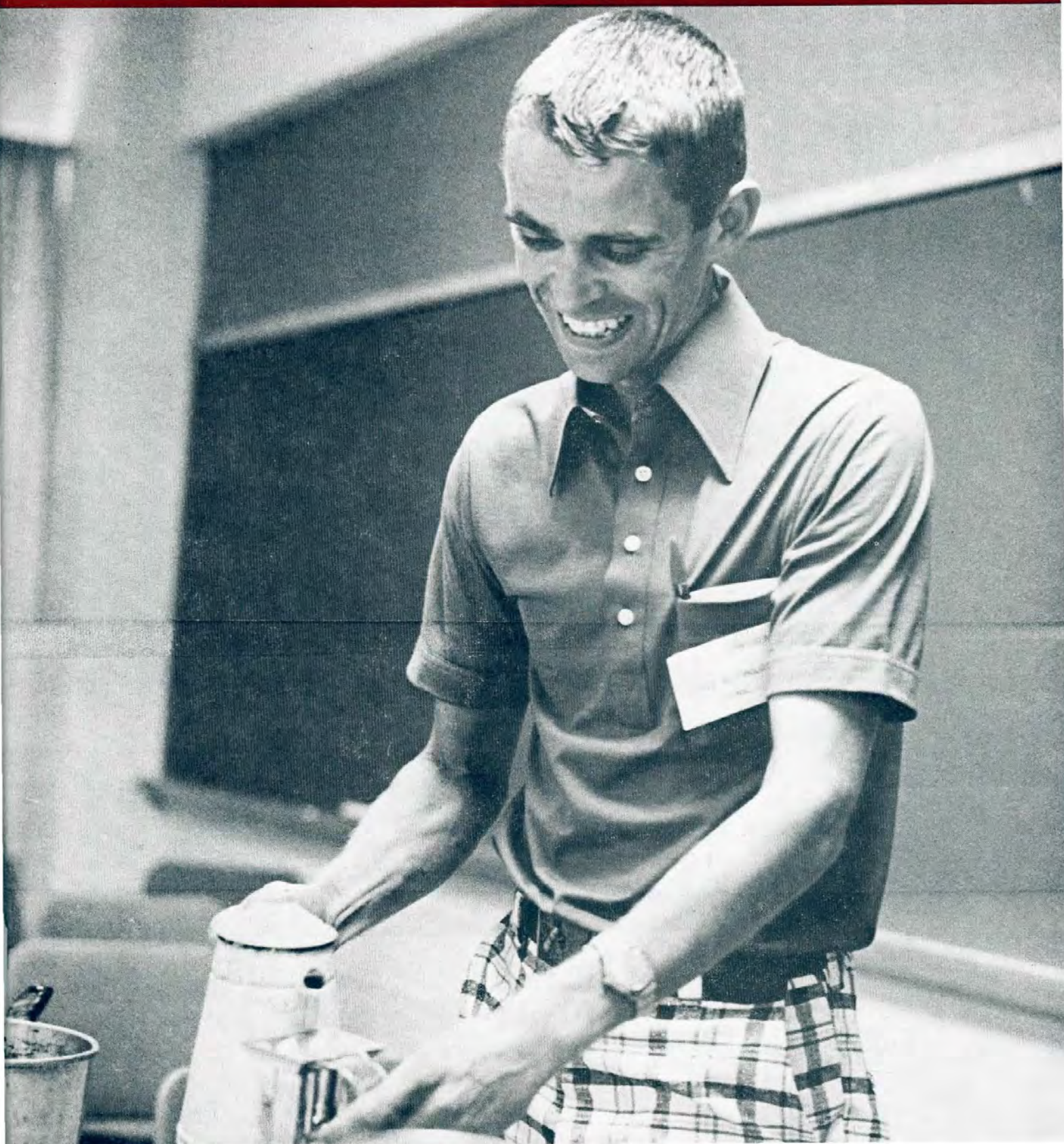
Gleanings in OCTOBER 1979

BEE CULTURE



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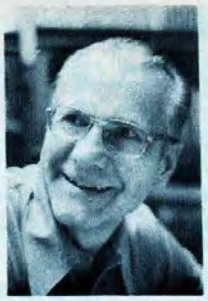

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COVER STORY

Dr. Robert Berthold, Jr., is caught by the camera pouring molten beeswax into a candle mold at the candle workshop of the 1979 E.A.S. meeting in Ottawa, Canada.

Gleanings in Bee Culture

October 1979 **ISSN0017-114X** **Vol. 107, No. 10**

Created to Help Beekeepers Succeed

106 Years Continuous Publication by the Same Organization

CONTENTS

Monthly HONEY Report

LAWRENCE GOLTZ

September 10, 1979

The following figures represent the current prices reported by beekeepers and packers over the country. They are based on reports from many states averaged out for each region. Where insufficient information is received no price is shown. The retail prices represent the price of each size jar.

Wholesale Extracted	Reporting Regions								
Sales of extracted, unprocessed honey to Packers, F.O.B. Producer. Containers Exchanged	1	2	3	4	5	6	7	8	9
60 Lbs. (per can) White		31.20	32.40		40.00	34.80	30.00	30.30	32.40
60 Lbs. (per can) Amber		29.40	30.60			33.00	27.60		31.80
55 Gal. Drum (per Lb.) White	.53	.52	.53	.52		.53		.51	
55 Gal. Drum (per Lb.) Amber		.49				.50		.48	
1 lb. jar (case 24)	23.00	21.15	21.05	19.70	33.60	20.75		23.30	22.50
2 lb. jar (case 12)	26.00	20.20	19.50	18.30	33.00	20.00		19.35	21.85
5 Lb. (per case)6)	25.00		21.35	18.00		23.00		21.20	21.93
Retail Honey Prices									
½ Lb.		.79	.71	.67		.65		.71	.86
12 Oz. Squeeze Bottle		1.09	1.07	.93	1.50	.95		1.17	1.04
1 Lb.	1.25	1.27	1.21	1.09	1.75	1.10		1.20	1.18
2 Lb.		2.35	2.15	1.99	3.45	2.10	2.50	2.30	2.18
2½ Lb. Cut Comb	2.80				4.50				
3 Lb.					5.15	3.25	3.50	3.07	3.18
4 Lb.		4.49		3.89	6.80	4.00	4.50	4.31	4.24
5 Lb.	5.50		5.00		8.50	4.80	5.50	5.14	5.22
1 Lb. Creamed			1.29						1.22
1 Lb. Comb	2.00	2.25	1.72		1.87	1.50		1.20	
Round Plastic Comb		1.79	1.59		1.60		1.50		
Beeswax (Light)		1.70			1.70	1.80			1.72
Beeswax (Dark)		1.65			1.60	1.70			1.70

Misc. Comments:

Region 1

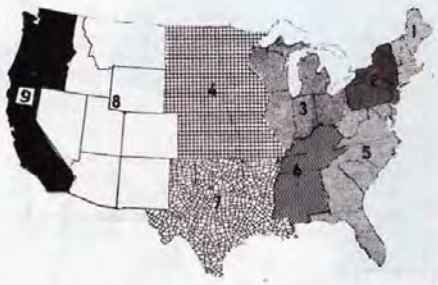
The Champlain Valley has the best honey flow in 15 years, about a 60 lb. per colony average. This is due mostly to volunteer clover in many fields and pastures. Planting clovers by farmers is increasing, but not up to volume of 20 years ago. June and July were hot and dry, August mostly cold and wet. Bees should be in good condition for winter.

Region 2

New York State had an excellent honey flow from basswood and clover in most parts of the state. Most colonies lost weight in Pennsylvania during August because of rain. Colonies are strong. Goldenrod is promising a good fall honey flow if weather is warm and sunny. Goldenrod in excellent condition for fall honey flow. Honey market is strong. Some local packers paying top prices for truckload lots, delivered, in central New York area.

Region 3

Scale hive of Wisconsin reporter lost 15 pounds in August because of rainy weather. About an average crop in



Wisconsin (100 lbs. per colony) and plants look good for a fall honey flow. Honey is of excellent quality in Illinois, light in color and low in moisture content. Soybean flow reported as good in Illinois until rains hampered the flow. Heavy rains have slowed honey harvesting in Ohio and Indiana, slowed the honey flow to nearly a standstill in August. Fall flowers look good but weather prospects are a question. Total crop in Indiana and Ohio may be average or below. Retail sales variable.

Region 4

The month of August has been a very poor period for honey production in southeast Minnesota. Unseasonable cold plus long periods of rain. A scale colony lost 40 pounds during August, the equivalent of a super of honey. Unless the weather turns around considerable fall feeding will be necessary in Minnesota. The season may still be better than last year but nothing that great. Most farmers having a difficult time harvesting grain and putting up hay. Corn and soybeans may not all mature due to late planting and poor growing weather. Normal to above honey crops in Iowa. Honey at wholesale selling at 50 to 55 cents but little moving at this time. Retail honey sales are reported fair to good.

Region 5

Very dry weather conditions in North Carolina, and honey flow has ceased at the end of August. No honey was harvested from sourwood in Virginia according to report from North Carolina beekeeper. Rain and cold nights during July was unfavorable.

Region 6

Bees made no gains during August in Kentucky. Rainfall was heavy at month's end and ground was soaked. A promising

(Continued on page 540)

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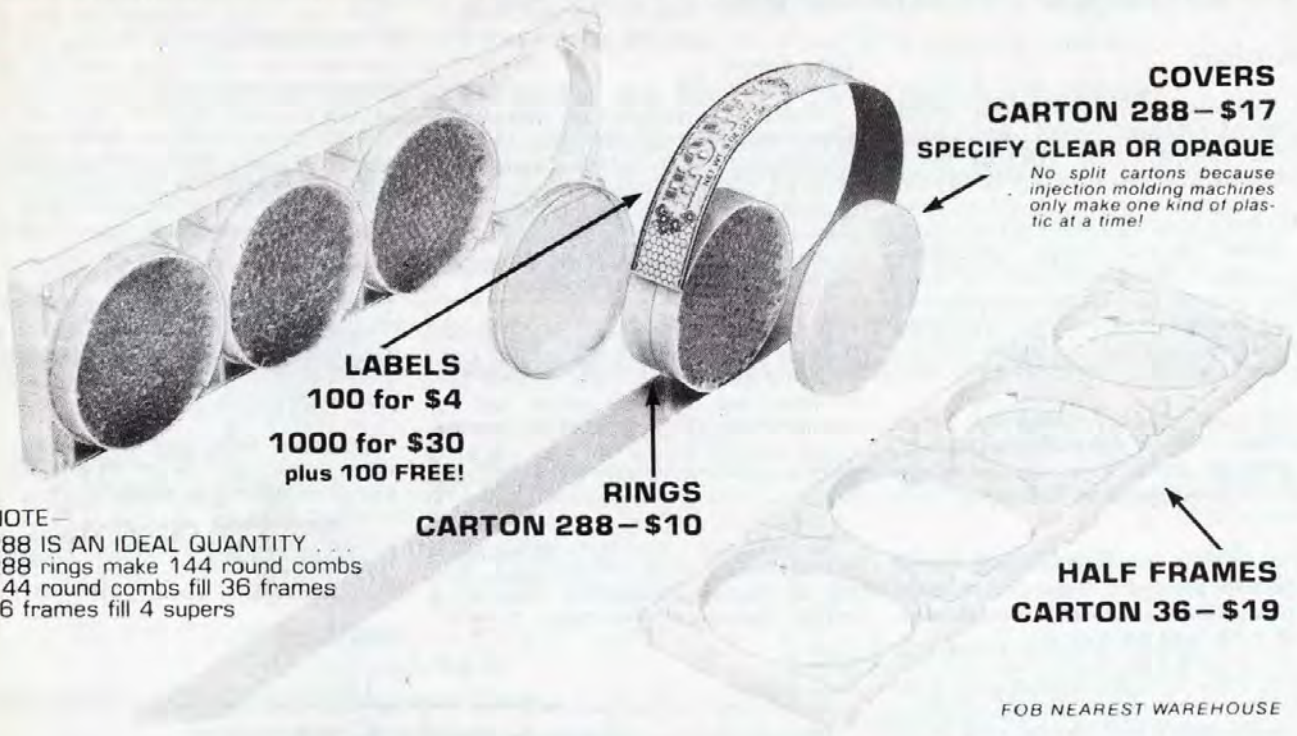

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Gleanings Mail Box

Dear Editor:

In reference to the Butterfly Weed, **(Asclepias tuberosa)** article, April issue, anyone interested may purchase plants from Stern's Nursery, Geneva, NY 14456.

We have numerous Butterfly plants on our farm. The color ranges from yellow to orange. They bloom twice but bee's seldom visit the first bloom, some activity on the second. I have had no problem transplanting but it is not a good honey plant in this area.

We have another milkweed called Antelope Horns **(Asclepias asperula var. decumbens)** which is a superior honey plant. It is not listed in Pellett's or H.B. Lovell's book.

This plant is very profilic, deep rooted and may be planted in livestock pasture as cows will not eat it. After it is established it will withstand cultivation.

This plant is highly attractive to bees and they have been observed working numerous plants in the midst of a sweet clover field.—Richard C. North, P.O. Box 37, Sparks, OK 74869.

Dear Editor:

What a thrill to receive my first copy of **Gleanings in Bee Culture**-June, 1979 and find the fine article, "Making Some of the World's Hungry Into Beekeeper s" by Timothy Hosey who deserves cheers for this article concerning Heifer Project International, who dares to place bees where governments fear to tread.

A longtime supporter of HPI, I passed the article on to our Pastor for our Daily Vacation Bible School. The children were so impressed with the article and the observation hive I brought along that they raised enough money to send 11 hives through HPI to some needy families overseas.

Thanks again for a timely article and a fine magazine.—Elaine Schumann, Sheboygan County Beekeeper's Association Editor, Sheboygan, WI 53081.

Dear Editor:

Penncap-M miscroencapsulated poison could very well wipe out beekeeping in this country. Honeybee poisoning is a very real and a very big problem. Don't take the position that it won't happen to you. We must make a concerted effort to have this product banned and any other microencapsulate now pending approval by the Food and Drug Administration. Don't sit around and wait to find three inches of dead bees in front of your colonies, go to work now, write your state Governor and Federal representative and ask them to look into this problem. They have to get a lot of mail before they realize what a tremendous threat we have.

It is totally inconceivable that this product has been allowed to stay on the market after honeybee losses have been documented. What is going to happen if people inadvertently eat pollen containing this poison?

Each one of us must act, we can't sit back and let Joe do it. Don't wind up being "Sadder but Wiser". The bees survived millions of years without this product, but times are changing....time is running out!—James Coombs, 7217 W. Peck Lake Rd., Saranac, MI 48881.

Dear Editor:

I hope you will correct for your readers at once the misinterpretation of one of my ideas suggested by my friend Charles Mraz, in your September issue (p. 466).

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GLEANINGS MAIL BOX

(Continued from page 506)

Perhaps I did not express myself clearly, and I know that Mr. Mraz will be as anxious as I am to have any misinterpretation set straight. At any rate, I did not say, and do not believe, that disappearing disease is only a minor disorder. What I said is that most of the examples brought to my attention, usually by beginning beekeepers, is no disease at all, but simply an effect of mis-management, such as feeding weak colonies that then get robbed out—and that is surely true. That there is in fact a serious disorder of bees which is accurately described as disappearing disease is not something I meant to cast doubt on.—Richard Taylor, Trumansburg, NY.

Dear Editor:

In the April, 1979 issue of Gleanings I had an article on Butterfly Weed, Butterfly flower or Pleurisy Root (**A. tuberosa**).

I received several requests for seed of this plant. Seems as if I have mislaid them.

As soon as they mature I will have a limited number of these seed pods. They will be mailed on a first come basis.—Basil Adams, R.2, Box 10, Monrovia, IN 46157.

Dear Editor:

I would like to offer the following comments regarding the article by Mr. Stevens entitled, "Is it Really Sourwood Honey?"

Your article in **Gleanings**, Aug. 1979, touches some sensitive spots in my mind. There is, of course, truth in what you say. But there are some doubts that do arise. Many people do not know the difference between one light honey and another. But a beekeeper, who takes it from his hive, should learn the difference. Most if not all honeys have the distinctive taste and odor of the flowers they come from. How could it be otherwise? They were made from those flowers. Sourwood nectar can easily be knocked from the blossoms into one's hand, smelled and tasted. The sap from under the bark has a distinctly sour taste that can be detected in the honey.

Other honeys can be identified the same way. A few years ago I went to an out-apiary just checking on my bees. As I approached I saw a large field not being cultivated that year. It was covered with weeds, head high and each weed was covered with small daisy-like blossoms. I

(Continued on page 543)

Thinking of Bees

By GRANT D. MORSE, Ph.D.
Saugerties, NY

Enemies of Honeybees

ALL LIVING THINGS have foes that prey upon them. Everything considered, honeybees are as free from enemies with which they cannot cope as almost any members of the animal kingdom.

Specifically, the honeybee's enemies are contagious diseases such as foulbrood and sacbrood; predators such as bears; pests such as mice; non-contagious diseases which are caused by hormonal upsets; nutritional deficiencies; and poisoning.

Each of these enemies of bees is more prevalent in some areas than in others. For example, there are parts of the state of Florida where bears are so numerous that apiaries cannot be maintained without the help of electric fences.

Of all the enemies, perhaps the contagious diseases are the most widely spread over all the continents, and are most difficult to contain both for the bee and the beekeeper.

Reasons for High Degree of Freedom from Enemies

Few members of the animal kingdom live and carry on their life functions more circumspectly than the honeybees. To begin with, they are highly cooperative animals, totally devoid of individual selfishness within the colony. Likewise, as between colony and colony, they do not intentionally strive against each other, and, so far as we know, are without any conscious competitive impulses. As as consequence, they are relatively free from the kind of social stress that man experiences in trying to outdo his neighbor, or a taxing government; free, too, from the kind of stress placed upon most wild animals which must protect their territory. Nor are the working members of the society plagued by the problems of sex as are so many other individuals in the animal kingdom.

No other animal, perhaps, is more fastidious about its housekeeping. The honeybee keeps the interior, and the area immediately outside the entrance of her nest, scrupulously clean and tidy. All foreign matter that is accidentally introduced into the nest is promptly removed or else, if it is too large to remove, is encased in a tomb made of wax as, for example, occurs when a mouse enters a bee nest and dies there.

The living quarters which the honeybee selectively chooses in the wild are strategically located. First, the tree (or other refuge) must be solid and free from disintegration; it is usually at considerable height above the ground; its entrance is seldom larger than 2-1/2 inches in diameter.

The honeybee's food is usually pure and wholesome. Contaminated water sometimes weakens the health of the colony but such contamination is beyond the ken of the bee—and is almost always man-induced, a factor with which the instinctual experience of the bee has had no dealing in the ages past.

As a final defense against some types of foes, the honeybee is endowed with the sting, a somewhat formidable weapon.

Bacteria and the Honeybee

As we said earlier, contagious diseases are the honeybee's chief foes. One of the four principal causes of disease in bees is a bacterium. Two of the chief diseases caused by bacteria are American foulbrood and European foulbrood.

A bacterium is a one-celled, small organism that multiplies by simple division. That is, a cell divides by splitting. Bacteria are minute in size and can be seen only through the aid of a microscope.

A bacterium differs from a virus (the cause of sacbrood) in several ways. For one detail, a virus is even smaller than a bacterium. Whereas a bacterium is a separate entity from the cell of its host, a virus literally becomes a part of the cell which it infects. It is, consequently, more difficult to treat, or to attempt to destroy, a virus cell or unit because in the process of doing so the host cell may also be damaged. Viruses are of a parasitic nature. They require a host cell in order to replicate themselves. (Biology text. see bibliography).

As we said above, one of the chief diseases of honeybees caused by a bacterium is American foulbrood. This maladay is not exclusively an American disease. It plagues the honeybees of every continent. Valuable as the movable frame is to the beekeeper, its introduction added one more way by which (through exchange of frames between colonies) the disease is spread.

American foulbrood is probably the most damaging of all the presently identified honeybee diseases. Yet, through almost universal state inspection, and because of the alertness of most commercial beekeepers, AFB has been kept to about one percent infection of all colonies.

It is not too difficult even for a novice to identify. It is named **Bacillus larvae**, meaning a bacterium of bees in the larval stage. A larva afflicted with AFB usually dies in an upright stage. The cell may be capped. If so, the afflicted larva is not visible to the beekeeper's eye. When the diseased larva has dried it adheres to the bottom of the cell. Before dying, the diseased larva exhibits a ropy nature when an attempt is made to raise it from the cell with a match or similar instrument, stretching out to a very positive lengthiness. The larva changes in color from white to dark brown. After a month or so in the cell, a larva thus afflicted dries out and becomes a brittle scale which adheres to the cell wall. Probably the most distinguishing characteristic of a larva afflicted with AFB is that the tongue protrudes from the scale to the center of the cell.

The ability of the spores of AFB to survive even under very unfavorable physical surroundings is one characteristic that perpetuates it and renders its eradication difficult. Probably the wax moth is the beekeeper's best ally in keeping AFB to a minimum.

On the one occasion in my comparatively small scale bee operation that some of my colonies became infected with AFB, I finally traced its source to some old hives and their equipment that had been cast a couple of years earlier on a trash pile by a neighbor farmer whose bee operation had been terminated by an onslaught of the disease.

When AFB is discovered it should be dealt with promptly, usually by burning. The details of this method of eradication, and that of other methods, are too lengthy to be dealt with here. The various options are spelled out in many sources, one of the best and more recent one being **Honeybee Pests, Predators, and Diseases,** edited by Morse (1978).

European foulbrood is a less insidious disease which is believed by most authorities to be brought on by stress, such as, for example, persistent chilling of late winter and early spring winds where adequate windbreaks are not present.

Beekeepers and Gadgeteers

The owner of the land where I once had an apiary used to interest me because of his almost overwhelming inclination to tinker with machinery.

Although this good fellow always had a good riding lawnmower, he was quick to detect even the slightest fault in its performance. Day after day when he had cut only a couple of swaths with the mower, he would suddenly leap off the

seat and set about tearing down the motor or the cutting machinery. If the repair took the rest of the day he was happy. He'd rather be doing that than mowing.

I've visited beekeepers who are like that, one of them recently. He has invented his own uncapping machine, among a host of inventions. I wonder how many different kinds of home-made uncappers there are in existence in this country. I've seen about a dozen, and I'm certain that's only a sampling.

Then there's the beekeeper who struggles at improving his cash balance by working closely with the bees. That's the kind of beekeeper I most admire, though I don't despise the gadgeteer, the mechanic—the fellow who is so good at making his own equipment.

And when you get an individual who can do both, then you're likely to see a man with money in the bank—provided he married the right woman.

I realize that the leave-alone method of beekeeping can yield good results some times. But I like to see a beekeeper who knows how old his queens are; a beekeeper who practices a positive and persistent program of swarm control; a beekeeper who packs his bees, if they need packing, and who know **how to do it;** and who practices migratory beekeeping a bit. Also, I like to see a beekeeper who insists on a sales price for his product that is in keeping with its best market value. The stuff is too precious to give away once it's produced!

Drifiting by Worker Honeybees

I was talking recently with a very knowledgeable beekeeper about the fact that so many commercial operators persist in placing their hives in long straight rows.

European foulbrood is found on all of the continents. It usually appears in mid to late spring. The energetic beekeeper tries to determine the cause for an incidence of the disease, and seeks to provide a preventative for the future.

Even the amateur beekeeper should learn at an early stage to tell the difference between AFB and European foulbrood. European foulbrood is known in the science field as **Bacillus alevi**.

European foulbrood disease attacks only the small larvae, chiefly those 48 hours old or less. Many colonies are able to free themselves of the diseased larvae, especially if they have large populations of nurse bees.

