over moderate heat. Remove from heat when seeds begin to pop.

1 Tbls. honey
2 Tbls. sherry or rice wine
1/4 tsp. pepper
2 tsp. soy sauce
1/2 tsp. sesame oil

Combine ingredients for seasoning mixture. Heat a skillet very hot. Add oil, salt and then the green beans and stir-fry for 1 minute. Add the seasoning mixture and stir-fry for another minute. Add sesame seeds and blend well.

The People's Republic of China Cookbook
Nobuko Sakamoto

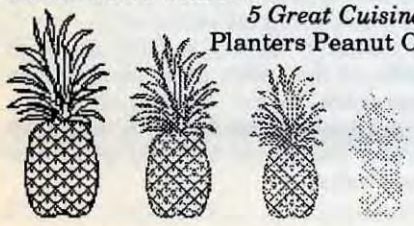
Pork is the meat featured in Chinese cooking. Chicken and duck are popular, but beef is uncommon. However, beef is frequently seen in Chinese restaurant menus since Americans prefer beef.

Braised Ginger Pork

2 pounds lean pork,
cut into 1-inch cubes
flour for dredging
3 Tbls. oil
1/3 cup chicken broth
1/3 cup soy sauce
2 Tbls. sherry
1/4 cup chopped onion
1 small clove garlic, crushed or minced
1 Tbls. honey
1 tsp. ground ginger
dash pepper

Dredge meat in flour. Heat oil in large skillet. Brown meat quickly. Remove from pan. Pour off excess oil. Combine rest of ingredients and stir to mix, in cooking pan. Add meat. Simmer, covered for 15 minutes or until meat is tender. Serve with rice.

5 Great Cuisines
Planters Peanut Oil



Although beef is not traditional, this recipe is so easy and delicious that it deserves a place in a feast.

Sweet-Sour Beef Balls With Pineapple and Peppers

1 pound ground beef
1 egg
1 Tbls. cornstarch
1 tsp. salt
2 Tbls. chopped onion
dash pepper

Mix together and shape into 18 balls or more. Brown in small amount of oil.

1 Tbls. oil
1 cup pineapple juice
3 Tbls. cornstarch
1 Tbls. soy sauce
3 Tbls. vinegar
6 Tbls. water
1/2 cup honey

Combine ingredients and cook until mixture thickens, stirring constantly.

4 slices pineapple, cut in pieces
3 large green peppers, each cut into 12-15 strips, lengthwise

Combine beef balls, pineapple and peppers with sauce. Heat thoroughly.

The Art of Chinese Cooking
Benedictine Sisters of Peking

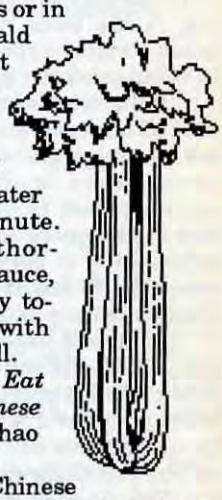
THE FOOD CHAMBER

The Chinese certainly have a good idea. Cut everything up in the kitchen, then enjoy eating. There is nothing worse than an over-filled salad bowl with great wedges of tomatoes, a slice of onion and huge leaves of lettuce. All the pieces are too big to fit in your mouth. Yet, one stroke of your knife dumps everything out of the bowl. Radishes, in particular, are very difficult. Take a few extra minutes in the kitchen and cut salad ingredients down to bite-size. If meat is being served in chunks, as in a stew, the chunk should be about an inch cube. A stalk of broccoli looks very attractive on a plate, but if the meal is buffet style, sacrifice good looks for convenience. If you are creative in cutting shapes, the vegetables can look very attractive. Try thin strips, thick strips, tiny cubes, wedges, thin slices, diagonal slices of whatever suits a particular vegetable. Now you can concentrate on enjoyable eating.Δ

A plate of carrot and celery sticks frequently appears on our dinner tables. Try this version of celery.

Cold Celery

1 bunch celery
1 quart boiling water
1 Tbls. soy sauce
1/2 tsp. salt
1 tsp. sesame oil, or salad oil
1 tsp. honey

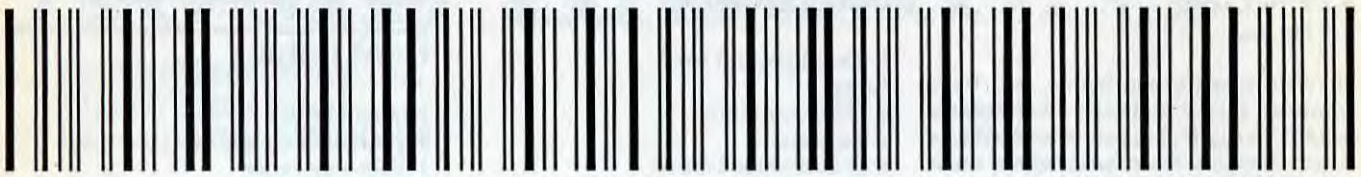


Cut celery in sticks or in small pieces. Scald celery in the quart of boiling water for 2 min. Drain immediately and put celery in cold (even ice cold) water for about 1 minute. Drain celery thoroughly. Mix soy sauce, salt, oil and honey together. Combine with celery and mix well.

How To Cook and Eat in Chinese
Buwei Yang Chao

Share your Chinese cooking tips with your friends and your New Year feast will be a great success. Who knows — it could become a yearly tradition.

Using The Universal Product Code



Reprinted from the UPC Booklet

The Universal Product Code (UPC), with its machine readable symbol, is the basic element which has made possible a revolutionary advance in retail marketing.

With new electronic scan systems, manufacturers, wholesalers and retailers are enjoying a new range of benefits never before available. Information about product movement, inventories and sales is more complete. Marketing information is being gathered and is available to assist manufacturers in product testing and marketing.

A pivotal role in the voluntary product-identification system is played by the product manufacturer because it is the manufacturer who is responsible for an accurate and scannable Universal Product Code symbol on packaging.

The support of grocery manufacturers and suppliers in maintaining UPC symbols on their products is critical to the successful operation of scanning. Many also assist retailers by designating a UPC coordinator to serve as a contact and handle inquiries.

Without this excellent cooperation between retailers and manufacturers, scanning could not have developed nor could it continue to grow and operate successfully.

The key to the UPC system is the Universal Product Code and its machine-readable symbol. This system was developed by the food industry to give every product a unique code number. This number allows simpler and more accurate product identification. The symbol makes possible the use of scanner-equipped checkstands which speed customer checkout operation, reduce item price-marking requirements, and enables the retailer to collect complete and accurate information on all aspects of sales transactions.

The Universal Product Code is an 11-digit, all numeric code that will identify the consumer package. It consists of a number system character, a 5-digit manufacturer identification number and a 5-digit item code number.

- **Number System Character:** The first position in the 11 digit UPS code, the number system character, serves to "key" the other numbers as to meaning, as well as category. There are currently five categories of the number system character:

"0" assigned to all items **except** as follows:
"2" — assigned to random-weight items such as meat and produce
"3" — assigned to companies which have been delegated their NDC number as their UPS
"4" — assigned for retailer use only
"5" — assigned to coupons

- **Manufacturer Identification Number:** The manufacturer identification number is a 5-digit number assigned by Uniform Code Council, Inc.

- **Item Code Number:** The item code is a 5-digit number assigned and controlled by the member company. The item code should be unique for each consumer package and/or shipping container.

= 12345-67890
(Note: First 5 digits assigned by UCC, Inc.; second 5 by manufacturer)

The 11-digit Universal Product Code plus a scanner readable check digit are represented in the bars and spaces that make up the complete scanner readable symbol. The check digit enables the scanner system to immediately verify the accurate data translation of the Universal Product Code as the symbol is scanned.

The Uniform Code Council

The Uniform Code Council is the central management and information center for manufacturers and retailers participating in the system.

This organization is not a government agency. It is an administrative council which exists specifically to control the issuing of codes, to provide detailed information and to coordinate the efforts of all participants.

Although membership in the Uniform Code Council is voluntary, it is required to obtain a manufacturer's number assignment. Cost of membership is based on sales volume.

The Council was originally created by several grocery industry associations. The Council membership has been expanded to include drug and discount stores, non-food manufacturers, wholesalers and distributors, as well as companies from the wine and alcoholic beverage industries.

A full-time administrative and technical staff is available at the Council's headquarters:

Uniform Code Council, Inc.
8163 Old Yankee Rd., Suite J
Dayton, Ohio 45458
(513) 435-3870

If you are in the market that requires a UPC, contact the above address. They will be very helpful. Or, if your current market does not require a UPC, but, with some foresight you can see that it soon will, being prepared is the mark of a good salesman.

Finally, having a UPC for your products may open doors you thought impossible to get through. It shows professionalism and growth, and may be the difference between good and great sales. Δ

Land Grant Focus Obsolete

Cows & Plows, Bees & Trees

— Colleges Only Get C+ —

STAN ERNST

For nearly 130 years, land-grant universities have focused on production agriculture. That focus is obsolete, says an agricultural economist at Ohio State University. And unless it's changed, colleges of agriculture will become extinct, he says.

"We'd better think through whether there's a need to continue what we call the land-grant university system," Leroy Hushak says. "Limits placed on the way the system works were legislated about 100 years ago. I'm not saying do away with all our old missions, but we need to decide what still works and get rid of what doesn't."

When the Morrill Act gave land to each state to start colleges of agriculture and mechanical arts in 1862, 75% of the American people farmed. But times changed. With less than 2% of the U. S. population working on farms today, there isn't nearly the demand for education in production agriculture. Changing demographics have raised questions about the land-grant system but have done little to encourage change, Hushak says.

"USDA and colleges of agriculture have conducted research and educational programs that are primarily farm-dominated," Hushak says. "Even though we claim all of agriculture — from production to processing — as our domain, we're not very comfortable with firms or groups that are not *farm*."

That just doesn't make sense, Hushak says. With the rural economy in such dire straits during the past decade, the land-grant system had plenty of opportunities to change its ways.

Colleges of agriculture, with their research and Cooperative Extension Service programs, are in a perfect position to help solve the problems of rural communities, Hushak says. Instead, the land-grant system seems mired in programs of the past, he says.

Programs to help small rural communities develop or attract non-agricultural businesses have worked when tried. Similar success came with programs that helped farmers diversify their operations and others that taught management skills to non-farm rural businessmen, Hushak says. But it's always been a case of too little emphasis and too few resources, he days.

When Land Grant Colleges started, fully 75% of the population lived on the farm. Now, it's only 2% — times change, colleges must, too.

Yet, it wouldn't take radical change to start serving new groups, he says. For example, land-grant universities already teach business management to specialty groups within agriculture. But insurance principles, sales methods, advertising and customer relations are skills used by rural grocery stores as well as farmer cooperatives. And including new audiences in existing programs would justify their continuation, he says.

Hushak says the reason changes don't happen as fast as they could is because university administrators remain haunted by the problem of how to change the "cows and plows" image without offending the people and organizations who have supported such programs for years.

"I think we have to make an effort to convince those who have traditionally supported the land-grant system that some of the new things we could do are critical to them, too," he says. "The future of rural communities has a critical effect on the daily lives of those in traditional agriculture."

A big argument for diversifying the training and outreach missions of land-grant universities is what has happened in some Midwestern communities during the 1970's and 1980's. As farmers were pinched by declining land and crop values, communities that had no businesses outside of agriculture also felt the squeeze.

"I really worry that we've gone beyond the point of no return in some communities, in terms of not developing employment bases," Hushak says. "They're definitely worse off than they were 10 or 20 years ago before they decided to put all their eggs in the production agriculture basket."

He doesn't think many of these communities could recover and build new economics even if they got technical help from their land-grant universities.

