May 1986

GLEANINGS IN BEE CULTURE

PUBLISHED BY THE A.I. ROOT CO., MEDINA, OHIO — SINCE 1873

Have You Checked the Quality Of Your Combs Lately?

Dark, old brood combs with many drone cells or damaged spots can cost you money in the long run. Europeans have long believed old combs are a reservoir for disease organisms, so they follow a regular program of comb replacement to maintain top-quality combs in their hives. Even recent U.S. research claims that certain bee diseases may be promoted by old combs.

In addition, broken, damaged and misshapen combs reduce worker brood rearing space and fewer worker bees mean less honey. Old brood cells also have become smaller in diameter to the point that new bees emerging from these combs are smaller in size than those emerging from newer combs.

And, while you're at it, don't neglect your honey super combs. Broken or damaged combs not only mean less honey, but they make extracting a real chore. You know how difficult it is to uncap uneven combs and you've probably watched your extractor vibrate badly or dance across the floor because of damaged or unevenly drawn combs. Lastly, research over the years has proven that old, dark honey combs produce darker honey because of the accumulated residue in the cells.

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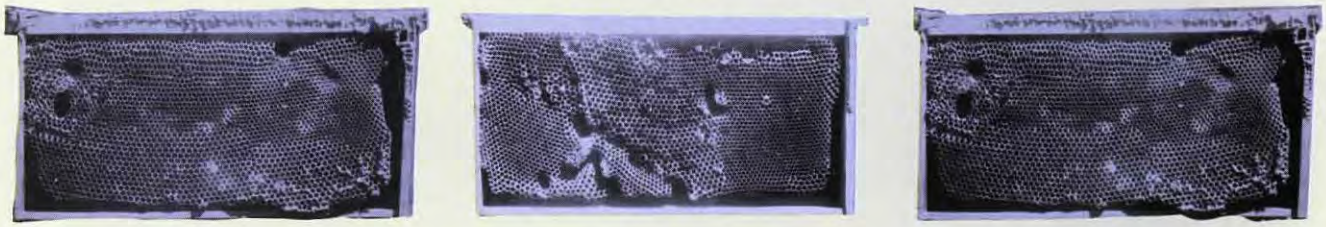

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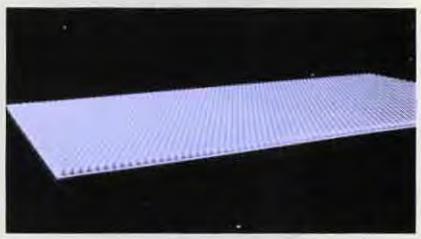

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Kim Flottum

John Root

Dick Kehl

GLEANINGS IN BEE CULTURE

Since 1873

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Created To Help Beekeepers Succeed

113 Years Continuous Publication by the Same Organization

THE WORLD'S MOST POPULAR ENGLISH LANGUAGE BEE JOURNAL

CONTENTS

THE MAY COVER

You know spring is really here when you move your bees into the orchards — apples (like the cover), almonds, citrus or whatever. We need to CONSTANTLY remind the public that without our pollination there will be no more fruit. But remember, without the Honey Promotion Program, there will probably be very few beekeepers. Enjoy spring, and remember to vote.

John Root, Editor
Kim Flottum, Managing Editor

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THE INNER COVER. . .

Kim Flottum

What, you ask, is the Inner Cover? Inner covers are usually found beneath the outer cover and above the top super of most beehives. They serve various purposes during different times of the year, and in different parts of the country, but generally act as a buffer between what's outside and what's inside.

That is the role of this column. Basically Editorial in nature, it will cover any subject affecting the beekeeping industry, and maybe a few that don't. So much for the commercial, on with the show!!

My friend Gottrockkz called this week to see if I could help him move some hives.

"They need moving" he said, "And the sooner the better".

I usually help friends when they need it, (especially Gottrockkz), because you never know when you're going to have to ask them for a favor. Not that that's the only reason I help friends, mind you, but it never hurts to have somebody owe you one.

Anyway, I went over to Gottrockkzs' house to help him move those hives late the next afternoon. He wasn't ready. In fact he had forgotten all about the moving and was reading a newspaper. When I asked about the move he started raving about the article he was reading - something about the new farm bill and how it was going to help the farmer and how it was going to help America and how LITTLE it was going to cost the American consumer. I assured him that it was too early to tell just what effect it would have and he shouldn't get all worked up over something he didn't have the foggiest idea about anyway. Besides, it was getting late and we should get going on those bees.

He calmed down a little and got his gear together, though he kept mumbling all the while about reduced subsidies, import protection barriers and how he couldn't find his hive tool.

One thing I like about working with Gottrockkz is that he has the best equipment in the world - the whole world. He doesn't own any old equipment. I think he replaces everything every year, but he says that he just 'manages' it well. It sure looks new to me. Fresh tops and bottom boards; and I don't think he's ever used a smoker twice - his wife doesn't like the smell around the garage he says.

Like I said, it makes working with Gotttrockkz easy when all your equipment is first rate. We moved 24 hives that afternoon and didn't split one bottomboard, crack one super or even take a sting. He had done his homework. Fortunately, he had done it before he began reading that newspaper.

All the hives were fastened securely; the entrances were closed tighter than Jimmy Tew's bee suit and all the iffy spots were taped or corked. Of course moving them in his Mercedes Van didn't hurt, what with the smooooth ride we had to the new yard.

I'm not sure, but I think he had a contractor come in and pour those cement foundations we put his hives on. He said they were just some old slabs he had around - but I still have my suspicions. The contractor had forgotten to take the forms with him, but Gottrockkz says he had moved them in himself. Who am I to argue with a set-up as nice as this. Drive in and drop off a hive at every stand. This was the proverbial piece of cake; one of those days when you're glad to bee keeping!

It pays to keep your equipment in good shape at all times, and it pays to plan ahead. Gottrockkz had done it right and had made the job of moving his bees so simple that I think I owe him one.

•

Besides being an extravagant beekeeper, Gottrockkz did bring up a controversial issue regarding the new farm bill. There is no doubt that this industries safety net has been reduced. And, it looks like we'll have to live with it.

However, there is an additional program to consider—The Honey Research, Promotion and Consumer Information Program. Frank Robinson has done a good job of exploring all the ramifications it will have, and how they will affect beekeepers. Even the hobbiest with 1 or 2 hives.

If you don't produce 6000 pounds of honey a year (and therefore can't vote), you may be able to influence someone who does. Remember these words—RESEARCH, PROMOTION and CONSUMER INFORMATION. A well informed beekeeper will be better able to continue keeping bees, and an educated public will be more aware of bees, beekeepers and honey. How can we lose?

By the way, since I'm the new kid on the block, feel free to comment (and I use the word loosely) about any aspect of **Gleanings**. I welcome letters or phone calls. You will notice a few changes in this issue, and a few more down the road. I suspect a couple of problems initially, but **Gleanings** is going to be a litte different from now on, and, I think, a little better.

By now the dandelions are out in most places, and the fruit bloom is starting. If you pollinate, remember, don't give yourself away—moving bees is work, get an honest wage for an honest day's work. kf

Gleanings Mail Box

Moving Bees

Dear Editor:

I own only a few hives, and recently had a single hive to move about forty miles (eighty miles round trip). I could have gone over the night before and stapled everything together; but then I wanted to save eighty miles of driving, and I never did care for bee-hive staples anyway. So! I planned ahead to do it all early one morning, without shaking the bees up. One thing I don't like about installing staples is that you shake your bees up. Then too, if you slip and the supers slide you have a crack where the bees can get out. It may take an entire day to settle those bees down so you can get them back into the hive.

I got my idea from seeing how truckers ship whole pallet loads across the country. They put wide angle-iron on the four corners of their pallets, and then strap or band this all together will steel or nylon straps. I made angles out of wood (cheap fir strips) by nailing two pieces together at 90°. For straps I used old wire clothes line (plastic covered), and to these I attached turn buckles so they could be tightened. The wood angles were made in length the height of two deep supers. Two of the bands were made long enough to go over the angles, while the third was long enough to go around the two deep supers from top to bottom.

Just before dawn I was able to seal the entrance with cleat and duct tape. I also ran a band of duct tape around the hive where the two supers join. I also used tape to hold my wood angles in places at the four corners.

I attached the bands, and tightened the turn buckles. While I was doing this, and even after I placed the hive on my trailer, I heard no complaints from the bees. Remember, I did not have to hammer on the hive or shake them up. For forty miles, over some rough roads, everything stayed in place, and I got the hive to my bee yard without any trouble.

Arnold Kastrup
3131 Overdale Drive
Richfield, OH 44286

EDITOR'S NOTE: A lot of work but with the number of accounts in the news about bees causing trouble in moving accidents and the resulting bad publicity we need to make a greater effort to secure bees.

HELP!!!

Dear Editor:

This letter is coming from half way around the globe, from a Peace Corps volunteer in Zaire, Africa. I've been assigned to teach high-school-aged students biology and chemistry. However, unlike my stateside counterparts, I am limited in the amount of "hands-on" experience I can generate because of lack of supplies and equipment — none. Given, I can teach theory, do problems, and conduct what little experiments I can think of, but I find that the students miss those "aha" learning discoveries that can make science so enjoyable. As a result, they also do not show that enthusiasm for, nor an appreciation of the importance of continuing their studies in science.

I would like to construct a small laboratory within my brief two-year stay here. One that the volunteers who later replace me, and the students can use for a few years to come. The school has no money to buy supplies, yet perhaps your readers could find something to give. Anything would be appreciated — from microscopes, chemicals, models, and lab kits to magnifying glasses, photos, charts, pamphlets. Remember, these kids don't have much. Though they're not starving, that is about all they can claim.

Should you decide to donate anything, I must pose three restrictions: 1. I teach in French, and although I can translate, lengthy papers in English will not be very helpful. 2. There is no electricity nor running water in this village. 3. All postage and handling matters must be taken care of by you since I will not be able to meet the package. Mail is very slow, (3-6 months,) but I will write a letter of confirmation. Thank you for your cooperation and time.

Kristopher Kallin, PCV
Via Peace Corps Office
c/o Regional Rep./Bandundu
Zaire, Africa

Cut Comb Harvesting

Dear Editor:

I have solved the problem of getting straight cut-comb honey, and would like to share it with other beekeepers.

I use comb honey foundation, put wires in the frame and embed them as with brood foundation.

After harvest, I place the frame upside down on a table and cut the wires.

Then, I take a 6V battery and attach pliers to one pole with a wire.

I grip one wire with the pliers, and, while keeping a steady pull, touch the other end of the frame wire to the other pole of the battery. The moment of contact the frame wire gets hot and is easily removed with the pliers.

Monroe J. Miller
3595 TR. 414 Rt 2, Box 123
Dundee, OH 44624

Dear Editor:

The children of Faith United Church, Springfield, Mass. have helped a needy family produce and earn extra money by sending them bees from the Heifer Project.

Bees are easy to ship anywhere in the world. A three and a half pound package 20,000 bees— cost $20 to purchase. Heifer Project has sent bees to Korea, Taiwan, Mexico, Columbia, Ecuador, Panama, Nicaragua, and India.

To celebrate the completion of their goal, Roland Jarry, President of the Hampden County Beekeepers' Assoc. (right) and Director, Robert Cosby, (left) visited the class. They shared with the children how bees are skillfull little creatures who serve each other and unwittingly how they serve us for their contribution.

The children were awarded a certificate of appreciation by Mr. Jarry for supporting the Heifer Project.

Better Than Smoke!!

Dear Editor:

I have stumbled onto a marvelous discovery that I have not seen published in any reference or how-to books.

It works like this — You prepare a plastic spray bottle with a 50/50 mix of sugar and water, and to this add three drops of peppermint extract. You then spray this mixture on the landing board of a colony before beginning work. It makes the meanest bees gentle!!

I think it counteracts the alarm scent put out by the bees when they are threatened. I have not had one blow-up since starting with this procedure.

I think further experiments with this may prove helpful with the Africanized bee we hear so much about — so much bad about.

Jack Mager
Box 21-502
91 ST E
Sumner, WA

COMMENTS
SUGGESTIONS
IDEAS
OPINIONS
QUESTIONS
ANSWERS
PRAISE
CRITICAL COMMENTS
POLICIES
THOUGHTS

Any or all of the above can be sent in to the mailbox. That is what a mail box is for. If we get it, we'll publish it. Have you got something to say?

SAY IT IN GLEANINGS

QUESTIONS & ANSWERS

Q. I want to plant some **Vitex** shrubs and wonder which species is the better for nectar, **Vitex negundo-incisa.** or **Vitex agnus-castus?** M. Mills, P.O. Box 1211, Georgetown, CA 95634

A. **Vitex negundo-incisa** originated from China and has now been widely planted in the southern and sowthwestern United States. It is used as an ornamental and occasionally as bee forage. It has deeply cleft leaflets and long spikes of blue flowers. It is attractive to bees over a period of several months in summer and fall. **Vitex agnus-castus** has not been considered as great a nectar producer as **incisa** by many beekeepers. Normally, the honey is very light, but extremely sticky and heavily bodied, but with good flavor, similar to sweet clover. **Vitex** often continues to produce long after other plants are done bloomming. It can be trimmed to shrub size or allowed to grow into a small tree from 10—20 feet in height. Both varieties will usually bloom at 1—2 years of age.
Dick Kehl

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Q. I produce both extracted and comb honey, and use the two-inch deep bottom boards with slatted racks on all my hives. Roger Morse, in his book on comb honey, says that deep bottom boards are never used in extracted honey production. Why is that? Richard Carey, Montoursville, PA

A. I think Dr. Morse meant that they are of little value in producing extracted honey on a commercial scale. Having tried them, I would agree. There are simpler ways of achieving hive ventilation, which do not require extra equipment.
Richard Taylor

Q. What do the following terms mean: Swarm box, escape screen, and crown board? George W. Imirie, Jr., Rockville, MD

A. A swarm box is a screened box used for transporting a captured swarm from one place to another. It has a hole in one side. The swarm is funneled into the box through the hole, then hived at a time and place of one's choosing. An escape screen is similar to an inner cover, except that it is constructed mostly of screen and fitted with a bee escape. The bees abandon a super more quickly through an escape screen than through an ordinary inner cover. A crown board is an inner cover, the term being more common in England than here.
Richard Taylor

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Q. The outside of one of my hives is all stained brown, as if someone had spit tobacco juice all over it. There are also brown spots in the snow. The bees are in a nice cluster and have plenty of honey. What is the problem, and what should I do? (Ed. note—although it is now May, this problem occurs every spring, and a quick review is always a good idea).

A. The colony has dysentery, quite common in early spring. It is caused by excessive moisture in the hive, long confinement, poor ventilation, fermentation of stores, and sometimes by Nosema. In spite of appearances, it is usually not serious, and will disappear with the onset of warm, dry weather. Meanwhile, make sure the colony is up off the ground and dry, ventilated, with a clear clean bottom board.
Richard Taylor

●●●●●●●●●

Q. We sometimes read that if there is honey in the top of the hive in the spring, then the queen will confine her egg laying to the combs beneath that honey, which thus serves as a kind of queen excluder. But will not that advantage be lost if the two stories of the hive are then reversed, as is also recommended? Frederick Walliser, Philadelphia, PA

A. Not really. When the two stories are reversed, the bees begin at once to reorganize their brood nest and move the honey back up above where it belongs.
Richard Taylor

●●●●●●●●●

Q. I have read in **Gleanings** that a swarm cannot be united with an existing colony, yet I have done this using the newspaper and queen excluder method. Was this just luck? Alan Cogswell, Sheridan, IN

A. I have heard of success in this, but it usually does not work. I think that here the bees are somewhat unpredictable, but usually they kill each other off, at least in my experience and that of others who have tried it.
Richard Taylor

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Q. Directions for shook swarming usually say to use foundation rather than drawn combs in the new shallow hive. Why? Valerie Corsi, Sandy Hook, CT

A. Drawn combs are okay, but if you are raising comb honey, and the drawn combs are dark, you might get a bit of travel stain.
Richard Taylor

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Monthly Honey Report

May 10, 1986

The following figures represent current prices reported by our contributors. 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	R	A
60 lbs. (per can) White	42.00	36.00	30.00	39.00		36.70	36.00	39.00	37.65	30-42.50	37.65
60 lbs. (per can) Amber	42.00	30.50	27.00	36.00		32.40	30.00	36.00	39.00	24-39.00	34.11
55 gal. drum/lb. White	.52	.50	.45	.65			.55	.57	.58	.45-.58	.55
55 gal. drum/lb. Amber		.41	.40	.60			.50	.53	.54	.40-.60	.49
Case lots — Wholesale											
1 lb. jar (case of 24)	30.50	24.90	25.08	21.60	24.00	23.40	24.00	25.42	25.20	22.80-32.50	24.90
2 lb. jar (case of 12)	30.50	23.30	23.10	21.36		22.65	24.00	27.55		23.10-31.15	24.63
5 lb. jar (case of 6)	32.00	27.80	24.25	26.40		26.00	25.00	25.40	25.50	24-34.00	26.54
Retail Honey Prices											
½ lb.	1.00		.81	.89		.90	.90	.80	.89	.69-1.10	.88
12 oz. Squeeze Bottle	1.50	1.27	1.31	1.29		1.25	1.20	1.22	1.35	1.09-1.51	1.30
1 lb.	1.67	1.53	1.41	1.18	1.75	1.37	1.50	1.58	1.54	1.25-1.69	1.50
2 lb.	2.70	2.83	2.72	2.26		2.39	3.00	2.74	2.83	2.29-3.00	2.68
2½ lb.	3.55		3.97	2.79	3.50	3.25	3.50	3.41	3.27	2.79-3.97	3.41
3 lb.	4.00	4.18	3.29	3.64		3.85	4.00	3.73	3.54	3.29-4.35	3.78
4 lb.	5.00	4.95	5.89	4.37		4.90	4.55	4.82		4.37-5.89	4.93
5 lb.	6.50		5.65	5.50		5.77	5.00	5.64	5.57	4.95-7.00	5.66
1 lb. Creamed			1.49	1.29		1.69	1.50	1.56	1.45	1.29-1.73	1.54
1 lb. Comb	2.25	1.50	2.14	2.29	2.00	1.78	2.00	1.85	2.25	1.42-2.25	2.01
Round Plastic Comb	1.75		1.75				1.50	1.70	1.65	1.50-1.75	1.67
Beeswax (Light)	1.15	1.10	1.18	1.00		1.13	1.05	1.15	1.23	1.00-1.35	1.12
Beeswax (Dark)	1.00	1.00	.95	.90		1.00	1.00	1.10	1.10	.90-1.10	1.01
Pollination (Avg/Colony)	23.75	25.00	23.50	15.00				20.00	23.00	15-27.50	22.00

New Features on Honey Report Graph

On the far right hand side you will see two new columns. The first, labled "R" is the range of prices reported from all contributors — lowest to highest. This will give you an idea where you stand nationally. The second column, labeled "A" is the average price of a particular commodity across all regions. Example: the range in price of a 1 pound jar of honey sold retail is $1.25 — $1.69 and the average price across the country is $1.50.