The larvae infected with European foulbrood usually die while still in the coiled stage. The larva turns yellow, then brown. In instances where the larva collapses at the bottom of the cell, it can be tested for ropiness. If it exhibits this characteristic, the length of the ropiness will typically be less in extent than in the case of AFB. The remains in the cell are of a granular nature. Another sign by which European foulbrood may be identified is that the cappings of infected cells are concave, whereas the cappings of normal, healthy cells are convex. Scales of European foulbrood are rubbery rather than brittle as in the case of AFB infection. Workers find European foulbrood scales easier to remove than those of AFB.

Over the years my colonies developed European foulbrood only once. It was caused by stress: lack of windbreaks in a very cold, windy area.

If the infection occurs close to or during a honey flow, the worker bees can often clear it up rather rapidly. But my colonies were so weakened that they did not recover, in most cases, fast enough to store a surplus. Requeening seems to help in some cases. The addition of workers from another source is also of assistance since heavily afflicted colonies are often short of workers. A break in the brood rearing cycle (such as occurs during the removal of the queen, or the introduction of another queen), also gives the workers a chance to remove the scales.

African Bees in Africa

We beekeepers are a bit prone to think that a honeybee is a honeybee the world over. It isn't necessarily so.

An article in the third number, 1978 issue of the **Bee World** gives some pertinent details about the bee races of Africa, two of them in particular: **Apis mellifera adansonii** and **A.m. capensis** (the Cape bee).

A research study there reveals that the first of these two races is made up of individual bees that are a bit smaller than our European bee by as much as 10%. The same is true of their queens and drones. I believe we have in this difference an advantage to the African drone in achieving mating with a European queen here, or in Europe, in Africa, or in South America.

The **adansonii** bee requires a shorter time to develop from an egg to the adult stage by as much as three days (18vs.21).

Apis mellifera adansonii can produce more eggs per day than our European honeybee. The African bee of this race tends to occupy new and more distant territory more rapidly than our local bee. It follows the practice, on occasion, of migrating as a colony unit to geographical areas where the nectar is in more liberal supply.

The second bee mentioned above, **Apis mellifera capensis**, the Cape bee of southern Africa, is the only race known to us whose workers are able to lay eggs (when the queen is lost) that can become normal workers, or even viable queens (without the benefit of mating—parthenogenetically).

Some Beekeepers Are Making Money

I rejoice to see some of our craft making a good income for the first time in their lives. All they have to do to bring this about is not to spend too much.

What can the beekeeper do to help himself cash in on these best-of-ever prices? First, is not to spend too lavishly. Second, put some money away—in good safe investments. I had a list of these made up in my first draft of this article, but on second thought I concluded it is dangerous to give unasked—for financial advice in times such as these.

A beekeeper in the right location may well consider expanding his number of colonies, but only if this does not entail too great expenditure in buildings, equipment, trucks, and hired help that doesn't pay for itself.

"Yes," he said, "I know that bees drift, but does it make much difference; one hive gets what another loses, doesn't it?"

The rejoinder to that trusting statement is that extensive research shows it isn't so. I keep going back to S.C. Jay's investigation into the truth of results of drifting of bees between hives in straight rows.

Jay says: "In Canada an average of 24 pounds more honey was produced per hive from 15 groups of hives where drifting was reduced by arranging hives in irregular patterns, compared to that produced from 15 groups arranged in rows within the same apiaries."

Spacing hives farther apart (if a straight row is **essential**), helps to reduce drifting. Setting up landmarks, or seeing that they are present, helps too, but this is not usually an easy practice.

Concentration of population in some hives to the disadvantage of others can often result in abnormal swarming. Disease is spread more often. Drifting makes uniform treatment of all units in an apiary substantially impossible. More equipment is also required. Somehow, the over populous hive never quite makes up for the loss of production by the unit that lost so many bees that it couldn't make a respectable surplus.

Newly mated queens more often fail to return to their hives when the straight row method of placement is followed. Bees are clever animals but their experience over the preceding generations in the wild did not prepare them for homes like these on a village street.

The use of a variety of color when painting hive bodies and covers also helps the returning workers to locate the correct

(Continued on page 545)

Winter Woes III

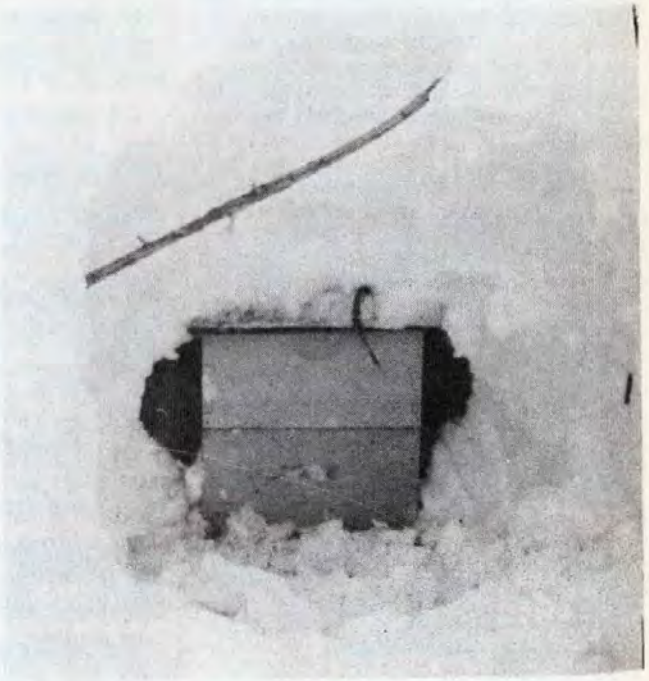
By ROBERT W. KIME
Romulus, NY

FOLLOWING IN THE order of **Godfather II** and **Jaws II**, Old Man Winter decided to release its own sequels for beekeepers of its previous record hits, Winter Woes 1976-77 (**Gleanings**, April 1977), 1977-78 Winter Woes II, and for the first time ever, a third sequel, Winter Woes III.

As any beekeeper worth his weight in honey will remember, in Winter Woes 1976-77, Old Man Winter tried to determine how many consecutive days honeybees could survive without a cleansing flight. From December 22, 1976 until February 12, 1977, there was not a single day the temperature got above 36°F. in Geneva, N.Y. as well as most of the rest of the northern United States. Not only were our bees confined for more than 52 days, but also clobbered with high winds and record breaking snowfall. Who will forget Buffalo, N.Y. receiving over 15 feet of snow and tractor and trailers completely buried under drifts in the midwest storms.

Mechanical Aid.

The winter of 1977-78 (Winter Woes II) didn't show any improvement, in fact it was an exact sequel of Winter Woes 1976-77. But not to be surprised, weather records show that quite often bad winters occur back to back. In February 1978, Central New York was hit with 39 consecutive days that the temperature had not gone above freezing. That 39 day streak shattered all previous National Weather Service records that dated back to 1872. This cold was again accompanied by over twelve feet of snow.



At last, the hive.

Heavy winter losses did occur in these two terrible winters, but somehow the majority of hives withstood a record number of days without a cleansing flight as well as record snowfalls.

However, never in the history of weather record keeping had three record setting winters hit together. That was, never until last winter (Winter Woes III). In its latest sequel, Old Man Winter decided to hit the honeybee with its only remaining punch, just plain bone-chilling low temperatures. And low temperatures we got, practically everywhere in the United States new record lows occurred. Here in Central New York a new National Weather Service record of consecutive days below 0°F. occurred and in Geneva,

Digging out a hive.

(Continued on page 544)

Jeff's Enterprise

"He was, I thought, too quick, too keen, mere bugs couldn't hold him."

By TAEDE VISSERMAN
Hazelton, B.C., Canada

MY FRIEND, Jeff, definitely has the stripes to mark him as a potential Captain of Industry; the spots to color him an old fashioned free enterpriser, even if he is under 20. You can tell; ideas come to him as naturally as iron to a magnet. He thinks sense and dollars. He has energy. So it was when, as a 4-H project he got a hive of bees and came by to see me for information.

He had time for only a glance at the hives.

"How much do they produce?", he wanted to know.

"Well," I said, cautious, "a good hive can produce maybe 100 pounds....."

Click went his brain and sped out; "So that'd be a gross of $75 a hive?"

"If you can get 75 cents a pound, yes," I said, a little worried about raising false hopes, "and that's a good colony."

"I'll keep only good colonies," he said, thumbs in his pockets and gazing at me critically.

That's what we all think, I thought. I shrugged and mumbled things about poor queens or wet weather or inexperience....

"I'll learn," he cut in. In the awkward silence that followed I noticed his head shake just a wee bit as he looked me over. "Well, nice talking to you," he said with a jolt and trotted back to his motorbike.

Well, I thought, I won't see him again.

But I was wrong. A week later he was back. He caught me sitting by the hives pondering my good fortune. It was a very fine day and I was enjoying myself. He made me feel I should be working. In a style typically salesman, where anyone once met is a buddy, he was smiling and inquiring how I was doing.

"Oh so-so," I allowed, which was about the truth.

"I hear you sell some of the best tasting honey in the country," he said.

I wondered what he was buttering up to. Shrugging, I stood up; he was looking down on me so.

"Hey you ever thought of expansion?"

"Well," I said, "a bit maybe. If I can split a colony or the nucs I can overwinter."

"Thought so," he said under his breath. Then louder: "No, I mean like getting a hundred. Two hundred?"

I laughed. "Naw. Don't go getting big ideas. This ain't honey country. Keep it a hobby. There's not much here in the line of flowers. Clover's scarce....."

"I wasn't thinking of clover," he cut in. He paused, giving me that critical look, like should he trust me, then lunged ahead: "I have this vision, see. Have you noticed all the clear-cut logging going on around here? Well in a year or two those'll be all fireweed. Tons of honey."

"Well maybe...." I said.

"Honey's a coming thing. Health foods are one of the fastest growing segments of the economy."

I wondered outloud what such a talent for economic insights was doing fiddling with bees. He irritated me too. He'd be a production man, all dollars. The sort who provides the creamed yuk in the supermarkets that North Americans can't stomach for more than one pound per person per year. I asked him what he wanted of me.

Now, finally, he became shy. He admitted that he wanted to "work" my bees for me, with me to show him how; he needed "expertise and know-how". The admission made him human. For the first time I saw there might be a likeable kid under all the efficiency. He even looked that way; looked, in fact like a kid out of Norman Rockwell, clean-cut but a bit unkept, some teeth pleasantly crooked once you got him smiling, a rooster tail. You had to admire his spunk too.

I said it was okay and, laughing, wondered if I shouldn't charge him a tutoring fee. How could I've said no? We beekeepers have this soft spot for our peers, we are so eager to share our uniqueness! It's like two fair-haired people chancing to meet in China. He left that day with two of my bee books under his arm.

And he proved himself very capable. He learned quickly. I found myself telling him all I knew and learning. Any notion was instantly analyzed and questioned without reserve or malice. He was keen. By the end of the summer his own hive had produced nearly 100 pounds and mine did better than ever before. And, he told me gleefully, the other 4-Hers had, for one reason or another, dropped out. "They didn't have what it takes," he said. Then, blushing slightly, he added that he'd "snapped up" their equipment "for a song." His first corporate take-over.

What he didn't tell me then was that while extracting, a tank had run over and spilled 20 pounds of his honey; or, that he hadn't managed to sell much and so ended up giving it away. "Free samples," he told me the next spring when the sting wasn't raw anymore, soothed no doubt by the confidence of several large orders under his belt. For good measure he added that he was increasing his stocks by "1000%". Only later did I realize that meant ten stocks, which made it a lot less impressive. He told me to come over and have a look at the equipment he'd made over the winter.

I did. He yanked me to his father's garage where he had over 50 supers all stacked up and painted white. "They're full of frames too," he added proudly.

"Boy, how much did all of that cost you?" I asked.

"Less than the stuff I bought from my friends," he said sheepishly, "I learned a lesson there. See this is all made from trims ends I get at the planer mill, for free. All I had to buy was the wax and paint and things like that. Peanuts." He paused, like he wanted me to say something. "It's called exploiting the local natural resources," he explained. Proudly he pulled out a frame for me to inspect. Even it was painted!

I hardly saw Jeff that summer. He was too busy. I went out once on a warm day and found him and another beekeeper working his hives. Each hive was already stacked with four supers.

"This is my girl-friend, Sue," he said, introducing us. I peered to get a look at her. I couldn't see her face, or if she was human, for that matter, she was so bundled up. She must have sweated off five pounds that day (but then she was on the chunky side anyway). Jeff wore only a veil over his T-shirt.

I wondered how he'd made out with the packages, especially queens.

"Oh fine," he said, "Lost one queen but then I'd ordered up a couple of extras so I could replace her right away. You know, for that 10 to 20 percent supersedure rate they talk about. Figured that'd be cheaper than losing the production on a whole hive. And it is, even if I have one I have never used. They look good eh? The hives."

I had to agree.

"Getting lots of honey," he said, "I've ordered a $490 extractor, stainless steel"

"You mean you're not making it yourself?"

"Naw," he said with a dismissing wave, "No time." He became awkward. "No, see, on one of those logging clear-cuts we found lots of cedar butts. Well, I made a deal with the forester to buy them and make cedar shakes. It's an "in" thing; a growing segment. We can't keep up with the orders. Wanna job?"

When I shook my head he seemed offended.

That fall he spun off an immense amount of honey and sold it all for 85 cents a pound. He had customers coming for miles. "And my advertising budget was nil. All word of mouth," he boasted when I was over to ask how he'd done. He seemed very confident of the future.

And then he sold the whole business.

"What?" I said, almost shouting at him, "You? When you were doing so good? When I spent all that time teaching you how. You invested...."

"I know," he said, thumbs back in his pockets. "It's why I sold out. I checked the records and found we most likely won't have a summer like this again in 13 years. Then Joe, he's one of the guys I bought out last fall, came over and wanted to pay me a good price for the whole business so I sold. An offer I couldn't refuse. A guy's got to take his profits while he can."

I shook my head.

"Besides," he said, smiling, "the shake operation is going just fine." There was that characteristic pause again, like he was wondering if he should go on. He did: "I'll let you in on a secret. Shake making's a lot better business to be in. Steadier, more money. You were right, keeping bees around here should be just a hobby."

"So you kept one or two hives?" I asked.

He whinced, shook his head. "No. I've got no time for hobbies right now." He leaned towards the brand new shake making machine from which he'd come on my arrival. He was busy.

I said I should be going and we parted with an awkward smile.

"I'll always be grateful to you," he said, though something in his voice said he didn't mean it. "And bees too," he said, walking away, "they sure know how to work!" That I believed.

He was, I thought, too quick, too keen, mere bugs couldn't hold him.

Honey Plants

THE BEE BEE TREES

By ALEX J. SUMMERS
Roslyn, NY

AS I WRITE this note on the Bee Bee trees before the fireplace watching some logs of Bee Bee blaze away, the thought occurs that more has been written in this magazine over the years on Bee Bee trees than in all the horticultural books I can locate. In fact, on my shelves devoted to horticulture only seven of approximately 300 volumes even mention **Evodia.**

Before any of you become too perturbed over my converting Bee Bee **(Evodia)** to a warm blaze in the living room, let me explain that the energy crisis is not to blame. After observing a number of trees produce their flowers and fruits for quite a number of years I decided some were barren for some strange reason and not meant to be parents to anything but leaves and wood. As the stand needed thinning anyway I cut down five of these barren individuals.

To go back a bit—About 15 years ago after acquiring five acres of land the decision was made to develop a planting for my long time ornathological hobby. (I joined Audubon away back in 1931). Beekeeping is more recent dating back to the sugar shortage about five years ago. It so happens that many items planted for the birds were excellent bee plants also.

Among these multi-purpose individuals were three lots of **Evodias; E. daniellii, E. henryi and E. hupehensis.** After much research and using all references to make up a combined key I established that all three groups were in fact **Evodia hupehensis.** As **Evodias** are little known and **E. hupehensis** is not mentioned previously in this magazine I would like to describe the trees as I know them. Of course my own are quite young. However, there are two very large trees that I have had the pleasure of meeting. One is nearby in Roslyn. The other is in Roger Williams Park in Providence, R.I. Both appear to be about the same size. Age is unknown. Trunks are almost four feet in diameter with very smooth gray bark similar to beech. Canopy is round headed similar to maple, branches very heavy, some limbs about two feet thick. Apparently a few roots are close to the surface as a few suckers are evident on the Roslyn tree. (One 8 inches thick and 20 feet tall, since removed). This tree has self sown all over the neighborhood with over a dozen approximately 25 feet tall. (One of these is also barren). Seedlings self-sow by the thousands under yew bushes or in other shady spots. These are anywhere from 4 inches to 12 inches the first year, smaller in shade and larger in better light. The parent tree is about 50 feet tall and as wide, circumference at 4 foot 6 inches in 1972 was 10 foot minus 5 inches. At this writing seven years later it is 11 foot minus 8 inches. It is in great vigor with massed Virginia bluebells beneath providing a great spring display in all shades of lovely clear blues, some pink and a few pure white. Most of these are apparently self-sown also. Two very large trees are on record in England. One is listed as 62 foot tall and 7-3/4 foot thick in 1970 and

Roslyn tree (Euodia hupehensis). Photo by A.Summers.

another at 55 foot tall and 7-1/2 foot thick in 1968. **E. hupehensis** was discovered by Ernest Wilson of the Arnold Arboretum in China, provinces of Shensi and Hupeh and introducted to America in 1908.

E. hupehensis is listed as very closely allied to **E. daniellii.** Flowers are 4-6 inches wide, paniculate and pyramidal. (This means the cluster is branched and taller than in **E. daniellii**). The twigs are green, fruits reddish and beaked. The leaves are compound 9-15 inches. (This means the locust-like leaflet has a short distinct stalk where the leaflet is attached to the main leaf stalk.)

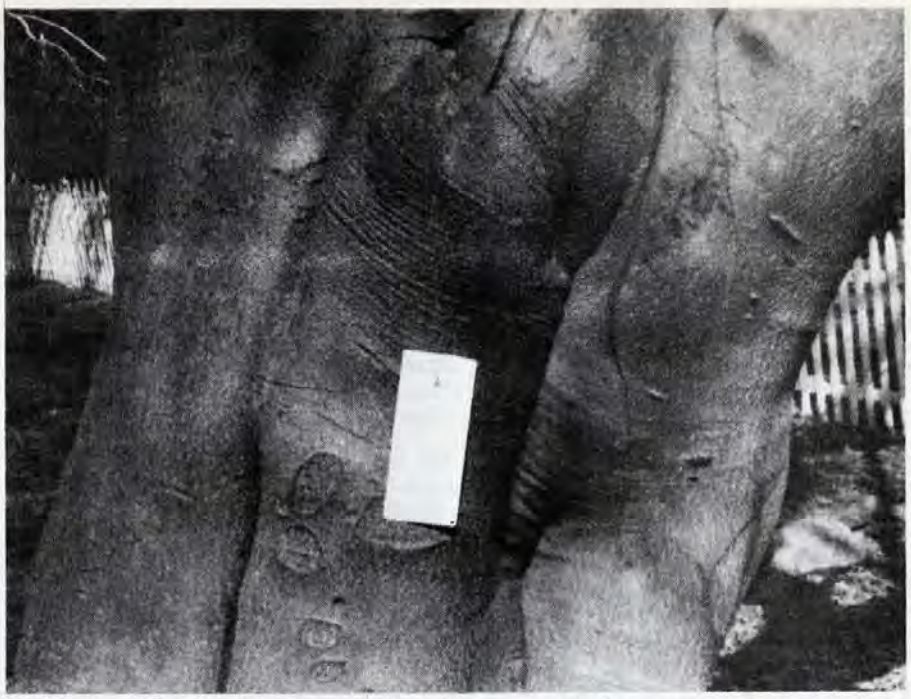
By contrast, **E. daniellii** is listed by Donald Wyman of the Arnold Arboretum as 25 foot tall and with a short life span of 15-40 years. No large trees are on record. Dr. Wilson also discovered **E. daniellii** in 1905 and in one of his books he states the flowers are in flat, corymb, clusters reaching 12 inches across with prominent yellow stamens. For those of you who have plants labeled as such it should also have reddish twigs and purplish beaked fruits. Leaves are pinnate 9-15 inches long. The above should help you decide which of the two you have as much confusion exists in the nursery trade. Thus, if you bought **E. daniellii** you may be lucky and not have it at all.

E. henryi also has a branched flower and fruit cluster, however, it is quite small only 2-1/2 inches across among other distinctions.

E. glauca and **E. velutina** are both smaller leaved species. The first 6-10 inches long, the second 6-7 inches long with other plainly distinguishable characters. As far as I know these two are not in the trade.

All references state **Evodias** with one exception, are unisexual. This means that the male flowers are separate from the female flowers even if on the same cluster. **E. glauca** is diocious meaning male flowers are on one tree and female flowers on another. No mention is made of barren trees.

E. hupehensis is covered with a cloud of bees when in flower (August). Leaves are about the last to drop in the fall. Birds were noted feeding on the small black seeds and are as follows: 1974 Oct. 5—White-eyed and Red-eyed Vireos, Catbird, Mockingbird, Mourning Dove. Oct. 6—Red-eyed and Solitary Vireos, Catbird, Doves and Mockingbird. Oct. 7—Red-eyed and Solitary Vireos. 1975 Sept. 16—Rose Breasted Grosbeak, 1976 Sept. 7—Magnolia Warbler, 1977 Sept. 20—Robins and Starlings, 1978 Oct. 11—Myrtle Warblers and Catbird, Oct. 12—Myrtle Warblers, Oct. 15 and 18—Myrtle Warblers. Large Roslyn tree on Oct. 17, 1975—Starlings and about a dozen Myrtle Warblers. Some weekends I am away and other times too busy or tired to walk down to the **Evodias**. Even if I do



Roslyn tree (Euodia hupehensis) the white rectangle is a standard size business envelope. Photo by A. Summers.

I often forget to jot down notes. I remember the time the mockingbird grabbed the catbird by the tail in the **Evodias**. The catbird flew off leaving the mockingbird with a beak full of feathers which he soon spat out and flew off. About an hour later the catbird was spotted in another part of the garden without any tail or under tail coverts. He had a bare behind to face a long cold winter. The Doves look comical trying to keep their balance on the twig ends. Unfortunately the Vireos did not come back another year, due probably to the wipe-out of birdlife in Canada with the spraying of millions of acres to control the spruce worms. Of course, the spruce trees are no better off but migrating birds have just about disappeared. One wonders is there no escape from the effects of pesticides?

In conclusion: The name **Evodia** has been recently changed to **Euodia**. **Euodia** belongs to the Rutaceae together with Citrus, Phellodendron (Cork Tree), Zanthoxylum (Pepper Tree), Skimmia, Rue and Dictamnus (Gas-Plant). **Euodias** are ideal horticultural, avicultural and apicultural subjects. A joy and a delight at all seasons.

KANSAS HONEY QUEEN

MISS KELEE VAN HOOSER, 1979 Kansas Honey Queen, is the daughter of Mr. & Mrs. J.N. Van Hooser of Kansas City, Kansas. Kelee is a student at Kansas City Kansas Community College and her many hobbies include showing registered quarter horses, teaching riding and supervising youth for show ring competition and sewing. She has worked as a volunteer instructor teaching mentally and physically handicapped persons to ride. While in high school, Kelee was a member of the National Honor Society and a 4-H member, winning the 4-H Key Award.

Kelee is doing a tremendous job of promoting Kansas honey for the beekeepers in the state, and has traveled extensively since beginning her reign in January. She is looking forward to competing for the American Honey Queen title in January 1980.