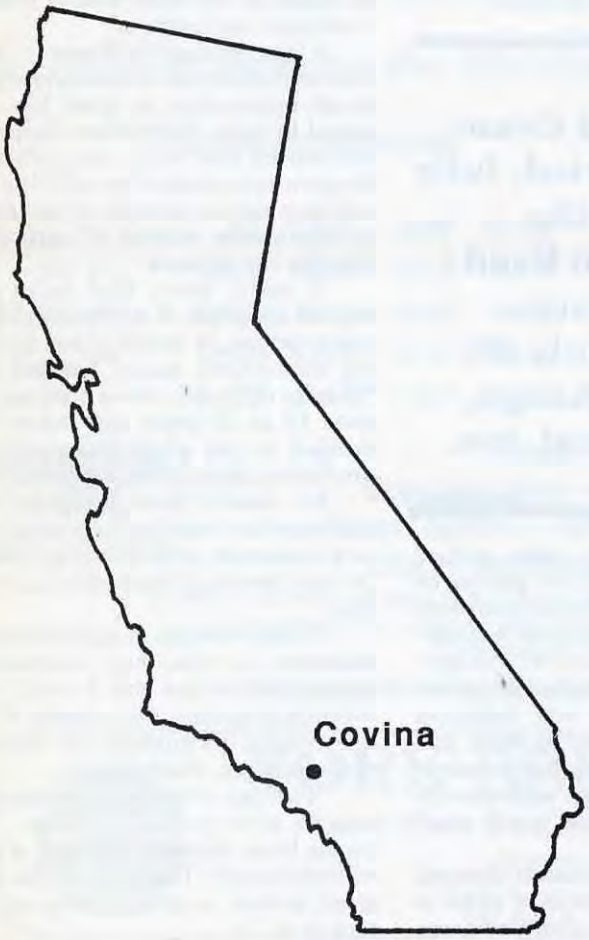
Unless colleges of agriculture pay attention to what has happened to these communities and diversify educational programs, more people will be questioning the mission and existence of the colleges, Hushak says.

"The idea of the land-grant system was to serve people," he says. "The people have changed. Colleges of agriculture haven't. They must if the land-grant system is going to have any future at all."Δ

CALIFORNIA

"Everyone loved our crude honey labels, cut from a brown paper bag." Everyone except WILLIE, THE ENFORCER

CLAY TONTZ



On a soft, still morning in April we awoke to find ourselves in heaven's perfumery. The waxy, white orange blossoms were making their spring debut and permeating every nook and cranny of our air with their fragrant, exotic scent.

Cordero, who had settled down remarkably well since his marriage, and I worked long hours to keep ahead of the honeyflow from the sage blossoms which was coming to an end. The great masses of orange blossoms, looking like banks of snow, now awaited the visits of the bees. If hot, still days prevailed the honey yield could be quite heavy. One of our beeyards of 200 hives was located in the center of a bare, ten-acre lot near Riverside which was entirely surrounded by orange trees. The bees had only to fly a few hundred yards to load up with the nectar.

Good bee locations were hard to come by because of competition from other beekeepers plus the public's fear of bees. This location was priceless. A widow owned the land and let us set in our bees in exchange for forty pounds of dried fruit and nuts. April in southern California often has chill winds that can turn off the honeyflow like a twisting faucet. For two weeks the weather held perfect: hot and still.

From the orange blossom flow, which lasted four weeks, we produced in addition to the extracted honey, fifty shallow supers of virgin comb honey: new comb drawn out by the bees from a thin, stamped-out foundation sheet of beeswax.

Early on a Saturday morning I prepared the cut comb or chunk honey packs. On a work table the tender, virgin combs of honey were cut from the shallow wooden frames. Then, using a regular butcher knife, frequently dipped in hot water, I cut the slab of honey into five-inch chunks and about half as wide. A single chunk was placed on end in a quart canning jar and clear, liquid honey poured in to fill the jar. A more

DREAMING . . .

Clay and Jeanette Tontz with their war-surplus Dodge truck at Lake Elsinore, CA, the first year of their beekeeping venture, 1946

beautiful honey pack I have never seen.

We had run out of our regular printed honey labels so Jeanette grabbed up a brown paper bag and cut out two by three-inch pieces with her scissors. On each label she wrote the kind of honey and the net weight. At the bottom she stamped in our name and address with a rubber stamp. A simply awful-looking label, we both agreed. But it would have to do for the time being.

The chunk-honey jar packs were expensive; we had doubts that they would sell well. Anyway, we felt, they would give our shop class. By noon on that Saturday we had found that it was tricky to try to second guess that elusive, mysterious and lovable character — the customer. The luxury jar packs of chunk honey were going fast and sold out by 2 o'clock. One customer who had stopped in to buy a small jar of liquid honey for a cough, had ended up buying eight of the chunk-honey packs.

Skipping lunch, I hurriedly worked up a couple dozen more of the popular packs. When our regular labels came through the mail we discontinued using the brown, home made labels. This brought on buyers' resistance. One customer who came to buy chunk honey, turned away when he could find none with the crude labels. "I'll come back," he said, "when you get real country honey." Jeanette picked up her scissors and again whacked out a batch of the crude, brown labels. Now everybody was happy. But along came Willie, "the enforcer" as he was called.

For some time, apprehensively, we had heard of Willie and knew that some day he'd find us. Willie was one of several inspectors in our farflung district. He had a reputation as a nit picker and would, we feared, find a hundred violations at our shop and honey house.

I was out at Alberhill one day, making a delivery of packaged honey to Mr. Hanning, the rancher, who had sold us the redwood bee shack. He had opened up his highway stand and was doing well.

"Has Willie the Enforcer been to your shop yet?" he said, grinning.

"Not yet, thank goodness; give me the low down on him."

"Willie's a funny, little twerp; and a lot of his bite is bark. You got to humor him, go along with him. Serve him a good cup of coffee and a doughnut — a fresh one, mind you. Whatever you do, don't argue with him. He can be rough. Sizzle him and he just might tell you to tear down your stand and start over."

"What's he look like?' I half joked. "Maybe I'd have time to rebuild my shop if I saw him coming down the road."

Hanning grinned at me then turned to wait on a customer. "Let Willie surprise you," he said.

The man, little bigger than a good-sized midget, climbed out of the bulky, black Cadillac and strode purposely into our shop. He was, he said, flashing a badge, an official inspector of packaged foods and sanitation. Willie, the Enforcer, had found us. He was all in black — black suit (probably bought in the boys' department), black felt hat, the brim turned down over dark eyes, gangster fashion. In his right hand he carried a huge, black fountain pen, gripped and pointing forward like a gat. Under his left arm he carried a long, narrow record book (black, of course) about as long as his arm.

A faint smile of gratification came to his swarthy face when he spotted the first violation the honey packs with the home made, brown labels. He emitted low, snarling noises as he began writing officiously in the long book. I caught snatches of his mutterings: "Enamel sink in kitchen to be replaced by stainless steel sink install paper

DREAMING . . .

towel holder . . . improper honey labels."

I busied myself elsewhere; I could take no more just then. I would, I decided, have to play Willie by ear until I approached his wave length. Getting along with official inspectors, we had been advised by other business people, was the number one step in learning how to succeed in business.

I tried a few friendly distractions to stay Willie's mighty pen that was racing hell-bent over the pages. Recalling the adage about catching more flies with honey than vinegar, I went into the back room to tell Jeanette about Willie. She, looking nice in a new, white dress, quickly took to her make-up kit and touched up her hair.

In a few minutes when she came into the shop, I introduced her to Willie. She dazzled him (tried to) with a caring smile and insisted he join us in some coffee and apricot pie. The great, menacing black fountain pen faltered, then stopped. His long book clamped shut like a pair of crocodile's jaws at lunch.

"Well, yes," he agreed, "maybe a little snack would be in order; all in the line of duty, of course."

At the little table in the back room we sat making small talk while Willie's beady eyes roved about, looking for violations. Finally, when Willie was more relaxed, I asked him if we could use the brown, wrapping-paper labels if we typed the proper wording on it.

"No, I don't think so," he grumped, lifting up his cup for a refill. "You just might give me another small cut of that pie while you're up, doll," he said to her.

Willie got up to leave. "It's for your own good, dumping the corny label," he said almost humanly. "Besides, look at all the time you'll save by using printed labels."

Imagination in selling wasn't exactly Willie's long suit. Just before he left, he bought a jar of chunk honey with the brown label. With a straight face I asked, "Shall I replace this crude label with one of our printed labels, Willie?"

"Don't you touch that label," he snarled. "If it's not exactly legal, well, that's all right for now as I'm just a customer. I think my wife will get a kick out of this pack."

As Willie made to leave our shop, he smiled faintly at Jeanette. "Thanks for the pie and coffee, doll. Tell you what, just go ahead and use the homemade labels for a while. I'll look into it."

Willie never again said anything about the "corny" labels. We came to suspect that he piled up the violations — real and imagined — to insure some good pastry and hot coffee.Δ

CALIFORNIA

"I have always found it advantageous to regard bees as my masters, rather than the other way around."

REFLECTIONS ON 45 YEARS . . .

LARRY GOLTZ

I find intriguing the programs initiated to select master beekeepers from among the number of applicants for this praiseworthy achievement. Without a doubt some applicants qualify; certainly on the basis of the scholastic criteria and more importantly, by demonstrating the skills required to master most of the expertise required to be bee masters.

Yet, I wonder, can anyone be absolutely sure they are truly the masters of bees?

My introduction to the mysteries of the bees began some forty-five years ago. Growing up on a family farm in northern Ohio prior to World War II, I had certain advantages and quite a few disadvantages, needless to enumerate here. In retrospect I hesitate to give credence to the old saw that such a fetching up "builds character." I agree that such a rustic background breeds survival skills, which I think carried me through the war. I also had hopes. Hopes that something better must surely come in a peaceful world no longer limited to endless planting and harvesting interrupted by chores dedicated to insuring the survival of ungrateful and often unproductive fowl and beasts through cold winters and humid, hot summers.

The only livestock for which I alone was responsible were the bees. Prior to entering military service I built up my home apiary to about fifteen colonies. I built my hive bottoms, tops and hive stands, covering the lids with sheet tin salvaged from strips torn from the barn roof during heavy windstorms. Building hive bodies, supers and frames was beyond my limited wood-working skills, particularly since I had only hand tools.

During some forty-five years of experience with bees I have not always been a beekeeper. As an explanation for this seeming contradiction I must explain that for some periods of time we lived in a fairly large city, in a congested neighbor-

DREAMING . . .

Larry Goltz's name first appeared on the masthead of Gleanings in Bee Culture *in October, 1972. He continued as editor until his retirement in 1984.*

hood where keeping bees may have involved some problems with close neighbors. Regardless, I kept in at least casual contact with local beekeepers and ongoing events in the bee world.

During the past fifteen years I have been able to resume beekeeping as before World War II. My bees had somehow survived neglect during the war years but not the post-war period when I was off to college and lived in the city. I have three times rid myself of bees and then began anew. Most recently I have begun in northern California. I look back on my beekeeping experiences in the Mid-east as only a prelude. I laughingly refer to them as my beginning years, all forty of them.

The past five years, retirement years so-called, interrupted by part-time teaching assignments, volunteer work and of course my beekeeping "business", have been the most fruitful of my beekeeping experiences. In California I have had to contend with drought, excessive heat, floods, a brood disease outbreak, inconsistent honey flows, the threats of mites and Africanized bees and competition for apiary sites with commercial beekeepers. Not that beekeeping in Ohio was without its challenges but a head-to-head confrontation with the reality of trying to make beekeeping profitable has added a whole new dimension to being a keeper of bees.

I have tried not to be a western beekeeper operating bees by midwestern methods. Just as a northern states beekeeper adapts management methods of the South when moving there, the midwesterner or eastener is advised to modify practices and equipment in accordance with changes in geographical locations.

We frequently feel self-satisfaction due to our assumption that we have mastered the rudiments of apiculture after years of beekeeping. If my forty-

"No doubt my bees regard me as their principal predator, if the truth be known."

five years of being in and out of beekeeping has taught me anything it is that there is no such thing as mastery of the management of bees. We learn routines which allow us to more or less successfully make a living keeping bees. Most of us simply enjoy observing them, trying to make some sense of what they are about.

Survival is what they are about, I have concluded. It is only human to attempt to understand bees and their activities in terms of our standards of behavior. We try to modify bee behavior, fit them into our scheme of doing things. It is a necessity to do so if bees are to become our business. Only the hobbyist can allow bees free-will in living out their productive lives without contributing a net profit to the beekeeper.