In the comments section you will see a figure called the "Price Index". This figure is only a descriptive statistic that compares all regions to the highest region of the month. Example: Region 1 has a price index of 1 this month and remaining regions are compared to that index.

Note: These figures are only as good as the data sent in by our reporters. If you believe the numbers here are not indicitive of your area please contact the editor—we can use your imput.

Region 1

Price index rating of 1.00. Honey sales weak on both retail and wholesale levels. Colonies generally wintered well with present high brood populations, thus dwindling stores requiring supplemental feeding.

Region 2

Price index rating of .91. Honey sales slow to moderate, prices steady. Mild winter means good carry over. Some feeding in the north, some pollen coming in further south. Build up rate about normal.

Region 3

Price index rating .70. Honey sales steady. Southern areas already collecting pollen, Northern areas still to early.

Region 4

Price index .78. Honey sales slow. Early spring forage being worked, early swarming predicted.

Region 5

Price index .67 (from data available). Late cold snap may have damaged early flowers. Hives being fed due to poor crop last season.

Region 6

Price index .73. Sales steady to slow. Easy winter helped, but moisture needed in some areas. Cold snap ruined spring blooms in other areas. Brood rearing generally strong.

Region 7

Price index .73. Sales slow, but comb honey good sales item. Mild winter has propelled spring build-up.

Region 8

Price index .80. Sales steady to slow, extremely depressed in northern region. Spring has been wet but pollen in and some nectar coming in. Warm weather has advanced build-up requiring feeding in Montana and Colorado.

Region 9

Price index .76. Retail sales slow to average, wholesale activity brisk with prices average to high. Pollination of various crops underway with contracts somewhat below average, however some surprises being reported. Weather generally wet and cool but improving and build-up strong.

BOOK REVIEW

by Richard Taylor

Honey by the Ton, by Oliver Field. London: Barn Owl Books, 1983. Dist. in U.S. by Beekeeping Education Service, Box 817, Cheshire, CT 06410.

Mr. Field is one of the very few people in the British Isles who earn their livelihood at commercial beekeeping or, as it is called there, honey farming. The British, in spite of adverse conditions they are faced with, have long been among the most expert and dedicated beekeepers in the world, and Mr. Field lives up to that reputation. He is a master of his craft, and his book is a detailed account of how he does things.

We get an idea of how difficult commercial beekeeping in England must be when we read that the beekeeper must expect to get forty pounds of honey per colony, and should aim at fifty, if he is to make his livelihood at it. Even so, Mr. Field finds it necessary to move his bees often during the season, to put them within the reach of the available forage. And they must also be fed sugar syrup liberally, not only in the fall for winter stores, but even into the late spring, in order to maintain and build up their strength for the precious and infrequent honey flows. The author notes that one must get five tons of honey per season in order to make his living from bees, and must expect to have about two hundred fifty colonies.

One would have to be a very skilled beekeeper indeed to make his living as Mr. Field does, under the conditions he describes. This is what makes his account valuable to beekeepers here. His success results from great knowledge and skill and very little good luck, and he offers this knowledge to his readers. His clear and detailed chapter on queen rearing is especially valuable.

— Richard Taylor

BOOK REVIEW

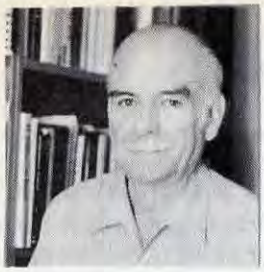
Richard Taylor

The Queen Must Die. by William Longgood. New York: W.W. Norton & Co., 1985, 234 pp., $12.95

This delightful book is by a professional writer who, ten years ago, inherited from his son a hive of bees that had starved the first winter. The author, restocking the hive and eventually expanding to four colonies, developed a profound fascination with bees and their ways, the "bee fever" that is familiar to so many of us.

The book nourished by this enthusiasm is neither a manual of beekeeping nor a scientific treatise. Instead, it is a description, sometimes a romantic one, of the bees ways, together with Mr. Longgood's speculations upon the meanings to be found in their complex social life. One is reminded here of Maeterlinck's classic **The Life Of The Bee**, by which the author was obviously influenced and from which he quotes.

A well read and experienced beekeeper will thus not learn much not already known from reading this book, but, rather, will find those things not known beautifully expressed, and speculative questions will perhaps be raised not considered before. One thing I did learn, that I had not known, is that a normal colony of bees, requiring four or five hundred pounds of honey each year for its own survival and growth, must gather about a ton of nectar to meet this requirement. There are only two illustrations, both of which are supurb quality. There should be many more.
Richard Taylor



The Bee Specialist

by ELBERT R. JAYCOX
5775 Jornada Road North Las Cruces, NM 88001

New Zealand Experience

I have just returned from a month's visit to New Zealand to meet some of the apicultural advisors, beekeepers, and other people associated with the beekeeping industry. It was an even better trip than I expected, with friendly and knowledgeable people everywhere we went, and the beautiful backdrop of lush pastures, high mountains, and the nearby ocean. At least for awhile , you will have to put up with stories about New Zealand in my writing. The practice of using ideas from New Zealand apparently is not new. They have always sold most of their honey in a finely crystallized form that is soft, smooth, and easily spread. One man told me that the late Dr. E.J. Dyce of Cornell University visited New Zealand many years ago, saw the processing method, went home, and patented the technique of preparing finely crystallized honey by the addition of a prepared "starter". I cannot vouch for the accuracy of the story, but it seems possible.

One of my first visits in New Zealand was with Cliff Van Eaton, apicultural advisor, and Terry Gavin, queen breeder,both from Whangerei on the North Island. Terry's methods call for regular requeening of his queen rearing colonies. To do this, he uses paper "bags" made of newspaper. These are folded newspaper, about six inches square, with three stapled edges. The new queen he plans to introduce is caught and placed in a match box. He then scoops up 20 to 100 worker bees into the bag from a brood comb of the colony to be requeened. After shaking them in the bag for a half minute to disorient the bees, he drops the queen into the bag, making sure she is not in a corner when he folds down the top of the bag and places it between two frames of brood. According to Terry, the acceptance is good with this system and the queen lays right away. I intend to test the method and will report later on the results.

Gavin does his queen grafting (transferring larvae from worker to queen cells) with a sable brush (Size 000). It slips easily under the small larvae and releases them quickly when rotated in the queen cup. The person doing the grafting uses an illuminated magnifier to be sure there is a larva on the brush as it is removed from the worker cell.

Furadan Problems

The Mesilla Valley of New Mexico, where I live, has had a long-standing problem with very serious bee losses from the application of carbofuran (Furadan) for the control of alfalfa weevil. At least part of the problem is the presence of blooming mustard in the alfalfa fields, which are not in bloom at time of treatment. However, beekeepers in this and other areas of New Mexico are convinced that the insecticide travels with the wind and kills bees at long distances from the point of application. They have tried in many ways to reduce the problem, including asking for a ban on Furadan, all without success. They would prefer that any other pesticide be used, including parathion! For several years they have met with regulatory and extension people, applicators and pesticide sales people to decide upon a special period for Furadan applications in the spring. It is then agreed that the insecticide will not be used before or after the set dates for that season. If it appears that weevils will be a general problem in the Valley, as it does this year, the beekeepers can only move their bees out of range of alfalfa during the period selected. Otherwise, they know they may be subject to serious losses. We all hope that a new pyrethroid insecticide will be approved soon for weevil control. It is toxic to bees but should be less damaging than Furadan because of the low dosage needed.

Associations — Don't Desert Them

As times get tougher it is easy to decide that you can no longer afford to support your beekeeping associations. But it is in times like these we need them the most to fight for what we want and need and to serve as a strong voice for the majority of a small industry. Without associations we are lost among the giants of agriculture. Consider dropping other magazine subscriptions or other expenses, but stick with the beekeeping associations that work for you. If you are not a member, please join and help to make the crucial decisions about honey marketing, exotic mites, African bees, and quarantines that could put you out of business.

Collecting and Counting Bees

Collecting bees for mite samples is a tedious job that can be made easier by proper equipment. Some inspectors are using portable vacuum units to do the job, such as Dustbusters and other brands. They have the disadvantages that you must transfer the collected bees into a second container.

If you are not satisfied with your collection techniques, you might want to try another setup. By coincidence, P.G. Clinch (New Zealand)

and I published similar reports on how to make battery operated samplers that put the bees directly into containers of various kinds including jars, cartons, vials, and even screened cages. My study was published in the ***Journal of Economic Entomology*** 63(1):327-328, Feb. 1970. Clinch's report appeared in ***The New Zealand Beekeeper*** 32(3), Aug. 1970. I will send you a copy of either or both reports on receipt of a self-addressed stamped business envelope with your request.

MARKETING TIP

Another good promotional idea is holding cooking schools. A very real need has developed in the basic techniques of food preparation. And to keep this in tune with the times we need; whole grains, honey, yogurt, Tofu, soya and vegetable entries plus munchies and dips. I realize that most readers know the trends but what one does about them is another problem.

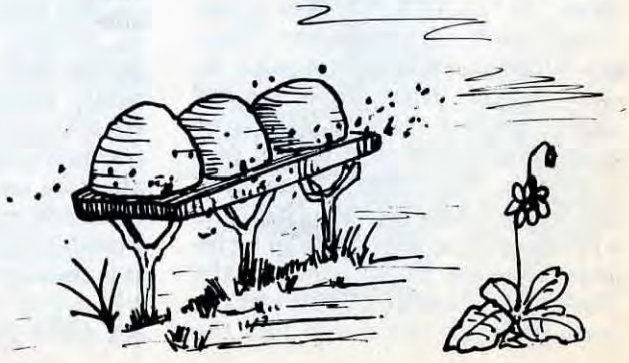
The Honey Council has an excellent basic honey teaching kit available from the Canadian Honey Information Centre at 1960 — 1055 Hastings Street, Vancouver, B.C. V6E 2E9. This kit covers the basic knowledge needed very quickly.

The need for courses exists in many areas because during the 70's and 80's School Home Economics has become Family Studies and the curriculum has been changed to solving personal and family problems — housing, interior design, foreign foods, child care and consumer buying. The actual basic nutrition, meal planning and food chemistry along with well planned meals everyday is long gone.

Sometimes, problems arise from families missing out on "a meal together." The Yuppie or upper professionals and adequately employed groups are feeling this problem. Food classes would be helpful and indeed many of you have been trained to do meaningful food demonstrations. If you could be sponsored by your Local Beekeeping Association or a Community College — you might develop a trend and promote honey as well as proper meal planning at the same time. This is an example of knowledge needed. 1) Flour ground from whole grains and grown on fertile soils is a big step toward good nutrition. 2) Be sure flour is finely ground from high protein or hard wheat flour. 3) The whole grain soft wheat flour will make cakes and muffins, but not good yeast bread. These are just a few helpful hints.

Unless you hold a class and actually demonstrate basics, people fear to try. Just last week I phoned a beekeeper and his wife said: "Just a minute, he's making bread." Making basic nutritous food is good therapy.

—Canadian Beekeeping



Testing Your Beekeeping Knowledge

CLARENCE H. COLLISON, Extension Entomologist
The Pennsylvania State University, University Park, PA 16802

Contrary to the beliefs of many individuals, bees and wasps normally only sting to defend themselves or their colony. Stinging should be considered as a form of defensive behavior rather than aggression. When honey bee colonies are handled properly and precautions are taken, stinging should not be a major problem. Most beekeepers develop a tolerance for bee venom in time. This reduces the sensitivity to pain and swelling. **How familiar are you with defensive behavior, stinging and the factors that regulate this activity? Take a few minutes and answer the following questions to determine how well you understand this important topic. The first seven questions are true and false. Place a T in front of the statement if entirely true and a F if any part of the statement is incorrect (each question worth 1 point).**

1. _____ Young worker honey bees less than 1 day old are unable to sting.

2. _____ The shaft of the sting appears to be a solid structure, but is actually composed of 2 separable pieces.

3. _____ The number of guard bees found at the colony entrance is inversely related to the strength of the nectar flow.

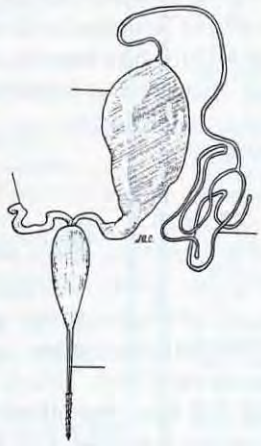
4. _____ Since the sting of the queen is a modified ovipositor(aids in egg laying), the queen is unable to sting.

5. _____ An individual who is allergic to yellow jacket venom will not necessarily develop an allergy to honey bee venom or the venom of other stinging insects.

6. _____ The poison gland which is part of the sting apparatus produces venom and the alarm pheromone isopentyl acetate.

7. _____ Guard bees are usually not aggressive toward foreign workers that enter the hive with a load of food.

8. Listed below are several parts associated with the honey bee stinger. Please label the diagram with the correct structures. (Question is worth 4 points).A. Sting shaft B. Alkaline Gland C. Poison sac D. Poison gland, venom gland or acid gland.



MULTIPLE CHOICE (1 point)

9. About _____ percent of the population in the U.S. are hypersensitive to bee stings. A)4 B)1 C)2 D)3 E)5

10. Please indicate three ways in which the sting of the worker differs from the sting of the queen (3 points).

11. Name two stimuli used by guard bees to recognize intruders and robbers. (2 points).

12. Stingless honey bees are common in the tropical regions of Central and South America. Please explain how these honey bees defend their colonies (2 points).

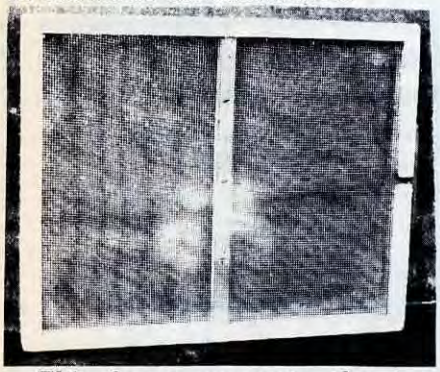
13. What happens to a robber bee after it is stung be a guard bee? (1 point). **Answers on page 255**

Bee Talk

RICHARD TAYLOR
Route 3
Trumansburg, NY 14886

Not much has been written about the double screen as a tool of colony management. It is an easily constructed device that is exceedingly useful in certain methods of swarm control, two-queen systems, and colony divisions.

What is a double screen? Nothing but a frame, the size of a hive, with screen tacked or stapled to each side. Strips of wood, about a quarter inch thick, should be tacked around the edge on both sides, over the screen, and this strip should have a notch, on both sides, either of which can serve as an entrance for the bees when the screen is in place. Regular 16-gauge fly screen works all right for these double screens, but the heavier eighth-inch screen is much better. In either case it is a good idea to fix a strip of wood across the frame before tacking on the screen, as shown in the illustration.



This brace prevents the two screens from coming together in the middle. I used to make up these double screens as a by-product of putting together comb honey supers for my round sections. I did this by ripping regular hive bodies, before they were nailed up, down to four and a half inches, on my table saw. That gave me two comb honey supers from each full-depth hive body, plus left over strips just right for making up double screens.

Introducing Mr. Cranson...

So much for how to make them. What do you use them for? There are lots of uses. I'll illustrate just one by describing how Mr. Louis Cranson, one of the premier beekeepers or our bee club, has nearly tripled his honey crop with a management system that includes the use of double screens.