The Observation Hive Fiasco

"The air was so thick with bees when we arrived that we had to make a wide detour and dash for the front door."

By BETSY MITCHELL
Grey, ME

WHEN I decided to get some bees it was just another step toward self sufficiency. My move from the big city to the "country" was based on a determination to carve out a more independent life style and bees, I thought, would be a small part of the picture. Two winters back I took an evening course in beekeeping. Bees, I discovered, were not simple creatures and getting honey involved more than just collecting it from a hive. It was not enough to plant a hive or two on my hillside. If I was to harvest honey I must learn more about the bees and the art of beekeeping. So I continued through the course braving snow and lone icy driving in the winter night till spring brought completion to my schooling. In the meantime I assembled equipment to house two colonies of bees and ordered the bees from my instructor in beekeeping. The nucs I ordered were late in coming and I got no honey that year. No matter! I fed the bees syrup through that fall and visited them regularly in the snow to talk to them supportively and to check that the hives were intact. I lost one of my colonies in spring in the process of feeding syrup. I suspect the inverted gallon jar was at fault or that I did not screw the lid on tightly enough or put it on exactly enough so that air got into the jar and the bees were served more syrup than either they or I bargained for. I was saddened by this loss but determined to increase my colonies and succeed in getting honey. I ordered three more nucs and decided that the reading I'd done through the winter about beekeeping were not enough. I took another beginners' course in beekeeping and slowly came to the conclusion that if I was going to really understand bees I would have to get an observation hive and spend time with it. And so I ordered that hive and arranged to get the bees from this year's beekeeping instructor.

I approached the issue of the observation hive as casually as I'd approached the decision to have bees and get honey from them. It was only when the observation hive arrived and the availability of bees was imminent that I realized some elementary carpentry work would be essential if the hive was to survive intact in my home. Above all I had to decide just where to locate the hive so that friend, two cats, and a dog sharing the same roof would be able to continue their lives undisturbed and undisturbing. The animals had little to say on the subject. They have free access to all parts of the house and wanted it kept that way as did I. My friend did not say very much either. She did not have to say very much for past experience had shown me that choice spots such as the living room could not be considered. Her views on the propriety of bees in the living room or the kitchen for that matter are those held by the majority of humans. And, so my choices were limited to my bedroom, with a window close by the front door, or an unheated garage. I consulted this year's beekeeping instructor, a patient man, patiently holding the destined observation hive bees for me. If the bees were to continue in the hive through the winter they would have to be indoors. My bedroom it would be then! I could picture an orderly procession of bees going in and out the bedroom window via a small opening in the screen and a plastic tube conducting them to the hive. This year's beekeeping instructor had such an arrangement. Not in his bedroom, it's true, but rather in an out-building where he has an office and stores supplies. The bees came and went about their business and no one seemed concerned. I returned home visiting the hardware store en route for advice and equipment to bolt the hive to my newly acquired (for the occasion) extra large desk top. It looked feasible for the bees and cat-proof except for the plastic hose entry/exit. A determined attack on the part of one or other cat might loosen the hose with disastrous results. To avoid having a bedroom full of bees I decided to keep both cats out of the room for the time being and gradually introduce them to the new presence in the house.

At last I was ready! I returned to the very patient bee man holding my increasingly impatient bees and collected my bees—those inside the mailing carton and those choosing to come along on the outside of the carton. I fed them syrup on our arrival home and put them in the garage for the night. At about 6 A.M. the next morning I suited up in my Woman from Mars outfit, sprayed the bees with warm water, then using stiff cardboard as a kind of funnel "poured" the bees into the observation hive. I had to make several attempts to get them out of the carton and into the narrow top opening into the hive. The bees stayed in a clump in the observation hive so that I could not insert the small frame provided for honey. I banged the hive to knock the clump to the bottom and in the process knocked loose some nailed wood letting bees escape and also knocked loose the plastic foundation in the large frame on top of which the cluster of bees sat. I finally got the small frame in and closed up the hive and repaired the loose wood. I carried the hive into my bedroom expecting at any moment a stream of bees would begin escaping through some fault in the hive. This did not happen. I hooked up the escape hose to the hive and fed the hose out the small hole in the screen. Then I went outside again to try to aid the loose bees find and gain entry to the hive.

The initial step of getting the bees into the hive was done in the garage. This left more handfuls of bees crawling and flying about the garage than I'd expected. Fortunately I'd followed instructions and placed newspapers on the floor. I'd chosen a plank of the proper length to act as a bridge between ground and entry way and placed it on a slant from entry way to ground. I gathered the newspapers with bees and placed them touching the plank. The garage was a few steps from the window and it had seemed more convenient to make the transfer of bees there rather than outside the window. Bees in the hive soon found the exit and began calling their sisters who were still outside. The hose proved difficult to negotiate for bees trying to make their way up the entry way which was on a slant. When I inserted some twigs into the hose the bees trying to climb into the hive used the twigs rather than the floor of the plastic hose and had no difficulty.

After about an hour all the bees on the newspapers and most of the bees in the air had joined the hive via plank and entry hose. The two cats and the dog insisted on watching these goings on and accepted the crawling and flying bees with due respect after a preliminary nosing of one or two bees. One cat persisted longer in seeking closer knowledge of these crawling creatures but after a half dozen pawing-at-the-bee approaches he too retired to the side lines to watch woman and bees.

Casualties were evident in garage, on newspaper, and in the hive. Mindful of the trauma I'd inflicted on the colony I left the hive in darkness and closed off the bedroom, leaving a plastic syrup dispenser (ketchup/mustard type) in position to nourish, and I hoped to help soothe the bees.

My friend had kept some distance through all this. I thought it best that we change the subject for a time and let the bees settle in peacefully and become an unobtrusive part of the landscape. I suggested we drive out on an errand. We returned an hour or so later. To my horror and to the despair of my friend the air in the front yard was filled with bees and bees continued to boil out of the exit hose. I rushed into my bedroom and found syrup running out of the hive and across the desk. Though I had checked it and observed it before leaving I had somehow goofed again. I quickly turned the dispenser over but it was too late to undo the flood damage. The hive was in turmoil and said so in sound and action. While some bees tried to get back in the hive, others pushed outward and down the hose. The twigs I'd inserted lay on the ground and I re-inserted them in the hopes the tide of bees would turn and return to the hive. Dozens of bees flew at the screen as I sat inside by the hive. I felt both besieged and heartsick. My friend lay on the couch in the living room depressed and angry. The air was so thick with bees when we arrived that we had to make a wide detour and a dash for the front door. She envisioned a future of perpetual swarming bees, a plague at the front doorway, swarms of predacious bees patrolling the yard, friends and visitors prevented from coming to see us because of the bees. She was angry at me for inflicting this uncommon disorder on our common ground. There was, of course, no defense. It seemed best at that point to seek to restore peace at home rather than to actively pursue the bees. As the bees clustered in a black mass in the shade of the plank bridge to their window I suggested again to my friend that we leave the house, this time for the day. She agreed.

I knew as we left that the bees would make a choice while we were gone, either to stay or leave. I suppose they had already made it after such mistreatment. And if the truth be told, I hoped secretly that they would leave for that seemed the easiest solution to our disharmony. When we returned hours later the bees were gone and the hive silent. Only two or three bees were left in the hive and an occasional flying bee visited the plastic hose and checked out the hive. A drone was among those left behind. A worker wandered about the hive forlornly. A sense of sadness filled the hive, or so it seemed to me. I went outside and walked about the property to see if the bees had clustered nearby. I found nothing, nor would they leave a trail. I wished them well and better fortune!

In the A.M. the hive drone was buzzing and I unbolted the observation hive from my desk and took it and the drone and the two workers to one of my regular hives. I set the three bees free hoping they would find a home in one of my hives. I put the empty observation hive in the garage where it had all started and patched up the hole in the screen. There is peace now at home.

I expect to harvest a fair amount of honey this year from two of my hives. Next year I'll try the observation hive in the garage and join the observation hive bees with a regular hive in the fall. I may have to go into the rafters of the garage with that hive but.....

An All Weather Feeder

By WALTER B. CRAWFORD
Massillon, OH

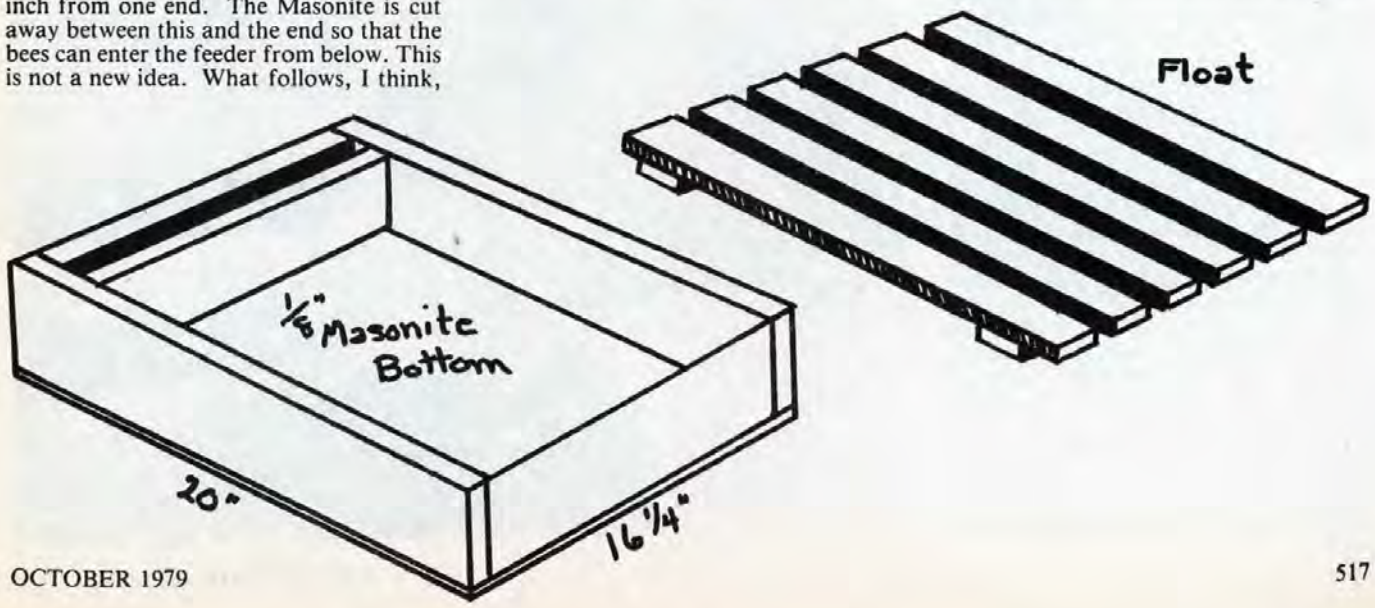
THE TROUBLE with gallon jars as feeders is that it requires empty full depth supers and insulation in cold weather. One must pile the frames of comb some place while the supers are in use. Sometimes the syrup will leak or if it's too cold the bees won't take it.

A feeder can be made which will serve for either sugar candy or syrup. It is made of 3/4 inch material about 2-1/2 inches deep and 16-1/4 x 20 inches with an 1/8 inch Masonite bottom. Panel glue is used on the edges before the bottom is nailed on. A partition is fitted about 1/2 inch from one end. The Masonite is cut away between this and the end so that the bees can enter the feeder from below. This is not a new idea. What follows, I think, is a little different. The inner cover must be placed on top with the rim down unless it is made with a rim on both sides.

A float is constructed of 1/8 x 1-1/2 inches wood strips spaced 5/16 inch apart and nailed to a 5/16 x 1 inch piece near each end. This float should fit loose in the feeder. The two cross strips will allow the bees to clean out every drop of syrup under the float.

Syrup can be fed when the weather is warm enough for bees to work outside, but it won't do any good in cold weather. What is needed then is a candy board. The feeder will hold two gallons of syrup or twenty pounds of sugar. For candy, mix the sugar with just enough water to saturate it. Spread it evenly in the feeder and press the float onto the surface with cross bars up, then let it set for a few days. It will form a crust on the surface and will stay in place when inverted over the frames of a colony. The bees will cluster under this sugar candy and consume it even in cold weather. The heat and moisture from the cluster helps to dissolve the sugar so the bees can use it without any waste.

If feeding is needed later in spring or summer, any remaining sugar can be dissolved in hot water and fed as syrup.



A and T — Love Bees

By M. H. STRICKER
Stockton, NJ

IT WOULD BE difficult to find any two people more enthusiastic about bees and honey than Andy and Theresa Litecky. They radiate a good feeling about their bees and their product honey.

Mr. Litecky operates a very successful machine shop on the busy U.S. Highway 206 near Mt. Holly, N.J., but he is never too busy to stop work to talk bees or give a visitor a guided tour of his apiary.

When I asked how long he had been interested in bees, he quickly retorted, "All my life!"

He went on to say that he had helped with his father's bees on the farm across the highway where his father had kept bees until his death. Andy also mentioned that the Liteckys were a beekeeping family; even his grandfather had bees back in Czechoslovakia.

In the past few years Andy started his own apiaries with a swarm, and has built up to more than 100 colonies at home and in some outyards that he has established in clover areas, since clover honey is one of his best sellers.

Andy's increase is made from swarms and from his stronger colonies. "Swarms teach me a lot. They show me all phases of beekeeping, and I think there is no better way to learn about bees than with swarms."

When I asked what was one of the most important things he had learned, Andy was quick to answer: "That you've got to requeen as soon as the swarm is established. Swarms are headed by old queens and to make a productive colony, you've got to requeen with a young queen. Also, you've usually got to feed sugar syrup to keep the colony going for awhile if you want it to survive and become a big producer."

With typical Litecky ingenuity, Andy has enclosed the breezeway between his house and garage and came up with an attractive and convenient honey house. The walls are painted with gay flower murals and attractive shelves holding an ample stock of the many varieties and size jars of honey they sell. Here Theresa holds forth and by her sheer enthusiasm can get you as interested as she is. No wonder she is such a super saleswoman.

They have built up a special trade in comb honey and have many customers coming from long distances to obtain it.

Besides running the store, each Thurs-

Andy and Theresa in their honey store.

day Theresa sells honey at the local Farmer's Market where through the years her customers have come to depend on her for their honey needs.

"I go even in the winter time when the weather is bad because being there regularly with a good product is the secret of selling!"

Theresa does have a loyal clientele. She showed me the testimonials of some of her customers. Some were local TV personalities who had provided testimonials and autographs for display at the store.

Andy builds most of his own equipment, using white pine crating that comes to his machine shop. He says, "It takes a little figuring to make it cut to advantage, missing the knots and making use of every piece, but with the price of lumber today, it is well worth the time!"

Probably because of his training as a machinist, he does make serviceable and rugged equipment.

Andy prefers a bottom somewhat longer than standard, feeling that it keeps the weeds from in front of the entrance and saves the building of alighting boards.

His covers are made in the standard telescoping design, and could not be distinguished from factory make except the tops are covered with plastic instead of tin or aluminum. He claims they hold up well and since he can easily obtain the plastic, intends to build more like them.

The inner covers are designed with a large hole in the center so that he can feed gallon cans of sugar syrup if necessary. The sugar syrup he uses comes from a friend who transports liquid sugars by tractor trailer load, and at the end of the day the "dregs" are allowed to drain into milk cans before the "rig" is hosed down. Sometimes there are several gallons presented to the Litechy Apiaries which Andy carefully saves for either spring or fall feeding.

This year he hopes to raise queens and this will utilize this sugar.

When I asked about the queen rearing, Andy said: "Well, each year I sell some colonies and now I am getting some inquiries about queen bees, and I'd like to try it. It is interesting and I think it could become profitable when I reach retirement."

Andy is not close to retirement age, but he does look forward to it so he can devote full time to his bees.

He has laid out a big program for this retirement, so that it looks like he may be busier then than he is now with his machine shop, bees and honey business.

Mr. Litecky wants to try to winter bees

Andy and one of his colonies.

Andy with a long bottomed colony with feeder can.

under controlled conditions. He also wants to try outyards in other locations from the ones he now has, seeing where the crops are the best, and perhaps other types of honey can be produced.

His home apiary is in the field where he once raised Christmas trees for sale. There are some trees left that provide some wind protection and offer pine needles for smoker fuel which he thinks controls the bees as well or perhaps better than most fuels.

In back of this field there is a picnic grove shaded by large trees. It is here every summer the Central Jersey Beekeepers have a meeting, one of the largest in the state. People come from far and wide to enjoy the Litecky hospitality.

When I asked more about Andy's future retirement, he had a very interesting comment: "You know, our politicians might talk us or scare us into a recession, but I don't believe that will hurt the honey or bee business.

"Honey is too popular a product right now. People know it is one of the very few natural foods we can obtain right now. They know it is pure and it takes us right back to the farm or the land.

"Even city people have a longing for the land. Even a taxi driver in Brooklyn who had never even seen a farm told me how that was the life!

"Honey is something that people associate with healthy country living and those who are able to get out into the country think they ought to have a colony of bees and even if they don't produce any honey, they will surely buy it. That's why I'm so sold on bees and honey providing for my retirement age."

With that kind of optimism there will be no stopping Andy and seeing how well he has done as a part time beekeeper, there looks like a great future coming up for the Liteckys.

Bees Bees! Go Get Them

By ROBERT A. WAGEL
Dowagiac, MI

ONE LATE SUMMER day a neighbor dropped by to pick the excess tomatoes from our garden. In the course of our conversation about the events of the day he informed me he had observed some bees in the woods in the back of his house. Being a beekeeper and always interested in acquiring extra colonies, I was all ears. His only request for permitting me to remove the bees from his farm was that I give him some honey. The following day a beekeeping friend and myself drove to the neighboring farm and on into a wooded area where, after a few minutes of searching, we saw a large cone shape covered with a mass of black activity.

The colony was suspended from a slender branch about 16 feet from the ground and slightly sheltered from above by a wild grape vine. The comb appeared to be about two feet across and 2-1/2 feet long and completely covered with bees.

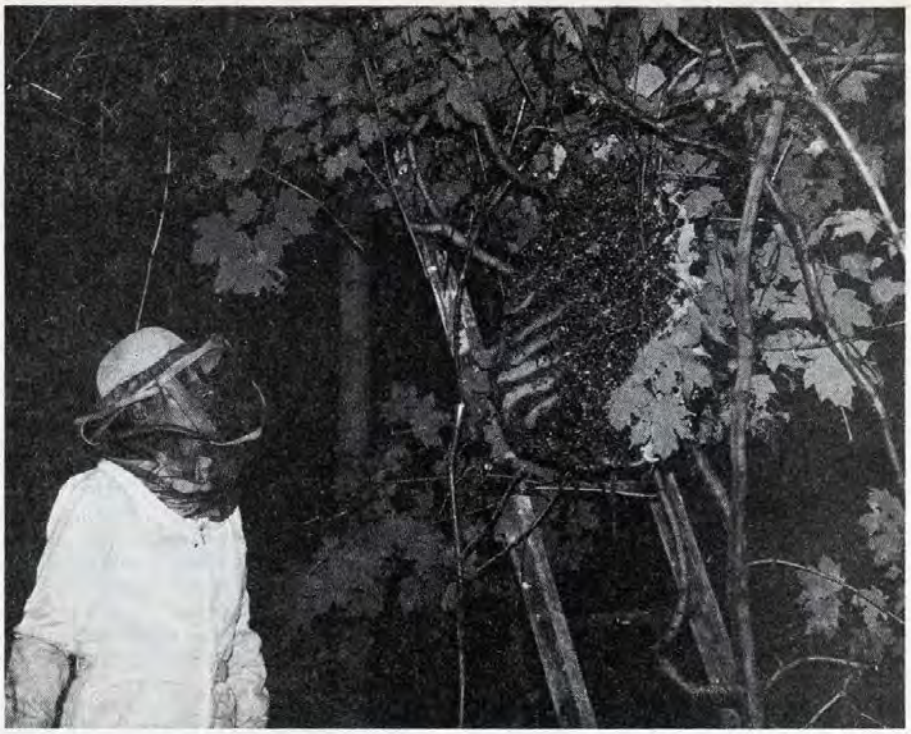
The warm September sun was making it possible for the bees to collect the last of the nectar from the goldenrod and from the abundance of fall flowers in the area. Although the bees had stored more than enough honey to get them through the winter it was doubtful whether they would have survived until spring. They were in an open area and largely unprotected from the severe winter ahead. After seeing the location of the colony we realized we had not brought the proper tools for removing the bees. The following day was cool and we had loaded the car with a ladder, saws, a smoker, bee suits, and a hive body in which to house the new colony. We dressed in our bee suits, placed the ladder against a small tree next to the bees and readied our saws. In a few minutes the main limb holding the colony had been sawed into. There were many vines and small branches holding the sections of comb together. If there had been a supporting limb above the colony it would have been possible to throw a rope around it and form a pulley to help lower the bees to the ground. However, our job was not to be this easy. We cut a small sapling, shaped two prongs at one end and used this long improvised fork to support the colony as we slowly lowered it to the ground by cutting one branch at a time. By sawing off a few more inches of the major supporting limb and many small twigs surrounding the colony we were able to fit the bees into a hive body. We carried the colony 100 yards to the parked car and placed it in the trunk. We took the bees a few miles away to the apiary located behind my house. This colony was so large we could only get half of the comb and bees into the hive body. It was necessary to place an empty super on top in order to house the colony. The inner cover and top were placed on the hive and the colony was left alone for a few weeks to settle into its new home.

About six weeks later I opened the hive to clean out more of the twigs and leaves. The natural comb made by bees in the wild was cleared from the hive and replaced with frames containing combs of honey. Some supplement feeding of sugar syrup was also given during the fall until the weather turned too cold.

Colony of bees located outside. Photo by Garrett.

The colony was checked in mid-February and appeared to have an ample supply of honey. During March the bees were fed more sugar syrup and some pollen supplement. In April the bees were given Terramycin. Due to the below average temperature during the spring feeding was continued until the middle of May. Presently the colony is doing well and so far there have not been any indications of swarming.

Colony in hive. Photo by Garrett.



Lowering the colony to the ground. Photo by Garrett.

Placing colony in apiary. Photo by Garrett.

Siftings

By CHARLES MRAZ
Box 127
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IT IS interesting to see the sudden surge of interest in bee venom in the field of allergy. For 30 years, Dr. Mary H. Loveless, former professor of allergy at the New York School (Cornell) of Medicine has been advocating the use of the pure insect venoms for treating those allergic to insect stings. For many years the whole body extract has been used which was found to be just about useless by Dr. Lichtenstein of Johns-Hopkins and his associates.

With my interest in bee venom therapy, I have worked with the problem of collecting pure bee venom for some 30 years, most of which was given away free for research. Dr. Loveless, like a true pioneer, collected her pure venom directly from the insect stings that she caught herself with a net. This method for collecting pure venom is not possible for most doctors because of the lack of time and experience handling stinging insects. Now that the pure venom can be collected commercially and made into injectable solutions, the pure venom allergin has come to its own. It is now licensed to be used by doctors and from information so far, it is successful in almost all cases. It is indeed important for those in constant fear of being stung because of serious allergic reactions, to be free from this fear. This is especially true of beekeepers' families and beekeepers that become allergic and don't want to give up beekeeping.

To me, a most interesting outcome of this is the amount of research that is now going into it. Many states are now doing research with it to try and study just what immunological and physiological factors are involved in this complex relationship of allergy and immunity. After 45 years of working with bee venom, I feel strongly this can lead to perhaps even greater benefits to these complex allergy problems. As an example, my daughter is extremely allergic to horses. If she gives herself several stings before coming in contact with horses, she appears to be free from any allergic effects for a period of time. There are some people allergic to almost everything under the sun who may benefit from this research.