Man-bee relationships interest me. While making beekeeping at least a profitable side-line business I also enjoy beekeeping as a study in the natural sciences. A writer once suggested that to understand bees, that is, to be their masters, we must learn to think like a bee. Not hardly; in fact, I am sure we are incapable of this. We are not as yet certain of having mastered the secret of our own survival let alone that of a creature with such a divergent development of traits far different from our own.

I have always found it to my advantage to regard bees as my masters rather than the other way around. This philosophical about-face makes sense when you take into consideration that my bees not only out-number me but have the additional advantage of being a matriarchal society with little dependence on male members other than for procreation. If bees tolerate my interference with their survival I consider it just another testimonial to their

DREAMING . . .

adaptability and survival ability over millions of years. By being subordinate to the wiles of my bees I win token victories, like harvesting intermittent crops of honey. Mostly I enter willingly into the master-servant relationship. I assume responsibility for their housing, leaving adequate food reserves and assist in protecting them from their enemies (no doubt my bees regard me as their principal predator if the truth be known). In turn, they tolerate me.

There is almost no end to the number of examples that can be cited showing my bees to be of superior intelligence. I work often by artificial light, energy wasteful, while bees work only during daylight, resting at night as dictated by their natural biological clocks. I travel on high-risk highways and in crowded airways fraught with risk. My field workers fly freely, easily avoiding even near-misses without benefit of flight controllers on take-offs and landing. My bees stay at home nights, during inclement weather and never lift more than they can carry.

My bees show no gratitude for my efforts. Their survival from nucleus to full colony is perhaps only a mere token of acknowledgement that I have been helpful in some small way. Me, master of my bees? Ha!

"Master beekeepers" take heart. Bees, thankfully, cannot read, so I am therefore spared considerable ridicule from my "charges". I, as a contributor of a few insignificant articles concerning the lives of *Apis mellifera*, their care and what to do with their products have made, and continue to make blunders which, if these were a matter of record would forever ruin what little reputation I have as a writer about bees. To bees, my mistakes would no doubt be comical were they not so disruptive, or fatal. Moving from a temperate climate with cold winters to a protected valley with a marine climate and mild winters as we have here in the upper Sacramento Valley tend to make me forget that I have bees in the mountains where it can become cold and snowy. As a consequence I failed to realize the need for an upper entrance as a precaution against suffocation. A heavy snowfall and the problems it caused to one yard of bees cost me some loss last winter. Our Central Valley temperatures were meanwhile mild and without a trace of snow. Well, after forty-five years of beekeeping, be prepared to continue to learn.

Writers on books on how to keep bees, tend to become copycats. We mimic: we copy words of the old timers who sometimes also foolishly believed they were the masters of their bees.

We are slaves to necessities and the struggle to provide them, as are all living creatures. To acknowledge and respect these needs is our responsibility, and should be an important purpose for being on earth. Our concepts of master-subject has distorted the idealism with which we were born; made us assume powers over others, both human and "sub-human", which are not at all our perogative. In our small and incomplete understanding of life we dare to call ourselves masters; yet, despite such examples as the human tendency to underestimate the survival rationality of honey bees we as humans may very well fall far short of the longevity record for such creatures as we call the "lower animals."Δ

An Old Equipment Curse

A. F. B.

JOHN J. MC KELVEY, JR.

"The first time I was just starting, and didn't realize the problem."

American Foulbrood (AFB) is my nemesis. In fifty-plus years as a hobbyist, I have lost three hives to that dreaded disease.

The first and the most heartrending was in Claverack in Columbia County, New York, where I grew up. Along came the bee inspector who identified AFB in one of my three hives. As a high school student two to three years into beekeeping I treasured my bees and had just begun to learn how to cope with them. The inspector burned the infected hive on site while I watched. And I wondered is this fair, is it just? Should I give up and try to keep bees no longer? No drugs were available in those days to cope with the disease. I had no recourse. All my fun, satisfactions, tussles with that hive up in smoke.

Nobody seemed to bother about the disease in Mexico when I moved there in the 1940's to serve the Rockefeller Foundation as an Entomologist for its Mexican Agricultural Program. Later, when I returned to New York and lived in Chappaqua in Westchester County, no bee inspector ever came around and I got by without problems with the disease. Oh, I examined my hives for symptoms of AFB but, hoping not to find them, I could have missed some.

My second confrontation with the disease occurred several years ago in Richfield Springs, New York, when one of my hives again contracted AFB. The inspector burned it. I was not around at the time to witness its demise. I deserved the loss, I suppose, because I had not been treating my hives with Terramycin, recognized for years as a deterrent to the disease.

Finally, in early 1988, the bee inspector discovered another one of my hives had contracted the disease. This time I had to burn it myself together with masses of adult bees, a super full of some 30 pounds of spring honey and, of course, diseased larvae as well. My fault — last fall I gave my bees a minimal dose of Terramycin and this spring I had not gotten around to treating them again with that drug.

"The second time I was negligent, and hadn't treated."

A lot of my equipment is old, some of it almost as old as I am. I cannot bear to throw away an old frame of comb if half or more of it is in good shape. Frames of drawn comb are a valuable capital investment. Moreover, I derive great satisfaction in carving out the areas of drone cells from such frames, in removing other imperfections, then in sewing in new foundation to replace them. Fashioning something useful from worn out or discarded equipment pampers one's creative genius. How nicely the bees accept the patches and neatly bring the whole frame to perfection. I doubt if a commercial beekeeper would bother to patch such frames. Few would risk the transmission of AFB in such an exercise. I do.

Probably AFB will haunt me for the rest of my beekeeping days. I am sure the spores are on the ground among the dead bees of an infected hive. They may get on my hive tool, even on my clothes inadvertently and surely they must be lurking somewhere in the supers that get transferred from one hive to another. I will be more religious than I have been in the past in dosing my hives but I have no illusions about the futility of expecting human beings to eradicate the bacterium that causes AFB or indeed other such disease agents. People are, after all, the world's most effective creatures in the dissemination of pests and disease agents. Why expect them to be good at eradicating them? I am hoping that years will pass before another of my colonies of bees comes down with AFB. If and when it strikes again, perhaps antibiotics (together with the use of strains of bees resistant to the disease) will suffice to *control* AFB and replace the burning of hives to accomplish the virtually impossible task of *eradicating* AFB.Δ

"The last time I was careless, and didn't treat enough."

PACKAGE PRIMER

IN THE BEGINNING...

A PRE-ARRIVAL MANUAL FOR PACKAGE PURCHASES

DIANA SAMMATARO and KIM FLOTTUM

This is the time of year to start thinking about ordering your package bees and equipment for spring. In fact, you probably should have ordered your bees already. If not, flip through the pages of this magazine and look at bee breeder ads, compare prices and locations — and order, soon!

If you are doing this for the first time, you might want to see your nearest bee supply dealer. They will sometimes order many packages at once to arrive at just the right time for your area.

What to Order

A package of bees is a screened box that contains up to 5 pounds of worker bees, with or without a queen. Don't be tempted to order several 2-pound packages if you are starting many colonies. Statistics show that the stronger a colony is at the beginning, the better it's survival should be if the weather turns inclement.

It is best to start with a 3, or even a 4 pound package. If you are worried about mite infestations, order bees from clean, mite-free states. Most package bees are now treated with chemicals to kill clinging mites if they are from infested states. If you're not sure, check with your state Apiary Inspector. The Inspector can be located by calling your county Extension agent. He or she will be able to tell you who to contact.

Another good idea, if you are a beginner, is to buy more than one package. Buy two to five 3 or 4-pound packages, each with a queen. It might be good insurance to buy an extra queen at the same time, in case one is killed during shipping or installation. The package people can put two queens into one box, since queens are caged separately.

If you are nervous about being able to find the queen, have them clip one of her wings and/or mark with her paint.

If you are just beginning, buy a race of bees known for gentleness, like Caucasian or Carniolan. "Midnight" strain is a cross between these two, bred for gentle behavior and honey production. This is when belonging to a bee club will more than pay off. Being able to talk to experienced beekeepers will be the best education you can get.

Once you have placed your order, request that your bees arrive in May, or whatever month dandelions and fruit trees bloom in your state. In the meantime, you should be preparing for their arrival.

Hive Location

With bees on the way, you must think about WHERE they will live. Choose your apiary site with care, following the checklist below:

- away from areas routinely sprayed with pesticides
- near a fresh water source
- with year-round vehicular access, unless in your backyard
- near food sources (nectar and pollen)
- not adjacent to nervous neighbors(!)
- on upper sides of slopes, not on damp bottomlands
- with winter windbreaks
- away from fires or floods
- in protected areas to discourage vandals or thieves
- easy to mow, keeping weeds under control

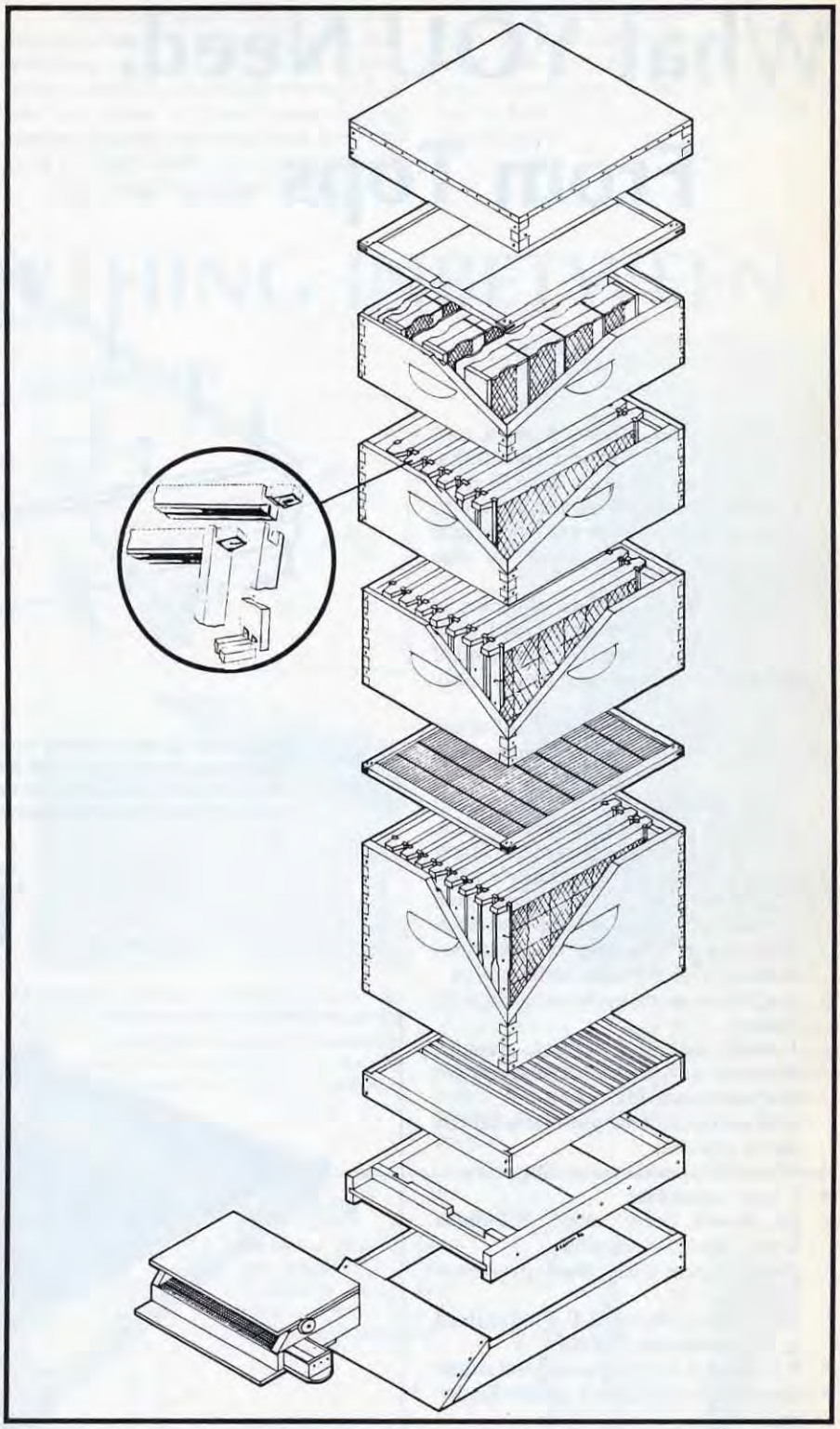
If bees will be in your back yard, check your city's zoning ordinances to see if bees are allowed. If not, you will have to find some nearby farmer or other location. Try to stay away from orchards and fields regularly sprayed with insecticides.