Mr. Cranson's bees are all wintered in two-story hives. Around mid-April he goes through the apiaries and 'reverses' every colony, that is, interchanges the top and bottom story of each hive. This is to get the brood and bees well distributed throughout both stories. It is a common management procedure. Then around the first or second week of may he goes through the apiaries again and inserts a double screen between the two stories of each hive, with the entrance notch up, (the lower notch is plugged), giving the bees in the top story an entrance. The result is that the queen is confined to one stroy or the other, usually the upper story, and the other half is left queenless. The queenless half now proceeds to raise a new queen, who emerges, mates and begins laying in about three or four weeks.

The Next Step...

As soon as this new queen is laying, the hive body with the old queen, which will usually be the top one, is moved off to one side on a new bottom board, and given its own inner and top covers. Thus the returning field bees join the weaker colony division having the young queen, thereby strengthening it. At the time this division of the colony is made, each half gets a queen excluder and the first honey super. More supers are added as needed, so that by the first of July each hive will usually have three supers. By the end of July extracting has begun, enabling Mr. Cranson to have freshly extracted supers on hand for the fall crop. Then, between August 10 and August 15, Mr. Cranson sets all the supers off each hive, re-unites the two halves using the newspaper method, placing the half with the new queen on top. On this two-story colony goes an excluder and the supers that were extracted in July. The result is very powerful colonies just as the fall goldenrod flow begins. One of the queens perish, of course— normally one would suppose, the older one. So that the colony is thus automatically requeened.

It gets results...

This system gets good crops. Mr Cranson tripled his crop in just three years using this system, and has seen his scale hive gain 92 pounds just from the goldenrod flow alone. And there are other advantages, one being that his colonies get requeened regularly. Another advantage noted by Mr. Cranson is that, until the fall flow, the hives are not too high to work with easily. The one disadvantage is that you have to have two bottom boards, covers and inner covers for each colony. Mr. Cranson thinks this is more than compensated for by the fact that you begin and end with only half as many colonies. Thus, you start with, say, 100 colonies, expand to 200 and go back to the orginal 100 come fall.

To Requeen?...

One modification of the foregoing system suggests itself, and that is to requeen the queenless half after the division, with a mated queen purchased from the south. I think this would be an improvement, for it would eliminate the three or four week waiting period for the queen

cont pg 243

The Washington Scene

By GLENN GIBSON
Minco, Oklahoma

Since last issue I have been working with members of the House and Senate Agriculture and Appropriations committees on price supports and bee research appropriations. Also, I sandwiched some visits with USDA officials in APHIS, ARS and ASCS.

PRICE SUPPORTS

On March 6, 1986 the Department of Agriculture published a notice in the Federal Register outlining their general ideas for our honey loan program for the 1986 honey crop. Beekeepers were given until March 24 to comment on the proposal. Following this period of comment the Department stated that their announcement for 1986 would be April 1. The important point in the notice was: "...Producers will be permitted to repay such loans at the lesser of the loan level for such crop, or at a level which the Secretary determines..." This means that the Secretary will implement the market loan concept for our program. Talks with congressmen and Department officials indicated the big problem would be a fair determination of the pay back figure to satisfy the loans.

Soon after our program was approved in the Farm Bill, we asked the Department to include the 1985 production in the market loans. Everyone thought it was a good idea, but we could find no way that this could be legally done without legislation. This route is a no no, so I guess we will forget the idea.

ADMINISTRATIVELY GRAY AREAS

It is our understanding that commodity loans on honey will be reduced 4.3 per cent as authorized in Gramm-Rudman. This hardly seems right since the new program authorizes a pay-back level well below the support price. It would seem fair to figure our Gramm-Rudman cuts on the net expenditure.

We feel that the rules relating to defects should be waived on honey that is redeemed under the pay back provision. If a buyer is willing to accept the defects, would the Government need to bother?

BEE RESEARCH

I have filed a statement with the House and Senate Appropriations Committees outlining our recommendations for bee research as follows: 1) Continue operations of the Madison Lab, 2) Commence a study that would revise and update all statistical data relative to honey production, pollination, honey imports etc.

IMPORTS

Congressional letters to beekeepers quite often refer to the dark days of Smoot-Hawley and how it caused the Depression. Also, there is a general reference to negative effects of protectionism and how much these measures will cost the consumer. AHP member, Jerry Stroope, Texas, received such a letter from his congressman who enclosed a lengthy article from **THE WALL STREET JOURNAL** entitled "Toying With Depression."

Stroope wrote his congressman on March 5, 1986. Two paragraphs warrant our attention:

"In my opinion our so-called 'free trade policy' is slowly killing the American producer. If the present trend continues, it won't be long until those in Asia and Africa will be feeding us. Changing our country from industrial to a service one isn't a step forward. I realize that my views are a bit biased, but I feel that I should voice them because my livelihood is at stake, and unless something changes on the import scene the commercial beekeeper will disappear.

"It appears to me that we have a hodge-podge of ineffective agencies in Washington that are supposed to deal with trade. Penalties for violations of trade agreements are almost nonexistant – amounting to no more than a slap on the wrist. In direct violation of solemn trade agreements Japan and the Economic Community have a 28 and 30 percent import duty on honey. It is doubtful that such a small item as honey is mentioned in any trade discussions. Other items get a small dose of 'band-aiding'."

Last week visits in the halls of Congress gave me an excellent opportunity to gripe about the duties on honey going into the Economic Community and Japan, and ask endless questions about the basis of our so called free trade system. The answers leave me upset and anxious to learn more while trying to keep in mind that I am ignorant of my own ignorance about international trade.

As near as I can determine, the basis of our so called 'free trade' policy is based on the doctrine of the noted English Economist, Adam Smith and his ardent disciple, David Ricardo. Adam Smith (1723-1790), wrote the **WEALTH OF NATIONS** which was published in 1776. David Ricardo (1772-1823), another noted English economist wrote several books promoting free trade.

Smith believed that if government abstained from interfering with free competition, industrial problems would work themselves out and the practical maximum of efficiency would be reached. He felt that this policy could be applied to interna-

What's In Your Smoker

by DEWEY M. CARON — Reprinted from *The Newsy Bee*

Spring is the time to master use of the smoker. The smoker should be our ally, right? Sometimes it seems the hardest part of colony inspection, failing us when we need it most.

A smoker works by modifying worker behaviour of guarding. We can enter a colony, perform our activity and exit without stings by proper use of a smoker. We must also remember that smoking has a negative effect on the colony by reducing flight (and honey yields if a colony is smoked during a nectar flow) and robbing can start in an apiary following smoking and colony inspections. Certain fuels can shorten bee life and even our own health or enjoyment of beekeeping may be adversely affected by the smoke.

Probably the three aspects of the smoker that we would like to improve are: lighting it to say lit, the best smoker fuel to use and when and how to apply smoke. Here are some comments and suggestions on these points.

Lighting Your Smoker

Light the smoker from the bottom starting with easily flammable materials, adding your regular fuel on top carefully so as not to snuff your fire. I light newspaper that I crumple or use very dry leaves or grass and let the starter materials fall to the bottom of the cold smoker. I get this fully enveloped in flame by pumping the bellows to heat the smoker. I ignite the bottom of my main fuel which I add next. It is necessary to be careful not to burn fingers or have the flame leap out to ignite something else.

The main fuel should be placed on the starter fuel as it catches fire and then packed into the smoker to make a tight mass of fuel. Pump the bellows as you pack the smoker to keep your main fuel source burning and continue pumping as you put your veil on, gather your equipment and prepare to inspect bee hives. You want a cool smoke that doesn't feel hot to the back of your hand but one which gives a cloud of smoke with just a few puffs.

The Best Smoker Fuel

A good debate at a beekeepers gathering is the one of the "best" smoker fuel. Burlap has to be one of the best smoker fuels but it is not readily available any longer. Plastic feed bags (or plastic of any kind) should not be burned as it may release toxic chemcials. A close second to burlap as the "best" smoker fuel is baling twine. It is readily available, reasonable and has the long burning qualities we like in a smoker fuel.

Most baling twine is treated with a low level of cresote to help prevent rot. When new, it is difficult to ignite. Both aspects can be positively affected by aging and washing the twine. You can soak and dry new twine or let nature do it by hanging twine outdoors to be washed by rains and dried in the sun. One precaution is to avoid using baling twine treated with copper naphthenate which can be recognized from its greenish color and slightly sticky feel.

The next best fuel is that which mother nature provides in abundance. Some beekeepers like grass cuttings (saved in plastic bags), others like dead leaves (gathered in the fall), pine needles, straw or hay, or rotten wood. All satisfy the criterion of being readily available and cheap though they can be hard to light (especially if wet) and may burn too fast and become too hot. Some beekeepers don't like them because of allergy problems.

Finally some beekeepers have other favorites. Some like paper or cardboard (though hard to pack and burns too fast), oily rags (bad odor problems), old diapers, towels, terry robes, etc. (great but of limited supply) or materials augmented with kerosene or lighter fuel (odor again plus added expense).

Whatever you use be certain to pack the smoker tight with your fuel, after thoroughly igniting the bottom of the fuel source and remember to continue pumping the bellows periodically to keep the fuel burning. If you haven't tried seasoned bailing twine or pine needles I heartily recommend you try these fuels and I suggest each beekeeper have a bail of straw available for fuel.

Using Your Smoker

It is extremely dangerous to attempt to open any hive without a smoker going and readily available for use. Gentle colonies, careful prying or examining mating nucs are situations where you may not need a smoker but you are taking a chance. Some colonies may not need much smoke; all colonies should be smoked as they are opened. Apply smoke to the entrances and as you pry covers. Smoke top bars before lifting frames and between boxes as you remove boxes to inspect lower portions of the hive.

tional relations and his discussion of the matter is the classical argument for free trade.

Ricardo's work set forth the basic case for the free trade system; namely, that it is to the advantage of nations to specialize in the production of goods and services in which they are relatively efficient, and to import from other nations those goods and services of which they are relatively inefficient. By adherence to this so-called law of comparative advantage, he said, nations could better attain higher levels of real income and consumption than they could by acting in isolation. Ricardo's system would require each producer of goods and services in the world to compete with all other producers in the world without intervention by his own or any other government. NUTS.

A CURSORY GLANCE AT OUR TRADE RELATIONS INDICATES THAT THE U.S. IS THE ONLY COUNTRY ON THE GLOBE THAT GIVES CREDENCE TO THE SMITH-RICARDO DOCTRINE.

U.S. TRADE LAWS

Many of the international trade problems facing the industry and agriculture today seem to stem from the difficulty in using our trade laws. Steps need to be taken to strengthen these so they will be responsive and useful to small industries like ours. They were designed to assist against unfair foreign competition; but, instead, they are prohibitively expensive, require complex data and documentation, and entail lengthy proceedings. Since the enactment of the Trade Agreements Act of 1979, the cost of excercising U.S. trade laws has increased substantially, and this has effectively barred small and medium-sized industries from access to their legal right.

WHAT BEEKEEPERS NEED TO DO!!

The works of Smith and Ricardo are boring. Nevertheless, I hope you will study their philosophy since many of our leaders are basing their thinking on an inapplicable doctrine from the 18th centry. Also, we need to complain about the high duties of honey going into Japan and the Economic Community -- not once, but several times. Your help will certainly be appreciated. May we count on you?

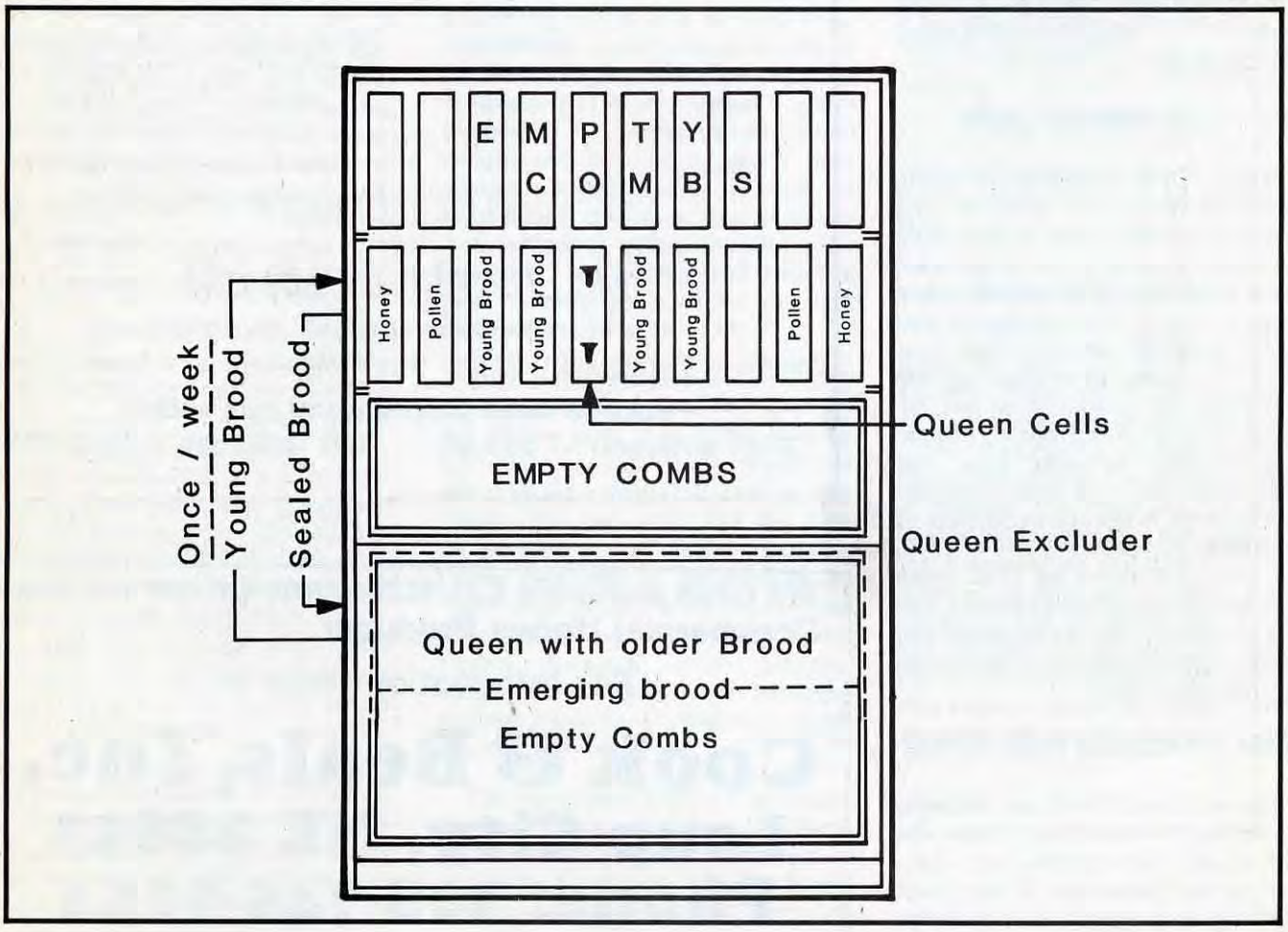
QUEEN REARING: Theory and Practice Part III. Weekly Timetable

by Roger Hoopingarner Dept. of Entomology Michigan State University East Lansing, MI 48824-1115

This schedule was developed for use with the most commonly used queen rearing system, the queenright colony, with the queen cells being started in a swarm box. (See Part II in last months GBC). It also uses a double graft system such that the selected larvae are grafted into a bed of fresh royal jelly. Most queen breeders do not double graft because of the expense, but rather "prime" the cells with some water or dilute royal jelly. If you are not going to double graft then preparation of the starter box is moved to the second day (Day 1 of the schedule).

It is important to keep track of the time schedule as cells have a habit of emerging earlier than sometimes planned, because the larvae grafted were older than 24 hours. In order to prevent getting larvae that are older than the 24 hours, I suggest that for the first few times that you graft, time the eggs and larvae by putting a frame into your breeder colony and have the queen lay eggs on it for a day. Then place it above an excluder or into a queenless colony for three days. Most people find the larvae smaller than expected. However, if the colony feeds the larvae well and you use a good light the small larvae will be readily seen. Do not use sunlight for your viewing light as the larvae can be killed very quickly.

Do not be concerned about cool temperatures as the eggs and young larvae can stand it very cool for



hours with almost no effect. However, do be concerned about the larvae dying out, especially those grafted into the queen cells. In some areas you will have to protect the larvae from drying more so than other areas simply because of the low relative humidity. Keep the larvae covered with a dampened cheesecloth whenever they are away from the colony.

Figure 1 outlines the brood frames and how brood is to be moved in the queenright colony in order to produce queens. Refer to Part II of this article for a description of this queen rearing system.

MONDAY (Day 0)

A. Preparation of Swarm or Starter Box.

1. Place 3 wet sponges on screened bottom of 5-frame swarm box. (Important in dry areas.)
2. Place 3 frames of open honey **and** pollen from starter colony into swarm box leaving space between for frames of cell bars.
3. Shake 4 or 5 frames of bees off **young** brood from same colony.
4. Close up bee-tight.

B. Weekly Manipulations of Cell Raising Colonies.

1. Locate queen below excluder and temporarily cage her.
2. Move young brood from below excluder next to last week's queen cells in center above excluder.
3. Move brood that was next to queen cells out to "second position" (examine for queen cells).
4. Move older brood about to emerge from top to center below excluder along with available empty combs.
5. Position combs with pollen next to brood.
6. Position honey next to outer wall of hive.
7. Release queen below excluder.
8. Feed pollen whenever drone larvae are absent.