Occasionally beekeepers will write and ask me how to collect bee venom and where to sell it. Collecting pure venom is a dangerous job and can only be learned by experience. It took me 30 years to learn. I am sure, however, there are many beekeepers much smarter than I am and perhaps can learn in a year or two. At the present time there is a limited market for pure bee venom, so when you learn how to collect, you be prepared to give it away, if anyone wants it. It takes but a small amount of pure bee venom to supply the limited amount needed for treating hypersensitivity. One gram of pure, dry bee venom is equal to about 10,000 stings. So you can see one gram of pure venom will go a long way. No one knows how much bees object to being "milked" of their venom, until you try it. You don't have to collect very many grams before you have many thousands of bees after your "hide". Sometimes they are so thick around your veil you can hardly see through them. So good luck to anyone that tries it. Don't get discouraged, the first million stings hurt the most.

It is indeed a nice experience to have a honey crop again, after 15 years of poor crops. Finally, my two daughters, 17 and 18 years old have the experience of helping us extract the honey crop. Before this we never had a honey crop big enough to need any extra help. Some years we never extracted a pound. Since we do not do any feeding, they must make their winter feed first, before we take off the surplus.

Some beekeepers take off all the honey and replace their winter feed with sugar syrup. Of all the jobs I hate, feeding bees for winter is the worst. I find that leaving a full super of honey is cheaper, easier and better. A super of honey seems to go much farther than, say, 40 lbs. of syrup. Also, with us anyway, our bees are much stronger in the spring with a super of honey than an equal amount of sugar syrup. Perhaps others have a different experience, but when we take off our surplus honey and leave a full super for winter feed the bees are all ready to pack for winter, in August. If we take off all the honey and feed, we are lucky to have the bees ready to pack in November. And when there is snow on the ground, it makes it awful uncomfortable packing bees.

Another phase of beekeeping creating more interest is the sterilization of combs and equipment infected with the various brood and adult bee diseases with ethylene oxide. For a long time I have not been much interested in this form of treatment, after 55 years of fighting AFB with various forms of formaldehyde and chlorine solutions, tried out in the early days before antibiotics. The results were very poor and the amount of labor involved was more than the equipment was worth.

Some 40 years ago, when good strains of bees resistant to AFB were still available, this form of treatment was by far the best and easiest method for disease control. However, for 30 years now, the most resistant strain, Lockhart carniolans, have been out of existence and apparently now lost forever. I've cleaned up hundreds of colonies with AFB in the 1930's with these and other resistant queens, most of them remaining clean for 20 years or more.

Through the years, however, this resistance has been lost to a large extent and each year bees seem to becoming more and more susceptible to both the old diseases and new diseases such as disappearing disease. The only bees I know of today resistant to AFB are those on the Hawaiian Islands. They are survivors of the bees wiped out with AFB during the 20's and 30's when beekeeping was abandoned there. These resistant survivors have re-populated the Islands through the years and are quite well established. Last year when I visited Hawaii I had a chance to work with these bees. I've been told by some that these "resistant" bees are small, bad tempered and do not produce much honey. The bees I saw on Owahu were not too good a strain of bees, but the ones I saw on Kawai and some on the big island of Hawaii seemed to be very good bees. They were easy to handle, built up into strong colonies and produced good crops of honey. Many colonies had over 200 lbs. of honey on them, one season's production.

Some effort is being made to perpetuate these resistant queens. How successful this will be remains to be seen. In the meantime, sterilization with ethylene oxide gas certainly appears to have a great deal of merit. Talking to many beekeepers that have used it and state inspectors where it has been used, give it considerable merit, with excellent results and a minimum of labor. Those of you that have attended the recent EAS meeting in Ottawa, in August of this year, may have seen the big trailer truck rigged for gas sterilization parked near the meeting. It will sterilize hundreds of hives at one time.

To me at least, such large equipment presents problems of collecting so much equipment at one time to fill the sterilizer. It would seem a smaller, cheaper but effective equipment for individual or groups of individual beekeepers would be more satisfactory. Then it can be sterilized as it is found, and not waiting until enough is accumulated to fill up a big container. We hope to do some experimenting along these lines. With the cost of beekeeping equipment today such recovery of diseased combs would be well worthwhile.

As Dr. Shiminuki of the beekeeping lab at Beltsville says, "We must use all that we have available to keep disease under control." There are times when burning is necessary; where just a small amount of equipment does not make it worthwhile to treat. Sterilization would be well worthwhile where large amounts of equipment are involved. Antibiotics also play an important part to be used when necessary and where effective. The ultimate goal, of course, is to have bees resistant to disease. Such a goal can never be 100% effective over a period of time; other methods of control should be used until

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BEE TALK-----

By DR. RICHARD TAYLOR
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I DID SOMETHING really stupid this summer. Of course, we don't like to mention our blunders. We'd much rather boast about how much we know, and even give the impression of knowing just about everything there is to know about bees, especially after working with them most of a lifetime. But I'm going to describe this dumb thing I did, because it raises interesting questions about bee behavior. And, of course, the account of my ineptness may prevent others from doing something similar.

I had three colonies off to the side of my yard that I had started from three-frame nucs rather late in the season, and they seemed to need a boost. I also had three other colonies nearby that were exceedingly strong. So the solution seemed obvious: Just take a few frames of sealed brood from the strong colonies and exchange them with empty combs from the weak ones. I've done this countless times, and there is nothing wrong with that idea at all.

Now when I opened the strong colonies, I found that the bottom story of each was just loaded with brood, but with some pollen and honey too and above that bottom story was mostly honey. So I decided to make the task simple. Instead of removing three or four combs of brood from each strong colony, I'd just exchange the whole bottom story, or brood chamber, of each strong colony with each of the three weak colonies, or nucs. That should work just beautifully: The queens of the strong colonies would be sure to be in those bottom stories, with all the brood, and each strong colony would then get requeened with a young queen from each nuc. The whole thing would be quick and easy, and this appealed to me too, since the day was rather hot.

A few days after doing this I was astonished to find that two of the hives I had thus strengthened had no bees going in and out. Just a few ants were going in and out, not a single bee. What I'm talking about is the colonies off to the side of the yard which had been created by simply putting there three hive bodies of brood, bees and queen from the strong colonies; the weak nucs, which had been there, having been joined to the three strong colonies.

Now how come? Would a colony of bees, under these conditions, abandon a hive filled with brood in all stages? All I had done was move all (or nearly all) the brood and bees to a new spot, instead of just part of it. So what had happened to the bees? If I had moved a significant amount of **honey** to a new location in the same apiary, then I would have known the answer: The bees would simply have carried that honey back to where it belonged, at the original hive stand; "robbed out" the moved honey combs, so to speak, thereby reducing that colony to starvation. But I had moved **brood**, and bees will not normally abandon brood and queen, no matter how much you move it around. Of course the **foraging** bees will go back to their original hive stand. You expect that. But the young bees will normally stick with the brood. In fact most of them wouldn't know how to get back to their original hive stand anyway, being too young to have learned their way about in the world.

So I had a look at those beeless hives, and found them still full of brood, but to be sure, hardly any bees at all, no queens, and what bees there were, seemed half dead. Some of the sealed brood was even emerging, into those de-populated hives.

What had happened? The foraging bees somehow realized that they didn't belong there, so they went "home", that is, back to the old hive stand. That you expect. But they somehow managed to communicate to all the other bees—the young bees, most of which had never flown from the hive—that **they** didn't belong there either, even if that was their own queen and their own familiar brood. So evidently the old experienced bees **led** all the rest back "home" where they belonged, abandoning their own brood in the process.

Another strange fact about all this is that only two of the three colonies behaved this way. The other did exactly what I expected; namely, the young bees stayed with their queen and brood in the new location, and the strong colony that got the nuc that had been there accepted the new queen and nuc, the way they were supposed to.

All this raises a lot of questions about bee communication which I'm sure no one knows the answers to, though I am sure lots of old-time beekeepers have many theories. Is the colony somehow under the guidance of some group of "governing" bees? That is, do certain bees make the "decisions" for the whole colony? That idea once seemed to me perfectly absurd, though I do not now think it should just be dismissed. Allen Latham, the great Connecticut beekeeper, held such a theory. He was sure that certain bees in the hive called the signals. Stephen Taber III, apiculturist with the U.S. Department of Agriculture, came close to suggesting the same idea, in the U.S. Department of Agriculture Handbook No. 335, entitled **Beekeeping in the United States** (1967), (page 31).

Certainly many of the behavior patterns of honeybees suggest that the bees are, as a colony, responding to signals of some sort. When they swarm, for example, they act in unison, especially with respect to timing. And when a swarm breaks cluster, there is nothing haphazard about it. The bees seem to be

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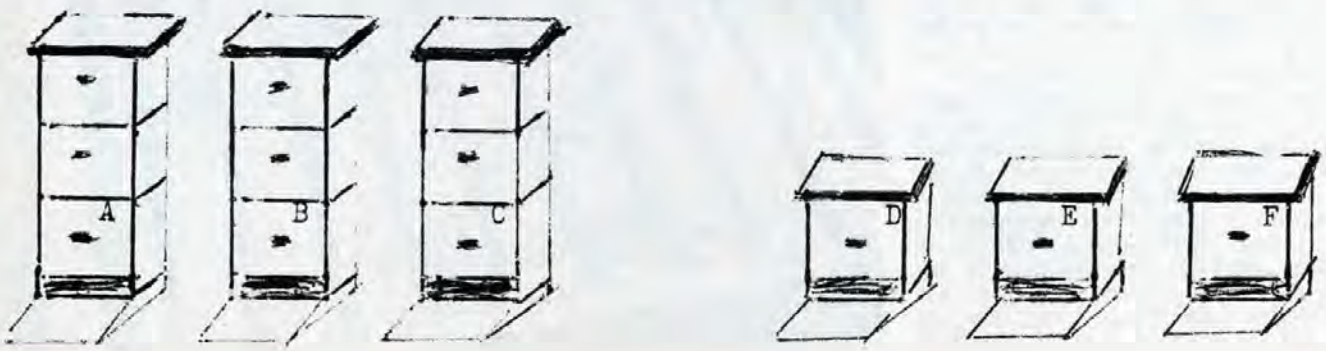
Brood chambers (A, B, C) of strong colonies, containing brood, queen and bees, were exchanged for nucs (D, E, F) containing brood, young queen and bees.



From the West

By CHARLES J. KOOVER
1434 Punahou Street
Honolulu, Hawaii 96822

THE ELEVEN FRAME BROOD NEST.

I OFTEN ASK myself, why is it that good ideas, not my own, which have proven to be correct have such a time being accepted? Is it because I don't write a lot of ballyhoo about them, don't make wild claims, and don't take your money, that you don't believe me? Or is it that because you have been financially stung by purchasing highly toted products that did not come up to the wild claims made for them in the bee journals, that you became soured and now won't even believe the proven results? I have nothing to sell and don't want your money. For all I am trying to do is to help my fellow beekeepers to discover for themselves the better results they can obtain. Barnum, the old circus man, who was an expert at making suckers out of people was right when he said, "There is a sucker born every minute."

And then there are those Letters to the Editor which pan every new idea and if you read them closely, are written by people who haven't even tried the ideas offered. I happen to know this to be a fact.

Eleven frames spaced a 1/4 inch apart in a standard Langstroth brood chamber produce more bees and therefore raise a larger work force which is able to make more honey than the conventional ten frames in a Langstroth hive. The best part of it is that you don't need a double brood chamber if you will use molded plastic foundation. Even with wax foundation you will get better results. I am not going to tell you all over again why. If you kept your back numbers of **Gleanings**, and you should, you can read what I wrote over and over again. Sooner or later you will want to refer to them. I get a lot of letters from beginners who want me to repeat what I wrote before which I can't do. That would not be fair to the older readers. Follow the instructions and try one hive for one season next to your other hives and let that hive convince you. It will. Maybe one hive is not enough to make a fair test and you should convert two or three over to the new method. I do not want you to convert all your hives. That is not good sense, for each location, each state, and each country has different conditions.

There are those old-timers who remember the eleven-frame Modified Dadant hive or the twelve-frame Langstroth hive and even the thirteen-frame Langstroth hive. Those hives used the wide spacing of frames in wider brood chambers whereas the eleven frames I have been writing about fit into a standard 10-frame Langstroth hive body and leave one inch to spare for manipulation of the frames after they have been shoved over against the opposite hive wall. "IF", and this is the big if, if they are also exactly staple-spaced 1/4 inch apart and your top and end bars are **also** one inch wide. Not 1-1/16 inches or 1-1/8 inches. Let me repeat 1-1/16 inches or 1-1/8 inches. For that is too wide. And you can't use Hoffman self-spacing edges. They got to come off for those edges don't stay clean and cause wider spacing. Just look into your hives. My picture, (I hope will be printed with this article, for often they are not) was taken ten years ago shows how clean 1/4 inch spaced frames will stay. And I have used these frames ever since. Although now I don't use nine frames with two follower boards any longer. Yes, even I, have made progress through trying out new ideas when they come along. A lot of ideas I wrote about ten, fifteen, even twenty years ago I don't follow anymore. That's the joy of learning through experimenting in beekeeping. And we don't stand still.

Now about how to rework your frames to fit the molded plastic foundation. Any Langstroth frame now on the market or the frames you already have are suitable. However for molded plastic foundation, which is as rigid as a plank, you don't need shoulders for the foundation gives the frame strength instead of the other way around.

Go to your hardware store and buy a small block plane and a sanding block which can be fitted with coarse sanding strips. Clamp your frame in a bench vise and with a few strokes of the plane on each side of the top bar reduce the width to one inch wide. That will smooth up the sides of your top bars for most of them are sold with rough sides showing sawblade grooves which in turn will lead to brace and burr comb. Now sand the top bar with your sanding block to give it a silky smooth finish. One manufacturer I know of sells frames that way and even gives them a thin coat of paraffin which even more discourages the building of brace comb between the frames. The Hoffman self-spacing edges should be planed off too, to the same one inch width as the top bar. That's all there is to it.

As for spacing your frames. Carl Killion, that Master beekeeper, who just passed away, used thick nails which had been cut short. They were driven in until just 1/4 inch stuck out of the wood. Look around, you can use any kind of staple you can find.

If you have a saw table you can make your own frames like Dr. Roger Morse

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Staple or nail spaced. Notice the absence of brace comb. This shows a hive body with 9 comb and 2 follower boards, the old method.

Research Review

What To Do With Nasty Bees

By DR. ROGER A. MORSE
Research Editor of Gleanings
Professor of Apiculture
Cornell University, Ithaca, NY

A NEIGHBOR LADY beekeeper told me two of her three colonies were gentle and a pleasure to work. However, the third colony would sting excessively, and recently bees from that hive had followed her several hundred yards from her apiary to her home. I often think honeybees are similiar to people; some have good dispositions and a few do not.

How a bee behaves depends upon her genetic background. Many races of bees have been brought into the United States. Bees from the Mediterranean island of Cyprus are said to be the most aggressive and difficult to manage of the European races. I have long thought that the bees from England were also good defenders of their nests.

The aggressiveness of the bees in a colony may change in a matter of a few weeks. Mr. S. Taber III, now retired from the USDA laboratories and a queen breeder in California, found in 1954 that each queen mates with six to seven drones; prior to that time we thought queens mated only once, or, rarely, twice. In 1955 Taber found that the sperm from these drones does not mix very much in the spermatheca, the sac in the queen's abdomen where the sperm is stored.

When a queen starts to lay, the offspring produced will have a genetic contribution from the last drone with which she mated. Sperm from a single male will last about two to four months. When the sperm from that drone is almost exhausted there will be a time when sperm from that and the next to last mating are used. This will last only a few days or weeks and then the next few months' eggs again all share the same father. Offspring from one drone may be gentle bees only to be followed by those from a drone whose daughters are aggressive. (This also explains why one may often see bees of different colors in a single hive.)

Can a beekeeper improve the disposition of his bees through selection? I'm certain it is possible to do this by removing the queens from colonies with large numbers of aggressive bees and requeening from stock known to be gentle. However, finding the queen in a populous, aggressive colony is often a difficult task.

Another question asked by my neighbor was why didn't all of the bees in the hive attack? The answer is that there is division of labor in a hive and only a small number of bees are guards and protectors of the nest. The best review of this subject is found in von Frisch's 1967 book (see below).

Drs. Boch and Shearer of the Canada Department of Agriculture found in 1966 that the amount of alarm odor a worker bee could release varied with her age, being greatest at about the age she would be a guard bee; this would also depend on the time of year and how long the bee lived. Not all bees serve their one or two day stint as guards but those which do so are usually about two-and-a-half to three weeks of age.

What to Do?

Dress appropriately. Honeybees are much less inclined to sting light-colored, smooth-finished clothing. I prefer khaki clothing. Avoid sweat-soaked clothing with its strong smell; we have no positive proof but most beekeepers agree that strong odors irritate bees.

Vibrations can disturb bees. Walking in the vicinity of a hive is often sufficient to alert the guards to one's presence. When two or more colonies are on a single hive stand, or on the same set of boards on the ground, one should smoke all such colony entrances before opening the first hive.

Open colonies only on warm, sunny days when the colonies have large numbers of bees flying to and from the entrances. Keep bees in sunny locations only so as to encourage maximum flight.

Smoke the entrance and any opening **before** removing the cover. Apply smoke generously as the cover and frames are being removed.

Requeen the colonies that have nasty bees. One method of examining a colony with aggressive bees is to smoke it heavily and then to pick it up and carry it 50 to 100 feet to a new location. Another, perhaps weaker, colony may be put in its place. The guard bees will come out of the aggressive colony but will return to and protect the place where the colony was formerly located, since that is the spot they recognize as home. This is also a technique we sometimes use when we want to open a colony and show its contents to visitors; again, the aggressive bees fly off and will usually not molest persons in the vicinity of their moved hive.

In desperation, I've known beekeepers with aggressive hives which are in several supers, to set the individual supers (but only those with brood) off onto bottom boards, giving each a new inner cover and cover. There are now two, three or four hives, only one of which has an active queen and the rest of which will be rearing new queens within a couple of days. Under these circumstances the population of the queenright hive will be greatly reduced and it is much easier to find and replace the queen.

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The frequency of multiple mating of queen honeybees. **Journal of Economic Entomology** 47: 995-998. 1954.

Frisch, K. von
The dance language and orientation of bees. **The Belknap Press of Harvard University Press.** 566 pages. 1967.

CHEMICAL REPORT

TWO CHEMICALS used in beekeeping are on the Rebuttable Presumption Against Registration (RPAR) list, they are ethylene oxide and ethylene dibromide. The decision on ethylene dibromide should be made soon.

There is no approved label for the use of sodium sulfathiazole for the prevention and control of American foulbrood. Research on its efficacy will be initiated this year.

Studies on Resmethrin are still being conducted. At present the label is only approved for killing bees prior to destroying them. Tests on potential residues in beeswax and their dissipation are being conducted.

Two candidate materials for the biological control of wax moths appear promising. **Bacillus thuringiensis** and nuclear polyhedrosis virus are pathogenic to the greater wax moth and yet safe for honeybees. Not all strains of **B. thuringiensis** or nuclear polyhedrosis virus are pathogenic to the wax moth.—From a report by Dr. H. Shimanuki, The Apiary Inspectors of America, **Proceedings of the Annual Conference** 1979.

Fundamentals for All

"AN HONEST-TO-GOODNESS UPPER ENTRANCE".

JEFFREE (1) in Scotland notes that there is "....a very strong tradition that bees should be left strictly alone during winter..." I wonder if that is the reason we in America respect the taboo about "messing with bees in winter"? Many citizens of the United States and Canada trace their ancestry to the British Isles and many others find their roots in Germany. Although America's earliest record of honeybee importation is fixed at 1621 (2), I cannot think that some of our ancestors did not try to bring their bees with them—and some would undoubtedly have succeeded. At any rate, I have found the tradition of "hands off" bees in winter to be strongly entrenched with beekeepers with whom I have worked, especially in North Carolina. I am sure that it is an equally "sacred cow" where more rugged winter weather conditions are experienced.

There are good reasons, all logical, for not disturbing the honeybees' habitation during winter, based on our thinking of ourselves and the uncomfortable drafts resulting from open doors and poor insulation. But bees are not warm-blooded animals, and it seems to be impossible for us to think of their comfort completely disassociated from the comfort of ourselves and our domestic animals. Then, too, unquestionably it is easier, and more comfortable for us to remain sheltered in our houses, barns, offices, and factories than it is to plow through snow, or follow an unbeaten path to the bee yard. And for what? The following discussion may give you one answer.

Anthropomorphic ideas—the result of thinking in terms of ourselves and "creature comforts" when dealing with honeybees—have resulted in recommendations for the bees' well-being which have, in turn, culminated in the deaths of untold numbers of colonies. In the early days in this country, it was neither practical, nor necessary, to provide log "bee gums" with extra protection in winter, other than that provided by the woods, or shrubbery, in the place where they had sat all summer. Also, the skeps in which the first colonies undoubtedly were brought to this country were well suited for wintering bees. Throughout the centuries man had found, as a result of trial and error, that the traditional skep was a satisfactory home. Outside of hefting the skeps to estimate the weight of honey in them, the only other consideration for winter was protection from the elements. Provision for deflecting the rain and some shelter from the prevailing winds were the only other considerations. This was the background thinking in the construction of bee houses and the

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bee-boles, some of questionable value, incorporated in building and garden walls.

When Langstroth (3) in 1851, discovered how combs could be hung in frames which could be moved and re-arranged by the beekeeper, he introduced an element of honeybee management that opened up a fertile subject for consideration—how to arrange the combs for the benefit of the bees and the beekeeper! This proved to be bad for the bees. It resulted in man removing so much honey that the bees starved to death. Such failures were frequently blamed on the "modern hive". This was brought home to me when a beekeeper in western North Carolina told me that he could only winter bees in "gums". He had several movable-frame hives sitting around with no bees in them and several inhabited "gums". The latter were of good size—probably a foot and a half to two feet across and about three to four feet high. There was ample room in them for brood rearing and honey storage, but it was not possible to remove the honey from them as easily as from the manufactured hives. The conclusion I reached was that successful wintering depended on sufficient honey being left in the gums for winter and also for spring build-up. Early swarms from these gums had time to develop into producing colonies in time for the mid-summer sourwood flow, so this beekeeper had developed a system of management based on his own experience. However, as every serious beekeeper since Langstroth knows, bees can be successfully overwintered in movable-frame hives.

Perhaps that word "successfully" needs defining. I should like simply to say that successful overwintering is wintering that results in colonies that have optimum honey production potential. During winter, there should be a minimum loss of bees and a minimum consumption of stores. Whether enunciated or not, this is and has been—the aim of all beekeepers working for honey production since man found honey good to eat. The research of scientists concerned with wintering has also been aimed at making it possible for the beekeeper to keep bees more profitably. Unfortunately, man's inability to think like a bee resulted in millions of dollars being wasted.

Because we are more comfortable in heated houses, we have built them to give us adequate, if not maximum, protection and we have logically extended this thinking to the stabling of our domestic animals. But, we have illogically reasoned that what is good for warm-blooded animals is good for our honeybees. If it weren't that honeybees are so extremely adaptable to all sorts of conditions, our efforts, based on our anthropomorphic thinking, would have resulted in their elimination from our agricultural economy.

Well, I, to, must think as a human and have been unable to cast myself in the role of the bee, but I find this entirely unnecessary in order to "think" of how I have submitted my bees to "inhumane" conditions during winter. I shall leave it to you to draw your own conclusion as to whether the same conditions apply in your own hives.