Vacant lands, such as RR or power line right-of-ways, state, local or national parks or preserves, and abandoned or stripped land that has weed growth, such as sweet clover are excellent. Keep your bees out of sight and obtain any land owner's permission to keep your bees there.

Post your name and address in your bee yard (apiary) so bee inspectors or others can call you should your bees need attention.

Equipment Needed

The diagram on the right breaks down a modern beehive into its component parts. This kind of a hive is called a "Moveable Frame" hive, since the wooden frames holding the honeycomb can be removed for inspection. "Fixed

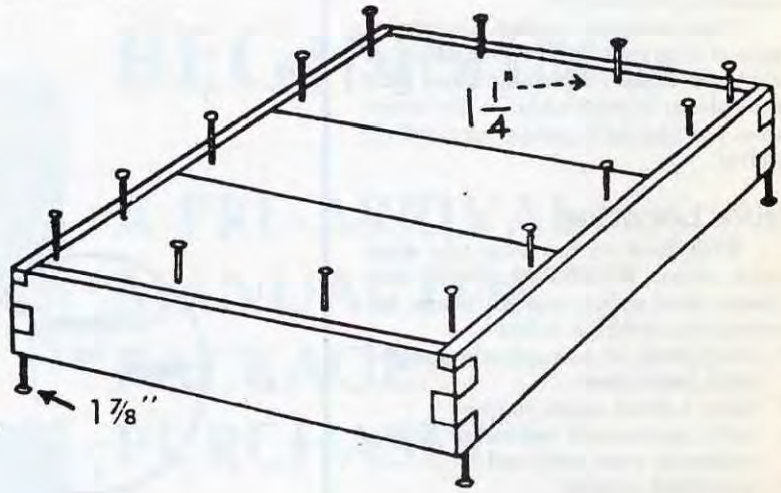


Starting at the very top: ***telescoping outer cover*** *(sometimes covers do not fit over the edges, and are then called migratory covers);* ***inner cover;*** *comb honey super;* ***shallow super; frames and foundation; medium super; queen excluder; deep super/ hive body; slatted rack; pollen trap; bottom board;*** *hive stand.*

Items in ***bold*** *are suggested when first starting. Other items can be added as skill, requirements, and finances allow or call for.*

What YOU Need:

From Tops . . .



TELESCOPING OUTER COVER

Telescoping outer covers *are usually made of wood, with an exposed metal top. The metal should be painted a light color to reflect heat in southern areas, but any color will do. Exposed wood should be painted or treated. Be sure to have rocks or bricks handy to place on top so it doesn't get blown off the hive.*

Comb" hives do not have frames, and their combs must be cut out in chunks.

All colonies of bees in the US *must* be kept in moveable frames. This is to allow state bee inspectors to easily, and rapidly, examine your hives for diseases and pests.

DON'T PANIC! This diagram is imposing if you have never kept bees before. However, you do NOT need all of this equipment right now, or probably ever.

Here's a quick checklist of what you will need for *each package* you start.

- **1 standard hive,** includes a deep hive body, inner and outer covers, bottom board and 10 frames. (Many bee suppliers sell **beginner's kits,** which include all of these, plus gloves, veil, smoker and hive tool. Buy one of the kits to get those extras, or order them separately).
- **1 additional deep hive body** with frames
- 1 each, veil and helmet, smoker, hive tool and gloves (unless you get the beginners' kit)
- hive stand, to keep your hive off the damp ground
- 1 lb. #28 tinned embedding wire
- 1 spur embedder
- 20 sheets deep, wired, "Medium Brood" foundation wax
- paint or non-toxic wood preservative
- Medication: Fumidil-B (fumigillan) and Terramycin TM-25.
- 5 pounds of white granulated sugar
- mason jar with lid or 1-gallon feeder pail
- sprayer bottle, use *only* for bees
- **bee suit,** you can make your own or buy a *good one.* It is well worth the money to purchase one with a zip-on veil. This eliminates the need for a helmet. Bee work is dirty, and a bee suit keeps smoke, bee glue, honey

. . .To Bottoms

BOTTOM BOARD

Most ***bottom boards*** *can be reversed. That is, they have a 'deep' and a 'shallow' edge on the bottom the hive body rests on. Bottom boards keep the hive off the ground, so should be placed on a stand (treated wood, bricks, etc.) so it too doesn't rot.*

and wax off your clothes.

Put together all your wooden equipment first (see side bars). Paint or apply wood preservative to the *outside* of your hive bodies, the underside of your bottom board, the hive stand, and the outside of your cover. NEVER paint the inside of your hives.

Wait until later to put in your wax foundation. It is very fragile in cold weather, so you may not want to mail order it until the weather warms up. If you purchase it from your nearby dealer, keep it in a warm room for a day so it will not break when you handle it.

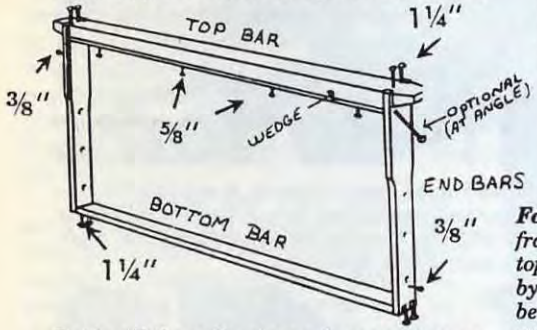
Next, getting the bees in the hive.Δ

For more information the following references are excellent: The New Starting Right With Bees (Root); Beekeepers Handbook (Sammataro/Avitable); Beekeeping tips & Topics (Jaycox); The How-To-Do-It Book (Taylor).

AND EVERYTHING INBETWEEN

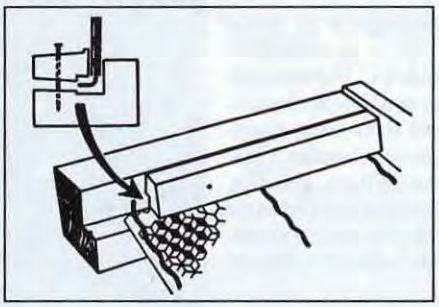
FRAMES

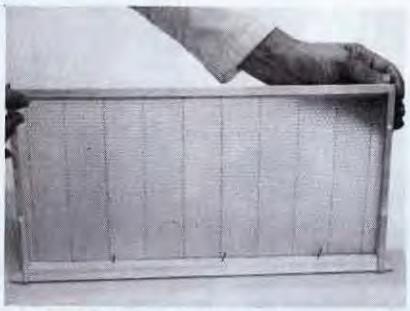
***Frames** must be assembled. Be sure the fit is snug before fastening. Relatively easy to put together, frames must be 'square' when done.*



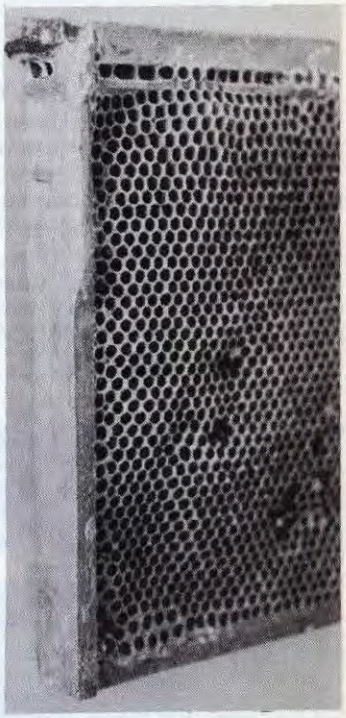
Put in all the nails, since a frame that comes apart when full of honey or in an extractor, wastes time for both you and your bees.

FOUNDATION

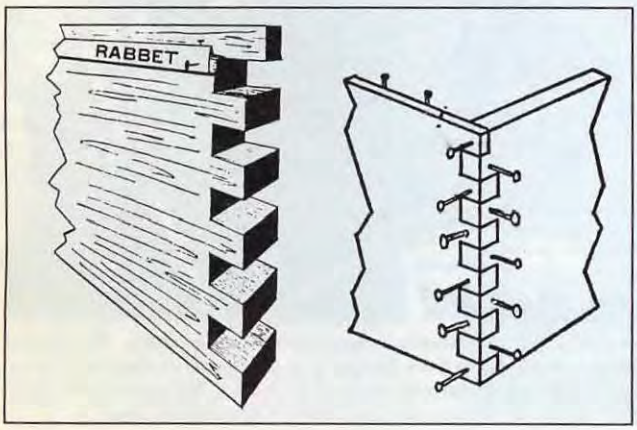




***Foundation.** To put in foundation, assemble frame and break out top wedge bar. Let the top of the foundation slide into the space left by the wedge and the bottom into the slot between the bottom bars. Replace and nail wedge.*



An improperly constructed frame will come apart. The top bar will be pulled up and away from the side bars and the bottom of the frame will rest on the top of the frames below. This destroys the required bee space, and the bees will stick these together even more.



SMOKER

***Smoker.** Don't forget your smoker. It is undoubtedly your best friend. Learn how to light it, and keep it lit.*

SUPERS

***Supers** need to be assembled too. If available, use a metal frame support so the frames stay unglued from the rest. Watch that the hand holds are facing up, not down, and are on the outside. Be sure all nails are used. Supers take a lot of abuse, but if assembled correctly, treated or painted and don't fall off a truck, will last many years.*

Hunting Carniolans

JOHN IANNUZZI

Day 1

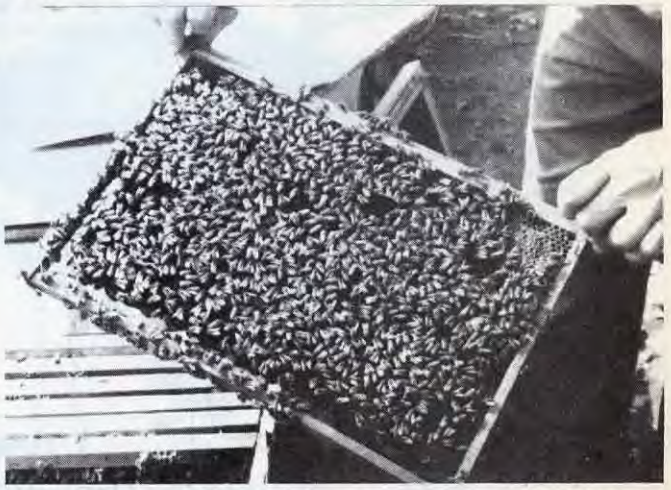
The pastor of St. James Church, Medjugorje (a little mountain village in southwest Yugoslavia) — a staccato-speaking Franciscan priest named Tomislav Pervan, to whom I'm talking — notices my bee bolo (a real honey bee in clear plastic) and is quite amused, as most first-time seers are. I respond immediately in Croatian: "Je sam pcelar. Gde su pcele u Medjugorju?" (I'm a beekeeper. Where are the honey bees in Medjugorje?) He laughs, correcting my pronunciation of "bees" — "chelay" — and responds: Nema — there are none. Come back on Saturday (the 26th) when Fr. Petar is here. He will help you."

This over-wintered hive shows the sloped outer cover, newspaper and styrofoam parked next door, with the grape branches supporting the newspaper before removal. The inner cover is a screen.

Day 2

To the cab driver, taking us to the foot of Mt. Krizevac, about two miles from St. James, for the slow climb over a rocky path to the top, where there's a 30-foot-high cement cross erected in 1933 to commemorate the 1,900-year anniversary of the crucifixion, I pop the same question as to the priest, in my losim hrvatskim (broken Croatian). "Mostar (about 20 miles to the northeast) is the closest spot, nicht hier. Funf und dreizig". (*Not here* but there are *35* in Mostar.) He'd be happy to take me there for $35 round-trip. My response: a smile.