C. Grafting (1st graft)

1. Prepare cell bars each with 15-20 wooden cell cups and new clean wax cups. (or use wax cups with provided base.)
2. From any colony select one frame containing 1-2 day old larvae, brush bees off, wrap in moist towel.
3. Graft 24-36 hr. larvae into each wax cup. Cells may be primed with diluted royal jelly or with water.
4. Place 2 cell bars in each cell-bar frame.
5. Put cell-bar frames into swarm box between frames of honey and pollen.
6. Place pollen cake on top bars if pollen is low in frames.
7. Place swarm box in dark, cool, quiet environment.
8. If acceptance is less than 80% for persons experienced in grafting, consider the possible cause(s).

   a) Too many or too few bees in swarm box.

   b) Bees too cold.

   c) Accidental inclusion of a queen in the swarm box.

   d) Brood diseases (not always accompanied by dead brood).

TUESDAY (Day 1)

A. Grafting (2nd graft)

1. Remove cell bars from swarm box, brush off bees.
2. Return frames and bees to starter colony, save pollen cake for finishing colony during season when drone larvae are absent.
3. Remove 1st graft larvae from cells.
4. Select frame of 24-hr. larvae from breeder colony for grafting. Brush bees off, wrap in moist towel.
5. Graft new 0-24-hr. larvae into royal jelly.
6. Place cell bars into cell raising colonies — 1 or 2 bars per colony.
7. Record information about graft.

WEDNESDAY (Day 9)

A. Preparation of Nucs for Queen Cells

1. Nucs can be made by removing frames with bees, brood, honey, and pollen and placing them into a small hive. Date each nuc and install queen cells after 24 hours, but before 7 days.
2. Package bees or bees shaken from brood combs can be used as a source of bees added to nucs with empty comb or foundation. These need to be well fed with syrup and pollen.
3. Nucs used previously can be de-queened 24 hours prior to introduction of the queen cell. Check for queen cells if the nuc has been queenless for a week or longer. Always record date queen was removed so you can anticipate the presence of a nuc-reared virgin.

B. Checking Nucs.

1. Nucs should be inspected weekly for queen condition, honey stores, pollen stores, population and disease.
2. Add brood or bees, honey or syrup, pollen or pollen cakes, or remove same to maintain desired strength and condition.
3. Avoid any activity that would induce robbing. Installation of robbing screens is recommended for times of dearth.

THURSDAY (Day 10)

A. Distribution of Queen Cells.

1. Remove cell bars from cell raising colony, brush bees from cells, avoid jarring or inverting cells, keep at 90-95°F.
2. Remove a cell from a bar, or holding block, and place in the middle of each nuc.
3. Record information about queen cell for each nuc.

Books On Queen Rearing

Laidlaw, H.H., Jr. 1979. *Contemporary Queen Rearing.* Dadant & Sons, Hamilton, IL 62341. 199 pgs.

Morse, R.A. 1979. *Rearing Queen Honey Bees.* Wicwas Press, 425 Hanshaw Rd., Ithaca, NY 14850. 128 pgs.

Ruttner, F. 1983. *Queen Rearing. Intern. Bee Res. Assoc., Hill House, Gerrards Cross, Bucks. SL9 ONR England.*

Snelgrove, L. 1981. (4th Ed.) Beekeeping Education Service., P.O. Box 817 Cheshire, CT 06410.

MORE INFORMATION

★ ★ Vote ★ ★

At printing, a tentative date of May 15 — June 1 has been set for voting on the proposed Honey Research, Promotion and Consumer Information referendum.

Producers, importers or any beekeeper who has produced 6000 pounds or more of honey per year is eligible to vote on this critical issue.

Ballots will be sent to those beekeepers who have used the loan program, importers and others who are on record as having produced 6000 pounds of honey.

For those who DO NOT receive a ballot and qualify to vote, ballots can be obtained from your nearest ASCS office

When you have voted, return your ballot to Washington, where the ASCS office will tally the votes. The ASCS office has stated that verification of eligibilty will be required from a voter if asked to do so.

Both the immediate and long term future of the honey and beekeeping industry will be decided by the outcome of this vote. Funds generated by assessments will promote advertising and consumer information — which can not but help increase the sales of honey. And, the benefits of a unified research program will aid all beekeepers — and those who depend on us.

VOTE YES IN MAY

A Beekeeping Personality—Pat Radloff

by STEVE TABER of Taber Apiaries 3639 Oak Canyon Lane Vacaville, CA 95688

When I attend the many beekeeper meetings, two groups of people are notably absent — young people and women. Most of the people in attendance at bee meetings are old men like myself and their wives. Sometimes while attending meetings of mostly amateurs, I see the ratio change to a more nearly normal representative population, but not usually.

The Eastern Apicultural Society (EAS) is a large bee organization that attracts many hobbyist beekeepers to their summer conferences, and that is where I met Pat Radloff this past August in Lancaster, PA. I was there to give a series of lectures at the shortcourse, the meeting and the workshops.

In visiting and talking with Pat, I realized that she was not just an ordinary amateur at beekeeping but a bit different. So what makes Pat interesting enough to write an article about? Read on and see.

A number of years ago the EAS adopted a self-teaching program leading to the award entitled "Master Beekeeper". In order to receive this honor, the examination is divided into three parts: a field test, a written exam and the lab test, which is written and oral covering theory and practice. Clarence Collison's monthly article in ***Gleanings,*** entitled "Testing Your Beekeeping Knowledge", gives you an idea of what's involved. The questions aren't difficult but they aren't easy, either, and you need to have studied several bee books to be able to answer them. Another part has to do with things like putting together equipment, identifying diseases, working hives, finding queens and so on. In 1985, Pat was one of just four women to have ever earned the title,

Friends at the Eastern Apicultural Society Meeting in Pennsylvania, Aug. 1985. Tom Ross (of Ross Rounds), on left, Pat and Richard Taylor (*Gleanings* columnist) right.

"Master Beekeeper". Not many men have earned the title either, and I am sure I would flunk the exam, because most of my formal school history was fighting tests and flunking.

On the day her award was given, Pat said, "That's a day I'll always remember. I won a beautiful handmade quilt and made Master Beekeeper all in the same day". But Pat likes to give credit to all who helped her along the way: Dr. Walter Rothenbuhler, Vic Thompson, and Kim Fondrk and Ohio State University. Rick Helmich showed her how to graft larvae for queen rearing when he was a graduate student, and then there were long-time beekeepers like H.A. Fulton and C. Knepley, who shared their ideas and encouragement. Also there are the county bee inspectors, Charlie and Tim, who took her along and showed her what bee diseases looked like.

"The Master Beekeeper means something to me — it's sort of a trust. You're supposed to turn around and teach somebody else", explained Pat. Robert, her 12-year-old neighbor has asked her to teach beekeeping to his boy scout troop as part of the merit badge program. Pat thinks it's exciting that one or two of those boys might go on to keep bees.

Pat has been interested in bees for eight years and runs over fifty colonies which are placed in a number of bee yards, including some in the back yard of her rural home. Last year because of expansion and other reasons, her gross honey production was only 1,500 pounds, but it is certain to improve in coming years. She does all the work from assembling the hives to stocking

Checking her inventory of bee supplies.

them with bees to removing, extracting (with a bit of help) and selling the honey. Four years ago she became a dealer for the A.I. Root Company and in this capacity she is constantly listening to a lot of beekeepers talk of their problems and helping them solve those problems.

With that idea in mind, she founded a newsletter a year ago just to provide information for beekeepers. There are many people with a few colonies in the backyard who are too busy to attend meetings or read books. They have questions of what to do and when, on everything from wax moths to selling honey. That's where "Better Beekeeping" comes in. If it's a question that can't wait they will call her and she provides then and there, or researches the answer for them. "Better Beekeeping" is a management guide sent every other month, designed to help small-time beekeepers save time, money and effort to better enjoy their beekeeping hobby. Latest information is always updated on national, state and international news items through a series of regional correspondents. For further information, consult the full-page ad in ***Gleanings,*** Oct. 1985, or contact Pat at P.O. Box 66, Westerville, Ohio 43081.

What are Pat's special concerns and interests for the future of beekeeping? First is the bad press regarding the Africanized honeybee (AHB). Public reaction could cause a loss of bee yard locations. She says,

Pat with her bees in the Ohio snow. Ohio winters can be really cold so that bees always have to be prepared for severe weather.

"There are some things any beekeeper can do to minimize the AHB problem". People will ask their beekeeper neighbors about the "threat" – that's why she keeps readers up to date on current information that they can pass on. She is more concerned with the possible introduction of the varroa mite than the internal mite that has been in this country now for a number of years. As far as bee research is concerned, she thinks that since most beekeepers in the country are either part-timers like herself or straight-out amateurs, the most important

Pat spends a lot of time at the typewriter getting her newsletter "Better Beekeeping" prepared and mailed out.

bee to put on the market is a gentle one, whether it makes lots of honey or not.

Pat is the proud mother of five grown sons, none of whom are interested in bees, but they are supportive in many ways. One son with a pilot's license took her flying one morning giving her a chance to map all the local alfalfa fields. In addition she has coaxed several of them to pose for photos that appeared in ads and an A.I. Root dealer's manual.

Pat's personal goals? To make a living in beekeeping, she says. That includes the newsletter, selling honey and bee equipment, but in the meantime, she has a full-time job working in the winter and a part-time during the summer. This gives her time for her bees, especially queen rearing during the active bee season—and that's what it's all about, working and being with bees.

We need more people like Pat to get into the bee business, who study, learn and then pass on their knowledge to others rather than permit incorrect and hearsay information to stand unchallenged.□

Pat cooks with honey, don't you?
—Photo courtesy of Rosemary

Check Your Scale Hive

Sid Pawlowski
Reprinted from the Skeptic

Your scale hive can help you improve your honey production if you are willing to check it a little more frequently, especially during your honey flows. Most beekeepers keep a scale hive to get an indication of when the honey flow is starting; following that, they are too busy supering and removing honey to ever return to the scale hive for more than the occasional quick glance.

Several years ago, Jim Christensen set up a scale hive for his children to help them develop a greater interest in honey bees. They checked the scale from time to time throughout the season and sometimes several times during the day. It did not take them long to notice certain variations in weight and to try to understand what may be causing the differences.

Frequent readings throughout the various times of the day during honey flows proved to be particularly interesting. The increase in weight before noon would seldom exceed 20 percent of the total weight increase for a sunny day. The most rapid increase took place in the afternoon, expecially between 4 and 7 p.m. This did not surprise me because I was aware that in our area, beeyards that were exposed to the sun tended to perform better than the well-protected ones.

I have also observed increased bee activity in the afternoon every year during extracting time. Bees and brood that are inadvertently brought into the honey house will stay reasonably quiet all morning until 1 or 2 p.m., following which they will become restless and fly around. They settle down for the night and, if not removed, will go through the same pattern of behaviour the next day. It appears as if the bees have already been conditioned to sit relatively quiet in the morning but go into action for the afternoon, regardless of what the weather is like outside. This pattern of behaviour may be determined by the nectar secretion cycle of the plants in our area.

You may wonder what significance this may have to your operation. Well, I would suggest you check your scale hive every few hours during the honey flow to determine what general pattern of bee activity and weight gain occurs in your area. Then after you have considered all the factors involved, see if your bee yards could be changed or improved to favor greater bee activity and/or extend the period of this high activity.

Another interesting observation that Jim made was that the highest single day weight increase took place the day following the removal of honey and the return of an ample number of empty supers. The following day showed a slight decline in weight increase.

This reminds me of something Dr. Don Peer had stressed the year I started beekeeping. He advocated removing honey as rapidly and as frequently as possible even before it was capped to get maximum production. This was one feature of beekeeping it did not take me long to accept and stick with, not only for greater honey yields but also greater ease of extracting as well.

A more detailed look at a scale hive along with notes on the weather will help to show certain patterns or trends in your area, especially if you continue doing it over a number of years. Finally, do not make major changes in your operation on the basis of observations of one hive for one season.

Siftings

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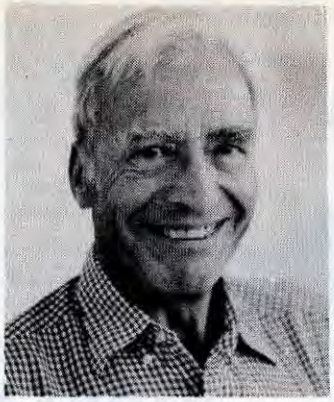

It is indeed refreshing to read in the March, 1986, issue of ***Gleanings*** the article by John N. Bruce, "Adventures in Bee Inspection". Beekeepers who have spent time in inspection can appreciate his adventures. There are only two ways that anyone can really learn beekeeping; one is spend several years either inspecting bees with an experienced inspector, or to work for several successful commercial beekeepers in different parts of the country. Keeping bees in several different countries will also add greatly to your knowledge of bees and beekeeping.

If you are a rank beginner and do not know a drone from a queen, then reading and bee schools can be helpful. But then you must learn from the experience of others. A man cannot live long enough to learn about beekeeping only on his own experience. If you work for a beekeeper with 30 years experience, you will gain this 30 years experience in perhaps two years. After that, you can learn on your own. Every commercial beekeeper has his own methods that may be completely different from other successful beekeepers, so by working for several you can adopt the best from each.

One comment from Mr. Bruce made on "Disease Free Bees", really strikes home. Back in the 1920's and 1930's when I got into commercial beekeeping, AFB was a serious problem; it was not unusual to burn up or melt up a third of all the bees because of this disease.

In 1928, when I got into a commercial operation on my own, I had my first personal experience with AFB. I bought my first 30 hives of bees with scarce depression dollars and the next year all but two came down with AFB. They robbed out a neighbors yard that was rotten with AFB. I gambled and requeened all the diseased hives with stock I hoped was resistant based on my past experience. The gamble paid off with almost 100% success.

In the 1930's I was able to get what we called the "Lockhart Carniolans", which proved to be 100% resistant to AFB. By that I mean a queen could be introduced into a hivebody, rotten with dried down scales, and in two months you had a clean, healthy hive of bees. And they were still clean 30 years later.

During that period, I cleaned up about 400 diseased hives soley by requeening with disease resistant stock. In 1934, I too, sent resistant queens to Frank Pellett at Dadant's who first became interested in breeding disease resistant queens. However, before the disease resistant program really got underway, sulfa drugs came on the scene, right after WWII. As Mr. Bruce says, this just about killed the disease resistant program. It was a lot easier to just feed the drugs.

Taber is making an effort to revive interest in Disease Resistant Queens. However, I do not see how he can do it with his breeding program, as apparently he is getting resistance with just the first generation. We spent years with selective breeding to build up resistance of greater genetic depth. My guess is that these first-cross resistant queens will be resistant for only one generation (if at all) and after that you are back to a disease problem. There is no question, we must go back to breeding for disease resistance, the drug route always leads up a blind alley.

I was also happy to see the article, "A Researcher Looks at Infant Botulism", by Dr. C.N. Huhtanen. This article is just what we need to show that the biased opinion of the California "research", (without experimental evidence to back it up) is not based on fact. Dr. Huhtanen states, "It is impossible to build up a case associating Infant Botulism exclusively with honey". Only two samples out of 200 (1%) showed spores in honey; but 8 out of 40 samples (20%) of corn syrup showed spores. Why didn't this warning extend to feeding corn syrup to infants? Another study showed that all botulism cases were associated with breast feeding! Were mothers warned not to breast feed their babies?

Dr. Huhtanen deserves the gratitude of all beekeepers to point out that we beekeepers really got a "dirty deal" in this botulism business. Some of the large packers of honey proposed to sterilize honey and destroy the botulism spores. As Dr. Huhtanen wisely pointed out this is impossible. All it will do is destroy the honey along with all its natural protective factors.

I noted another article, "Honey as a Medicine", by Charles Hess. Again we see that, where research has been done with feeding experiments with honey, it proves to have potent therapeutic properties. These protective agents in natural foods are present in tiny amounts, such as enzymes of many kinds. We still know nothing about these Immunological protective agents and factors, except they exert a potent influence on the immune system in tiny amounts.

This time of the year, beekeepers will begin to see articles, "When and How Often to Requeen?" There are so many different opinions that a

beginner, and even more experienced beekeepers will begin to wonder, "When is the best time?"

There is one rule, I believe, everyone must observe, "NEVER KILL A GOOD QUEEN, NO MATTER HOW OLD SHE IS"! I know many will dispute this, but after a few years, when you kill a lot of good queens and replace them with another, more likely than not the new queen will be worse than the one you killed. You know a good queen is a good queen, but you can never know if a new queen will be good or not, it is a big gamble. Actually, we never requeen. I have a philosophy, "Let the bees do it, they know when to requeen better than I do, and they have more time to do it." Of course it isn't that simple, as much of our "requeening" is done by dividing our best and strongest colonies in the spring. In that way, thru the process of natural selection, we perpetrate the best queens in our yards under our cold winter climate. Years ago, when we painted queens different colors each year, I had queens five and six years of age still doing good work.

EVERYONE HAS A SWARM STORY

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I don't know of many beekeepers who aren't affected by swarms. No matter how many times one has hived swarms, it's always exciting to observe the process - which usually goes something like this: A beekeeper gets a call that a large swarm has just landed someplace and the home owner is desperate. After all, are they not the dangerous, marauding insects that are looking for only the slightest reason to attack everything in sight? You and I know that's not the case, but we listen politely anyway.