Let us suppose that we have a crowd of people at different levels in an airtight room—airtight, that is, with the exception of a small space at the bottom of a door. Our exhaled breath carries moisture which cannot escape from the room. This moist air rises to the ceiling. Before long, everyone becomes uncomfortable, those at the highest level being most uncomfortable because of the higher concentration of moisture near the ceiling. In their efforts to get rid of this air of high relative humidity, more moisture is given off in breathing and the situation becomes worse. The greater the amount of moisture in the air, the more uncomfortable everyone becomes and the more moisture is given off in efforts to get rid of it. It becomes an increasingly oppressive cycle demanding correction.

Now, think of your bees in an airtight house. (The beehaver's conception is, "The bees know what they're doing and they have sealed down the cover and closed up all the cracks"). For each unit of honey consumed, there is an equal unit of moisture given off. Moist air rises to the cover, where it is cooled and condenses. When it is cold enough, you get ice, but for just now let's consider just the moist air. During the early winter months, the bees are more quiescent, the temperature within the cluster is not elevated, and not much honey is consumed, so not much moisture is given off. Some of the moisture is absorbed by the wood, the rest is absorbed by the air. By

(Continued on page 544)

Notes from the Straw Skep

By BESS CLARKE
Canton, PA

THE PENNSYLVANIA beekeepers are cranking up for their 75th anniversary celebration which is scheduled for the Embers Motel, Carlisle, PA, on October 19 and 20th. Committees have been meeting all summer and a fine program is being planned.

I'm involved in writing a history of the organization for the program booklet. It's been fascinating to go back over the records. I found one gold mine purely by chance. I was looking for some family information and came upon a copy of the 50th anniversary celebration program which had been stashed in a scrapbook. Could hardly believe my good luck.

Since then I've had access to the library of Prof. E.J. Anderson who worked at Penn State for 39 years. After Andy's death in 1974 Mrs. Anderson gave his library to the University.

The Pennsylvania Association was organized at Williamsport on April 12, 1904 and held its first annual conference in Harrisburg in December that year. Professor H. A. Surface, State Zoologist, was elected President. E. F. Phillips, who was then living in Philadelphia and working for the USDA Bureau of Apiculture, was a member of the Executive Committee.

American foulbrood, winter kill, and swarming were major problems at that time. So what else is new? One difference is the price. In 1904 a colony of bees was worth $3.00.

As a result of that first meeting a correspondence course was made available from the Pennsylvania State College, and experiments in beekeeping were begun.

E.R. Root, Medina, Ohio, spoke at the second meeting on the subject of candied honey and added a few words on "The Cause of the Advance of Prices of Beekeepers' Supplies".

Prof. Surface gave a short talk at the 3rd meeting on bee stings as a cure for rheumatism.

The National Beekeepers' Association met in Harrisburg at the end of October, 1907. Pennsylvania, at that time, had the third largest membership in the country, behind Illinois and Wisconsin.

The national organization rented space at the Pure Food Show in the Chicago Coliseum in November, 1907 to display honey from 16 states and five foreign countries in an effort to advertise.

By the time of the 25th meeting in 1928 wintering and marketing were major issues. The radial extractor had been invented, and automobiles and improved roads gave access to previously unavailable areas. Artificial insemination was being completed successfully so the possibility of hybrid strain improvement was discussed.

The Kellogg Company was recommending the use of milk, honey, and fruit on all its packages as good accompaniments to cereal, and the retail market for honey had expanded rapidly. There was a need for standard packaging.

As long as I'm into history I might as well give a recipe from 1928 which H.H. Root shared as a possible new use for honey.

Honey Shaving Cream: Select a free lathering soap and cut it into thin shavings. Dry thoroughly (in a warm oven with the door left open). Run through a fine sieve or grind in a hand flour mill. Mix 2 parts powdered soap, 4 parts honey, and 1 part water. When first mixed the cream is thin but it later thickens to the right consistency.

Apply the cream to the face with the fingers and work up the lather with a wet brush. If preferred use a shaving mug to work up the lather.

Use only enough water on the brush to make a creamy smooth lather. It will remain moist on the face a long time. The lather softens the beard better than ordinary lather and is soothing and healing in its effect on the skin.

This cream is also excellent to use as a shampoo as it leaves the hair soft and glossy.

Questions and Answers

Q. I have two questions for your column Questions & Answers in your periodical. They are:

1. What kind of fee can be expected for apple blossom pollination in the East (W.VA, VA)?

2. I operate 26 hives. During this summer within about a one month period, four hives were found to be queenless, without any brood, and the population dwindling. I thought it unusual that a lost queen or a failing queen was not replaced by the bees. Do you have any explanation?—R.C.,W.VA.

A. In answer to your first question: Pollination fees for apples in Ohio average about $15.00 per colony. In Michigan the fees run from $17.00 to $22.00 per colony due to the greater diversity of fruit and vegetable crops such as cherries, cucumbers, blueberries and strawberries, some of which require more intensive pollination, and perhaps three or four colonies per acre instead of the one or two colonies per acre usually placed in apple orchards. I am sure pollination fees in West Virginia and Virginia are comparable to those in Ohio and Michigan.

In answer to your second question, it would appear that for some reason, or reasons, eggs, or larvae under two days of age, were not available to the queenless colonies during the period of queen failure or loss. Another possibility is that queen cells failed to develop or a virgin queen was lost or failed in some way after hatching. Other conditions beside queenlessness may have caused or contributed to the decline of the colonies in the process of which a healthy queen may have been lost along with a number of worker bees. Such a condition may be the result of loss from insecticides, predation by bee pests, disease, starvation or some other very stressful condition.

Your bee loss may be an example of the much-discussed disappearing disease.

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Q. I would like to know where I could buy Fumidil B and when it's the best time to feed it?—W.S.G.,PA.

A. Fumidil B is available from most bee supply manufacturers and distributors.

Antibiotics for Nosema prevention and control should be used as follows:

Packages—Where analysis indicates 100,000 or more spores per bee feed each colony 1/2 level teaspoon Fumidil B in 1/2 to 1 gallon of syrup.

If samplings at 3 weeks after feeding indicate high levels of Nosema, a second feeding should be given to insure new emerging bees receive a preventive feeding.

Wintered Colonies—For colonies wintered without packing and where late winter treatments are possible. Fall feeding—October, **1 level teaspoon** Fumidil B per colony in gallon of syrup.

Late winter feeding—late February or early March—**1 level teaspoon** Fumidil B per colony in 1 gallon of syrup.

Early spring feeding—if analysis in late March or early April indicates a high level of Nosema—**1 level teaspoon** per colony in 1 gallon of syrup.

For colonies being packed and where late winter feeding is not possible or practical, feed in fall after crop is off—2 level teaspoons Fumidil B. (200 milligrams fumagillin) in 2-1/2 gallons of 2:1 sugar syrup. It may be advisable to have combs 3, 5, 7 and 9 in the second brood chamber empty for storage of such syrup for a more lasting control.

In the above recommendations 1/2 teaspoon of Fumidil B (50 mg of fumagillin) is considered sufficient for package bees, but for the more populous wintered colonies 1 teaspoon is required.

Recent testing now indicates that Fumidil B and Terramycin can be used together at recommended rates without inactivation of either material.

e.g. (5 grams (1 teaspoon) Fumidil B and 5.0 grams Terramycin (1 teaspoon) per gallon of syrup).

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Q. I am a backyard beekeeper with 7-12 hives troubled with a robbing problem. My strongest hive this year which produced best of the bunch doesn't seem to have any defense against robbers. Each time I have opened the hive, using the same precautions I customarily use with all the hives about spilling honey, etc. within minutes after closing or even before I get the cover back, there is a cloud of bees entering the hive. I stuff the entrance with grass and have even tried heavy smoking to discourage their presence, but they buzz around looking for a crack or hole to enter. They do not sting—I thought robbers were vicious—and by nightfall only the returning workers are clustered on the front of the hive. This has happened over a three or four month period and overlaps the period of high productivity. Currently there is little nectar in this area, so none of the hives are very active.

If I requeen I fear the robbers will take over while I'm trying to find the old queen. Any help you can suggest will be appreciated.—C.E.S., GA.

A. The fact that this colony being threatened by robbers is productive and populous is good evidence that the robbing efforts have been unsuccessful. Your precautions are wisely taken, however, as the robbing efforts could quickly be directed to other colonies in the apiary as well with undesirable consequences. This is a very real possibility during periods of light honey flow when there is no nectar available to occupy the bees.

In our opinion there is no reason that the robbing problem should get out of hand while working the bees for the purpose of requeening but if it proves to be too much of a handicap to observe the minimum precautions we would suggest requeening in the spring.

Colonies doing the robbing as well as those being robbed are usually bad tempered. I am surprised yours are not.

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Q. I am a new reader and subscriber to Gleanings in Bee Culture, but have read all your issues for the last two years thanks to my son-in-law who has judiciously saved them. However, I failed to note any mention of pollen from pine trees being useful.

We have eight acres of pines, and I noticed when I cut some down in June, that some of them were heavy with pollen; in fact as I gathered the branches up for disposal, the air was yellow with pollen.

Also, I am wondering what to do with shallow supers heavy with honey but not yet capped when I prepare for winter. I was planning on leaving two deep supers for the bees, bu if I process the honey not capped above this, I am afraid it will not be cured and may ferment.—P.Y., OH.

A. I do not believe that bees utilize pollen from pine trees, although there may be exceptions of which I am not aware.

In most cases where supers have been filled with uncapped honey in the season it is usually sufficiently low in moisture to be safely extracted and stored. Processing the honey using low heat (140 to 150°) will assure the keeping qualities of the honey despite the fact that it may not have been fully capped.

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Q. About two months ago, I obtained a copy of ABC & XYZ of Bee Culture. In reading through the book I came across the article on Hŭban Sweet Clover. Since that time I have been trying, without success, to get some seed through my local seed dealer.

Could you please send me the name and address of a supplier, if the seed is still available?—A.N., South Carolina.

A. Try Mangelsdorf Seed Co,. 4500 Swan Ave., P.O. Box 327, St. Louis, MO. 63166, Tel. 314-535-6700.

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Q. Having been a hobby beekeeper for approximately 15 years I thought I had learned a little of about everything. But the experience I am about to relate, I have never seen nor heard of.

The first super I put on this particular hive this spring was a chunk honey super. The bees filled it up and I put a regular shallow super under it. Later I checked and found that this super was over half filled.

Today, I checked the hive thinking that it was about time to put on a third super. I couldn't believe what I saw; there was not a sign of any honey in the hive, not even in the two brood chambers.

The hive is boiling with bees, so it is not likely that it was robbed. Besides there was no sign of robbers. The combs were in perfect condition.

Have you ever heard of a case where bees ate their own honey in the middle of the summer?

It is almost August, so I have apparently lost this colony long before winter. There is no way that they can store enough honey to winter them even if they wanted to. If I did get them through, do you think they would do the same thing next year?—A.M.M., NM

A. Your question outlines a problem which is rather unusual, at least in our region, and therefore I am not certain I can give you an answer. We sometimes experience an instance when the bees remove honey from the storage supers down into the brood chamber, but the honey is not used to the extent that it is completely emptied from the brood chambers. Your region may exert an entirely different demand on bees and honey storage and it may be that the requirements are such that the honey is so rapidly depleted that it appears to be robbed out as is sometimes the case in our bees.

We are not familiar with your late season honey flows, but apparently this will not suffice to fill the hive for the months during which there is a dirth of nectar. Late fall feeding may provide sufficient stores considering your climate, but then you may consider this feeding as uneconomical to preserve this colony.

Visual Aids Available on Bees

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THIS BEEKEEPING Information Sheet summarizes visual aids available through state universities and other sources. The address for each source is listed at the end of the article. Please order from the source only.

Listed Alphabetically by Title

Animal Life: Social Insects-The Honeybee; 24 min., color, produced 1961; "Shows that social insects such as the honeybee live in colonies and are divided into castes which are adapted to reproduction, population control and food gathering. Also shows the metamorphosis of a honeybee from egg to adults and the system of communication used by bees." SOURCE - UNIVERSITY OF ILLINOIS (rental $12, 2-day limit, unless otherwise requested).

Apiculture; 15 min., sound, color, produced by Allen-Moore, 1953; "Summary: Process in beekeeping and the production of honey. Includes construction of the hive, handling of supers, diseases of the hive, solar extraction (honey processing) and packaging for market." SOURCE - WASHINGTON STATE UNIVERSITY (rental $6, 1-day limit).

Apis mellifera (Apidae)—Flight Behavior and Wing Movements; 13 min., produced 1969; SOURCE - PENNSYLVANIA STATE UNIVERSITY (rental $7.70).

Apis mellifera (Apidae)—Landing and Take-Off; 8-1/2 min., produced 1969; Collecting behavior on blossoms. Honeybee. SOURCE - PENNSYLVANIA STATE UNIVERSITY (rental $6.30).

Apis mellifica (Apidae)—Fluttering Movements; 4-1/2 min., produced 1960; SOURCE - PENNSYLVANIA STATE UNIVERSITY (rental).

Appy's Adventures; 20 min., color, produced 1970; SOURCE - UNIVERSITY OF MINNESOTA (rental $10.75).

The Beekeeper; 13 min., color, produced in 1975; "Shows how a young Florida beekeeper works with his groups of hives (apiaries). Demonstrates a bee's life cycle, indicates how vital pollination is to plants, and shows some new technology in an old profession." SOURCES- UNIVERSITY OF ILLINOIS (rental $8.50, 2-day limit); KENT STATE UNIVERSITY (rental $8, 5-day limit); SYRACUSE UNIVERSITY (rental $12, 2-day limit); UNIVERSITY OF WISCONSIN-EXTENSION (rental $7.75 2-day limit).

Bee Management: Fall and Winter and Bee Management: Late Winter, Early Spring, 20 min., color, produced in 1977.

Bee Management: Fall and Winter: "Describes several techniques the beekeeper can use to prepare hives for winter. Emphasizes the importance of keeping only strong and healthy colonies, proper location of pollen and honey comb for clustering, and hive location and entrance requirements."

Bee Management: Late Winter, Early Spring: "Explores some successful hints for entering the honey/pollen season with strong and healthy bees. Includes mid-winter inspection of honey and pollen supplies, treatment of nosema, sugar feeding, supplemental pollen feeding, and trapping pollen." SOURCE - UNIVERSITY OF WISCONSIN-EXTENSION (rental $6, 2-day limit).

Bee Management: Honey Handling 17 min., color, produced in 1977; "Shows gathering, extracting and processing of honey. Covers classifying by color grade, bottling, packaging and labeling techniques. Gives helpful hints for straining, heating and marketing honey." SOURCE - UNIVERSITY OF WISCONSIN-EXTENSION (rental $5.50, 2-day limit).

Bee People 22 min., color, produced by Bill Burrud Production in 1972; "Reviews research being conducted by the Bee Research Laboratory at Tucson, Arizona. Honeybees have an important impact on agriculture. Environmental stresses are causing a decline in the number of honeybees. In an effort to reverse this trend, experiments are being carried on with artificial insemination of queen bees; pollen research to create artificial diets; immunization against disease; color recognition and sense of taste to discover which flowers bees like most." SOURCE - CORNELL UNIVERSITY (rental $12.50, 2-day limit).

Bees and Honey 19.5 min., color, sound; "A vivid and exciting picture of bees at work and the process in extracting, pasteurizing and bottling honey." SOURCE - FARM FILM FOUNDATION (rental free).

Bees and Their Habits Revised edition, 12 min., color, produced in 1975; "Shows the bee's importance to flowers and fruits through pollination, the social habits of the honeybee, the queen and her duties, the organization of the hive, swarming, and the von Frisch experiments providing the color sense of the honeybee." SOURCE - UNIVERSITY OF ILLINOIS (rental $5.75, 2-day limit).

Bees: Backyard Science 11 min., color, produced in 1967; "Shows and explains the way in which a colony of bees is formed and the manner in which the different bees in the colony do their work. Also shows the changes that take place from the time an egg is laid until the young bee is born, the gathering of pollen, and the pollination of flowers." SOURCES - INDIANA UNIVERSITY (rental $6.25, 5-day limit); SYRACUSE UNIVERSITY (rental $6.50, 2-day limit).

Bees by the Pound 14 min., color, sound, produced in 1972; "This film gives specific instruction on various techniques used to produce 600 tons of packaged bees and 400,000 queens annual in this 1-1/2 million dollar industry found only in the Sacramento Valley and the Southern U.S." SOURCE - UNIVERSITY OF CALIFORNIA, RIVERSIDE (rental $10, 1-day limit).

Bees for Hire 29 min., color, produced in 1953; "Mostly in live action with interspersed technical and cartoon animation. This film shows scenes in the normal daily life of the hive. It includes such interesting sequences as the gathering and storing of nectar, pollination, activities of the queen bees, etc." SOURCES - CORNELL UNIVERSITY (rental $12.50, 2-day limit); MICHIGAN STATE UNIVERSITY (rental $5.00, 3-day limit).

Biography of a Bee: 14 min., color, produced in 1965; "Shows the social organization and activities of bees: their division of labor, special reproduction castes, and communication ability. Observes the metamorphosis of a bee from the laying of an egg, through its development as a larva and pupa, to its emergence as an adult worker." SOURCES - UNIVERSITY OF ILLINOIS (rental $7.60, 2-day limit); KENT STATE UNIVERSITY (rental $8, 5-day limit); UNIVERSITY OF MINNESOTA (rental $6.70); MOODY INSTITUTE OF SCIENCE (rental $17, 3-day limit); SYRACUSE UNIVERSITY (rental $6.25, 2-day limit); UNIVERSITY OF WISCONSIN-EXTENSION (rental $6.50, 2-day limit).

Citrus Honey: 12 min., color; "Florida's citrus industry is interlaced with another important industry—citrus honey. This is the story of the interworking of the two and their mutal importance." SOURCE - UNIVERSITY OF FLORIDA (rental free).

City of the Bees: 28 min., color, sound, produced in 1963, revised in 1965; "Discusses the language of the bees, pollination, the bee society and its comparison to human society." SOURCE - MOODY INSTITUTE OF SCIENCE (rental $25 for one day, $12.50 for each additional).

City of Wax: 9 min., B&W, produced in 1934; "Shows the metamorphosis of the bee from larva to young worker, the activities of a colony, and the life history of a queen bee." SOURCE - KENT STATE UNIVERSITY (rental $4.75, 5-day limit).

Dances of the Bees: 33 min., silent, produced in 1950; "Stylized behavior of bees at hive. Bee returning to hive with food performs dance whose tempo and direction indicate location of food source. Not mentioned is probably role of polarized sunlight, and polarizing action of bees' eyes, in orientation." SOURCE - PENNSYLVANIA STATE UNIVERSITY (rental $8.50, 1-day limit); UNIVERSITY OF WISCONSIN-EXTENSION (rental $4.50, 2-day limit).

Development of the Honeybee and the Bee Colony: 9 min., B&W, silent, produced in 1957; "Follows the development of the honeybee from egg laying to adulthood. Shows the hive in the pre-swarming and swarming periods. A von Frisch film." SOURCE - UNIVERSITY OF WISCONSIN-EXTENSION (rental $3, 2-day limit).

Flower and the Hive: 14 min., color, produced 1960; "Shows the relationship between the activity of bees and the fertility of field and orchard crops. Close-ups shows the physical adapations of bees for gathering nectar and cross-pollinating flowers." SOURCES - UNIVERSITY OF CALIFORNIA, RIVERSIDE (rental $10, 1-day limit); UNIVERSITY OF ILLINOIS (rental $7.40, 2-day limit); SYRACUSE UNIVERSITY (rental $5.75, 2-day limit).

Flowers & Bees: A Springtime Story: 11 min., color, produced 1970; "Time-lapse photograph converts the story of spring into an art form. Nature moves and changes in a harmonic rhythm; flowers grow, open and close, turn to the sun, droop in the rain. Bees pollinate the flowers and return to their hives. A spring rainstorm disturbs the activity which begins again after the storm. A sensitive film that clearly reveals the interdependence between the insect world and the plant world." SOURCES - SYRACUSE UNIVERSITY (rental $7, 2-day limit); UNIVERSITY OF TEXAS AT AUSTIN (rental $12.24, 5-day limit).

Flowers at Work: 11 min., sound, color; "Shows the reproductive structures of a flower, explains self-pollination and cross-pollination, and pictures various flower mechanisms for insuring pollination. Points out the reproductive parts of a flower by using overprinted labels and depicts through time-lapse photography how pollination is accomplished." SOURCE - MICHIGAN STATE UNIVERSITY (rental $4, 1-3 day limit).

Her Home is a Hole: 11 min., color, sound, produced 1950; "Life Cycle of the Alfalfa Leaf Cutter bee; cell building, nectar collecting, egg laying, larva development. Benefits to the alfalfa seed industry of the Northwest." SOURCE - UNIVERSITY OF CALIFORNIA, RIVERSIDE (rental $10, 1-day limit); WASHINGTON STATE UNIVERSITY (rental $6, 1-day limit).

Hidden World (Original Version) 2 Parts: 52 min., color, produced 1967; "Reminiscent of a science fiction movie, only more breathtaking in its eerie beauty, more fascinating in its strange and vivid colors, and at times more frightening.... than Hollywood...." (Los Angeles Times). Close-ups show a dance by which one bee tells others where to find nectar, and how winged termites are sent from the home colony to find new colonies. Film includes new ideas on how insect populations can be controlled to insure protection of food, livestock and human life." SOURCE - SYRACUSE UNIVERSITY (rental $32, 2-day limit).

Honey: 9 min., color, sound, produced 1973; "Gives a short history of honey, how it is gathered, it's make-up, packaging, the forms in which it is found on the market and grading criteria, as well as how to cook with honey. " SOURCE - UNIVERSITY OF CALIFORNIA, RIVERSIDE (rental $10, 1-day limit).

The Honey Bee: 10 min., B&W, sound, produced 1940; "Unusual photographic effects describe the developments of the honeybee with emphasis on the roles of the workers, the queen and the drones. Egg, larvae, and cocoon stages in the hives of the workers are shown in detail." SOURCES - MICHIGAN STATE UNIVERSITY (rental $5); UNIVERSITY OF MISSOURI (rental $4, 2-day limit); PENNSYLVANIA STATE UNIVERSITY (rental $6.50, 1-day limit); INDIANA UNIVERSITY (rental $5, 1-5 day limit).

Honey Bee—A Profile: 12 min., color, sound, produced 1973; "The film is a detailed study of a honeybee's hive population. Extreme close-ups detail the queen, worker and drone. Ranging from the task of collecting nectar, to feeding the young, air conditioning the hive and eventually swarming to begin yet another hive. A model of a worker bee helps the viewer understand this insect's wonderous makeup." SOURCES - AIMS INSTRUCTIONAL MEDIA SERVICES, INC., (rental $20, 1-3 days limit); CALIFORNIA HONEY ADVISORY BOARD (rental free); UNIVERSITY OF CALIFORNIA, RIVERSIDE (rental $10, 1-day limit); CORNELL UNIVERSITY (rental $7.50, 2-day limit); MICHIGAN STATE UNIVERSITY (rental $5.50); OHIO STATE UNIVERSITY (rental free).

The Honeybee: A Social Insect: 6 min., color, produced 1955; "Describes the life cycle of the honeybee, indicates the three types of bees, and explains the duties of each group. Explains the meaning of the term 'social insects' and describes the characteristics of such insects." SOURCE - UNIVERSITY OF ILLINOIS (rental $5.05, 2-day limit, unless otherwise requested); KENT STATE UNIVERSITY (rental $6.50, 5-day limit); WASHINGTON STATE UNIVERSITY (rental $4.20, 1-day limit).

Honey is a Golden Harvest: 8 min., color, sound, produced 1973; "A film on the commercial processing of honey with the harvest at the apiary to the purchase at the supermarket." SOURCE - UNIVERSITY OF CALIFORNIA, RIVERSIDE (rental $10, 1-day limit).