Here, migratory beeman Stanko Lucic, Ljubuski, is smoking his bees with a cigarette. A sugar patty containing fumagillin is in the plastic on the top bars. These 12-frame hives are 20" square boxes, 14" high. They are home-made, as is all his equipment.



Here's how some of Stanko's bees looked on Saturday, March 26, 1988, a short distance from Medjugorje. The weather must have been about 15-30 days advanced over that of Central Maryland, where the author keeps his bees in the Baltimore metropolitan area.

Day 3

To the waiter in the Sume Grmine hotel restaurant in Medjugorje, about a mile from St. James, I declare: "Zelim da vidim pcele u Medjugorju. Gde su?" (I would like to see honey bees in Medjugorje. Where are they?) He laughs. He knows very little English. "Sleeping" is his response at the 0700 breakfast table. My wife: "He obviously doesn't know. Get the message?" Later on while I'm in another taxi (the standard fare from the hotel to the church is $3.00 American), I ask the same question. "Slujan. Funf kilometer. Links at Citluk (intersection)." (He too knows more German than English. At Slujan, five kilometers away. Go left at the Citluk intersection.)

By this time I'm losing hope of seeing any Carniolan bees in their native habitat, during my late March sojourn in this nominally atheistic country, and am beginning to bank on my Saturday meeting with Fr. Petar. Nor did I feel like lugging back home four honey bears with clover and tulip poplar honey (both unknown in Yugoslavia); the 1988 Root, Dadant and Kelley bee equipment catalogs; three back issues of *The Nectar Collector*, the bimonthly newsletter I edit for the Howard County (MD) Beekeepers Association and Canadian Ron Miksha's "Beekeeping in Yugoslavia" article (*Gleanings*, January 1988 — to whom I appealed for language information before my departure). I certainly was not going to return all these coals back to New Castle — along with my two extra bee bolos, bee clip (real bee in clear plastic also), and XXX Apimondia Nagoya sterling silver ceramic tie clip. No way.

That night the free hotel bus stranded us again, having left before the agreed-upon departure time (a very common but exasperating occurrence!), necessitating the $3 taxi ride back to the Kompas Hotel (or a 20-minute walk). Once again I spouted: "Ja sam pcelar. Gde su pcele u Medjugorju"—in my broken Croatian. The response, in broken English—luckily he knew more Engleski than German than the other cabbies — was music to my ears: "My uncle is a beekeeper. He has 140-150 hives (kosnice) and lives about 15 kilometers from here in Ljubuski. Maybe 15 minutes. I'll take you there for $15 round trip. When do you want to go?" What luck!

Day 4

The visit to the Stanko (Stanley) Lucic family in Ljubuski was a pleasant experience. A migratory beekeeper with 103 hives in his backyard, he followed in the footsteps of his father and

The thumb points to the large staple (the piece of scrap beneath it is also a marker) Stanko attaches to the four corners of each frame for spacing.

These two colonies are typical with home-made outer covers, sheathed with used galvanized metal and weighted with red roof tiles, the most common roofing in the countryside.

Stanko is removing the top of a two-queen colony. The insulation, serving as an inner cover, is still in place. Note that the double-hole entrance reducers are still present. This hive had a barrier down the middle to hold two 1987 queens. He raises his own and even makes his own foundation.

grandfather who did the same thing for a living. Old style. He knew about Langstroth but his hives were 20" square boxes, 14" high and had 12 frames (like the jumbo Dadant). He wintered in a single story; his super was the same size as the brood chamber! When I commented about the weight involved, this cheery 52-year-old replied: "I'm strong," flexing his muscles. (Fortuitously, a young next-door lady was on hand to serve as the English-Croatian interpreter.)

He manufactured his own equipment including the frames and foundation — each frame had large staples in the four corners to serve as spacers (see photo). A German equipment catalog was on hand to supply what could not be made at home.

We inspected two colonies. The first he opened with a puff of cigarette smoke. The inner cover was a screen topped with newspaper supported by some small branches. There was a sugar patty on the top impregnated with fumagillin and a frame feeder in position number 12 (see photos). In that colony I didn't see much brood but there was still capped honey around which we tasted (lavender from near the Adriatic, some forty miles away).

When he closed the hive, I noticed that a piece of 1/4" styrofoam went beneath the outer cover that was sheathed with used galvanized metal with three inch sloped 45-degree overhangs. The bees were Carniolan (*Apis mellifera carnica*) which originated in the northern part of his country and not Italianski, even though he did point out one such in the next hive he opened: a two-queen affair with the single box having a barricade in the middle.

These were 1987 queens, to be used when necessary. The workers in these boxes were carrying in loads of bright yellow pollen from a nearby tree with tiny yellow blossoms, which our Croatian-English dictionary called "dogwood", but it obviously was not the same tree as in the United States. (Surprisingly, the Germans also have a tree, der Hundebaum — literally, "dogwood" — which also is not the white or pink American dogwood [*Cornus florida*/rubral]).

From the yard we moved to his extracting room where he had a partially filled 55-gallon drum of a very viscous lavender-locust mix (July/August honey) normally disposed of through the local co-op. Back to the bees. Varroa had entered the country in 1978. Even though it was "six miles away" according to Stanko, he was ready for it with a medication produced in Japan, which he tried to give me. I protested that Maryland — to my knowledge — had no *Varroa jacobsoni*. I politely refused it.

Day 5

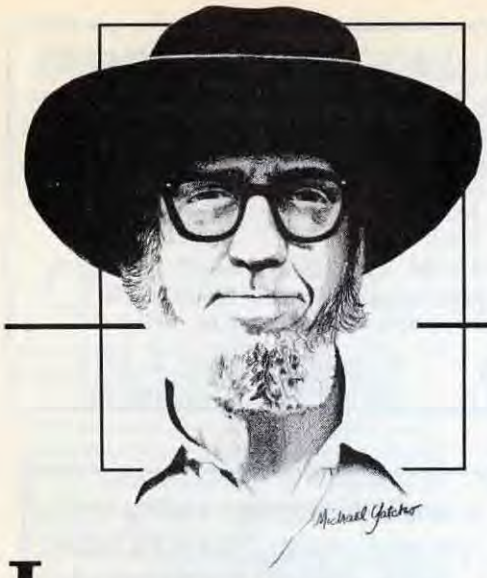
I was beginning to believe pastor Fr. Tomislav Pervan, that there were no beekeepers in Medjugorje. However, when walking through a field, virtually in the backyard of his church, I spied a pollen-ladened Carniolan courting a dandelion (*Taraxacum officinale* — called "dog flower" in German) in full bloom. That was a welcomed harbinger? Sure enough, from another German-speaking cabbie to whom I popped my standard bee spiel, I learned that there was a field of kosnice just "a kilometer" beyond my hotel. There his migratory uncle had sixty double-story Langstroths, strictly American style. (Hinges, permanently attached to the middle of all four sides, were held together by means of a movable pin, permitting easy separation of the top from the bottom brood chamber.)

I also noticed that his inner cover was not standard American but a screen, similar to Stanko's. I was impressed by this since one of my 21 colonies — as an experiment — wears a screened inner cover the year round. And instead of Stanko's newspaper, he used corrugated cardboard.

Note that both were migratory beekeepers. The area had spindly locust *(Robinia pseudoacacia)* and oak trees all over, the former called "acacia." Additionally there was a berry bramble on the roadsides which produced tons of med. But apparently the real flows were elsewhere. The honey types, which our host mentioned were as follows: tilovina(*Cytisus ramentaceus* — a variety of broom), "found only" in his fatherland; *Salvia officinalis* (or sage) called kadjula in the local tongue, a 1.1 pound bottle of which I had previously purchased locally for 2300 dinars ($1.75 American); rosemary, mostly near the Adriatic; and vrist *(Calluna vulgaris* or heather — according to my books — but unlike the thixotropic stuff which I purchased in England). Ante also mentioned (1) the wildberry, previously cited, the September harvest of which yields "60 kilos/hive" (132 lbs.) "in one month" and (2) *Satureia montana* or winter savory. (His average harvest per hive, however, discounting the wildberry, is "45-50" kilos/year.)

Parting Word

Medjugorje (Med-you-GORE-yeh). That little mountain village of just 400 families is in Yugoslavia where Apimondia — the Congress of Beekeeper Organizations — will meet in 1991, just a short distance away in beautiful Split, the popular seaside resort on the Adriatic. See you there?Δ



BEE TALK

RICHARD TAYLOR

9374 Route 89, Trumansburg, NY 14886

"Honey Shows — Good for the industry, and (maybe) good for the ego."

I don't think I've ever talked about honey shows, so maybe this cold winter morning is as good a time as any to talk about that.

Honey shows can add a good bit of zest to the beekeeper's craft and, besides that, they serve a valuable function in setting standards of quality, something that is far more important in beekeeping than in most things. People have a pretty good idea of quality with respect to most farm produce. They know what a good apple or squash is, and if they sometimes run into poor ones it does not prejudice them against the whole class. But with honey it's different. If someone gets some honey that has been darkened and ruined by overheating, for example, then he decides he does not like dark honey, or if he gets comb honey that has granulated, then he is likely not to buy comb honey again. I know of no branch of agriculture where it is more critical to maintain the very highest standards. Competition with other sweets, together with a widespread public ignorance about honey, compels us to. And honey shows are a big help here.

I never fail to enter a honey show if I have the opportunity. That is very easy for me, since I produce nothing but comb honey. All summer, as I'm harvesting and packing the comb honey, I set aside all the perfect ones. Eventually I have maybe a couple of dozen of these, set aside in a separate box. And when I say *perfect*, I mean about as close to perfection as a section of comb honey can be. There are no uncapped cells on either side, none. There is no travel stain. There is no speck of propolis. There is no hint of stickiness. There is no trace of wax moth. And these sections are completely filled. Then when I go off to the honey show all I have to do is pick out almost any three sections from this box, and I am fairly likely to get the blue ribbon. If I miss it, that's okay; at least I always come close. And all the other beekeepers get a chance to see what comb honey should look like. It is an easy way to add fun to any bee meeting.

It is exciting to peer in after the judging is over to see who got the blue ribbons. Your ego can get caught up in this, too. Once in awhile you see where someone whose entry was clearly inferior to yours nevertheless gets a higher score, and you want to sputter about the incompetence of the judge. But I decided long ago to avoid all that. If I win, fine, but if I don't, that's okay too. The only ribbons I save are the blue ones.

Some funny things can happen with a honey show. Last month when I went off to our own bee club's show I urged one of my friends to enter it too, even though he had been too busy to get the required three jars ready. So he just picked three out of a case that was sitting there and entered those. With a score of 94, he only took fourth place. Then the next month he entered the *same* jars in the larger honey show of the state association, and not only won the blue ribbon, but in addition won the special ribbon for "best of show." So you never know what's going to happen, and it is always worth giving it a try. Years ago, when I was producing extracted honey, I entered three nice jars in a show, only to have them disqualified because of too high moisture content. Then the same three jars won the blue ribbon at the state fair.

There used to be a beekeeper down in Pennsylvania, I've forgotten his name, who fairly consistently won first prize in the honey shows. It wasn't that his honey was particularly light in color or anything like that. His secret was very simple. When he was bottling his honey from the tank, he would always fill three jars right from the middle; not the honey that came out first, nor the honey near the top, but the honey that was in the middle of the barrel. That's all it took. He thus avoided any tiny particles that might have a tendency to settle towards the bottom, as well as those that might have a tendency to rise, such as wax particles or tiny bubbles.

All you have to do to win the honey show prizes is be a little fastidious. Make sure the honey is reasonably thick, and nice and clear. Don't let there be any granulation crystals in it. Don't worry about color; the beekeeper does not have much control over that, and it does not usually count anyway. Tip the jar, then check the inside of the lid, to make sure there is not a single speck there. That is the first thing the judge is going to do. Then enter it. You'll be in for some pleasant surprises.