After all is in place, the empty hive body positioned beneath the swarm, all on-lookers a safe distance back and the supporting tree limb securely in hand, we are ready for the ultimate 'tug' that brings the swarm tumbling into our domicle. It's all so easy (assuming the bees stay in our hive body). So how many beekeepers can just walk away after tugging the limb with an air of aplomb - probably none. We just have to hang around to be sure all goes well. Oh we justify it in many professional ways. We want to be sure the queen went in, or the bystanders have a great many questions, or we want to move the hive to a more convenient place. There's always a reason. But no matter. So what if we do enjoy watching an enthusiastic group of bees, hungry for a new home, go charging into the hive body we just assembled. Enjoying a moment of satisfaction seems to come so rarely, that I am unabashed when I say that I always enjoy it.

MY STORY...

But yet, recently it was a swarm that frightened me more than anything else in my entire beekeeping life. The story goes something like this. A few weeks ago, I had the opportunity to visit Venezuela to work with the infamous "Killer Bees". It was a first class experience that I shall not soon forget. Not just because of massive stinging, but because of the educational excitement of the moment. Part of this excitement was being able to participate in on-going research conducted by Dr. Rick Helmick at the USDA facility there. I jumped at the chance to assist with a drone capture study that was in progress and was issued my own desolate spot. Other members of the research party were left under similar conditions. My task was fairly simple. At predetermined intervals I would bring down a drone trap that had been baited with a synthetic queen pheromone to search for drones that we had previously marked. The trap was suspended approximately 20 feet in the air on a slender pole and was pulled up by a small block/tackle gizmo.

Now this pheromone thing really facinated me. To be honest, I was really a bit skeptical about how efficient it would work. I volunteered to load the pheromone onto blotters that would serve to disseminate the chemical. It was a simple process that everyone there seemed to have done before and I had no trouble doing it either.

AT THE SITE...

With everything loaded, we made the 40 minute trip to the collecting sites, and I was subsequently dropped off at mine. Now we always wanted to get to the sites long before we expected drones "just to be sure" that we didn't miss anything.

Under such desolate conditions, one has time - a lot of time to think. To watch vultures drifting on warm air currents, to feel the heat to which my Ohio blood was not accustomed, to watch the clouds drift over the foothills of the Andes mountains, all the things that I don't have the occasion to do otherwise were suddenly possible. All while we waited for the drones to come in as they had dependably done each previous day. I was in this frame of mind, when I was suddenly brought back to reality by the sound of a resonant hum that was gently coming up behind me. As I spun around I found myself in a biological wonderment. There were the drones coming in low and in vast numbers. Truly this was a happening. We had marked a great number of drones during previous days and I couldn't resist walking in the midst of thousands of drones just to feel the experience. While in the exuberation phase of this occurance, I was inspired to take off my cap and simply use it as an improvised sweep net to catch a few of these guys to see if they were marked. I made my sweep. I looked at my catch and they were all ***workers — every one was a WORKER.*** For the shortest eternity, I was dumbfounded. With the impact of a lightening bolt, I realized that I was not in the middle of a swarm of drones, but square in the middle of a swarm of the

Research Review

By DR. ROGER A. MORSE
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Africanized Bees More Tolerant To Certain Insecticides

Studies conducted in Venezuela show that European honeybees were relatively more susceptible to three of the four insecticides tested than were Africanized bees. The four insecticides were: permethrin, methyl paration, azinphosmethyl, and carbaryl (sold under the trade name Sevin). Interestingly, the Africanized bees were more susceptible to the carbaryl. The insecticides were dissolved in acetone that was applied directly to the bees. After the treatment the bees were held individually under paper cups and checked for mortality after 24 hours.

Whereas these studies were obviously limited in their scope and method of application, they were nevertheless of great interest. The authors state, "The observed selectivity may be predicted on a host of physiological, biochemical, and behavioral differences between the bee types." I expect we will see more studies of this nature in the future.

Danka, R.G., T.E. Rinderer, R.L. Hellmich II and A.M. Collins
Comparative toxicities of four topically applied insecticides to Africanized and European honeybees. Journal of Economic Entomology 79:18-21. 1986.

Instrumentally Inseminated Queens Lay Fewer Eggs than Naturally Inseminated Queens

In an earlier paper Drs. Harbo and Szabo established that instrumentally inseminated queen honey bees did not live as long as did those that were naturally mated. Also important is the fact that colonies with instrumentally inseminated queens produced much less brood.

In the paper cited below, Dr. Harbo sought to determine why fewer eggs were laid and what might be done to improve the quality of instrumentally inseminated queens. It was determined that carbon dioxide, which is used as an anesthetic when instrumental insemination is done, causes weight loss in queens and this may account for at least some of the difference. When nitrogen was used as an anesthetic the queens did not lose so much weight, but still they did not lay as many eggs or weigh as much as the naturally mated queens.

The number of eggs laid by queens varied with the colony populations. In colonies with about 3,000 bees the instrumentally inseminated queens laid 500 eggs per day while those that were naturally mated laid 700. When the colony population was increased to 12,000 bees, the figures were 700 and 900 respectively.

For several years it has been hoped that the instrumentally inseminated queens might replace naturally mated queens in honey producing colonies. Instrumental insemination is an important tool for the bee breeder and has allowed researchers to undertake many experiments that would not otherwise be possible. However, with our present knowledge, we appear to be some distance away from a more practical application.

Harbo, J.R.
Oviposition rates of instrumentally inseminated and naturally mated queen honeybees. Annals of the Entomological Society of America 79:112-5. 1986.

Growing Kiwi Fruit In New Zealand

An Australian visiting New Zealand reported that the production of kiwi fruit is increasing there. In 1984 there were about 22,000 acres in production. It is expected that that will increase to about 100,000 acres by 1995. At that time there may be a serious shortage of bees for pollination. Much of the fruit is exported.

At the present time it is recommended that about three colonies of honeybees be used per acre for pollination. Older, more mature orchards need more bees than do young orchards.

There is a definite correlation between fruit size and the number of seeds that are present. A fruit for export must weigh 72 grams (a little under three ounces). Such a fruit contains an average of 750 seeds. Of course, each seed must be individually fertilized and it is estimated that each female kiwi fruit flower must receive more than 3,000 viable pollen grains for this to take place. Older vines, especially those more than ten years old, need to receive even more pollen grains and have more seeds to meet the minimum export weight.

Kiwi is a crop that is difficult to pollinate. The pollen is dry and not easily collected by bees. It is produced by large, showy flowers on male vines. This pollen must be transferred to the flowers on the female vines. In the past growers have used one male vine for every eight female vines. That practice is changing and now the ratio is 1:6 or 1:5, but the area each male vine occupies is reduced so that nine to ten percent of the canopy area is occupied by male vines and flowers.

Two new practices appear to be aiding pollination. One is to place male vines on the edge of blocks so that these will be the first flowers visited by honeybees as they enter the orchard. A second practice is to graft a small piece of male wood onto the end of a female vine leader. It has been shown that fruits close to the male flowers contain more seeds and are larger.□

Rhodes, J.
Kiwi fruit pollination. The Australasian Beekeeper. 87:69-71. 1985.

infamous "Killer Bees". Now please bear in mind that I had no protective equipment at all, I was in the middle of nowhere and just that week, the local newspaper carried the description of a young boy being stung to death by the bees as he collected firewood. I instantly replayed my recollection of the child's scenario. What had he done to initiate the stinging response. Try as I might, I couldn't remember.

THEY FOLLOWED ME...

Well, no matter. I'll just give these girls all the space they need; after all I had 500,000 square acres out there. I moved away a few hundred yards, all the while with bees in my shirt, buzzing around my ears, falling behind my glasses, but not stinging. Not one. As I turned around to check out the situation, my heart sank. The swarm had distinctly followed me. No problem. I'll just give these bugs a few more yards in a different direction. I did that and they were still with me. "What is gong on?", (or words to that general effect) I recall desperately asking myself. And then the second lightening bolt of the day struck me. "This swarm is trying to land on me. I mean that the swarm is trying to land ***on me*** — James Tew. Not on a nearby limb, not on the ground, they're not just passing through, but they are attempting to land on me for I was the guy who loaded the pheromone onto the dummy queens and I had picked up the odor. Panic time. There was no one within miles of me. There was no one to help, but at the same time there was no one to watch me make a fool of myself so I did the sensible thing. I ran. I ran to a nearby cane field and, while watching for snakes, crouched in the undergrowth of the cane. As I sat there, I had the strongest scent of the orientation pheromone. That strong straw odor the bees give off when a beekeeper hives a swarm or a package and many bees are scenting. By now I am no longer capable of being surprised and the fact that I was carrying a thousand or so scenting bees on my cap was exactly what I was expecting. I wasn't wrong. They were there. I gave them my cap and found another position a short distance away. For the first time in what seemed like months (but was actually only ten minutes) I had a minute to think without bees being all over me. Am I in trouble here? Am I in imminent danger of death? Am I acting silly? These were all questons that I pondered as I realized that it was time to lower the drone trap and check for drones that had come in while I was otherwise distracted.

DEDICATION...

We had worked for a number of days to get ready to perform the experiment. Was I going to hide in a cane field and let the opportunity to collect some valuable data slip away? When the others found out that I was "attacked by a killer bee swarm" would I face endless ridicule? Since the bees seemed testy but were not stinging, I decided to take a two-step approach: first I left my sanctuary with camera in hand. I made a few pictures (of what turned out to be nothing after development). One can't photograph a swarm very well. My reasoning was that if I were to perish from the stings of these bees, then I would leave a photographic account of it. I had this thought more from a humerous view than one of danger.

The bees were instantly all around me as I ran to the trap, let it crash to the ground, and removed a few drones and several hundred workers from the trap and transferred them to a large plastic bag. While the trap was down, I removed the pheromone dummy and rubbed some of the synthetic "essence of queen" on some leaf rubble. The trap went back up and I was in the launch position back to the cane field.

SAVED...

The combination of my cap and the leaf rubble had a calming effect on the swarm and they began to settle on the rubble and my cap. I decided that I might live after all. Things calmed more as time passed. By the time I was due to be picked up, I was emotionally drained but realizing this was a rare moment, Rick and I photographed ourselves with a swarm of killer bees on the cap that I had been wearing. I was once again in charge of the situation. I expect this will be my "swarm story" for years to come. I certrainly hope so anyway.

(ASIDE) To those individuals with whom I was working with at the time, (and are getting a good chuckle out of this) this is how it happened. I don't want to hear any other variations of it.

DON'T THROW AWAY YOUR SMOKER

We purchased one of the sound-producing gadgets which were supposed to have a calming effect on honeybees. We used it repeatedly, one of us working colonies with this alone, the other on the opposite side of the apiary, using a smoker. Each of us followed this procedure using only the sound-producer, several times on several days. Later we used sound with and without the smoker.

Finally we gave up. In our apiary at least, we got more stings with the sound-producer than with the smoker and when we compared smoker plus sound with smoker alone, the smoker alone gave slightly fewer stings. Hence the title of this note — Don't throw away your smoker.

V.R. Vickery and S.D. Willis
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Ste-Anne de Bellevue, Quebec

Making Good Combs

Roger A. Morse
Department of Entomology, Cornell University, Ithaca, NY 14850

Making a good, uniform comb that is nearly free of drone cells is no accident. It is part of the artistry of beekeeping and requires close coordination between bees and beekeepers.

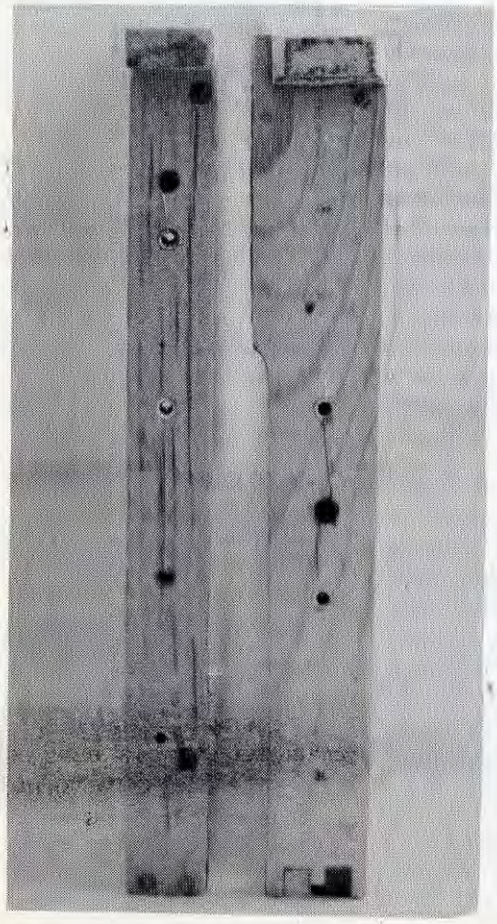
Each time a bee is reared in a cell, a silk cocoon, spun in the late larval stage to protect the developing pupae, is left behind. Old combs contain cells with cocoons from several cycles of brood, and thus become so tough that it is nearly impossible to break them in an extractor on in routine manipulations. New combs, on the other hand, are weak and easily broken.

As cocoons accumulate, the cells become smaller in size. As a result the bees reared in them are smaller. In Europe most beekeepers renew their combs every few years so that they will grow larger bees, which they believe will carry greater loads of nectar. I've never been convinced that this is important, since I feel it takes less energy to rear a smaller bee and that bees in colonies with old combs would rear more bees, thus make up the difference. However, I know of no data to support either opinion. Like many things in life, people often make up theories to fit their philosophies regardless of facts. Many beekeepers in the United states have some very old combs that are still in use. I'm certain that some of the combs in colonies in the Cornell University apiaries are at least 50 years old. Making new combs is expensive for both bees and beekeepers no matter what shortcuts one takes.

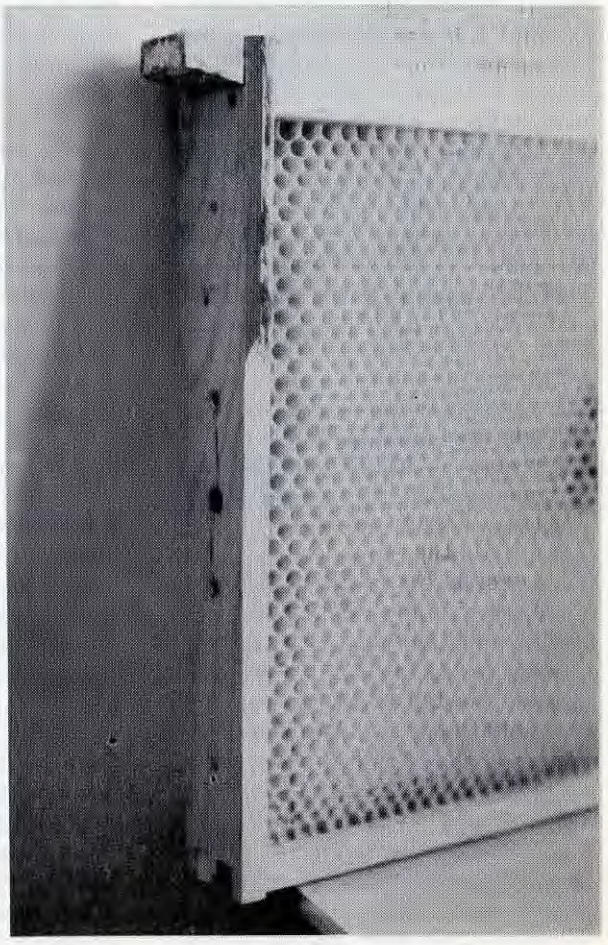
PROPER NAILING

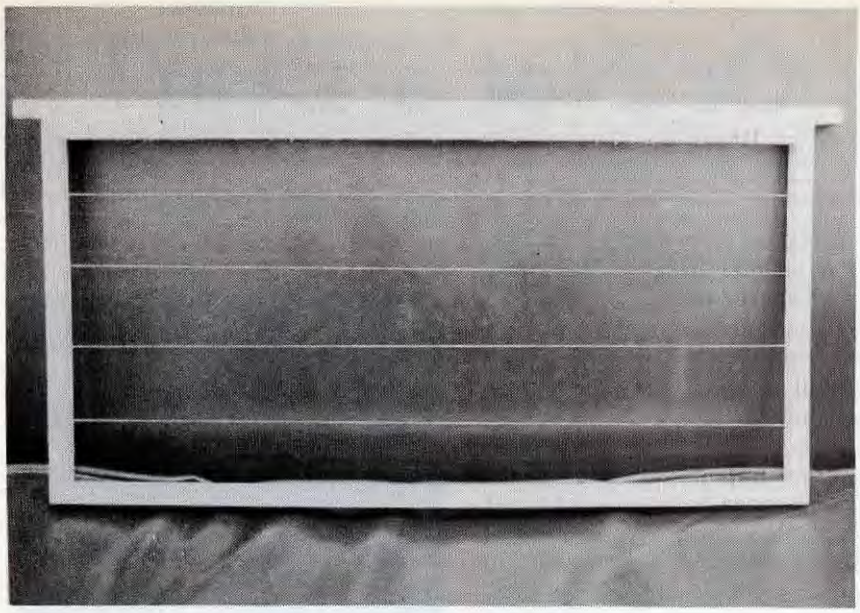
Making a good comb begins with properly nailing the frame. In my experience the nails that come with most manufactured frames are too short to be effective. Of course, using larger nails may cause the wood to split, but they do help strengthen the frame if used properly. In the United States most manufacturers use soft pine to make their frames, but many countries lack softwoods with which to manufacture frames. As a result, nailing is a more serious problem and smaller nails must be used to avoid splitting the wood.