Honeymakers: 22 min., color, produced 1951; "Pictures the year-round activities of a hive of honeybees. Explains the role of pollen as food, and shows how bees gather it. Also pictures the extracting of honey and beeswax from a hive." SOURCE - UNIVERSITY OF ILLINOIS (rental $8.20, 2-day limit, unless otherwise requested).

Honey—Nature's Golden Treasure; 14 min., B&W, sound, produced 1966; "Excellent photography showing the types and uses of honey." SOURCES - CALIFORNIA HONEY ADVISORY BOARD (rental free); UNIVERSITY OF CALIFORNIA, RIVERSIDE (rental $10, 1-day limit); KENT STATE UNIVERSITY (rental $6.50, 5-day limit).

Honeybees and Pollination; 30 min., color, sound, produced 1956; "Relationship between the activity of bees and the fertility of field and orchard crops; cross pollination of flowers, life in the hives, and the dance by which a successful bee tells other bees where its honey was found shown in closeup photography; warns against indiscriminate use of sprays which can destroy bees." SOURCE - WASHINGTON STATE UNIVERSITY (rental $7.30, 1-day limit).

In Search of Killer Bees: 24 min., color, produced 1976; "Shows supposedly deadly African killer bees, imported to South America and accidentally released, are now breeding and migrating northward at a rate that could mean infestation in the U.S. in less than 20 years. Film explores ways to destroy them, but nobody knows how yet." SOURCES - UNIVERSITY OF MINNESOTA (rental $12); SYRACUSE UNIVERSITY (rental $22, 2-day limit).

Insects Helpful to Man: 17 min., color, produced 1977; "Shows how man benefits from the activities of some insects. Pollination and manufacture of honey by bees are covered in detail. Creation of silk by the silkworm, scavenging of waste materials by maggots and dung beetles and the biological control of harmful insects by ladybugs and ichneumon flies are also illustrated." SOURCE - SYRACUSE UNIVERSITY (rental $13.50, 2-day limit).

Killer Bees—Fact or Fantasy: 14 min., color; "Explores the myths surrounding

these highly publicized "sci-fi" creatures. The film focuses on a major USDA funded research project in French Guiana where a team of scientists is studying the behavior and life cycle of these energetic honey gatherers. This film offers a calm and factual view of the so-called "killer bee". SOURCE - SEA INFO. DIVISION (rental free).

Language of the Bee: 15 min., color, produced 1965; "A case history of the scientific method. Shows the methods used by Dr. Karl von Frisch and other scientists to study the system by which bees communicate information concerning the direction and distance of a food supply from the hive." SOURCES - UNIVERSITY OF ILLINOIS (rental $8.00, 2-day limit, unless otherwise requested); KENT STATE UNIVERSITY (rental $8, 5-day limit); UNIVERSITY OF MINNESOTA (rental $6.70); MOODY INSTITUTE OF SCIENCE (rental $17, 3-day limit); SYRACUSE UNIVERSITY (rental $6.50, 2-day limit); THE UNIVERSITY OF TEXAS AT AUSTIN (rental$14.39, 5-day limit).

Life Cycle of a Honeybee: 12 min., color, produced 1976; "Provides basic information about how the honeybee society functions. Uses close-ups to show the role of the queen bees, workers and drones. Illustrates swarming activity and how bees communicate the location of food to each other." SOURCE - UNIVERSITY OF WISCONSIN-EXTENSION (rental $6, 2-day limit).

Marvels of the Hive: 20 min., color; "Life cycle of the bee showing the nature of the hive colony, distribution of the labor and social functions, structure of the honeycomb and instinctive behavior; defense against intruders; communications." SOURCE - MICHIGAN STATE UNIVERSITY (rental $8); OHIO STATE UNIVERSITY (rental free).

Mathematics of the Honeycomb: 13 min., color; "The honeybee is amazing for its economy in the use of wax in building honeycomb. No other shape of cell is as economical of space and material as the hexagonal. Studies demonstrate that, besides being economical, the hexagonal pattern of the honeycomb is the best for stress distribution. It is the strongest engineering design." SOURCES -INDIANA UNIVERSITY (rental $7.75, 1-5 days limit); KENT STATE UNIVERSITY (rental $8, 5-day limit); UNIVERSITY OF MISSOURI (rental $6.50, 2-day limit); MOODY INSTITUTE OF SCIENCE (rental $17, 3-day limit); OHIO STATE UNIVERSITY (rental free); SYRACUSE UNIVERSITY (rental $6, 2-day limit).

Mating Behavior of the Honeybee: 13 min., color, sound, produced 1972; "shows the conditions under which the queen bee and drones mate. Dr. Norman Gary explains some of the honeybee mating experiments that he has set up and carried. Specially designed equipment is shown." SOURCES - CORNELL UNIVERSITY (rental $7.50, 2-day limit); PENNSYLVANIA STATE UNIVERSITY (rental $9.50, 1-day limit); WASHINGTON STATE UNIVERSITY (rental $11.40, 1-day limit); UNIVERSITY OF WISCONSIN-EXTENSION (rental $5.75 2-day limit).

Miracle of the Bees: 18 min., color, produced 1955; "Shows the complete life cycle of the bee and the production of honey through the seasons. Close-ups of the physical development of the queen, drone and worker bees are shown through a cross-section of the hive." SOURCE - CORNELL UNIVERSITY (rental $10, 2-day limit).

Observing, Recording, Mapping and Graphing While Studying the Habits of Honeybees: 15 min., color, produced 1975; "Uses the study of the behavior and characteristics of bees to explain scientific methods of observation, recording facts, drawing accurate maps, and making meaningful graphs. Explains differences between terms such as qualitative, observe and infer." SOURCE - KENT STATE UNIVERSITY (rental $8, 5-day limit).

Pollen and Nectar Gathering in the Honeybee: 6 min., B&W, silent, produced 1956; "Shows a honeybee gathering pollen and the behavior of that bee and others in the hive when it returns. Shows a bee gathering nectar and its behavior on returning to the hive. Shows bees in close-up." SOURCE - UNIVERSITY OF WISCONSIN-EXTENSION (rental $3, 2-day limit).

The Pollination of Alfalfa: 28 min., color, sound, produced 1973; "Film depicts the essential function of bees in pollination, and shows how seed production can be increased greatly through the cooperation between growers and beekeepers. Especially valuable in areas where alfalfa and other forage crops are grown for seed." SOURCES - UNIVERSITY OF CALIFORNIA, RIVERSIDE (rental $10, 1-day limit); OHIO STATE UNIVERSITY (rental free).

Pollination of Alfalfa by Honeybees: 28 min., color; "Film opens with amazing close-up of a bee actually stinging a human hand, then continues to demonstrate the other side of bees—the vast agricultural value in the pollination process". SOURCE - MICHIGAN STATE UNIVERSITY (rental $5).

Putting Wild Bees to Work: 26 min., color, produced 1974; "The film covers the biology of two alfalfa pollinators, the alfalfa leaf-cutting bee and the alkali bee. The nesting behavior (provisioning, egg laying, cocooning, etc.), parasites, control measures, and economic importance is shown. This film has many close-ups of different life states of these important pollinators." SOURCES - PENNSYLVANIA STATE UNIVERSITY (rental $13.50, 1-day limit); UNIVERSITY OF WISCONSIN-EXTENSION (rental $3, 2-day limit).

Secret in the Hive: 33 min., color, produced 1969; "Explains the life cycle of the honeybee colony. Through close-up photography, with some microphotography, the habits and duties of the queen bee, drones and workers are examined. A series of experiments illustrates a language bees use to communicate with others in the colony." SOURCES - UNIVERSITY OF CALIFORNIA, RIVERSIDE (Rental $10, 1-day limit); CORNELL UNIVERSITY (rental $20, 2-day limit); UNIVERSITY OF ILLINOIS (rental $15.20, 2-day limit, unless otherwise requested); UNIVERSITY OF MISSOURI (rental $12, 2-day limit); PENNSYLVANIA STATE UNIVERSITY (rental $19.50, 1-day limit); UNIVERSITY OF MINNESOTA (rental $14).

Secrets of the Bee World: 13 min., color, sound, produced 1960; "Follows the life cycle of the honeybees, with attention to community organization within the hive and reproduction. Includes the processes involved in wax making, comb structure, pollen gathering, and production and storage of honey." SOURCES - CALIFORNIA HONEY ADVISORY BOARD (rental free to California groups); UNIVERSITY OF CALIFORNIA, RIVERSIDE (rental $10, 1-day limit); CORNELL UNIVERSITY (rental $12.50, 2-day limit); INDIANA UNIVERSITY (rental $8.25, 1-5 day limit); MICHIGAN STATE UNIVERSITY (rental $5.50; UNIVERSITY OF MISSOURI (rental $6.50, 2-day limit); SYRACUSE UNIVERSITY (rental $5.50, 2-day limit); UNIVERSITY OF TEXAS AT AUSTIN (rental $9, 5-day limit); UNIVERSITY OF MINNESOTA (rental $6.70).

Social Insects: 15 min., color, produced 1977; "Most insects live alone and seed others of their own kind only for breeding. Aphis, for example, stay together but each one feeds and reproduces on its own. The honeybee represents the insect's height of social development, living in a colony under strict social rules, with a division of labor between pollen collectors and workers who reproduce eggs for the next generation." SYRACUSE UNIVERSITY (rental $13, 2-day limit).

Social Insect: Honeybees: 24 min., color; "Dr. Alfred E. Emerson, one of the world's foremost authorities on social insects, gives commentary on this most familiar and popular insect. Suggests interesting comparisons between their social life and human society. Dr. Emerson is at the University of Chicago." SOURCES - MICHIGAN STATE UNIVERSITY (rental $9); UNIVERSITY OF MISSOURI (rental $10.50/color, $7/B&W, 2-day limit); SYRACUSE UNIVERSITY (rental $11, 2-day limit); UNIVERSITY OF TEXAS AT AUSTIN (rental

$18.48, 5-day limit); INDIANA UNIVERSITY (rental $12.50, 1-5 day limit); KENT STATE UNIVERSITY (rental $12, 5-day limit); UNIVERSITY OF MINNESOTA (rental $16.45); PENNSYLVANIA STATE UNIVERSITY (rental $19.50, 1-day limit); UNIVERSITY OF CALIFORNIA, RIVERSIDE (rental $10, 1-day limit); WASHINGTON STATE UNIVERSITY (rental $7.80, 1-day limit).

Story of the Bees: 22 min., B&W, sound, produced 1948; "Zoology series. Life cycle of the bee from the laying of egg through the development of larva and emerging of mature insect." SOURCES - INDIANA UNIVERSITY (rental $7.25, 1-5 day limit); UNIVERSITY OF MINNESOTA (rental $5.05); PENNSYLVANIA STATE UNIVERSITY (rental $7.50, 1-day limit); WASHINGTON STATE UNIVERSITY (rental $5.30, 1-day limit).

Swarming in Honeybees: 8 min., color, produced 1964; "Honeybees swarm when their numbers become too great in the hive. Some must then leave to find a new location. Explores factors which hold the bees together while swarming, particularly the influence of odoriferous secretions to orient the swarm." SOURCE - Cornell University (rental $5, 2-day limit).

Visit to a Honeybee Farm: 10 min., color; "Gary, the beekeeper, takes two young children on an exciting tour of the honeybee farm. They observe the bees gathering the nectar from the blossoms and returning with it to the hive where it is made into honey and stored in wax cells. Extraction and Bottling is also discussed." SOURCE - UNIVERSITY OF MISSOURI (rental $6.50, 2-day limit); SYRACUSE UNIVERSITY (rental $8.50 2-day limit).

What Makes Honey So Good?: 4.05 min., color; "Shows the process of converting nectar to honey by honeybees and the many uses of honey." SOURCE - OHIO STATE UNIVERSITY (rental free).

World of the Bees: 23 min., color, produced 1972; "Introductory film on the life-style of bees. Shows bees at work, bee pollination of flowers, collecting nectar and pollen, and the organization of the colony. Discusses the elementary biology of the honeybee and its relationship with flowering plants." SOURCE - CORNELL UNIVERSITY (rental $12.50, 2-day limit).

SLIDES

A Bee or Not a Bee: 40 slides, color, pre-recorded cassette tape, printed script. "Discusses the differences and similarities between termites, ants, wasps and bees. It shows actual specimens of many honeybee look-a-likes for general public and beekeeper education." SOURCE - OHIO STATE UNIVERSITY (rental free).

Beekeeping from the Beginning: 14—2X2 slides, color, script, cassette, produced 1973; "Beekeeping can be fun as well as profitable. Shows the necessary equipment and tells how to care for it. Handling a new colony of bees and the introduction of the queen bee is also explained." SOURCE - UNIVERSITY OF CALIFORNIA, EXTENSION (rental $3 1st day, $2 each additional day).

Bees—The Plant Pollinators: 19—2X2 slides, color, script, cassette, produced 1973; "Bees are an important agricultural tool in crop pollination. Special attention is paid to the use of bees in almond and alfalfa seed crops. Explains the life styles of the leafcutter and the alkali bee and how many has provided better nesting facilities for these bees who in turn pollinize our crops." SOURCE - UNIVERSITY OF CALIFORNIA, EXTENSION (rental $3 1st day, $2 each additional day).

Bee Stings: 9—2X2 slides, color, script, cassette, produced 1973; "You'll live or die with this presentation of a bee stinging a person. Tells how to avoid painful results of a bee sting by removing the poison sac." SOURCE - UNIVERSITY OF CALIFORNIA, EXTENSION (rental $3 1st day, $2 each additional day).

California's Honeybee Industry: 42—2X2 slides, color, script, produced 1970; "Describes the California beekeeping industry. This slide set was prepared to help farm and home advisors, as well as the general public, to tell the story of this very important segment of California agriculture." SOURCE - UNIVERSITY OF CALIFORNIA, EXTENSION (rental $3 1st day, $2 each additional day).

Honeybee Diseases: 25 slides, color, cassette tape, printed script; "Shows American foulbrood, European foulbrood, sacbrood, nosema, chalkbrood, bee paralysis. Shows what the beekeeper should look for, how to tell different diseases apart, and which to worry about." SOURCE - OHIO STATE UNIVERSITY (rental free).

Honeybee: 13—2X2 slides, color, script, cassette, produced 1973; "Honeybees shown in their natural setting and in their man-made home, the common two-story hive. Drone, worker, queen bees are described and shown in their hive with a discussion of their development." SOURCE- UNIVERSITY OF CALIFORNIA, EXTENSION (rental $3 1st day, $2 each additional day).

The Honeybee and Pollination: 81 slides, color, pre-recorded cassette tape, printed script; "This set is an excellent introductory set, and was originally developed by an Ohio beekeeper-educator who presented programs to school children. Beekeepers and non-beekeepers alike enjoy this set, which discusses the basis of beekeeping, bee development, bee behavior, swarming, honey production, and the role bees play in pollination." SOURCE - OHIO STATE UNIVERSITY (rental free).

Honey from the Honeycomb: 18—2X2 slides, color, script, cassette, produced 1973; "Production of honey from the supers in the beehive throughout the final consumer packaging is pictured. Gives address of the California Honey Advisory Board as well as stating production figures." SOURCE - UNIVERSITY OF CALIFORNIA, EXTENSION (rental $3, 1st day, $2 each additional day).

Installing a Package of Honeybee into a Beehive: 8—2X2 slides, color, script, produced 1966; "One method for installing a package of honeybees into a beehive. Especially good for 4-H Farm Advisors in relation to the 4-H Beekeeping Project." SOURCE - UNIVERSITY OF CALIFORNIA, EXTENSION (rental $3 1st day, $2 each additional day).

Plants Important to Honeybees: 80 slides, color, pre-recorded cassette tape, printed script; "This set is a compilation of slides from several apiculturists and summarizes many of the U.S.'s most important bee plants. It discusses the role of pollen, nectar, and water to the bee and takes the viewer through the season with the different types of plants found in many areas." SOURCE - OHIO STATE UNIVERSITY (rental free).

Watering Honeybees: 11—2X2 slides, color, script, cassette, produced 1973; "Bees need water just like we do. If the easiest place to get water is in our swimming pool, they may give the bather a problem. Providing a separate watering place for the bees will help." SOURCE - UNIVERSITY OF CALIFORNIA, EXTENSION (rental $3 1st day, $2 each additional day).

TELEVISION TAPES

Bees and Honey: 6 half-hour 3/4 inch Sony U-Matic color video-cassettes; "Describes how to get started in beekeeping. Titles include: "Introduction to Bees and Beekeeping"; "The Basics of Beekeeping"; "Package Bees"; "Management Technique"; "The Honey Crop"; "Wintering"; "Diseases and Special Practices". SOURCE - UNIVERSITY OF GEORGIA CENTER FOR CONTINUNING EDUCATION ($10/cassette or $40 for the series of six when ordered together, $1/cassette charged for shipping. Also offered free to PTV stations on 2 inch quad tape).

Honeybee Colony in Spring: 4.30 min., color; "This is a sequel to "Midwinter Honeybee Colony", and tells how the honeybees live in the spring." SOURCE - OHIO STATE UNIVERSITY (rental free).

Midwinter Honeybee Colony: 4.30 min., color; "Shows the pattern of life of

the honeybees in midwinter and explains how the bees survive the cold." SOURCE -OHIO STATE UNIVERSITY (rental free).

Pollination of Alfalfa: 3.50 min., color; "Illustrates the activities of bees in pollinating farm crops." SOURCE - OHIO STATE UNIVERSITY (rental free).

FILM SOURCES

AIMS INSTRUCTIONAL MEDIA SERVICES, INC., 626 Justin Avenue, Glendale, CA 91201.

UNIVERSITY OF CALIFORNIA-EXTENSION, Visual Aids, Davis, CA 95616.

UNIVERSITY OF CALIFORNIA, RIVERSIDE, Visual Aids, Cooperative Extension, Riverside, CA 92521.

CALIFORNIA HONEY ADVISORY BOARD, Box 32, Whittier, CA 90608.

CORNELL UNIVERSITY, Film Library, 55 Judd Falls Road, Ithaca, NY 14853.

FARM FILM FOUNDATION, Southern Bldg., Suite 424, 1425 H Street, NW, Washington, D.C. 20005.

UNIVERSITY OF FLORIDA, Dept. of Commerce, Audio/Visual Library, Collins Bldg., Tallahassee, FL 32304.

UNIVERSITY OF GEORGIA, Center for Continuing Education, Athens, GA 30602.

UNIVERSITY OF ILLINOIS, Visual Aids Service, 1325 South Oak Street, Champaign, IL 61820.

INDIANA UNIVERSITY, Audio-Visual Center, Bloomington, IN 47401.

KENT STATE UNIVERSITY, Audio Visual Services, Film Rental Services, Kent, Ohio 44242.

MICHIGAN STATE UNIVERSITY, Instructional Media Center, Office-Campus Scheduling Office, East Lansing, MI 48824.

UNIVERSITY OF MINNESOTA, Audio-Visual Library Service, Continuing Education & Extension, 3300 University Avenue, SE, Minneapolis, MN 55414.

UNIVERSITY OF MISSOURI, Academic Support Center, Film Library, 505 East Stewart Road, Columbia, MO 65211

MOODY INSTITUTE OF SCIENCE, 12000 East Washington Blvd., Whittier, CA 90606.

THE OHIO STATE UNIVERSITY, John V. Schmidt, Extension Film-TV Library, Room 26, 2120 Fyffe Rd., Columbus, OH 43210.

THE PENNSYLVANIA STATE UNIVERSITY, Audio-Visual Services, Special Services Bldg., University Park, PA 16802.

SEA INFO. DIVISION, 5142 South Building—USDA, Washington, D.C. 20250.

SYRACUSE UNIVERSITY, Film Rental Center, 1455 East Colvin St., Syracuse, NY 13210.

THE UNIVERSITY OF TEXAS AT AUSTIN, Film Library, P.O. Box 2, Austin, TX 78712.

WASHINGTON STATE UNIVERSITY, Audio-Visual Center, Pullman, WA 99163.

UNIVERSITY OF WISCONSIN-EXTENSION, Bureau of Audio-Visual Instruction, 1327 University Ave., Madison, WI 53701.

Strictly Backlot

By CARL CALLENBACH
135 College Avenue
Elizabethtown, PA 17022

OCCASIONALLY a fellow ought to get around to trying to answer the letters sitting atop his desk or rattling around inside his head. There's a couple here, you'll see, that I need some help with. Maybe more than a couple!

Dear Carl:

My husband, an antique backlotter if there ever was one, smells like an old billy goat when he comes in from working his bees. I know it's the smoker and nothing inherent in the man himself. It's made him that way for almost thirty years now, especially in his head and beard. He says he can't help it; it's smoke or be stung. And he's tried burlap, corn cobs, old binder twine and shavings. Corn cobs aren't too bad, but they're not fresh mountain air either, if you know what I mean. Anyhow, I thought maybe you would know of something new on the market, something that wouldn't smell, or if it did, it would smell like rum-scented baby talcum powder.

Sincerely,
Mrs. A.K. (Poughkeepsie, NY)

Dear Mrs. A.K.:

Maybe some of our readers can help you, but I know of nothing that burns in a bee smoker and has no odor, nor do I know of anything your husband could burn in his bee smoker and produce the rum-scented baby talcum powder aroma you desire. All I can say is be glad he doesn't skin skunks for a hobby. And you owe all the goat fanciers out there an apology.

Dear Carl:

I thought your article about parenting an only hive was stupid. We beekeepers should strive to keep all that sociological and educational jargon and garbage out of our heads. It wasn't very funny!

Sincerely,
Mr. L.P. (Charleston, WVA)

Dear Mr. L.P.:

Go and soak your head in baby powder.

Dear Carl:

I'm very concerned and disturbed about how most articles and stories in bee magazines and books treat catching swarms so **casually**. If it keeps up, everybody will get into the act, like fishing. What I'm trying to say is that the general public is in danger of losing the mystique usually associated with hiving a swarm. Only yesterday, I was out catching a swarm and the few people who crowded around didn't offer one "He must be crazy." In fact, a young woman said, "I read somewhere that swarms are usually quite passive and easily hived." Then she yawned and returned to her secretarial post at the local meat packaging plant. Just two years ago I would have drawn maybe fifteen or twenty anxious people with plenty of **Oh's and Ah's**. One year two women fainted. Yesterday two were talking about missing their favorite game show on the tube.

What I want to know is how can we get the old **bravado** back into hiving a swarm? How can we make capturing a

swarm HEROIC like it used to be in the good old days?

Sincerely
Mr. K. H. (Portage, WI)

Dear Mr. K.H.:

I entirely agree with you. Hiving a swarm isn't what it used to be. Not that I want a drum and bugle corp or even too much applause. But it is time something is done about it! That's why I'm today initiating the first annual **How I (Heroically) Caught Swarm** Contest. I'm counting on a lot of other backlotters out there feeling the same way you and I do, Mr. K.H. and anyone out there wishing to enter the contest should have his or her story written and mailed to me before December 1. I hope to include the winner's story (all or in part) in a future column. Entrants should remember that the sole criteria for judging, as you might have guessed, is how heroic the tall (or short) tale is! The prize, as you may not have guessed, is a can of baby talcum powder.

Dear Carl:

With the price of oil and energy, in general, going out of sight---and the price of honey staying relatively stable---I was wondering what you thought about heating a house with honey. I am currently---and experimentally---converting my small cottage from oil to honey. I'm designing bee panels which will slide into the north and west walls, floor to ceiling, with bee escapes and entrances to the exterior walls. Entire panels will be removable for hive manipulation. The interior facing will be opaque glass through which heat from the bees will be transferred to the living quarters. A thermostat will regulate a heat shield, controlling the amount of heat radiating from the panels into the rooms, or exhausted by fans through external vents.