Honey shows always include a beeswax competition. Here the idea is to get a block of light, lemon-yellow wax, free from cracks and from any dirt specks. You avoid cracking by letting the block of wax cool very slowly. You avoid discoloration by melting the wax only in a well-tinned vessel, or one of stainless steel, never iron or copper. These turn the wax a muddy brown. And the best way to avoid specks of dirt is to melt the wax in the presence of water. The wax floats on the water, and most of the impurities end up in the water underneath. Then if you want to get the block nice and smooth, with perfectly flat surfaces, spread aluminum foil on a griddle, warm the griddle over a gas burner, being careful not to overheat, and then slide the block of wax around on the foil. The surface wax will melt slowly away, leaving a perfectly flat and even surface. That will

Continued on Next Page

put you in competition for the blue ribbon almost every time, provided the block is a nice light yellow and not cracked.

It is certainly worth doing, entering honey shows. If you get the blue ribbon then everyone congratulates you and thinks you must be a truly exceptional beekeeper. You are apt to think so too, that is a harmless indulgence of the ego. If the bee meeting includes a banquet, then you might get to stand up there in front of everyone to be presented with a silver bowl or tray, everyone applauds, and flash cameras go off. And that is very pleasant indeed.Δ

[Comments and questions are welcomed. Use Trumansburg address and include a stamped envelope for a prompt response.]

QUESTIONS?

-Q- *I had always understood that the queen mates only once, with only one drone, and that the worker bees' tasks in the hive are determined entirely by age. But I recently read that a worker's hive task is determined entirely by which drone was her father. Does this mean that a queen mates with hundreds of drones, and that each worker performs the same hive task for her entire life?*

Anne Westbrook Dominick
Hinsdale, NM

-A- It has for some time been known that the queen takes several nuptial flights, mating with several, but certainly not hundreds, of drones. The hive tasks of the workers are determined mostly by age, but also by genetics. For example, according to Dr. Morse, it has been found that all of the "undertaker" bees in the hive at a given time, that is, the bees that carry out dead bees, are full sisters, as are, I believe, the cell polishers, at any given time. Foragers, on the other hand, are always older bees, and may or may not have come from the same drone. So the implication of the article you cite, that age has nothing to do with hive tasks, appears to be quite wrong.

-Q- *Can I increase my number of colonies by simply dividing a two-story colony, without bothering to find the queen, but making sure there are eggs and young larvae in both halves? Or should I wait until there are queen cells?*

O. R. Hutton
West Memphis, AR

-A- Yes, you can do that, and the queenless half will raise a new queen, but if both halves of the original colony are going to remain in the same apiary, then be sure the one that is heavier, and which therefore has most of the honey, is left on the original stand; otherwise the bees will rob out the honey that has been moved to a new stand and bring it back where they think it belongs. The drawback in this simple method of making increase is that it will be quite a long time before you get a laying queen in the queenless part — upwards of a month sometimes — and that puts things behind. So a better method is to insert a screen between the two stories, check four days later to see which story has eggs in it, move the one that does not (but making sure the combs with most of the honey in them stay on the original stand) and then requeen that part that was moved. That way you do not have to find the queen, and acceptance of the new queen is virtually certain.

-Q- *I bought sixteen hives from an old man who used deep brood frames but not foundation. As a consequence the bees built their combs across the frames rather than in them. They are strong, and I would like to make splits from them. How can I do it?*

Wayne Hunsucker
Shepherdsville, KY

-A- If those were my hives I would, come spring, turn every one of them upside down, make a good-sized hole in the bottom boards (which have now become the tops), and set a proper bee hive, having either combs or frames of foundation properly wired in, over each upside-down hive. As the brood hatches out down below the bees will abandon those inverted hives, moving up into the new ones, and the problem is solved.

-Q- *Does Fumadil-B mixed in sugar syrup lose its effectiveness if the syrup freezes?*

Harold Dill
Parker, CO

-A- I think not. It has long been a practice of Canadian beekeepers to install package bees and treat them with Fumadil-B in April, even though freezing temperatures can still be expected.

-Q- *Do you take the frames from the hives each spring and clean them?*

Name withheld by request

-A- No, I think that would not be worth the trouble. The problem of having frames get stuck together so that they are hard to remove can be avoided by using only nine in the hive instead of ten.

More on mountain laurel honey:

I got a lot of mail bearing on the question, raised by Mr. John Dent in the November issue, whether honey from mountain laurel is toxic. A reader connected with a laboratory in Ohio sent me a copy of a scientific article about this which I couldn't make head or tail of. The author seemed to be saying that he had tested samples of this honey for the presence of something or other, and had found it was indeed present, but there was no hint whether or not that substance would make the honey toxic.

Mr. Charles Manlove, in Colorado, sent me an article from a medical journal which seemed to say that some honeys (including mountain laurel) do indeed cause sickness but rarely, if ever, death. If such honeys become blended with honey from other sources then sickness is not likely to occur, according to that author.

Mr. James Hagemeyer, in Tennessee, wrote that according to his experience, this honey can have a somewhat bad effect when eaten fresh, but not if allowed to stand for a day or two.

And Mr. John A. Moore, in North Carolina, wrote from long experience that these bad effects result mostly from eating too much of this honey at once, and that moderate consumption produces no ill effects. So I conclude that mountain laurel honey might be slightly toxic, but not dangerously so, except perhaps to the gluttonous.

Questions are welcomed. Address: Dr. Richard Taylor, 9374 Rt. 89, Trumansburg, Ny, 14886, enclosing a stamped envelope for response. No telephone calls, please.

ANSWERS!

Richard Taylor

INNER . . . Cont. from Page 67

have reported that they don't have to add artificial fragrances to their wax anymore, all their candles smell like chewing gum. Fourth, in WI they found that old combs contributed to increased amounts of chalkbrood occurring. And, when replaced, chalkbrood incidence was significantly decreased. Finally, if old combs were so good, why don't you find feral colonies loaded with them, (yes, there are some, but not many).

Of course I don't have an exact cost/benefit analysis here. On one hand you are removing accumulated toxins, disease and random filth from your colony. This probably will result in healthier bees, less disease (and thus less medication), and more honey.

On the other hand, replacing combs costs money. Not a lot on a per colony basis if you do it over three or four years, but some nevertheless. Does increased honey and healthy bees balance the cost of new foundation?

This isn't a black and white situation, and I'm sure that there are some who are using combs older than I am with what they consider success. But if your combs are black, perhaps it's time to change — Haven't you heard? Yellow is in this year!

Piece Makers

We sat in the study New Year's day, Diana making a quilt, and I trying to write this column. I studied the making for awhile, it was the first time I've really watched. I was fascinated (I still am)!

Quilts start with pieces of cloth that don't fit anywhere else, the leftovers of the fashion world. Bits of a dress, selvage from patterns, garage sale remnants, pajama pieces and the odds and ends of a variety of vests and vestments. Individually, none of the above were striking. But when patterned and pieced they took on a life of their own. It began to grow.

As I watched, I saw a parallel with the things that we make. We start with pieces. Pieces of wood, and metal. Not cast-offs really, but individually not of much use, or even easily identified.

The quilt, like all quilts, had a pattern. Really, it had two patterns, and if you look hard, it has an even greater plan. But it starts with the first choice of the first piece. The design needs a pattern — light, then dark, dark, then light. The first pieces small, then larger, and larger, straight pieces and square, long pieces and short. Finally, the first square is there.

Like making frames, I think. Each piece fragile, and of little use by itself. But you start with one, add more, nails and glue and a square. Wire maybe. From random sticks to a solid, nearly indestructible rectangle of honey storage or nursery cribs. A start. Ten starts per box.

Diana makes large squares from smaller rectangles. One half of the square is light, on the diagonal, the other half dark. The light side is from a shirt I wear, a dress and curtains from my parents first home. The dark parts come from mostly mysterious places, but some are known. The best is from a shirt worn by an old beekeeper Diana knew, and some from bluejeans, left over from the farm.

The quilt will be large when it's done. Big enough to cover a queen size bed. In quilt language that's nearly an acre. So all the tiny, individual rectangles get put together to make squares. Then, the squares are laid out in a bigger pattern. Diana called it a Checkerboard, a variation of the 'Log Cabin'.

The frames, rigid by themselves, but needing a home, wait while the boxes are built. The boxes. Finely-chiseled edges, machined to a millionth of an inch to fit so snug that even air won't leak. They fit together like jigsaw pieces, are nailed quickly and then are strong enough to withstand an attack by an armored division. Strong and solid, and worthy of the effort.

Lots of boxes to be made. Lots and lots. And tops and bottoms, and the rest of the things that need made and finishing.

After the squares are put together, in the right order, in the checkerboard pattern, the trim is next. Fancy trim. Smooth and silky. Nice to be next to when snuggling at night. Then the backing, and the filling and the holding-it-all-together quilting. It's a marvel to watch, and it's now a thing of its own. It has a life, and a style. It is a quilt. But it is only a quilt, yet. When Diana gives it to the person it was made for it will be just the beginning. Then it's history as a quilt begins. It's history as pieces of pajamas, odds and ends is over. The pieces are whole.

When the frames are foundationed, the boxes are painted, or somehow cured, the tops and bottoms capped and protected, and of course the bees come home, it too has a life, and a style. It is a colony. The pieces are whole. Δ

Kim Flottum

ANSWERS TO TESTING YOUR BEEKEEPING KNOWLEDGE

1. **True.** The temperature of the cluster and its survival rate increases with group size, but even small groups are able to survive low temperatures that would quickly kill individual bees. Because of a smaller ratio of surface area to volume, larger colonies conserve heat more efficiently than smaller ones, and in order to survive cold periods small colonies need to produce more metabolic heat and consume more food per bee than those of larger colonies.
2. **False.** In the fall bees normally cluster between the combs near the bottom of the stored honey. They gradually eat their way upwards between the combs and reach the upper hive body by mid-winter.
3. **False.** Drone production is seasonal and dependent upon colony conditions. As a survival mechanism, drone production and tolerance of drones by workers is encouraged by the presence of a failing queen. Finding drones in a colony during the winter is usually an indication that the colony is queenless.
4. **True.** Honey bees are unable to start into flight at a temperature of less than 50°F. They use their flight muscles to warm up through a process known as shivering. Honey bees must maintain a thoracic temperature above about 80°F in order to fly. Flight muscles cooler than this simply cannot generate the minimum wingbeat frequency and power output per stroke needed for takeoff and flight.
5. **True.** The need to eat pollen during the autumn period is crucial for the survival of the colony during the winter. Bees eat a massive amount of pollen in the fall, and the products of its digestion are stored in the fat body as proteins and fats. As the bees are neither feeding brood or foraging in the field, their lives are extended for several months.
6. **False.** Molds commonly grow on the surface of combs that are stored in damp areas and on combs in colonies that die during the winter. They have no effect on the wax and need not be discarded.
7. **True.** Bees winter best on combs that have been used for brood rearing. Clusters will often avoid moving onto newly drawn, white combs even though they contain capped honey.
8. **True.** In order to form a compact winter cluster, bees must crawl into empty cells on the interior to fill what would otherwise be empty space. Thus bees are unable to form a compact cluster over capped honey or on foundation.
9. **True.** Wax moths are a continuous threat except when temperatures drop below 40°F Freezing temperatures destroy all stages of the moth.
10. **True.** Insulated colonies start brood rearing a few days earlier than unprotected colonies due to slightly higher temperatures in the area of the winter cluster.
11. **True.** Radiation from the sun has been shown to affect the location and movement of the winter cluster. In a Wisconsin study, clusters were always south and generally slightly west of the hive center.
12. **True.** The development period of worker honey bees is partially affected by broodnest temperature. Brood found in the center of the broodnest develops slightly faster than brood located at the nest periphery.
13. **True.** Tracheal mite populations have the greatest effect on honey bee colonies during winter confinement. This disease shortens the lives of adult bees and significantly increases the mortality of colonies in winter.
14. B) 45-48°F
15. C) propolis
16. D) 32°-57°F
17. B) 45°F
18. C) 60 lbs. or A) 90 lbs.
19. The reason for having both a lower and upper entrance is to ensure adequate ventilation and release of moisture that builds up in the colony during the winter. Also, this allows the bees to go on a cleansing flight when the lower entrance is blocked with snow and ice.
20. Failure to do so often results in the candy being either too hard or too sticky, making it difficult for the bees to use.