On the left, a free-hanging frame with end bars, top and bottom bar all the same width; right, a standard Hoffman frame with shoulders.

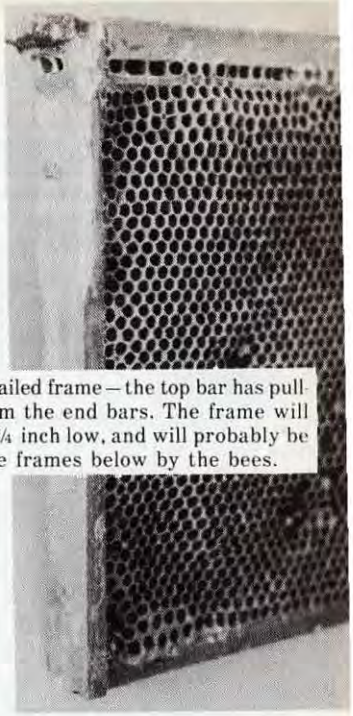


A perfect comb. A Hoffman frame with shoulders that is wired with both horizontal and vertical wires.





Free hanging frame with 4 horizontal wires. Note bottom bar fits inside two end bars. These are the cheapest to make and provide good service.



Inproperly nailed frame—the top bar has pulled away from the end bars. The frame will hang about ¼ inch low, and will probably be joined to the frames below by the bees.

GLUING FRAMES

Some beekeepers glue their frames in addition to nailing them. I have no objection to this, although I think it is unnecessary if the frame is properly nailed. I like to use ten nails when nailing a frame – four to hold the top bars to the end bars, four to nail the bottom bar in place, and two to nail the end bars to the top bars. Glue is more important when using fewer, shorter nails.

THE CHEAPEST WAY TO MAKE A NEW COMB

The cheapest way to make a new comb is to wire the frame with four horizontal wires and to use a full sheet of unwired, heavy brood foundation. Wired foundation enables one to do the job faster but is more expensive. Foundation may be purchased with vertical and horizontal wires or vertical wires only. In the latter case the frame should be wired with two horizontal wires. Foundation is also made with both horizontal and vertical wires already in place.

FREE HANGING FRAMES

The Hoffman frame, with self-spacing shoulders, was a great boon to the industry and made migratory beekeeping easier. However, it is not necessary to use frames with shoulders. The so-called free hanging frames in which the top bars, end bars, and bottom bars are the same width work very well if one does not move their colonies. Furthermore, it is easier to uncap frames without shoulders. Insofar as storage is concerned one can put 14 to 18 free hanging frames in a super that are 3/4, 7/8 and 1 inch wide. I find that the 7/8 inch width works best, but others may wish to experiment with the three widths.

Many of the frames in the Cornell colonies were given to us by Archie Coggshall, a long-time New York State beekeeper. He used many free hanging frames, all 7/8 inch wide. One trick I learned from using the Coggshall frames is that the bottom bar should fit inside the two end bars; in this way the bottom bar is much less likely to pull free when it is joined by the bees to frames below with comb or propolis. It is not necessary to use a top bar wedge when using free hanging frames. I've used frames with a sawed slit about 1/4 inch deep in the underside of the top bar that works just as well. Molten wax may be poured along the foundation after it is placed in the slit, but this is not necessary if care is taken in moving the supers of new frames.

STANDARD DIMENSIONS

Perhaps I've mentioned too many times and people are tired of reading about making standard size equipment. However, I see too many hives and hive parts that are not interchangeable. This is a nusiance and can waste one's time. A second reason for making certain all hive parts are the same is that only standard equipment has a good resale value. When making frames one should not just pick up a manufactured frame and use it as a standard. The U.S. Department of Agriculture has a one page circular that gives standard dimensions for bee hive furniture. This information has been reprinted in many books. I have extra copies of the USDA circular if anyone would care to write for it. I suggest it is worthwhile to obtain a copy and to nail it to the shop wall.

METAL EYELETS

Most beekeepers do not use metal eyelets when they wire their frames but I like them. They allow one to draw the wires in horizontally wired frames just a little tighter. I like to make the wires sufficiently tight that they cause the end bars to bow in slightly and to 'sing' a bit if plucked like strings on a violin.

Cont pg 258

A Bear — Or Not a Bear?

By Carl C. Egolf STAR-E APIARIES Newport, New York

"(Censored Expletives) BEAR!" was my immediate thought as I entered a yard of thirty colonies and found one colony in the far corner partially toppled over, with frames askew. The bottom board and first deep hive body were still on the concrete block stand. The second deep hive body was standing on end behind the adjacent colony, approximately five feet away, with six frames obviously missing, and most of the comb torn out of the remaining four frames. A medium deep honey super was overturned on top of the inner and outer covers. Most of the comb had been torn completely out as indicated by the crimped wire pulled out of the frame bottom bars and several horizontal wires broken. This being March 30, 1983, the bees had perished from exposure.

Bear damage was suspect, but the missing six deep frames were a puzzle. A search for the six frames within a one hundred foot radius behind the yard was fruitless.

This particular yard is on the fringe of black bear country, being in the foothills on the edge of New York State's two million plus Adirondack Forest Preserve. Several years prior, a black bear had been seen within two miles of this particular yard. Consequently, with almost a week of spring-like weather in February, the thought occurred that a bear came out of hibernation, and with hunger pangs sampled the delicacy of this yard.

The yard is located on farm property, surrounded on three sides by mixed soft- and hardwood trees. The fourth side is open, being visible from the farm house, approximately six hundred feet across open fields. The destroyed colony was in the fartherest corner along the wooded edge away from view of the farm house.

This colony was identified as #26, with subsequent colonies sequentially numbered and spaced in pairs in five separate rows. Number 26 had been re-established in April and had provided a surplus of 68.5 pounds for 1983.

On November 7, 1983, my assistant and I went to remove the last of the honey supers. To my chagrin, we found colony #27, immediately adjacent to #26, tipped over and forward of its stand. Five frames were missing out of the second deep hive body and the bottom deep and first medium deep super had damaged combs. Two deep and three medium deep frames were found on the other side of the barbed wire fence, towards the woods. Since the bees were still alive on the damaged frames, the colony was reset on its stand minus the second deep. Since this was not lost the honey super scheduled to come off was left with the colony as winter stores. Several days later, three of the missing frames were found in the wooded area about two hundred feet from the colony.

That was two colonies in less than one year, and I was beginning to contemplate an electric fence.

Although #27 was left with plenty of stores, by April 22 it had died. This was less distressing than finding that #26 had again been toppled over. Five medium deep frames were missing, and several deep frames were damaged. The bees had perished. Everything was left undisturbed, for it now was time to call the State Conservation Officer to confirm bear damage and to make photographs for documentation and proof.

I contacted the State Conservaton Officer whose expertise was trapping and transporting black bears. We met at the yard two days later, and after careful inspection he concluded that since there were no claw

Destroyed Colony #26 as inspected by the Conservation Officer. Expired Colony #27 on the right, sealed to prevent robbing. (Photo by Carl C. Egolf).

or teeth marks on the hive bodies or frames the damage was not caused by a bear but by one or more raccoons. He went on to explain that due to the physical conditioning for hibernation in the fall, a bear would not come out of hibernation on a spring-like February day to forage, and then return until late spring. On the other hand, raccoons will forage during winter months; are physically large enough to topple a hundred pound colony; and dexterous enough to carry full honey frames away. Perhaps those black masks are indicative of their nature!

The remnants of #26 were cleaned up and repaired, but was not re-established in 1984. I did re-establish #27 on July 8, 1984 with a nucleus colony in two deep hive bodies.

When I visited the yard three weeks later I couldn't believe my eyes. I again saw #27 toppled over.

One frame was missing while others had been damaged. There were no bees left, having absconded, and of course the honey had been robbed from the exposed comb.

Damage and loss of four colonies was adding up, as well as my anger and frustration. I contacted a 'coon hunting friend and explained my problem to him. He assured me that he would explore the area for any sign of raccoons or their dens. Several weeks later he reported that he and a friend had looked over the area and had seen raccoon sign but no raccoons. I thanked him for his time and effort.

Meanwhile, I had been planning the installation of a mesh fence, at least on the wooded sides of the yard, with an electrified wire at ground level, half way and top level of the fence, with the battery and fence charger securely protected under one of the colonies. The raccoons would have to climb the fence for access to the yard, and certainly one or more of the electrified wires would discourage them. Only the top wire would be electrified during the snow covered winter months.

1984 eased into fall harvest time, and I once again visited the yards to remove honey supers. Upon visiting my "problem yard", I was almost startled to see the remnants of three raccoon carcasses at the foot of a tree adjacent to the rear of the bee yard. They were obviously neatly skinned racoons, having been shot by an unknown hunter benefactor. The winter of '84-85 was very mild and tranquil!□

It is a good, simple and orderly method of management. It is, in effect, a two queen system, except that each queen reigns over her own colony, instead of sharing a colony between them. On the other hand, all so-called two-queen systems involve two quite distinct colonies. It is only a question of whether, as in Mr. Cranson's system, the two colonies are side by side or, as in most other systems, one ontop of the other. Mr. Cranson's system involves a bit of work, but he thinks it is more than worth it. swarming is controlled, the colonies get requeened, and he gets good big honey crops.

Comments and questions are welcomed. Use Trumanburg address and enclose stamped addressed envelope.

Taylor . .
to get raised and mated. But if you did that, then in making your split in May, you would want to have the old queen on the original hive stand, moving the queenless half off to the side. Then just requeen that one. Otherwise, you would be likely to find that the returning field bees would murder that new queen found in their hive. That doesn't happen if the new queen is in the part that was moved off to the side.

Confessions Of Some Swarm Collectors—

There are as many ways to capture a swarm as there are people who capture them. Unfortunately, the accepted methods that, in theory, should work every time seldom do. Shaking the bees into a box, nuc or other container is probably the easiest method of capturing the actual swarm; that is if the bees decide to land in a place that you can reach. Those first few experiences with swarms can be rather hair-raising though, as Russel Dodge and Ken Olson can testify.....

THE FIRST TIME...

The first swarm Russel Dodge tried to hive was in a neighbor's lilac bush. "My wife and I carried a hive box, saw, clippers and an old bed sheet to collect the swarm. Naturally, it was located in the center of the bush about fifteen feet from the ground. As my wife held the ladder, I went after the bee-laden branch with the saw. Holding the branch with one hand and sawing with the other while standing on the ladder was bad enough, but that was easy compared to what happened next. As I tried to hand the branch with bees down to my wife, it caught on another branch knocking them all over both of us. They soon regrouped however, and we were successful the second time."

IT'S SELDOM EASY...

Ken Olson, though a seasoned swarm remover, tells another story about those high places.

I've been keeping bees as a hobby beekeeper for five or six years. The most convenient method for making an increase is to collect neighborhood swarms. They're not always convenient however. An urgent call came to remove a swarm from the eaves of a house. This house was tall, at least 20 feet to the bottom edge of the eave. My ladder reached only 16 feet fully extended, so this was going to be a chore. Eight arms and legs wouldn't have been adequate. I carried a small cardboard box in one hand, a smoker in the other, and a whisk broom in my back pocket. My plan was to sweep the bees from the eave into the box, close the lid, climb down the ladder and dump the mass into the empty hive waiting on the ground.

My veil was slipping and I swore the ladder was sliding...

The swarm hung like a big football; there must have been thirty thousand bees in the clump. How was I going to make sure I had the queen in that mass of motion? True, she was larger than the rest, but...

I proceeded up the ladder with the box flaps flipping and flopping. My veil kept slipping over my eyes, I grew tense, my legs began to wobble, and my knees felt weak. It suddenly seemed much hotter than it was just moments ago and I swore the ladder was sliding to the left.

Even though the ladder was too short, I decided to do the best I could. I took the whisk broom and with one quick sweep brushed as many of the bees as I could into the box. It was heavy! I let the whisk broom go and as I started down the ladder, I felt the first sting on my leg. I hustled down as fast as my rubbery legs and shaky arms would let me go.

The bees didn't stay — they either went back up to the eaves, or after me. I ran for it, chased under the cherry trees, past the raspberries under the filbert trees and into a hedge and safety.

But I came back determined. I moved the ladder a little to the right and started up. When I approached them this time the wrath of every bee in the kingdom was aimed straight at me! More stings, more sweeps — the bees were ROARING! There was no hope of looking for the queen so I shot down the ladder and dumped the whole mass into the hive. Then into my car and out of the area to avoid the cloud of bees I had stirred up.

All things considered, I felt myself a failure on this expedition. But when I returned that evening, they were all at home in the hive. So I choked up the entrance and I and my new hive went home.

SOMETIMES YOU GET LUCKY...

Russell Dodge also relates a time

PRESERVING YOUR EQUIPMENT

Excerpts from the paper by:
Martins A. Kalnins and Benjamin Detroy

Even if you paint your wooden equipment to keep it from rotting, you may want to consider other forms of preserving the wood.

There are several reasons to consider other wood preservatives. Some commercially available materials are cheaper than paint and actually keep wood from deteriorating longer than paint. Another reason may be that you don't like the artificial look of painted colonies. The 'natural' look of wood is certainly an attraction to many beekeepers, although the bees are not usually concerned about exterior decor.

The natural look has the advantage that it blends in with most surroundings when outside, therefore colonies are not readily visible. This advantage becomes apparent when you have bees in an urban or suburban area and do not want to call attention to them.

However, there are some disadvantages to this invisability, especially when the colonies are in a country setting. Because they are not easily seen, hikers, farmers or others may actually run into them. This may be because they don't recognize natural wood 'boxes' as bee hives and therefore aren't careful when approaching. Another problem can occur when pesticide applicators are spraying an area close to your colonies and can't see, or at least identify your colonies as colonies. A last problem is that of vandalism. Witnesses probably won't be as aware of vandalism when they see it occuring if they can't readily recognize the 'victim' as your colony.

Once you have considered all the pros and cons of making a 'natural' hive, and have decided to go thorough with it, the next question is "Which one to use?"

There are several preservatives on the market that do an outstanding job of keeping wood looking new for years. The only problem arises if these chemicals accumulate in the bees, honey or wax inside the hive. Mr. Kalnins and Detroy studied this problem, looking at how well several of these chemicals worked on the wood, and what short and long term effect they had on the interior environment.

They studied seven chemicals and a control (no treatment). The chemicals were: chromated copper arsenate (CCA), acid copper chromate (ACC), pentachlorophenol (PCP), tributyl tin oxide (TBTO), copper-8-quinolinolate, copper naphthenate and FPL water repellent. These chemicals are sold under a variety of trade names, so you MUST read the label when purchasing them commercially. They treated new wood, then assembled the respective parts—all normally treated hive parts were treated. Standard foundation was used and a 2 pound pkg. installed in the spring.

They measured several things over the course of the 2 year study, including amounts of dead bees on a weekly basis, amount of production (honey) on a yearly basis, amounts of the respective chemicals in each sample of bees, wax and honey removed from the colonies, ability to overwinter, colony behavior and temperment, supercedure and brood mortality and production.

THE RESULTS . . .

The largest number of dead bees were collected from hives treated with ACC, second highest were from copper naphthenate. When the bees were examined for traces of all chemicals, PCB was found to be the highest, with the rest showing very little or no residue. The high volatility of PCB was suspected here.

PCP was also found in the honey examined, and an interesting fact was that 3 times as much was found the second year as the first. It is suspected that continued volatilization was the cause of this. The remaining chemicals were also found in honey, but in very small amounts—parts per billion as opposed to parts per million.

The accumulation of these chemicals in the wax was a different story however. PCP was far and away the highest, due to the great affinity of wax for chemicals similar to PCP. Also, the longer wax was exposed to PCP, the more PCP was found. This stirred another question, and the authors found that ALL commercially available wax had some PCP in it. Measuring in the parts per billion, the amounts were small, but evident.

Winter survival was less than 20 percent with CCA, TBTO and PCP. Survival of the rest of the treatments was equal to or better than the control.

DECAY . . .

After only 1 year, decay was evident in some parts of the control (no treatment) and in the water repellent colonies.

CONCLUSION . . .

PCP, TBTO and CCA all had adverse effects of the bees, and left residues in bees, honey and wax. All of these treatments were associated with poor survival of colonies during the first winter. Significant amounts of PCP were found in wax, which in itself is detrimental, but considering

When luck was far more important than skill

Our second year of beekeeeping saw us with three packages which we located on a truck farm. Checking on them one weekend, one started to swarm just as we drove up. Asking my wife to keep an eye on them, I took off to find a hive. A quick trip to my mentor, Bruce Wright, produced not only a hive but an offer of help.

When we returned, the swarm had landed on a briar bush which had bent almost to the ground with the weight of the bees, and after setting up the hive, it was simple to shake them into the box; just like the book says!!

. . . . . .