During the summer, in our climate, the heating system should run independently; if needed, in cool weather I plan to feed the bees honey through built-in feeders in each panel.

By the time I have the panels perfected, I figure the price of oil and gas will have surpassed the price of honey and that the system may be marketable. What do you think?

Sincerely
J.L. (Raliegh, NC)

Dear J.L.:

Frankly, I'm flabberghasted, at a loss for words, furious at myself for not dreaming up the idea myself. I'm going to go directly to the market, buy a can of rum-scented baby talcum powder, and soak my head in it.

Disappearing Disease ...A Behavioral Problem

By JOE TRAYNOR
Bakersfield, CA

A RECENT REVIEW by Wilson and Menapace (12,13) summarizes much of the published information on disappearing disease but does not come up with a completely satisfactory explanation of the problem. There is still confusion as to an adequate definition of the problem and there is even ambiguity surrounding the name of the disease. The **ABC & XYZ of Bee Culture**, 1972 edition (9), states "fortunately the disease soon disappeared after reaching a certain height, and hence it has been called 'disappearing disease'" while in the general usage definition it is the bees that disappear. Perhaps a better name would be disappearing, disappearing disease (DDD).

One misconception is that DDD is a relatively new problem, starting in the 1960's: "Wilson believes it is no accident that deBessonet's (a Louisiana beekeeper's) apiary was the first to report the mysterious disappearing phenomenon (in the early sixties) since it was located just 30 miles from the lab where the experiments with African semen were conducted" (8) and "the advent of disappearing disease has been traced by Wilson to the importation of Africanized honeybee stock into Louisiana in the early sixties.... The first reports of disappearing disease came in 1961-62 from the Sacramento Valley of California" (4) lends credence to this theory although "There were also reports of disappearing disease in the 1800's and the early 1900's—decades before the **adansonii** were even in Brazil, Wilson admits." (4).

Indeed, there are a number of such reports. The **ABC & XYZ of Bee Culture** (1972 edition) catalogs some of these early reports and classifies them as disappearing disease. For every published report on DDD it is likely that there are 10 unpublished occurrences experienced by beekeepers—the ratio could well be over 100 to 1 (most beekeepers are too busy working to write of such occurrences). Only the most severe and notable cases of DDD are likely to be published and it is reasonable to assume that there are all gradations of the "disease", from severe to mild. It is probably the rare beekeeper that has not experienced an unexplained loss of field bees at one time or another.

The most consistent thing about DDD is it's inconsistency—it strikes capriciously and may hit an area one year but not the next. Another capricious force in this world is the weather (esp. in spring and fall) and reports of DDD are frequently associated with weather changes and occur more often in areas where sharp weather changes are not uncommon. The typical case of DDD has been described by Wilson (4) "as a beautiful spring when divisions are made or packages installed. A late cold front brings a spell of damp, cold weather that confines the bees. When the beekeeper checks his colonies, he finds many empty colonies and the rest weakened" and by Witherell (14) as: "1. Colonies die or dwindle with plenty of stores on hand. 2. Affected colonies are usually queenright. 3. Most of the bees usually die in the field, not in the hive. 4. Most or all cases occur during the spring and fall when the weather is cool."

Weather, particularly sunlight, has a major effect on nectar secretion of many plant species (2,11). Although cloud cover is rarely mentioned in DDD reports, it can be inferred that reported weather changes include changes from sunny to overcast weather. Abrupt termination of the nectar flow has been associated with DDD (12): in the oft quoted "Louisiana incident" of the early sixties "some beekeepers reported better than normal fall honey and pollen flow and brood rearing" in one area and in another area "there was a fall honey flow following a summer dearth."

What happens when a nectar flow is abruptly terminated? Do the bees discover the flowers have no nectar and return to the hive after a few tries; or do they forage so far from the hive in their search for nectar that they cannot return because of adverse weather and/or lack of fuel, as has been suggested (1,13)?

Behavioral research has shown that animals (e.g., pigeons, rats) can be trained to make a response (e.g., press a key) in order to obtain a reward (food) (3, 10). Once the response has been conditioned, the animal will make it even if the food is not there. If the reward (food) is continually absent, the response will eventually be extinguished—how quickly it is extinguished depends on how strongly the initial response was ingrained (conditioned) in the animal.

Behavioral psychologists are fond of using the example of gambling to show that man is not immune to such response-reward training. The gambler who is rewarded a few times at the slot machine or blackjack table often contin-

ues to make the same response (plunk down money) until he is out of money. Take the case of two young men just introduced to gambling—one hits a losing streak right off the bat and will probably discontinue playing after a short time; the other hits a winning streak (read nectar flow) and continues playing after his luck changes because experience has taught him that the reward will be forthcoming—he continues to play until he runs out of money (read fuel). Carrying the analogy further, the gambler of the 2nd type might disappear from home and, if he returns at all, might be found on his front entrance, tired and hungry and acting irrationally.

Much of the foraging behavior of bees is learned behavior (5). The response (visiting flowers) that provides a bee with a reward during a nectar flow is probably difficult to extinguish if the nectar flow comes to an abrupt halt. The amount of time it takes for the response to be extinguished is probably related to the degree of conditioning. These loads of bees in the same area might respond differently to termination of a nectar flow if there immediate past conditioning had been different (e.g., due to different locations). This might explain differences in "resistance" to disappearing disease among hives in the same area.

It is a fact that the disappearing bees fly out and don't return. This can be attributed to an ever widening search for nectar until the bees are led past the "point of no return" (1). It is more likely that the bees continue working on the **same** flowers in the **same** area where they have previously been rewarded and continue working them until they either run out of fuel or cannot return because of adverse weather. If such was the case, a load of bees close to a source of nectar that was suddenly shut off would need less fuel to return home and might lose less bees than a load a mile or two away from the nectar source. This could also explain differences in "resistance" to disappearing disease among hives in an area.

All of the information on disappearing disease points to a behavioral problem as the cause. This is not a new or startling conclusion. Wilson and Menapace (13) state "since bees in colonies that are losing their populations have a tendency to fly out and disappear during inclement weather (or abscond if the nectar flow is interrupted), the failure of individual bees to return to the hive could be the result of chilling in flight, insufficient honey in the stomach to sustain the return flight, or improper orientation, all of which are physiological-behavioral functions." The use of the word "abscond" (to leave secretly) is not proper here because it attributes a human characteristic to bees—the bees do not abscond, they leave the hive and don't come back. Absconding is an undesirable trait and it is not difficult to assume a genetic basis for an undesirable trait; acceptance of the word "abscond" allows one to accept more easily Wilson and Menapace's hypothesis: "In our opinion such problems, including absconding, could be caused by genetic deficiencies that are enhanced by stress (i.e. cool, damp weather)." (13).

It is more likely that DDD is solely a behavioral problem caused by delayed extinguishment of a learned, conditioned response. Response-reward behavior is universal to all animals and has no (or negligible) genetic basis. It is likely that DDD has always been with us and always will be with us.

Because DDD investigations are made after the fact, precise information about what happens during the course of the disease is limited. In 1965 a concentrated effort was made to get such information, starting well in advance of the onset of the disease (6); the efforts failed because the disease didn't show up that year. The unpredictability of the disease has discouraged similar monitoring efforts, however a better understanding of the disease will come only when more information is available on such facets as:

1. Sunlight and temperature data before and during the disease.
2. Where do the bees die?
3. What is the content of their honey stomachs?
4. What plant species are providing nectar and does nectar secretion in these species respond sharply to sunlight and temperature changes?
5. How much nectar is the primary food source supplying before and during the disease?

It could be argued that the DDD problem should not be solved because knowledge of the answer would be less satisfying than speculating about the answer. To most of us, armchair research is far more enjoyable than the painstaking accumulation of data.

(Continued on page 543)

YOUR HOST FOR THE
1980
AMERICAN BEEKEEPING FEDERATION
CONVENTION

CONVENTION UPDATE

THE 1980 American Beekeeping Federation Convention will conduct a traditional "Honey Show". Every beekeeper, large or small has a unique opportunity to compete on a national level for recognition of their ability to package and present the "Liquid Gold" their honeybees work so hard to garner.

Now is the time to get your entries ready. Carefully look over your honey crop and make selections to match the various entry categories. Your product will be judged by experts who have had years of experience to back up their expertise in honey evaluation.

First place winners in each category will receive a blue ribbon plus an additional trophy prize of Oneida silver. The Best of the Show will receive an extra special silver prize. The competition is keen but don't let it stop you from making an entry.

To add frosting on the cake, all the honey will then be auctioned off to the highest bidder with the money going to support the Honey Queen program. Your prize winning honey will be sold at amazingly high per pound prices.

Make plans to attend the convention January 21-25, 1980 in Dearborn, Michigan at the Hyatt Regency and don't forget to bring your "honey".

Honey Show Committee (313) 624-1067.

High Speed Application of Comb Cleaner

By CHARLES P. REINERT, PH.D.*
Garwin, MN

HAVE YOU EVER thought about using the new biological product, Comb Cleaner, only to be discouraged by the time it may take to treat the combs? Most of the research work which has been done with the use of the fungus **Penicillium waksmani** in Comb Cleaner has involved treatment of a relatively small number of combs, with the water based solution applied carefully and painstakingly by hand, a method far too time consuming if one has several thousand combs to treat. This was the problem we encountered when we began using Comb Cleaner about five years ago.

Our first trials were with a little hand operated trigger sprayer of the kind used in service stations for cleaning windshields. Far too slow, we quickly abandoned it for the "obvious" solution of simply dipping the whole super of combs into the solution of Comb Cleaner. Dipping was, however, very unsatisfactory since the solution would not enter the cells because of entrapped air within the cell. After a season of trying devices ranging from simple paint sprayers (spray too fine) to a garden "trombone" sprayer (spray pattern good but still too slow), we still were not satisfied. Regardless of the type of sprayer used, we still had to lift the combs out of the super, treat them and replace in the super. A technique of treating in the super, without removal, was obviously necessary. Finally, after much wasted effort and sleepless nights, we hit upon the gadget shown in Figure 1.

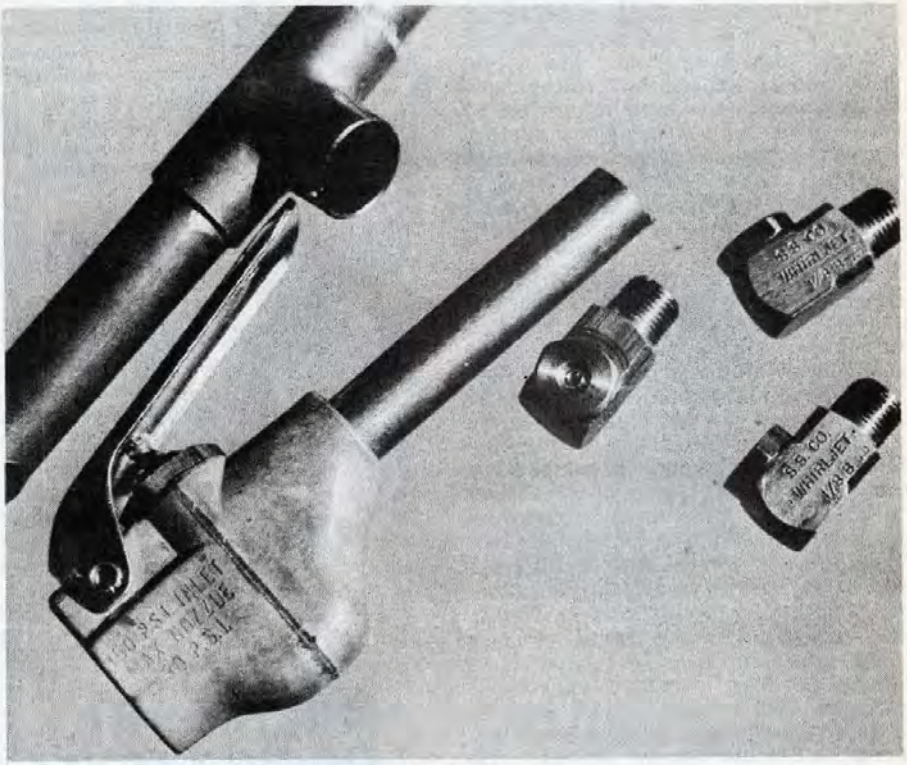


Figure 1 High speed spray wand, as assembled.

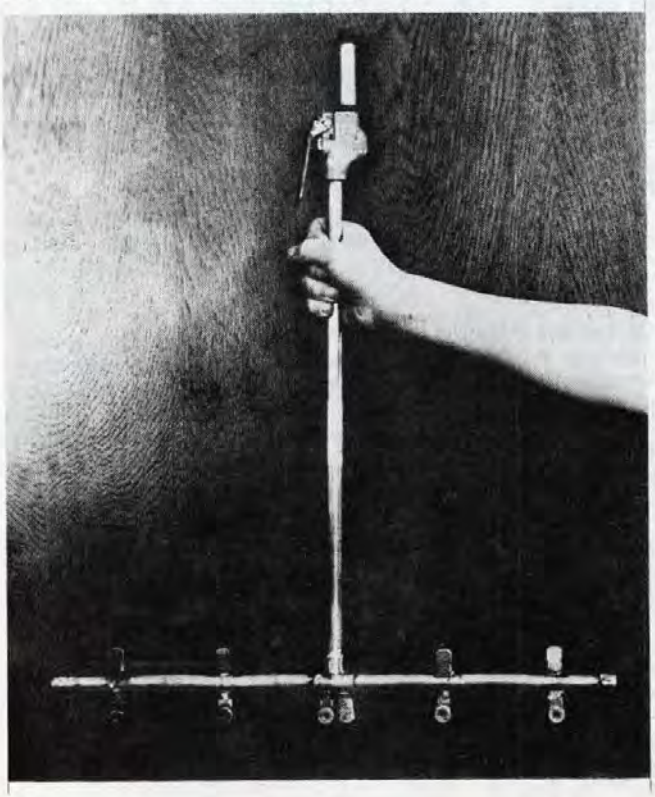


Figure 2 Principle parts of the spray wand, showing 5/8 inch O.D. copper tubing, Milton Blo-Gun and Whirljet nozzles.

This multiple nozzle spray wand has 10 individual nozzles, spaced 3-1/2 inches apart along a piece of 5/8 inch O.D. copper tubing, and oriented with half the nozzles facing each way. The nozzles are Whirljet #1/8 B. 5, by Spraying Systems Co. (North Avenue at Schmale Road, Wheaton, Illinois), and cost about $1.50 each. Mount them by first drilling with a 11/32 inch bit through the copper tubing, then reaming carefully with a 3/8 inch bit. This will be just the right size so that the male threads of the nozzles will screw nicely into the copper tubing for soldering.

The valve for the spray wand is an ordinary Milton "Blo-Gun", normally used on the end of a compressed air hose. Cut off the tip and connect to the spray wand with a simple copper reducer. The essential parts for the wand are shown in Figure 2.

You'll need a motor driven gear pump to supply the spray wand with a pressure of about 40 psi of solution. We mix ours in an old barrel, feed this to the gear pump with a hose, then from the pump to the wand with another hose. Pressure can

(Continued on page 543)

Mystery of the Hill Hive

"She ran around fine but couldn't fit out through the entrance or climb the walls to escape, then she just went into a corner and looked up as if to say 'Who, me?'."

By HAROLD E. VAUGHN
Sparta, NC

WHEN I PUT my bees to bed for their long cold rest, I was well aware that the winters in the Blue Ridge Mountains of North Carolina are not known for their mild disposition. October and November were surprisingly mild this year and December didn't even bring any of the usual snow. As a matter of fact most farmers in this area waited until the middle of December to start feeding hay to their cattle. With the coming of the new year, the only winter we had experienced was a little cold wind and a lot of rain. By contrast, January seemed to be trying to make up for all the cold snow and piercing wind left out of the previous months.

Following the instructions of all the renown "apiauthors" I have read in this and other publications, I had taken great care to prepare my colonies for winter. I made sure they had top ventilation, plenty of honey and entrance reducers. Every night as I came home, I would check the entrances and tops to be sure everything was in place.

Then came the time of the blowing, drifting snow that threatened to never melt. The gusts tore tin from farm buildings and uprooted trees so a few days with snow drifted over landing boards and entrances seemed normal enough.

On January 30th we had a brief respite from the ravages of winter with temperatures above 40 degrees and enough sun to warm older hives to the point that some bees were taking cleansing flights. Since this was my daughter's birthday and some of her friends were coming out to the farm for a party, I arrived home early at about five o'clock. The girls sledding and screaming caught my attention as I drove by the beehives and I was anxious to wish a happy birthday to my brand new teenager. I had gone to work that morning before she got up. But something told me to check the bees, so I stopped the car and got out. I was happy to see bees coming and going from the darker hives and made a mental note to paint every hive I build a medium green from that day forward, so my bees could all share in the experience of a mid-winter jaunt when weather permitted. Everything was in order back in the Chestnut tree cove that my bees call home. As the mud of the driveway gave way under my feet, I noticed that the evening sun made me feel warm and content, even in shirt sleeves.

Then it hit me, not all at once but it sort of grew on me until I became fully aware that my favorite prime swarm from the previous summer was in trouble. As I looked up the hill above the other hives I saw that the "hill hive" as we called it had a wide open entrance. Even at a distance of some thirty yards I could see some kind of rubbish spilling out.

As I made my way through the snow and a barbed wire fence I remembered how this "hill hive" had arrested my attention one evening in late June when I came home to find a swarm clustered on a small pine tree. I had hived the swarm and left it on the hillside, partly because I wanted to compare that location with the Chestnut cove and partly because those particular bees tended to get upset when I moved them a few feet downhill each day. Before long the "hill hive" was too heavy to move and after the bees produced three shallow and one full depth super, I was glad they decided to tell me where they wanted to stay.

My fond memories of this particular hive seemed to be a closed chapter when I got to the entrance. Dead bees were all over the bottom board and as I inserted a stick I drug out parts of bees, heads, wings, halves of bodies; all intermixed with small bits of wax. I had visions of a mass of frozen bees in the midst of a hive full of clover, buckwheat and sourwood honey. These bees hadn't starved they had been killed. Questions raced through my mind as I cleaned the dead bees out, was it a skunk? No, our two German Shorthair Pointers take care of them as one whiff of our living room couch will quickly confirm. Then it struck me, the culprit had to be the mouse that Dr. Taylor allowed to escape. If only he had done it in. But how in the world could I rescue my thorn tailed friends in the middle of winter with another four inches of snow on the way, the wind picking up, the sun going down and a birthday party to attend?

On the way down to the house the solution hit me. I obviously couldn't open the hive and hunt for a mouse under these conditions, but if I could take the two and a half story hive into my garage/workshop I could swing it. After too much cake and ice cream I convinced my understanding wife to give me a hand.

We drove our pickup out into the pasture and made ruts I will have to live with for the next five years all the way to the "hill hive". Then we lifted the hive on to the tailgate and as I eased the four wheel drive truck out of the rapidly freezing field my wife held all the parts of the hive together to prevent the bees from breaking cluster.

Finally inside the garage we set the hive up on two concrete blocks beside a woodstove stuffed with leftovers from half a winters worth of super and frame building. I put a portable electric heater on the other side of the hive and suited up for what I thought would turn into a torrent of very mad bees as I searched for the mouse who was guilty of breaking and entering of an occupied dwelling, not to mention eating the occupants.

As the temperature went up inside the garage some buzzing started. Then a few bees poked their heads out the lower entrance but most of the activity was at the upper entrance. To keep the bees from going too far from the one warm corner of the three car size garage, I slowed the wood fire down, moved the electric heater back and opened the hive. Who needs a smoker in January, right? Wrong! All my fears of a mass of frozen dead bees vanished as a dozen or so took flight and hundreds crawled around just below the inner cover. Quick stoking and smoking calmed things down enough to continue.

Layer by layer I checked for evidence of a mouse. No trash under the super so I set it aside, bees all over it just like springtime. No trash between the two hive bodies and the top body was brimming with bees, just like the super. I was beginning to think every bee in Alleghany County had moved into this hive for the winter. The bottom hive body told a different story, it felt as light as an empty hive and probably had no

(Continued on page 543)

Dr. Cam Jay, Professor of Entomology, University of Manitoba, this year's E.A.S. Hambleton Award recipient and author of 67 research papers, speaks on What is Beekeeping-Manitoba colonies average 160-165 lbs. per colony the highest average in America. He has found honey production can be increased by 25% if drifting is controlled by random positioning of hives and colored entrances.

Philemon Hewitt E.A.S. Historian goes over 25 years of past conferences.

Eastern Apicultural Society Meeting

Ottawa 1979

E.A.S. director Arthur Holmes (right) presents a check to Mark Winston of Univ. of Kansas, first recipient of the Apiculture Student Award.

Newly elected E.A.S. president John Tardie (left) of Vermont chats with past pres. Ross Hopkins about the details of organizing a conference. Concerns about the shortage of gasoline didn't affect this year's meeting. Many came by bus swelling the registration to over 500.

The chef slices the E.A.S. 25th birthday cake during the banquet.

Mrs. Helen Michaelchuk demonstrates how to use beeswax to decorate Ukranian Easter eggs during an E.A.S. workshop.

MONTHLY HONEY REPORT

(Continued from page 502)

fall honey flow on some soil types in Kentucky. Some improvement in retail and wholesale honey sales. Bee and honey show at Kentucky State Fair was very successful.

Region 7

Honey crops in this region on the small side of the average. Rain and cool weather during the main honey flow followed by hot and humid weather was the problem. Soybean crop in Arkansas will be about one-half of normal due to late planting of beans. Good prospects for goldenrod, Spanish needle and aster fall honey flow. Honey crop will still be an estimated 30 to 50% greater in Arkansas. Bees in good condition.

Region 8

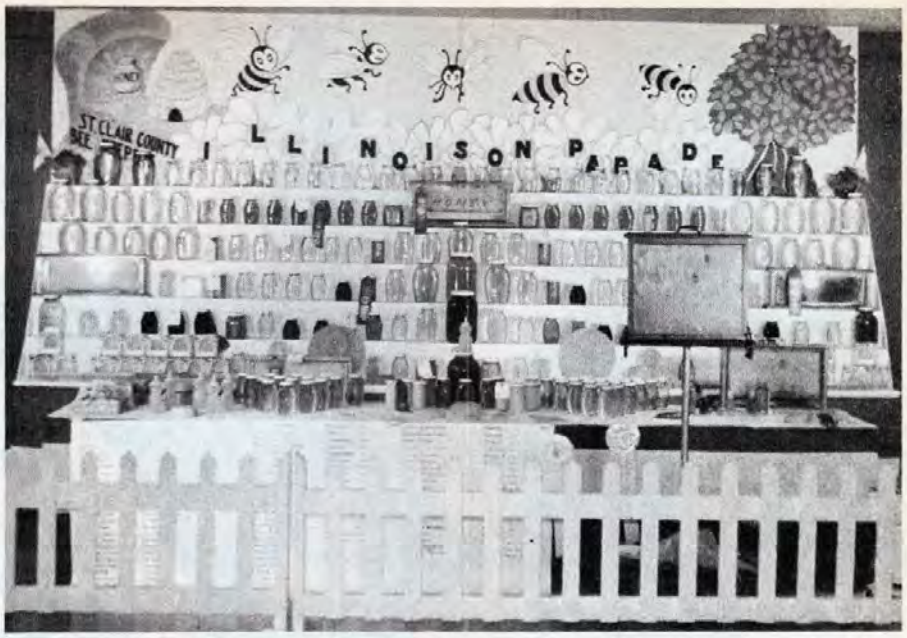
Most wholesale honey sales are for cash at 52 cents per lb. f.o.b. producer, drums returned. On export sales drums are not returned; are loaded into export containers at 53 cents net to producer.