ANSWERS TO EXTRA CREDIT QUESTIONS

21. When a colony is over-insulated bees are unable to sense the true temperature changes occurring outside the hive and may attempt to take cleansing flights before temperatures are adequate.
22. B) Antennae
23. C) 0.45°F
24. Most chemicals do not penetrate capped brood cells so treatments must last three weeks in order to completely break the mite brood rearing cycle. Only female varroa mites are found on adult bees in colonies that have ceased to rear brood and have formed their winter cluster. Thus, a broodless condition increases mite exposure to the chemicals and reduces the chances of contaminating the honey crop with pesticide residues.

There were a possible 24 points in the test this month. Check the table below to determine how well you did. If you scored less than 12 points, do not be discouraged. Keep reading and studying — you will do better in the future.

Number Of Points Correct
24-18 — Excellent
17-15 — Good
14-12 — Fair

News, Comments . . .

Approval of Section 3 Label

EARLY IN JANUARY, 1989, Zoecon Corporation announced the approval of a Section 3 label for the 1% Queen Tab®. This Fluvalinate product will enable queen producers to ship queens that have been treated for the varroa mite. If the negotiated rule-making session recommendations are implemented by March 1, queen producers will be able to ship treated queens this season.

Since the final varroa quarantine regulations have not been released, this may still require fine tuning.

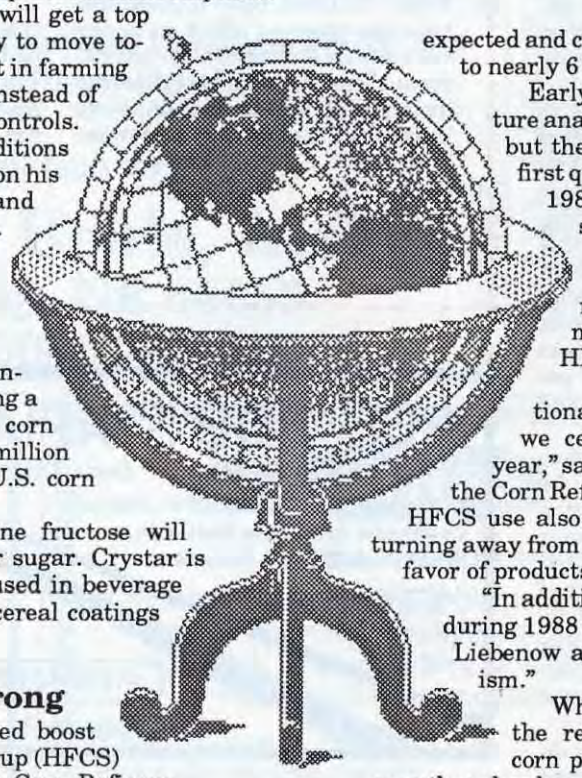
Dr. Sheshata M. Sheshata, Zoecon product apiculture specialist, says the Section 3 label for Apistan 2-1/2% Strips used in packaged bees will be released in early February. He also says that the Section 3 label for the 10% Strip is at this time still uncertain. Until approval, these products remain available under the Section 18 emergency use permit.

For more information contact Zoecon Apiary Division, 1-800-527-0512. Stay tuned to *Bee Culture* for this late breaking event.

New Ag Secretary to Change Focus

CLAYTON YEUTTER'S SELECTION as U.S. Secretary of Agriculture sets a distinct tone for the industry. Luther Tweeten, agricultural economist at Ohio State University, says Yeutter is very strongly committed to exports and a market-oriented farm economy. As the Reagan administration's chief trade negotiator, Yeutter is pushing foreign countries on both issues. Tweeten expects the same emphasis in his new role. Foreign markets will get a top priority. Expect the new secretary to move toward less government involvement in farming and emphasize direct payments instead of price supports and production controls. Current supply and demand conditions give Yeutter an opportunity to act on his philosophy of increased exports and less government involvement. Pressure to cut the federal budget will also help his case.

ROLLING IN DOUGH. A somewhat tired Anna Morrison wipes honey from her eye after being painted with honey and then rolling in a $10,000 pile of money. Morrison got to keep all the money that stuck to her. The money was going to be washed at a laundromat prior to being counted. The event was sponsored by a Santa Rosa radio station. (AP LASERPHOTO)



New Corn Sweetener

Recent breakthroughs have uncovered a process for manufacturing a totally different sweetener from corn that will initially add several million bushels of new demand for the U.S. corn market.

Called Crystar, the crystalline fructose will serve as a partial replacement for sugar. Crystar is sweeter than sugar, and will be used in beverage mixes, confection, dessert mixes, cereal coatings and other fast foods. .

. . . but HFCS Still Strong

The soft drink industry helped boost shipments of high fructose corn syrup (HFCS) by 5% last year. According to the Corn Refiners Association this level is much higher than most analysts expected and could push total shipments of HFCS to nearly 6 billion pounds.

Early last year, Department of Agriculture analysts predicted growth of about 2%, but they reported that shipments for the first quarter of 1988 climbed by 5.6% over 1987. Now, USDA says that 1988 consumption was more than 5.9 million tons, and increased corn usage for HFCS production at more than 15 million bushels. More than 355 million bushels of corn were used in HFCS production during 1988.

"Soft drink consumption traditionally jumps with warm weather, and we certainly had our share this past year," says Robert C. Liebenow, president of the Corn Refiners Association. "This increase in HFCS use also suggests that consumers are not turning away from naturally sweetened soft drinks in favor of products using artificial sweeteners.

"In addition, the big jump in foreign tourists during 1988 added to U.S. soft drink demand," Liebenow adds, "noting a 14% jump in tourism."

While theses factors added to demand, the related drought seriously reduced corn production. "With the drought last year there has been some concern about whether we'll have enough corn this year. Thanks to the larger farmer-

owned and CCC reserves, the answer to that question is yes," Liebenow says. "We have enough to meet our needs and the needs of other major corn users until the 1989 crop is harvested."

Periodic droughts are devastating to corn farmers and the corn economy, but the more serious, long term problem has been crop surpluses.

"Just two years after the 1983 drought, we had a record corn surplus of over four billion bushels and farmers were desperate for new markets. Since that time, corn refiners have increased the base demand for corn by over 300 million bushels per year."

AHB Movement in Mexico

At operational Unit 1 (OPUN1), (Puerto Escondido), 113 swarms were captured during early December. Swarm capturing at Operation Unit 2 (OPUN2), (Veracruz), decreased because several brigades stopped working due to the lack of gasoline; they did, however, report 60 swarms captured.

A new AHB detection was found near the southeast border of OPUN2 on route Huatusco-Coscomatepec in the direction of Puebla.

Lab identification results are as follows: At OPUN1, 145 samples were tested through Fabis, from which 110 were AHB. From five samples collected from SD1, three were AHB, and 2 were EHB (Daly).

At OPUN2, of the 122 samples collected, 66 were EHB, and 18 were AHB. Thirty-eight samples were analyzed using Daly. Of the 38 samples, 22 were EHB and 13 were AHB.

Have A Fax?

- Beneficial Insects Lab at Beltsville - (301) 344 - 1736
- Honey Bee Breeding, Genetics and Phys. lab at Baton Rouge - (504) 389 0383.

AHB Researchers Directory Available

Dr. H. Shimanuki is in the process of preparing a directory of individuals conducting research on the AHB. It will list graduate students too, so send names of both to him. The directory was requested by the Tri-Country Committee on AHB and Parasitic Bee Mites.

Video Available For Loan

Dr. Gerald Loper has developed a video showing RADAR techniques used to study drone congregation areas. The 15 min. film is high quality and demonstrates new techniques for researching honey bee queen mating behavior. For more information on the video, contact him at - USDA ARS, 2000 East Allen Road, Tucson, AZ 85719. (602) 629-6140.

Dr. Frederick Westbrook, USDA Extension, Retires

Dr. Fred Westbrook of the Extension Service, USDA, retired on Jan 3, 1989. He has been a long time supporter of beekeeping in the U.S., and is well known to many beekeepers. Dr. Westbrook was an integral part of the development of the national apiculture extension position recently initiated. The position was developed by Drs. Westbrook, Gomez and Tew. Drs. Tew and Gomez will continue the project as was conducted in the past.

Dr. Westbrook was also instrumental in the implementation of the USDA Interagency Working Group on the Africanized honey bee and served as the first chairman of that committee.

England's 'Pick Your Own'

England's pick your own and roadside marketing businesses are booming even though customers don't seem to spend any more money than their American counterparts each time they shop. Kelso Wessel, agricultural economist at Ohio State University, says American direct marketers can learn something from the English. Emphasis on quality and products other than home-grown fruits and vegetables are the keys. Honey fills this niche very well. English customers spend $10.00 to $15.00 on each trip to these operations, comparable to U.S. shoppers, but they seem to shop more often.

Farm Land Use Expanding

Idle crop acres that may return to production throughout the world threaten the economic recovery of agriculture. Allan Lines, agricultural economist at Ohio State University says one-third of the world's decline in harvested acres was due to land-idling programs in the United States. This land directly benefited beekeepers since it was usually planted to flowering crops and not harvested, or left to grow wildflowers. To put U.S. land-idling efforts in perspective, note that crop acres idled by government programs in 1988 exceeded the cropland of France and Spain combined. The threat lies in how fast idled land returns to production in response to higher grain prices, triggering a drop in prices and incomes.

Plan Now For Future Forage

If you want to plant herbs for bees this spring, start planning now. Researching and choosing plants, and finding them takes time.

Hundreds of herbs are available for beekeepers, says Barbara Williams, horticulturist at Ohio State University.

They smell and taste good, look pretty and many produce ample nectar for honey. Researching nectar and pollen properties and growing habits helps you choose the right herbs and gives you the chance to pick the best, she says.

Local botanical gardens, arboretums, libraries and garden centers have books and other material that describe herbs and herb farming, (not to mention bee supply companies, she added!).

Check garden catalogs as well, Williams says. They have herbs with unusual variations in color and texture. Texts you review will also tell what sources sell unusual plants, and which may be best for bees.

Garden centers usually sell a limited supply of herbs in the spring, but almost always have the seeds you will need.

When planting remember that most herbs need at least six hours of daily sun for good growth and nectar production, Williams says. Herbs grow well in a range of soils, but do best in well-drained areas. And the oils found in herbs tend to make them resistant to disease and insect pests.

A lot of herbs are perennials, so plan for their expansion over the years. Vigorous herbs such as mints can take over an area.

Most perennial herbs also require low maintenance. And perennial herbs that flower maintain their flavor while annual herbs lose flavor and die soon after flowering. Also, annuals need to be replanted every year, raising costs of establishment and maintenance.

UC Publishes Guide For Sustainable Agriculture

A new University of California publication to help farmers, ranchers, researchers, farm advisors, planners, gardeners and consumers find information about sustainable agriculture is now available.

Sustainable Agriculture for California: A Guide to Information, produced by David Bainbridge and Steve Mitchell of the UC Riverside Dry Lands Research Institute, lists a wide variety of resources addressing the economic viability of farming and the effect of farm practices on the natural environment.

Most information that is needed is widely spread out and difficult to find. The guide helps remedy that problem by referring readers to the appropriate resources, and where they can be found.

A directory listing sustainable agriculture organizations — from large groups with information about cold-climate grain to small groups interested in crayfish production — is included in the guide.

It is available, free of charge by contacting the program at Agronomy Extension, University of California, Davis, CA 95616. (916) 752-7556. There is also a newsletter available on the same subject, from the same source.

Puerto Rico Import Information

Puerto Rico — a commonwealth of the United States since 1952 — is a haven for agricultural products. It imports three billion dollars in food and one billion dollars in agricultural machinery and fertilizers each year. For instance, it imports $300 million in wheat, $200 million in poultry, $35 million in grapes, tractors, tomatos. For those in the agricultural business trying to tap this valuable market , a book recently published could be helpful. It is titled *Puerto Rico : Business to Business Executive Guide.*

The source costs $65.00. Write to Puerto Rico Executive Guide, c/o Allied Publications, P.O. Box 388, Lares, Puerto Rico 00669-0388.