There are other ways to collect bees, and Professor Michael Roling and Mr. Donald Cox have done a good job of explaining two of them.

BACKYARD BAIT HIVES . . .

Professor Roling did some work with "Backyard Bait Hives", often useful in collecting swarms. He used wornout 10-frame deep hive bodies with quarter inch hardboard covers for the top and bottom. An inch and a quarter hole was drilled about two inches from the bottom of the unit for an entrance hole, painted light green and suspended in a tree about ten feet from the ground.

Hives were put in six locations and tested over a four year period for ease of use and attractivness to swarms. He clustered the hives to simulate the hobby beekeeper's environment.

With all these bait hives, he captured two swarms the first year, three the second, one the third and none the last. However, one location attracted three swarms, a second location two and a third one. Obviously, some locations were failures. But trial and error is the key here, and as cost of material is minimal and construction simple, this procedure and design may be a suitable approach for the hobby beekeeper.

He recommends that you be careful when checking your bait hives for swarms. Univited 'guests' he found were snakes, ants and paper wasps. Other problems he encountered included several vandalized hives, and two disappeared in a tornado. "Finally", he says, "be prepared to answer numerous questions from the public as: Why do you have your bee hives up in those trees? Isn't it difficult to take care of them?"

HOUSE BEES . . .

Mr. Donald Cox finds removing bees from buildings fairly profitable, and May the ideal time to start this type of project. He is retired, but a hobbiest who claims to have both the time and energy for this sort of activity.

During fall 1984 he found a colony between the studs of the upper story of an old house. It had two entrances, one above the porch roof and a second about eight feet above that. Around Memorial Day last spring he placed a five frame nuc on the porch roof, and put trap cones over both the upper and lower entrances into the house. A week later, he used a modified shop-vac to remove the bees from the upper entrance cone. He then sealed this upper entrance. These bees, and the nuc were removed to his apiary and placed in a 10-frame hive. A second nuc was left at the house on the porch roof until after June. Then, the trap cone on the lower opening was removed so the bees could rob out any remaining honey in the house.

This second nuc was removed later in the summer and placed in a ten frame hive body. Early February this year both of his 'captured' hives were clean and strong. He then added a super of honey to each and expects both to be better than average this year. Mr. Cox gained two colonies from this old house, essentially making a split of one strong colony, thus answering his original question — "Why not two?"

You never know what's going to happen when you answer a swarm call. It may be easy, difficult or impossible to capture. A couple of tips to make it easier include; 1) always have the right equipment (boxes, rope, ladders, protective clothing, a cloth bag, smoker, spray mister, etc.); and 2) try to capture the swarm as soon as possible, the longer they are outside the testier they tend to get. Always maintain good public relations when answering a call. Even though you are providing a service by removing a swarm, many people think you owe it to THEM to get rid of it. This is especially important when you get a call that turns out to be related to hornets or other pests. A thank you to the caller in the form of a jar of honey never hurts, and may pay off in a new customer or another swarm.

Swarms, they're seldom routine and always a challenge.

that wax has a number of uses where high purity is required, the result is worth noting. Few, if any, adverse findings resulted from treatments of beehives with the water repellent, copper naphthenate, copper 8-quinolinolate and ACC. Winter survival with these was better than or comparable to that in controls. The authors suggest that beekeepers not use PCP, TBTO or CCA for treatment of beehives. The CCA treatment should be restricted to use on wood that rarely comes in contact with bees. They go on to say that both the 'no treatment' and the water repellent do not provide long-term protection against decay in all hive parts.

ARE THERE OTHERS?...

There are a few homemade mixtures that a beekeeper can make that produce none of the nasty side effects the commercial chemicals do, and can be aquired for a lot less money. Further, they are as easy, if not easier, to apply than any of these chemicals — or paint!! Next month we will review some of these mixtures, how to apply them and the cost differences in obtaining them.

News & Events

International Beekeeping Seminar

The Annual International Beekeeping Seminar is set to take place at the Agricultural Technical Institute, Wooster, Ohio from July 21 – August 1, 1986. This is a comprehensive introduction to developmental beekeeping with emphasis on the tropics and sub-tropics. A discount of $200 on reservations received before June 1 will be given. For information contact Dr. Clyde Opliger, ATI, Wooster, Ohio 44691, Phone: 216-264-3911.

Lisa Smith, 1986 Minnesota Honey Queen

Lisa Smith was crowned Minnesota Honey Queen last December at the winter meeting of MHPA. She will be traveling throughout Minnesota promoting honey this year. If you want her to help your local group advertise, contact Jeri Honl, RR2, Box 138A, Gaylord, MN 55334.

Minnesota

The Minnesota Honey Producers announce the Summer Convention to be held at Fergus Fall Holiday Inn (Junction of I-94 and MN 210) July 17, 18 and 19, 1986. The theme of the meeting will be "Honey Marketing – The Next Four Years". For more information contact: Fred Holte, 2185 W. County Rd. B, Roseville, MN 55113.

Indiana

Purdue University – West Lafayette, Indiana—Sat., May 3, Stewart Center

Mr. Charles Mraz, Middlebury, VT – "Bee Venom Therapy"

Mr. Chuck Lorence, Aurora, IL – "Beeswax and Beeswax Candlemaking"

Mr. Ron Fischer, Oak Park, IL – "Farmers Market Honey Sales" Information Service Video, Africanized Bee Alert"

Lunch will be in the Student Union cafeteria or Home Ec. cafeteria. Nearby restaurants are also available.

Ohio

Summer Seminars at ATI in Wooster: Queen Production June 16-20, 8:00 a.m. – 4:30 p.m.. Credit, non credit, good practical experience, room and meals available.

Basic Beekeeping. July 7-11, 8:00 a.m. – 4:30 p.m.. Topics include honey production, honey and wax processing, bee biology and behavior, disease and pest control, equipment, hive management and pollination. Credit, non credit, room and meals available.

Comb Honey Production. August 18-19. Covers all aspects of producing comb honey.

All seminars originate from the new fully equipped facility. For more information on these or any Beekeeping Seminars contact:

Dr. James E. Tew
The Ohio State University
Agricultural Technical Institute
Wooster, OH 44691
Phone: (216) 264-3911

Let's Buzz The Schools

In the July, 1985 issue of ***Gleanings In Bee Culture,*** I spoke about an outreach program entitled "Let's Buzz The Schools". This program, originated by Claudia Linkous, John Ambrose and the Southern State Beekeeping Federation, was adopted by the William H. Miner Agricultural Research Institute. Since that time, we have recieved many responses for the "Let's Buzz the Schools" booklet.

The purpose of "Let's Buzz the Schools" is to educate the general public, through their children, as to the importance of the honey bee in our everyday life.

This syllabus is available upon request by contacting Loretta Surprenant, Miner Institiute Chazy, NY 12921. Phone (518)846-8020.

FAIRVIEW COLLEGE

BEEKEEPING FOR SENIORS – As part of the international ELDERHOSTEL program, FAIRVIEW COLLEGE will offer a two-week practical intensive course in beekeeping, honey production and queen rearing. It is intended for those seniors (age 60 and over) who have some prior experience with a serious intent to keep bees.

DATES: June 15-28, 1986. LOCATION: Fairview, Alberta, Canada. TUITION: Low cost includes accomodation, meals, classes and a variety of extracurricular activities. FAIRVIEW COLLEGE has modern residences and a cafeteria, a new Beekeeping building, and a 300 hive demonstration apiary. Its commercial program is recognized internationally and is involved in the raising and release of the Alberta Bee.

To apply for this course, please contact ELDERHOSTEL directly and ask to be put on the mailing list for their free Summer catalogue: ELDERHOSTEL, P.O. Box 4400, Fredricton, New Brunswick, Canada E3B 5A3.

Southern State Beekeepers Resolutions

Space limitations prohibit reproducing the resolutions passed in their entirety; therefore, the "Whereas" are deleted and "Therefore, Be It Resolved" are included.

Therefore Be It Resolved:

1. That grateful thanks be extended to the Sheraton Savannah Resort and Country Club and staff for their contributions to a successful conference, and to certain Manufacturers and Distributors for their generous donation for door prizes, and to our guest speakers for their timely and informative presentations.

2. That special thanks be extended to the Georgia Beekeepers Association and especially to Paul Harrison for their efforts in our behalf.

3. That the Southern States Beekeepers Federation support fully the Honey Research, Promotion and Consumer Information Act and encourage all member beekeepers to vote positively in the upcoming events.

4. That the Southern States Beekeepers Federation continue its efforts to seek relief from the flood of honey imports through increased import duties, quotas, and/or non-tariff barriers through pursuit of a USDA International Trade Commission Section 22 investigation.

5. That the Southern States Beekeepers Federation gives its complete support to the continuation of a government program that provides participants a reasonable price, particularly a program that would allow domestic honey to compete in the market place.

6. The Southern States Beekeepers Federation continue to sponsor/cosponsor this Industry Leadership Conference as a vehicle to advance and promote the beekeeping and honey production industries primary interests.

7. All Southern States Beekeeper Federation members accept a personal obligation to educate the public, in their respective areas, concerning a realistic appraisal of the impact of the Africanized bee before its arrival, by making it known that they are available for talks, discussions and panels.

8. All Southern States Beekeepers Federation members make contact with the Extension Agent or directly with a 4-H member so the member will sponsor the 4-H club member in the knowledge and art of beekeeping; making himself available for advice, material used and by loaning the 4-H member accumulated literature.

9. All Southern States Beekeepers Federation members contact their delegates to Congress, seeking funds for a national apiculturist.

YOUR NEXT MEETING NOTICE COULD HAVE BEEN HERE LET YOUR MEMBERS KNOW

ALASKA

At the Feb. 1986 meeting of the Cook Inlet Beekeepers Assoc., Anchorage, Alaska, Fletcher F. Miller (right) was presented with the first Beekeeper of the Year Award by President George F. Rice (left). Miller was selected by the Association for his many years of dedication to the teaching of beekeeping. Besides acting as Secretary of the Association, he was a prime author of laws now governing beekeeping in Alaska.

At the same meeting, Edna Martone, past treasurer, was given a Special Award plaque in appreciation for her years of service to the Association. Designer of the Association logo, she also prints Association business cards, stationery and envelopes and the Newsletter.

OBITUARY

"Billy" Howard Weaver, 50, of Navasota died in a Navasota hospital on March 25 from a sudden heart attack.

Mr. Weaver was a partner of Howard Weaver and Sons. He was a member of the American Beekeeping Federation, and a member and past president of the Texas Beekeepers association. He was a veteran and a deacon and chairman of the usher committee of the First Baptist Church in Navasota.

Survivors include his wife, Gladys; son Mark of Gainesville; two daughters, Karen of Navasota, Melinda of Abilene; mother Ruth and brother, Morris of Navasota, and a grandaughter.

(Continued on page 250)

CONNECTICUT

Western Connecticut Beekeepers Association Third Annual Bee Bonanza Set For July 13. This event will be held Sunday, July 13 from 11 a.m. to 5 p.m. at the Fairfield County Extension Center on Route 6 in Bethel Connecticut.

The Western Connecticut Beekeepers Association, will sponsor the event. Beekeepers, suppliers, and the general public are invited. Admission is free.

There will be demonstrations in bee handling, movies, slide shows, door prizes, and other demonstrations and contests. Suppliers to beekeepers will be displaying a wide variety of wares. There will be displays explaining bee culture, the honey harvest and other aspects of beekeeping that will be of interest to everyone, whether or not they keep bees. Plan now to attend this exciting annual event.

GEORGIA
Annual Beekeeping Short Course

The annual beekeepers short course for both beginners and experienced beekeepers will be held June 14 at the University of Georgia in Athens. The meeting, sponsored by the Dept. of Entomology and the Georgia Beekeepers Association, will be from 8:30 a.m. to 4:30 p.m.. Registration starts at 7:30 a.m. at the Chemistry Building Auditorium. Demonstrations of practical beekeeping will begin at 1:30 p.m. at the University Apiary on the Horticulture Farm located on Highway 53, six miles south of Athens.

The teaching staff will consist of several well known commercial honey and queen and package bee producers from Georgia. The course fee is $20.00 per person. Advanced registration is requested by June 11, 1986.

For additional information, program and registration forms contact Dr. Alfred Dietz, Dept. of Entomology, University of Georgia, Athens 30602 or call (404) 542 2816 or 542 8711.

OBITUARY

CLARENCE E. KRICKLER, Thomasville, Georgia, died March 1, 1986 after a brief illness. Mr. Krickler was a bee hobbyist, world traveler and an apitherapy specialist. Burial was at Lake View Memorial Park, Eldersburg, Maryland with many friends and relatives in attendance.

He served as President of Maryland State Beekeeper's Association and traveled extensively to beekeeping meetings, including Central Maryland Beekeepers Meetings, Apimondia and EAS.

Survivors include his wife Marsie, daughter Barbara and sons Kenneth and Keith.

NEW JERSEY

The Morristown, New Jersey Beekeepers Association will hold its June meeting on Sunday, June 8 at Foster Field, Morristown, beginning at 2:00 p.m. Featured speaker will be Dr. Robert Berthold, Beekeeping specialist for Delaware Valley College in Doylestown, PA. Dr. Berthold will present a program on the superior qualities of beeswax and its many applications. In addition to explaining how to obtain and process beeswax, Dr. Berthold will describe several of its uses, from making waxes and polishes thourgh the role of beeswax in art.

Special emphasis will be placed on making beeswax candles, including preparing the wax, dipping and pouring candles and discussion of antique, metal reproduction and polyurethane candle molds.

The meeting is open, free of charge, to anyone interested in attending. The program will be held in the Visitors' Center of the Fosterfields Living Historic Farm. The entrance to the Center is on Kahdena Road, just off Route 24, west of Morristown. For additional information, contact Stephen Walden, program chairman, at (201) 832-7007.

Pennsylvania

Doylestown. A program detailing field and laboratory diagnosis of honey bee diseases will be featured at the Annual Summer Bee Meeting Sunday, June 22, sponsored by Delaware Valley College and the Bucks County Beekeepers' Association and held at the College.

Jack Matthenius, New Jersey Supervisor of Beeculture, will present the topic, assisted by Dr. Robert Berthold, beekeeping specialist for the College.

The formal portion of the program, which begins at 1:30 p.m., will be presented using the apiary and Honey House at the campus on route 202, one mile west of Doylestown. It will be preceded by a "bring your own" picnic lunch in front of Mandell Hall.

On the following Friday, Saturday and Sunday, June 27, 28 and 29, Delaware Valley college will again offer its popular three-day beekeeping short course. The course is under the direction of Dr. Berthold, assisted by Mr. Matthenius and a number of other skilled apiarists.

For additional information about either of these programs, contact Dr. Berthold, Delaware Valley College, Doylestown, PA 18901; ph. (215) 345-1500

Landscaping for Home and Hive

Diana Sammataro

It is not only possible, but actually quite easy to plan a home landscape that is both pleasing to the eye and a meal for your bees.

If you have colonies near your house, it is a good idea to provide some sort of screening for them. This can provide both seclusion and forage for your bees, plus block unsightly vistas away from your home.

Try to plan your landscape to have 'continous' bloom. That is, some plants are blooming at all times. This will provide you with an interesting yard — and your bees with continous food.

Also, try and plant a mix of plant types. This means having trees, shrubs, perennials and annuals in your design. These will vary in the amount of care required each year, but a plan of this type has distinct advantages.

TREES

Trees will eventually provide shade for your yard, and help reduce cooling costs in summer. They will also provide some wind-break in winter to help with heating bills then.

SHRUBS

Most types of shrubs offer screening, some shade, some wind protection and break the flat lines many yards have. Further, with a little effort, you can propagate many shrubs to increase your plantings.

PERENNIALS

Perennials have the advantage that they do not require re-planting every year to provide bloom in the garden. Division or cuttings from these will also increase your stock. They also increase in size every year, so they will eventually fill in those initial blank spots. However, some care will be required so they do not overrun an area and become pests. This is where division of the mother plant is necessary. In fact, with some, you may need to remove extra growth yearly just to stay ahead of them.

ANNUALS

Annuals must be replanted every year. They can be from seeds sown directly in the garden, or from transplants grown at home or purchased at a garden center. The disadvantage of these is the annual cost of replacement. If you have a large area to fill it can be expensive — especially if you must purchase them. Growing your own is certainly the way to go.

However, there are several advantages to growing annuals. First, once they start, they generally bloom until frost, providing continous color in the garden. These 'bright spots' are both enjoyable, and provide that continual attraction for your bees. Another plus is that you aren't stuck with a plant that doesn't perform to expectations or that the bees don't like very well. Yor can simply change varieties next year. Also, you can sample the many new cultivars that are introduced each year for both variety and to add that special touch to your garden.

CARE AND FEEDING

When planning your landscape there are a few things to keep in mind. Don't plant perennials to close together, as they will fill in shortly. If you have some blank spots, either mulch with leaves, grass clippings, shredded bark or plant annuals. Empty spots invite weeds, and all the problems they entail.

Watering is always essential. You may get by without it, but your plants will look and grow better with the proper soil mositure. Fertilizer — don't cut corners here. The greatest problem with flower beds is poor nutrient levels. Water in new transplants with a ½ strength solution of house plant food, then add more during the growing season. There are several commercial brands available with excellent instructions on timing and amounts.