The production season is over for most of Region 8 at the beginning of September. The size of the crop is still in doubt, but an above average yield has been harvested. Many beekeepers were down in their number of hives, however, due to last winter's losses. Hot temperatures and light rainfall had caused bee plants to decline in July but August rains revived the dry prairies and the nectar flow continued. Above average crop of white honey in Montana, a 50% increase over 1978. Best hives produced over 200 pounds of surplus honey. Bees should go into winter in excellent condition. Extracting about finished at beginning of September although bees still working fall flowers in Colorado, where the crop was about normal. Demand for honey from packers is slow. Retail demand for honey is good.

Region 9

Most of this season's extracting is finished. Most beekeepers report good crops. Honey seems to be selling well and at good prices. Wild honey plants are very dry in California but good yields from cotton in some locations. Retail honey sales are above seasonal normal in California. Beekeepers' wholesale honey prices in California running 48 cents to 50 cents during August, delivered to buyer's warehouse, containers exchanged. Clover, extra white, imported from Canada at 52-53 cents wholesale, duty paid, containers included. Bees in average to above average condition in most of California.

Imported honey is mostly from Mexico. Oregon crop may be 40-50% over 1978. Eastern Oregon, though dry, received good crop from alfalfa. Western Washington produced good average crop, eastern Washington beekeepers had a below average crop total.

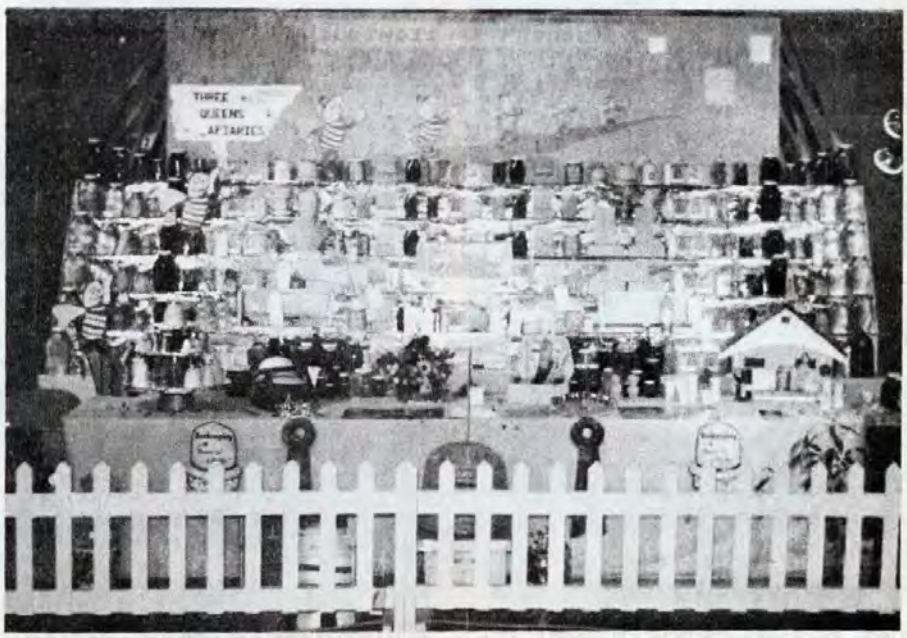


St. Clair, Ill. Beekeepers Exhibit at 1979 Illinois State Fair. The exhibit won 3rd prize in the sweepstakes and 4th prize in booth competition. Photo by G.W. Kloppe.

Fair Time

Exhibits at the Illinois State Fair highlight Honey.

Three queen apiary exhibit at 1979 Illinois State Fair. This exhibit won 1st prize in the sweepstakes and 1st prize in booth competition. Photo by G.W. Kloppe.



NEWS and EVENTS

GEORGIA
North Georgia Beekeepers Assoc.

The October meeting of the North Georgia Beekeepers Assoc. will be held at the Tucker Federal Savings office located at 5424 Buford Hwy, Doraville, GA on October 9 at 7:00 P.M. There will be a discussion on migratory beekeeping for the hobbyist and all beekeepers are invited. For information contact Cecil Sheppard at 938-0390.

FLORIDA
Lee County Beekeepers Association

Next meeting: Monday evening 7 to 9 on Sept. 10, 1979 at the Heritage Room of the Lehigh Acres Public Library.

Check your calendar, and mark the upcoming meetings: Oct. 8th, Nov. 12th, and Dec. 10th.

Program of the evening: Jim Bailey of the USDA; Subject: Indemnity to Beekeepers.

Steve Cox, who represents the Lee County Soil and Water District is also our guest.

Walter Langston, our Florida State Apiary Inspector accepted the task to show us some new slides on queens and requeening.

Douglas Ballard, a well known commerical beekeeper in Lee County, will call the meeting to order and present the invocation.

CONNECTICUT
Connecticut Beekeepers Association

The Fall Meeting of the Connecticut Beekeepers Association will be held on Saturday, October 27, 1979, in the Donald F. Jones Auditorium at the Connecticut Agricultural Experiment Station, 123 Huntington Street, New Haven, at 10 A.M.

The speaker of the day will be Dr. Radcliff Roberts of Rutgers University at New Brunswick, New Jersey. Dr. Roberts was originally scheduled to speak at the June 23 meeting but had to cancel out because of the "gas crunch" at that time. He will discuss "Honeybee Pollination".

The noon break will feature the ever-popular potluck luncheon. Bring something you like for the buffet table. We furnish the coffee.

All beekeepers and friends are cordially invited to attend. The meeting usually adjourns between two and three o'clock. Any questions about the meeting may be directed to the Secretary at 16 Rose Terrace, Trumbull, CT 06611.

NEBRASKA
Nebraska Honey Producers

The Nebraska Honey Producers will hold their winter meeting, Sat., Nov. 3 at the Holiday Inn in Kearney, Nebraska. Registration will begin at 8:00 with the general meeting beginning at 10:00. There will be a program for the ladies. All beekeepers are invited to attend.

GEORGIA
American Bee Breeders Assn.

American Bee Breeders Association will meet in conjunction with the Georgia Beekeepers Association in Savannah, GA at Ramada Inn on US17, Oct. 25-27.

ARKANSAS
Van Buren County Beekeepers

The Van Buren County Beekeepers of Clinton, Arkansas, observed their annual Field Day on Saturday, Aug. 11, at the Jack Kirby farm, near Alread. Highlight of the day was an inspection of Mr. Kirby's 12-colony apiary. Area bee inspector, Walter Lee, of Greenbrier was on hand to verify that all was well in the hives. We did find one little disorder; the queen bee in one of the new colonies was not doing her job of laying eggs, so we proceeded to search for her. A queen is not easy to find, being only one among some 50,000 bees; but we repeated our search till we found her; and removed her. One of our members, John Gruben of Shirley, is a queen bee producer, and he had brought several queens along. As soon as the bees of this colony had received their new queen, they were very happy and content. They showed it by a sudden calming down, and by the kind of buzzing that is music in every beekeeper's ears.

IOWA
Iowa Honey Producers Association

The Annual Meeting of the Iowa Honey Producers Association will be held October 13, 1979 at the Best Western Restaurant, I-35 & E. 1, Ankeny, Iowa.

Room reservations can be made by calling the Best Western Inn at (515) 964-1717.

A full program has been planned:

Message by Ivan Rickers, IHPA President; Dr. Gerald DeWitt, Iowa State Entomologist; Adair Stoner, USDA BEE Research Lab, Laramie, Wyoming; Eric Erickson, USDA Lab, Madison, Wisconsin and Bill Carlile, Glenwood, Iowa.

This promises to be an excellent meeting with the above mentioned speaking on subjects of extreme interest and importance to beekeepers.

Registration begins at 8:30 A.M. Meeting will start at 10:00 A.M. Luncheon and Banquet reservations must be made. For further information, please contact Glen Stanley at (515) 281-5736.

MASSACHUSETTS
Middlesex Co. Beekeepers Assn.

The monthly meeting of the Middlesex County Beekeeper's Association of Massachusetts will be held Saturday, October 27, 1979 at 7:30 P.M. at the Waltham Field Station, 240 Beaver Street, Waltham, Mass. (Boston area). Program for the meeting will include a honey show for members only. All members and prospective members are welcome. Contact President E. Warren for further information. Phone: 617-383-0336.

VIRGINIA
Virginia Beekeepers Association

The Winter Meeting of the Virginia State Beekeepers Association will be held Saturday, November 3, 1979 at The Holiday Inn, Salem, VA. Directions to the Inn and a Program will be sent to each member later. Luncheon will be a buffet. We're expecting a big crowd! See you there!

ARKANSAS
Arkansas Honey Festival

The Arkansas Honey Festival will be held October 5th and 6th. It will be held at Greenwood, AR. Friday's events will begin at 5:00 lasting till dark. Saturday's events will begin at around 7:00 with serving of hot rolls and honey.

Arts and Crafts, honey supplies and sellers of honey are welcome to register from 1 to 5 o'clock on Friday. A fee will be charged of $10.00 for a booth.

There will be films, mini-lessons and apiary lessons provided both days.

The state meeting will be held at this time. Other activities will include square dancing, horseshoe pitching, honey tasting and display contests. Also Saturday evening the Little Miss Honeybee will be presented.

State dignitaries have been invited. For more information contact: Brucille Gann, 723 Martin Drive, Fort Smith, AR 72903, (501) 646-5024.

MANITOBA
Canadian Honey Council Meeting

The annual meeting of the Canadian Honey Council will be held November 20-23, 1979 in Halifax, Nova Scotia. For further information contact the C.H.C., P.O. Box 480, Bassano, Alberta TOJ OBO Phone (403) 472-2924.

CONNECTICUT
Beekeeping Course

New Canaan Nature Center, New Canaan, CT.-6 consecutive Monday nights from 8-10 P.M. with a Field Session in the spring where we hive 3 packages of bees as a demonstration.

Hiving is done with detailed explanation.

Course commences on October 29, 1979 with 5 more Monday nights.

Registration with the Director, New Canaan Nature Center, 144 Oenoke Ridge, New Canaan, CT 06840.

Movies and/or slides at each lesson.

Instructor—Ed Weiss, author of **The Queen and I.**

MARYLAND

The regular fall business meeting of the Hagerstown Valley Apian Society will be held October 22, 1979, 7:30 P.M. in the meeting room at Loyola Federal Savings and Loan Assn., 37 N. Potomac Street, Hagerstown, MD. A nominating committee will be announced for election of officers in January. There will be a program and refreshments after the meeting.

Hobart Fulton (right) recipient of the Ohio Beekeeper of the Year Award. On left is former O.S.B.A. Pres. Dick Osborne and in center is Ohio Honey Queen Melissa Ann Ratliff.

OHIO
Beekeeper of the Year Award

Hobart A. Fulton, Columbus, was the recipient of the Beekeeper of the Year award from Ohio State Beekeepers' Association. The award, given yearly to the Ohio beekeeper, who in the judgment of the selection committee, has contributed most to beekeeping in the state, is presented each year at the OSBA Summer Meeting.

Mr. Fulton was nominated by the Central Ohio beekeepers, which he has served for many years in various capacities, as well as being secretary of OSBA for an equally long period.

His work in legislative liaison has been outstanding, resulting in a new Ohio Extension Apiarist, and hopefully, in the future, a new OSU Bee Laboratory. In the past 25 years, many new beekeepers got their start with Hobart. OSBA is proud to salute him!

PESTICIDE USE

A SURVEY by the Ohio Pesticide Impact Assessment Program indicates that in 1977 "...herbicides were applied to about 92%....and fungicides to about 63% of the commercial fresh market vegetable crop acreage in Ohio."

Of more interest to the beekeeper; Sevin (**carbaryl**) topped the list with a 41% usage throughout the state. In fact, six of the top ten insecticides used on vegetable crops that year in Ohio are classified as highly toxic to honeybees.—Taken from **Beekeeping Notes** published by Ohio State Coop. Ext. Service, Entomology.

MYSTERY OF THE HILL HIVE

(Continued from page 537)

more than 500 bees in it, all on one side. Starting with the empty side I took out ravaged frames one after another. Holes were gnawed through the first five in every direction but no mouse in sight.

The last five frames seemed to be in decent condition so I took them out in one unit and checked from all directions. No mouse. I couldn't find a mouse in the empty hive body either. Could she have escaped? I decided to brush the bees off the good combs into the upper hive body, reduce the hive to 1-1/2 stories till spring and close things up so the bees could settle down.

As I separated the last two frames I found what was without doubt the world champion fat and happy mouse. This mouse had eaten **her** way through enough bees and honey to feed a young bear. She ran around fine but couldn't fit through the entrance or climb the walls to escape, then she just went into a corner and looked up as if to say "who, me?". Not being as kind hearted as Dr. Taylor, I lifted the mouse to carry her to her doom; but, you guessed it, she escaped.

The "hill hive" is now alive and well and living in the garage till I heat it up and check it one last time.

The "hill hive mouse" was last seen hitchhiking south on Interstate 85 toward Atlanta. Y'ALL flatland beekeepers look on out now ya' hear?

HIGH SPEED APPLICATION OF COMB CLEANER

(Continued from page 536)

be adjusted by means of a valved bypass line on the outlet of the pump, leading back to the barrel. Remove one comb from the super to be treated, insert wand and press trigger.

Then move wand quickly down and back up, spraying adjacent sides of two combs as you go. Then move a comb over, re-insert wand and repeat. Apply about three pounds of solution per full depth super.

This in situ technique is fast; we've treated 500 supers a day per man. Although the spray pattern is, of course, not as uniform as when applying more slowly, it appears to be quite good enough for the purpose, and brings the labor cost for treatment down to only a few cents per comb. This procedure then becomes quite economical compared to more conventional techniques of handling old combs such as rendering and replacement, provided the combs are otherwise sound and in good condition. It then may also become possible to begin to routinely upgrade combs used for surplus, by removal of cocoons and debris left by a wayfaring queen who moved upstairs and temporarily forgot where her broodnest was.

*Physicist and commercial beekeeper; Consultant to Winona Research, Inc.

DISAPPEARING DISEASE-A BEHAVIORAL PROBLEM

(Continued from page 535)

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GLEANINGS MAIL BOX

(Continued from page 508)

thought that with all that bloom the bees should be working it. I went out into the field and sure enough bees were everywhere. When I opened my hives the bees were storing nice light honey in the clean supers I had put on. I removed three frames that were well capped, just for a sample. I gave one to my friend who lets me keep bees there and took the other two home. It was as pretty as sourwood but when I tasted it I soon found that it was not for me. The best I could describe it is to call it musty. I have since gotten the same kind of honey several times. I was so curious I called on the Agricultural Department to identify the weed. It is Daisy Fleabane. I even crushed some of the flowers and smelled and tasted them. It is definitely the same as is found in the honey I have described.

You are right, it is difficult for any beekeeper to call his honey pure anything. In the first place he cannot follow his bees around all day to see what they gather. But there is one thing that often can be depended on as regards the purity of honey. Bees are opportunistic little things. They will gather almost if not exclusively from the source that is most abundant. And when sourwood is yielding, the nectar flow is abundant. The flow may not last long but while it is on it flows freely. And you can't always tell by checking sourwood trees to see how many bees are there. A neighbor who kept bees once explained that to me. He said when the tree is swarming with bees and you think you are going to get a big crop you may get very little. On the other hand an apparent absence of bees on the tree may not mean they are not getting nectar. He thought that when the blossoms were full of nectar a bee would go straight to a blossom, go inside and fill her honey sac and come out ready to go to her hive. There wasn't much chance to see her. But if nectar was scarce, each bee went from blossom to blossom looking for it and therefore could be easily seen. He always tried to get pure sourwood honey, because that is what people have heard so much about and therefore want. He always watched the sourwood trees and said he could come within three days of the best time to put on clean supers to get the pure stuff. Then when all the blossoms had fallen, he took off his supers and felt confident he had a pure product.

Sourwood doesn't yield nectar every year or in every locality in any one season. One beekeeper may get a good crop and his neighbor a few miles away not get anything. Nobody seems to know why this is so. I suppose there are just too many factors governing the situation for anyone to sort them all out. It would make an interesting study. I wish some qualified person would undertake it.

Keep trying and studying and you will learn what pure sourwood honey is.—H. S. Cochran.

FUNDAMENTALS FOR ALL

(Continued from page 526)

the third month, brood rearing is advancing to the stage where more and more honey is being consumed. This is necessary because of the increased temperature at which brood is raised and the extra used up in brood rearing.

In the early months of confinement, a kilogram (2.2 pounds) of honey may last a month; later, that much may last only a week; later still, when brood rearing reaches its peak, only a day. All this time, equal amounts of water are being given off. Where is it to go? Would "messing with them" do any good? Just opening the hive would allow the accumulated moist air to escape, but when will you open them? You may not see your hives until April. Meanwhile, your bees will have to exist, if they survive, in an increasingly uncomfortable hive. Should a late winter freeze occur, the situation may become intolerable and the whole cluster will freeze to death in a saturated atmosphere of their own making.

There is a simple solution. In case you have not thought of it, it's a hole in the top through which the moist air can escape—not a small hole: not just an auger hole in the brood chamber, nor the uncovered escape hole in the inner cover, but an honest-to-goodness hole, equivalent to an area of two by three inches at the top of the hive. This six-square-inch opening will allow for upward ventilation and serve as an upper entrance. It can be provided simply by jacking up the inner cover three-eighths of an inch at one end. Simple? Quite. It is necessary and, from my experience, and the reports which I receive from others, it works.

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WINTER WOES III

(Continued from page 512)

New York from February 9 until February 19, 1979 the temperature didn't even average 0°F. In Old Forge, New York, the temperature hit a record low of 50°F. below zero.

By the end of February, Old Man Winter had finally tired and temperatures had risen into the mid-forties allowing bees from their hives with only some minor hand shoveling in a few drifted yards. And by late March, in an almost apologetic nature, record high temperatures in the 70's were set in Central New York. How proud I was, only five of my 120 hives had succumbed to Old Man Winter's last apparent punch. By the end of the first week in April, pollen was coming in from the pussy willows, the brood pattern expanding and Old Man Winter had been given a stunning defeat.

Not quite! On the morning of April 7th, the air chilled and the wind began to blow. In fact, a record breaking wind of over 70 M.P.H. hit Central New York and snow and freezing rain hit the Midwest and the Northeast. Over 20 inches of snow fell in Old Forge, a fifty car accident occurred in Rochester and a roof blew off a local school. Two of my hives blew over and many weighted roofs spotted the countryside. Old Man Winter had only been playing possum. It had tried to stimulate brood raising with its 70°F. temperatures in March, only to hit back in April with another freezing winter storm to catch the bees with an unprotectable amount of brood.

The incredible honeybee will survive, as it has for millions of years. But oh, how long can the poor beekeeper's mind take such continuous punishment.

SIFTINGS

(Continued from page 522)

we can find or develop that ideal bee, 100% resistant to all diseases. Finding such a bee is just the beginning, the big job is to maintain this resistance over a period of many years. Somehow, discussing these problems, you suddenly realize the longer you keep bees the more you learn how much you don't know. In every beekeeper's life, it seems, only once does he know everything about bees and beekeeping. That is after he reads all the books and his first year of beekeeping. Then suddenly, each year after, he discovers the bees didn't read the books. At least the bees don't do what they are supposed to. As Dr. Miller said, "the most consistent thing about bees is their inconsistency".

BEE TALK

(Continued from page 523)

responding to some sort of stimulus. And every beekeeper has noticed that, after a swarm has left its cluster point, the few bees that straggle back to it, apparently unaware of where the rest of the bees have gone, fly around that spot aimlessly for days, until they perish, apparently lacking the necessary directions for what to do, even though the hive they came from may be only twenty feet away.

This sort of thing happens all the time in a hive of bees. Pheromones leave much unexplained. Maurice Maeterlink, in his **Life of the Bee**, suggested that a colony is under the direction of a somewhat metaphysical force, which he called "the spirit of the hive." I've always loved that idea, even if it is nonsense from the standpoint of science.

The fact also remains that these three similar colonies, manipulated in the same way, behaved differently. To two of them it seemed "appropriate" to abandon their brood and re-establish themselves in the circumstances familiar to them. To the other it seemed "appropriate" to accept the radically changed circumstances and make the best of them. And both courses of action **were** appropriate. What is significant, however, is that all, or virtually all, of the bees of a given colony behaved in the same way, though not all the colonies behaved in the same way. It was as if two quite different decisions were made, each making sense, and being made for all the bees of a given colony. But where did it come from? Until some scientific explanation is offered, then I think I'll go along with Maeterlink, and think in terms of a "spirit of the hive". There are certainly lots of ideas that are more absurd, and if anyone wants to laugh at this one, then I don't really care.

FROM THE WEST

(Continued from page 524)

described and showed a picture of in his lead article for **Gleanings** for April 1972. If you will send me a self-addressed stamped envelope I will send you free of charge a large clear full detailed drawing of this frame.

Why a 11-frame brood nest? In a 10-frame brood nest there are eight combs of brood and a sealed comb of honey at each end. These end combs are too cold to rear brood in. The bees can't maintain the brood rearing temperature next to the hive walls. In a 11-frame brood nest you gain a comb of brood. And if you use molded plastic foundation you will need only one brood chamber. A terrific saving in cost and time. Try it and you will see. Oh yes, the wet blankets will start screaming and come up with all sorts of objections. Ignore them for this 1979 and 1980 is just around the corner. They are a whole century behind the times. For a hundred years ago, that wizard of beekeeping, Dr. C.C. Miller wrote and I am quoting him, "Then there came a struggle for some self-spacing arrangement, closed-end, partly closed-end, and what not. I tried a good many different kinds. Closed-ends were probably warmer for wintering, and were certainly self-spacing, but it took time to avoid killing bees, and the trouble with propolis was no small matter. Half-closed ends were the same in kind, only different in degree. Of these last the Hoffman is probably the most popular, and I put in use enough to fill a few hives, and some of them are still in use. When new they work very nicely, but as propolis accumulates the difficulty of handling increases, and the frames become more and more crowded, until it is almost impossible to get out the dummy; the easier thing being to pry out with a good deal of force the first frame, either with or without the dummy. Indeed, the difficulty of getting out the frames is so great that the sight of a set of Hoffman frames when the cover is removed always produces something like a shudder."

With the Miller frame, for that's what I am offering to send you a drawing of, you will be money ahead. About that I will have a lot to say next month.

THINKING OF BEES

(Continued from page 511)

entrance. It may not look so good to the beekeeper's eye, but it aids the eye of the returning forager.

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BEEKEEPING. A West Country Journal—written by beekeepers—for beekeepers. £1.50p inland or £1.80p ($4.00 Overseas). 10 issues yearly. Editor, R.H. Brown, 20 Parkhurst Rd., Torquay, Devon, U.K. Advertising Secretary, C.J.T. Willoughby, Henderbarrow House, Halwill, Beaworthy, Devon, U.K.

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HONEY IN 60's FOR SALE. Bedford Food Prods. Co., 209 Hewes St., Brooklyn, New York 11211. Tel: 212 EV4-5165.

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WANTED—All grades of extracted honey. Send sample and price. Deer Creek Honey Farms, London, OH.

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THINGS MAY be looking up, the pesticide committee of the Wisconsin Honey Producers Association reports. FMC, the manufacturer of Furadan was contacted when beekeepers in Wisconsin suffered bee losses, had ASCS inspection and the suspected pesticide was Furadan. FMC, within the state, has requested slides and information from the Wisconsin Honey Producers Association to be used this fall in dealers' and growers' meetings.—From **The Wisconsin Badger Bee.**

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