Ditson Receives Award

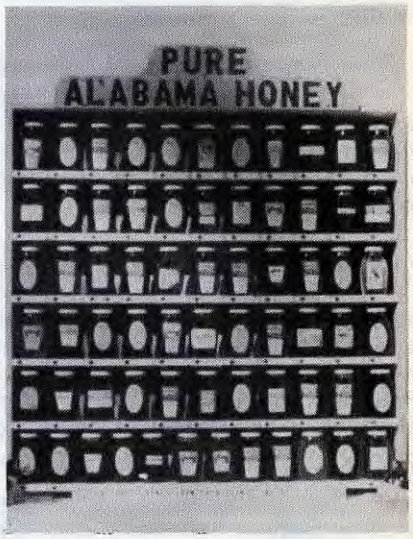
J.D. Ditson received the New Jersey Beekeeper's Merit Award for 1988. J.D. has been an active leader in 4-H for over 14 years where he has inspired and taught many young people to know and love honey bees. Both regional and state group activities have benefited from his work and advice, and he is recognized as an expert in wax candle making. He had conducted several workshops for EAS in the art.

After graduation from NYU with a degree in Aeronautical Engineering, he served 43 years with the Ingersoll-Rand company, where he holds 14 patents. At retirement he was manager of quality control of the Rock Drill Division Worldwide.

The New Jersey beekeepers are grateful to Mr. Ditson for his contributions to beekeeping., and are proud and honored to bestow a plaque which reads: Presented to J.D. Ditson in appreciation of many years of dedicated service to the New Jersey Beekeepers Association.

Alabama Beekeepers Well Represented

John Schultz and his wife collected a one pound jar of honey from every county in AL. Mr. and Ms. Schultz are members of the Jefferson Co. Beekeepers Association, and made this display for the AL State Fair, Oct 13-23.



Words to Remember

If you give a man a fish, he will have a meal
If you teach him to fish, he will have a living
If you are thinking a year ahead, sow seed
If you are thinking ten years ahead, plant a tree
If you are thinking one hundred years ahead, educate the people
By sowing seed once, you will harvest once
By planting a tree, you will harvest tenfold
By educating the people, you will harvest one hundredfold
(anonymous Chinese poet 420BC)

. . . & Events

☆ INTERNATIONAL ☆

The **Saskatchewan Beekeepers Association** will hold their annual convention Feb. 2 - 4, 1989, at the Sheraton Cavalier, 612 Spadina Crescent, in Saskatchewan. For more information contact Renee Beever, Box 2950, Nipawin 50E 1EO, Sask. Canada.

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The next **International Apicultural Congress**, sponsored by **Apimondia**, will be held in Rio de Janeiro, Brazil, October 22 through 28, 1989. Apicenter do Brasil is at your disposal not only to help in contacts before the Congress but also to assist you in solving any problem — like sending information of your interest to you regarding the meeting. Contact: Jose Emilio Petres, President, Apicenter Do Brasil, Produtos Apicolas E Naturais Ltda M.E., Rus Felipe de Oliveira, 4 - Loja C, CEP 22.011, Copacabana, Rio de Janeiro - RJ, Tel. (021) 295-6044.

☆ MICHIGAN ☆

Michigan State University, Agriculture and Natural Resource will hold their Annual Two Day Beekeepers Meeting on Tuesday and Wednesday, March 21-22. The featured speaker for this year will be Dr. E. R. Jaycox, The Bee Specialist, from Las Cruces, NM. Some of the topics to be covered during the program include: the effect of old comb on the colony, antibiotics and pesticides in beekeeping management, reducing management costs for profitability, removing moisture from honey, and pollination service.

The meeting starts each day at 9:30 and is open to all. The Kellogg Center can provide rooms for overnight. Call (517) 355-5090 for reservations. Information regarding the program can be obtained from Dr. Roger Hoopingarner, Department of Entomology, Michigan State University, East Lansing, MI 48824-1115; (517) 353-8136.

Tuesday, March 21

10:00 Video, *Honey Promotion*
10:30 *Movement and Displacement of Honey Bees Pollinating Blueberries*, Walter Boylan-Pett, MSU
11:15 *Removing and Drying High Moisture Honey*, Dr. Roger Hoopingarner, MSU
12:00 Lunch
2:00 *The Comb Connection; Or Why Are You Using Your Grandfathers Comb?*, Dr. E. R. Jaycox, NM
2:45 *Beekeepers and the Future of Beekeeping Programs in Michigan*, Dr. George Ayers, MSU
3:15 Michigan Honey Queen and Honey Queen Program
3:45 *Cost Reduction for Profitability in Beekeeping*, Dr. Roger Hoopingarner
7:30 Michigan Honey Queen Pageant; Beekeeper of the Year Award; Beekeeping Gadget Round-Up; Reception

Wednesday, March 22

10:00 Movie
10:30 *The Habits and The Control of Yellow Jackets and Wasps*, Howard Russell, MSU
11:15 *The Beekeeper, the Public, and the African Bee*, Kim Flottum, Editor, *Gleanings in Bee Culture*
12:00 Lunch
1:30 *Management in Crisis: Too Many Cure-alls?*, Dr. E. R. Jaycox, NM
2:30 *International Agency for Apiculture Development*, Diana Sammataro, Medina, OH
3:00 *Pollination Is My Business*, Ed Eisele, Berrien Springs MI

☆ MISSOURI ☆

The **Missouri State Beekeepers Association** will hold its spring meeting on March 11, 1989 in Moberly, Missouri at the Ramada Inn at the Junction of Hwy. 63 & 24. Our main speaker will be Dr. James E. Tew of Ohio State University. A buffet lunch will be served for $7.90 on Saturday. Advance registration is required.

The hotel phone number is (816) 263-6540. Call for room information and identify yourself as a member of the Missouri State Beekeepers Association when making your reservation. For more details call Larry Hensley at (314) 353-6935 or write to 13520 Old Jamestown Rd., Florissant, MO 63033.

☆ OHIO ☆

The **TRI-COUNTY BEEKEEPERS ASSOCIATION,** in cooperation with the **WAYNE COUNTY COOPERATIVE EXTENSION SERVICE,** will hold its 11th Annual Workshop on Saturday, March 5, 1989 from 8 a.m. to 3:45 p.m., in Fisher Auditorium, Ohio Agricultural Research and Development Center (OARDC), Jct. Rtes. 83 and 250, Wooster, OH.

Check-in and refreshments at 8 - 8:45, then assemble to hear Mr. John Root, Publisher of *Gleanings in Bee Culture,* speak on 'Beekeeping: Past, Present, and Future'. After lunch, Mr. Root, Dr. Jim Tew, Jim Thompson (immediate past president, Ohio Beekeepers Association) and Darl Stoller will anchor a Question and Answer Roundtable, moderated by Dr. Mark Headings, OSU/ATI; roving microphones for audience participation.

Concurrent Workshop Sessions are: A.M. — Races of Bees and Characteristics; Comb and Chunk Honey Production; Honey in the Kitchen; Queen Rearing, Part I. P.M. — Apiary Pests and Predators; Pollen and Propolis — Gathering and Use; Batik Art (designs on cloth using beeswax and dyes); Queen Rearing, Part II.

NOTE: Pre-registration for the workshop "Queen Rearing", is required for Jim Tew's 2-part session and will be accepted on a first come, first serve basis. Part I is a prerequisite for Part II.

The sessions plus keynote speaker, roundtable, honey baked-goods contest, door prizes, wax-weight guessing, scholarship award and the presence of the Ohio Honey Queen, combined with diverse sharing/learning opportunities and displays, will make for a "Honey of a Day" for all.

Advance Registration is $4.00 ($5.00 at door) and lunch is $2.50 but available **ONLY BY PRE-REGISTRATION** which must be received by February 25. Mail check ($4.00 registration or $6.50 registration and meal) with name and address to the association secretary James Kinney, 1560 Woodcrest Dr., Wooster, OH 44691. Don't forget Queen Rearing notation.

For further information and registration forms, contact the Association Secretary at (216) 263-3700, Ext. 2909.

☆ PENNSYLVANIA ☆

Spring
Saturdays, April 8, 15, 22, 1989
Summer
Friday, Saturday and Sunday, June 23, 24 and 25, 1989

Delaware Valley College, Doylestown, PA, will again be offering its Spring and Summer Beekeeping Short Courses. The courses are offered under the direction of Dr. Robert Berthold (Professor Biology) in co-operation with Mr. Jack Matthenius, (NJ Supervisor of Beeculture), and other skilled apiarists. The program will include a special talk by Mrs. Marnie Berthold on home uses of honey. Instruction will take place on the Delaware Valley campus, with the College apiary and Honey House being utilized.

The total cost for the three days of instruction is $45 discounted to $35 for Delaware Valley College Students, Senior Citizens, and additional members of immediate families. You are urged to register early so that we know how many to plan for. However, it is permissible to register on the first day of the course with no penalty. Further information may be obtained by writing to Dr. Bob Berthold, Delaware Valley College, Doylestown, PA 18901, (215) 345-1500.

Send *Bee Culture* the latest information available on your club meeting or future event and we'll publish it here.

ELTON W. HERBERT, JR., a research Entomologist with USDA-ARS, died suddenly on November 16, 1988, at his home in Laurel, MD. He is survived by his wife, Claire; his father, Elton W. Herbert, Sr.; and his sister, Linda Thompson.

Dr. Herbert, born in 1943 in Sykesville, MD, was educated at the University of Maryland where he earned his BS, MS, and PhD degrees in Entomology. He began his career in the Federal government as a Research Technician with the Bioenvironmental Bee Laboratory, Beltsville Agriculture Research Center in 1966. He enlisted in the U.S. Army in 1969 where he served as an Entomologist at Fort Baker, CA, the Republic of South Vietnam, and at Walter Reed Army Hospital. In 1972, he returned to Beltsville as a Research Entomologist in the present Beneficial Insects Laboratory.

Elton's contributions were numerous; he will be remembered for his outstanding research on honey bee nutrition, in particular the nutritional roles of vitamins, lipids, minerals, proteins, and carbohydrates in the honey bee diet. Along with coworkers, he developed the Beltsville Bee Diet, a pollen substitute that is now being used worldwide. Elton also conducted research on the etiology and control of European foulbrood and chalkbrood diseases.

More recently, he developed treatments against both tracheal and varroa mites. Through his efforts, the national economic impact of these mites will be kept to a minimum.

Although only 45 at the time of his death, he had presented over 40 papers at numerous local, state, regional, national, and international beekeepers' meetings. He was the author or coauthor of close to one hundred scientific publications and book chapters relating to his research on honey bees. He taught apiculture at the University of MD and at numerous beekeeping short-courses. He even convinced his father to get into hobby beekeeping to produce honey, as well as to pollinate his home garden.

In 1981 Elton received the James I. Hambleton Award, a national award presented by the Eastern Apiculture Society in recognition of outstanding research in Apiculture, and the CIBA-Geigy Recognition Award in Entomology from the Eastern Branch of the Ent. Society of America. He was an active member of the Entomological Society of America and Eastern Apiculture Society for which he was Chair of the J. I. Hambleton Award Selection Committee. He was also a member of the American Association of Professional Apiculturists, American Beekeeping Federation, and American Honey Producers Association.

Elton will be greatly missed by his friends and coworkers. He was always ready and willing to share his knowledge and cooperate with others, often delighting those around him with his wit and wry sense of humor. He was truly a dedicated worker who excelled in everything that he undertook.

For those wishing to contribute to his memory, a Scholarship Fund has been established in his name:

Elton W. Herbert, Jr. Memorial Fund. Entomological Society of America. 9301 Annapolis Road, Lanham, MD 20706.Δ

We recently learned of the death of **PROF. GORDEN TOWNSEND** of the Guelph Ontario Bee Research Facility. Dr. Townsend was a specialist in tropical beekeeping in developing countries and will be greatly missed. More information will follow in the March issue of *Bee Culture*.

JOE M. PARKHILL, author of *The Wonderful World of Bee Pollen*, *The Wonderful World of Honey* and many others, died this month. He had a degree in Honeyology and was a nutrition consultant. A more complete Obituary will be in the next issue of *Bee Culture*.

Display Index