Finally, keep dead blossoms and broken branches pruned out. Once a flower has set seed, the plant tends to slow down in flower production. With a high population of bees around, this is a constant occupation. Broken branches and dead material invite disease and other problems. Cut them away and remove to your mulch pile or otherwise discard. Don't leave them in the bed.

THE PLAN

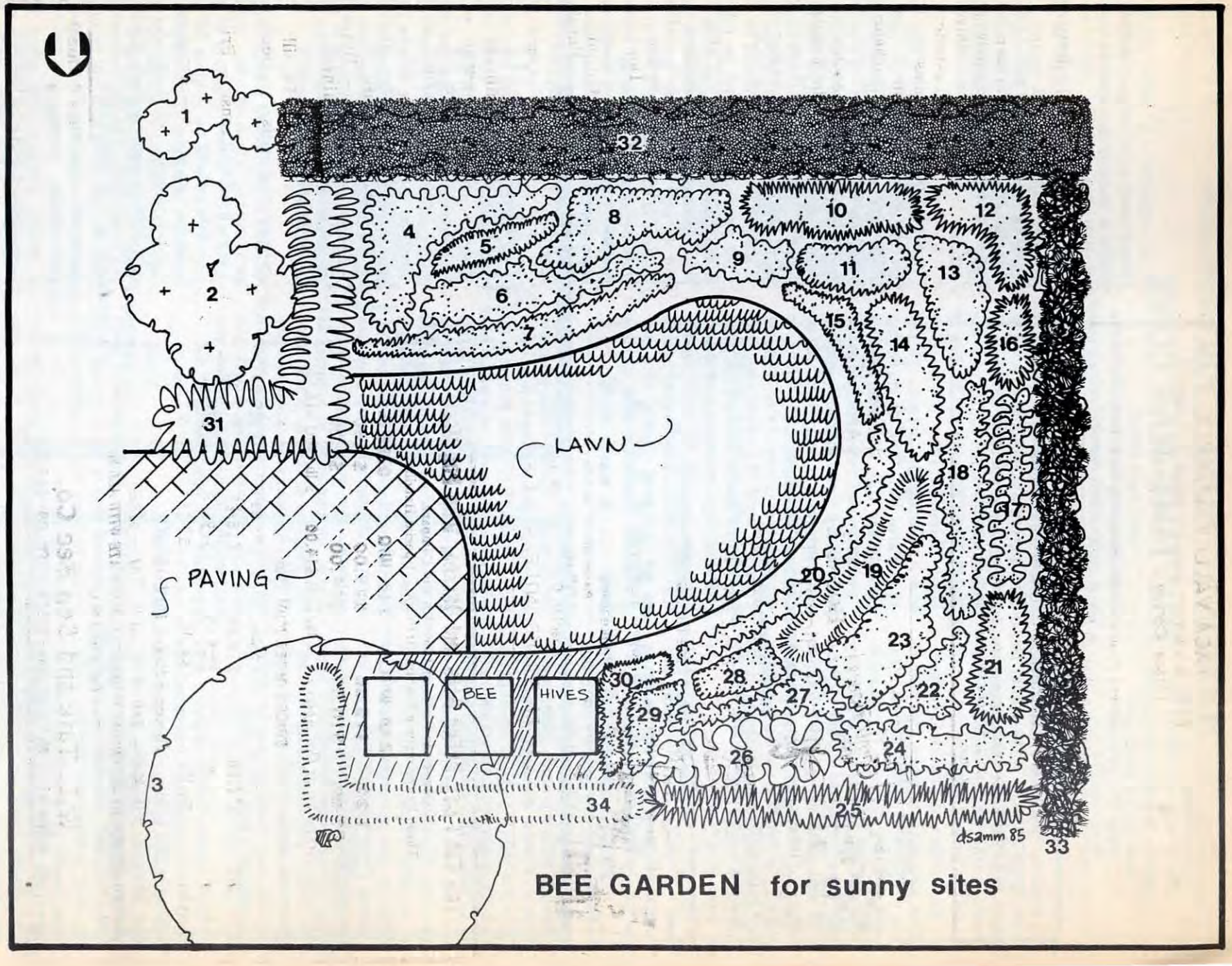
The plan below offers a wide variety of shrubs, perennials and annuals. Remember, this doesn't have to happen all in one season. Make a plan for your yard and work on it for several years. This will enable you to keep expences down, learn as you go and try several things before making that final decision.

The key here is to enjoy what you are doing — don't make it a chore or you will lose interest very fast. A well planned garden is less work than mowing — and a lot more pleasant to look at. It will provide seclusion from outside, beauty inside, and a continous source of food for your bees.

While the plants in this garden are common in New England, substitutes can be made for local plants in your area. This is the first plan in the series of bee gardens. The plants selected give bloom from early spring to late fall. If you are planing your own garden, select those plants that will do this for you. Border plants have short mature height, while those planted toward the rear are generally taller.

THE LIST

1. Salix discolor — Pussy Willow
2. Caragana arborescens — Siberian Pea Tree.
3. Amelanchier — Serviceberry or Shadblow
4. Lillies — Various types
5. Liatris sp. — Gay Feather
6. Veronica spicata — Speedwell
7. Allium schoenoprasum — Chives
8. Lespedeza bicolor — Lespedeza, or use Chrysenthemums
9. Thymus sp. — Thyme
10. Centaurea sp. — Bachelor's Buttons
11. Sedum sp. — Tall Sedums
12. Echinops sp. — Globe Thistle
13. Monarda sp. — Bee Balm
14. Lavendula sp. — Lavender
15. Portulaca sp. — Moss Rose
16. Mentha sp. — Mints
17. Baptisia australis — Wild Indigo
18. Nepeta cataria — Catnip
19. Crocus, Scilla — Spring bulbs
20. Sedum sp. — Short Sedums
21. Pycnanthemum sp. — Downy or Mt. Mint
22. Nepeta mussinii — Cat mint
23. Lythrum salicaria — Purple Loosestrife or use Cleome
24. Helianthus annuus — Common Sunflower
25. Helianthus maximilliana — Maximilians's Sunflower, or use Jerusalum Artichoke
26. Salvia superba — Purple Glory Salvia
27. Origanum vulgare — Wild Marjoram or use Basil
28. Hyssopus officinalis — Hyssop
29. Heuchera sanguinea — Coralbells
30. Hemerocallis sp. — Daylilly
31. Deutzia gracilis — Deutzia Hedge
32. Ligustrum amurense — Privet Hedge
33. Viburnam dentata — Arrowood Hedge or use NannyBerry or Blackhaw or other Viburnums



BEE GARDEN for sunny sites

NATIONAL HONEY PROMOTION THE TIME HAS COME

Frank Robinson, Secretary – Treasurer
The American Beekeeping Federation, Inc.

One criteria scientists have used to explain "mankind's" superiority over other animals is the ability to think and to make decisions based on reason rather than merely acting or reacting by instinct.

As the time of a national referendum approaches, when the fate of the proposed Honey research, Promotion and Consumer Information program will be determined, we can only hope that those eligible to vote will make full use of their unique ability to think and, after considering all the benefits such a program can have, will make a rational decision and vote YES!

However, sometimes one can't help but wonder if we are using this unique ability to think and reason or do we just react by instinct.

In the last few years honey imports have soared from 30 to more than 120 million pounds. Being much higher in price, domestic honey has been pushed out of the market place to such a degree that the Commodity Credit Corporation/USDA is the only customer for more than half of the total U.S. production. Still some of us want to put all our faith and hope in the government and the Honey Price support Program for our survival rather than trying to help ourselves by finding new uses for honey and increasing its consumption in this country. In following this easy route we may be ignoring several important facts.

First, unless honey imports are restricted or its price increased by raising tariffs or imposing new taxes the present situation can only worsen. However, even the intense lobbying and pressure from individual beekeepers and organizations hasn't produced any positive sign that congressional action to limit honey imports is even being considered.

Second, the fact that the domestic industry is making a determined effort to solve its market problems by an industry financed Honey Research, Promotion and consumer Information Act was a key factor in getting the support of Senate and House members for continuing the Honey Price Support in the face of heavy administration pressure to end it. During the debates on the 1985 Farm Bill, Rep. de la Garza, Chm. of the U.S. House of Rep Ag Committee and Sen Andrews of the Senate Ag Committee frequently reminded their colleagues of this industry effort, and urged them to support the Honey Price Support Program until the promotion program had a chance to work. Rep. de la Garza, Sen. Andrews and others have also pointed out quite clearly that if the beekeeping industry gives up its "self-help efforts" this congressional support could quickly fade.

Those who have worked so hard for so many years on this program are encouraged that up to now little if any opposition to the program on which we will soon be voting has been noticed. Certainly this doesn't mean that everyone is a supporter. A few individuals have questioned whether such a program is needed, and one national organization "officially" adopted a "neutral" position although its membership voted almost unanimously in support of the proposed program. While some of the objections or questions are legitmate concerns, others show a lack of understanding about the authorizing legislation and how the program will operate!

THE ISSUES...

QUESTION: Concerns have been expressed that a small group was trying to force this program on the entire industry.
ANSWER: Nothing could be farther from the truth. First, the authorizing legislation states that the program can only go into effect if a majority of the eligible producers and importers vote in favor. Second, the legislation provides that everyone who doesn't want to participate can request a refund and their assessments will be returned. This provision is mandatory and can only be changed by Congressional action.

QUESTION: Is there any control to make sure that the assessment rate will not be increased excessively? ANSWER: Again the legislation specifies exactly what the rate of assessment will be and how much it can be raised if that should be necessary. The assessment rate is limited to 1 cent per pound for the first year and it cannot be raised more than ½ cent per pound in any one year and the maximum rate may not exceed 4 cents per pound. Increases in the assessment rate aren't automatic. They must be recommended by the Honey Board and then approved by the Secretary of Agriculture before becoming effetive.

QUESTION: Would this be a permanent program even if it doesn't work? ANSWER: NO!! The Secretary of Agriculture must hold a referendum every 5 years and anytime 10% or more of the producers ask him to do so he must conduct a referendum. Also anytime the Secretary of Ag determines that the program isn't accomplishing its goals he can terminate it.

QUESTION: Why aren't small producers allowed to vote? ANSWER: Every producer or importer who will be subject to the assessment will be eligible to vote. Since only those who produce or import 6000 or more pounds of honey per year have to pay the assessment they are the ones who will be eligible to vote. Contrary to what a few individuals seem to believe it seems obvious that when the authorizing legislation for this program was being drafted the interest of the individual beekeeper was a primary concern and every effort was made to insure that the program can't be implemented unless a

majority of the U.S. producers and importers want it.

Even after the program is in operation anyone who doesn't want to participate can request a refund and their assessment will be returned.

Anytime a sufficient number of producers and importers feel that the program isn't achieving its goal they can have it ended.

It seems obvious that there are plenty of safeguards built into this program so lets get the Honey Research, Promotion and Consumer Information program operating as soon as possible and give it a chance to work. When the referendum is held—GO AND VOTE AND VOTE IN FAVOR OF THE PROGRAM!!

PERFECT PLANTING POINTERS . . .

Connie and Arnold Krochmal

For most of the U.S. May is about the best month to plant shrubs. This will vary depending how far north or south you live—but it is a good rule of thumb.

When considering shrubs as a source of nectar or pollen, 2 things need to be considered. First, does the particular shrub in mind produce an adequate amount of food (nectar and pollen) to consider planting; and Second, does this shrub grow well in your part of the country.

Although most plant cataloges do not consider the attractivness of a particular plant when describing its berefits, they usually provide excellent detail relative to its needs for optimum growing conditions.

Information regarding attractivness can be obtained from several sources, "**Honey Plants**" by Larry Goltz is one good example.

Once you have picked a particular plant, determined that it is attractive to bees and will grow well in you area—you need to follow a few simple rules to insure that it will thrive.

We offer the following article as a primer for the proper planting of shrubs for bees. Plants, just like bees, will thrive when the right kind and right amount of care are provided.

Proper planting of shrubs means better chances for survival. Over a number of years we have worked out a system that seems to do well and is not too troublesome.

First we decide where the shrubs will go when they arrive home, matching their needs as to full sun, partial sun or shade. We try to have the planting holes ready before the plants arrive.

Once home, they must be kept watered if planting is to be delayed, especially if in pots or balled and burlapped. Bare-rooted plants cannot be kept very long, perhaps a day or two, while plastic wrapped can go considerably longer.

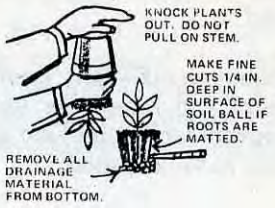
When we dig the holes we make them about a foot or so deeper than we anticipate the root ball will require, and as we dig we seperate the top soil and the soil from the bottom of the hole in two heaps. All stones are removed, and if there are extraneous roots growing into the hole we prune them back. At the bottom of the hole we put 4-6" of commercial planting soil, and a couple handsful of dried manure and peat moss, mixing all of these ingredients. We try to compact this mix to some degree to minimize settleing of the plant after the initial watering.

THOROUGHLY WATER PLANTS.

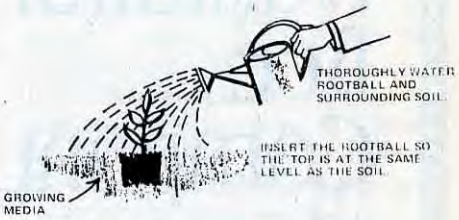
If the plant is bare-rooted the roots should be spread over the bottom of the hole. Potted plants should be removed gently by turning the pot upside down with a hand on the soil surface, and then gently jiggling the pot

KEEP BURLAP MOIST AT ALL TIMES. DO NOT PULL ON STEM MORE THAN NECESSARY. BALLED AND BURLAPPED PLANTS HAVE MANY FINE ROOT SYSTEMS THAT ARE EASILY DAMAGED.

Place the plant carefully in the hole, trying to keep drainage material from the original pot out of the hole.



Balled plants are easy to plant, simply placing in the hole after slashing the burlap and cutting the ropes. Remove entire plastic bag if one was provided. Then we replace the top soil at the bottom of the planting hole because it is richer and will nourish the plant through the roots. We put the bottom soil on top, and mulch with cypress mulch, pine bark mulch, pine needles or grass clippings. Then, gently water. Any broken shoots or branches should be cut off. We never prune the tops as is often recommended (usually only for trees), because shoots usually produce growth hormones needed by the plants.



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COMBS- - -

WHEN TO PUT FOUNDATION INTO A FRAME

Foundation should be put into a frame only a day to two before the frames are put onto the colony. This is often difficult or impossible for a busy beekeeper, but the results are worth the effort. Beeswax shrinks and expands greatly as the temperature changes; if it is stored in frames for more than a few days it will warp or buckle. It is worth the experience to put a piece of horizontally wired foundation into a frame with two or four horizontal wires and to watch how the wax buckles as the temperature changes over several weeks.

HOW TO FASTEN FOUNDATION IN PLACE

For many years I've embedded the horizontal wires into foundation with an electric embedder. It holds the foundation firmly in place and does a neat job. Last year I wanted to make a few new combs for an experiment and our electrical embedder wasn't working properly. Because I was in a hurry I used a spur embedder. I was pleased with the results. The bees made no drone cells over the wires that were pressed into the wax with the spur embedder. A spur embedder costs only about two dollars and is many times cheaper than an electric embedder. A third method that is popular amoung several commercial beekeepers is to weave the unwired foundation into place in frames with four horizontal wires. They do so because they can put the foundation into place several weeks or months before the supers of foundation are put onto colonies. Because the foundation is not fixed into place permanently, no buckling occurs.

WHEN TO DRAW FOUNDATION

New frames with foundation should be put onto a colony only when a honey flow is in progress. If exceptions are made, one is likely to end up with foundation that sags or is chewed by the bees, and the result is combs with too much drone comb. I've seen good combs made when packages are installed on foundation and fed with sugar syrup, but heavy feeding is required with this method.

A three pound package of bees installed on foundation in early spring in the north should be fed between 25 and 30 pounds of sugar in the form of syrup (50 per cent by weight or volume) during the first month; most beekeepers, unfortunately, do not feed their new colonies that much food. Using that amount of sugar syrup will create conditions similar to those during a honey flow.

EXTRACTING NEW COMBS

Because new combs are delicate, they need special protection when they are first extracted. Several things can be done to protect them. Perhaps most important is to cut deeply with the uncapping knife, that is to remove about half of the cell walls and the honey, together with the cappings. This leaves much less honey in the comb and since the weight is less the comb is much less likely to break. A second method is to wrap two or three heavy, wide rubber bands around the combs after they are uncapped to hold them in place when they are in the extractor. Some commercial beekeepers keep old fashioned reversible extractors specifically for extracting new combs. The advantage of reversible extractors is that one may remove the honey from first one side and then the other. By reversing the comb three or four times one eliminates much of the weight that would otherwise put too much pressure on the comb and perhaps break it.

PLASTIC FOUNDATION

During the past few years some good plastic foundations have been manufactured. The key to making a satisfactory plastic foundation is to make cell walls sufficiently high to be accepted by the bees.

A sheet of plastic foundation is more expensive than a sheet of beeswax foundation, but one does not need to bother with the wiring. Some commercial beekeepers with high labor costs use plastic foundation because new combs can be made much faster. We have only a few years of experience with the plastic foundation, but what we have seen so far looks good. Whether one uses plastic foundation depends upon the amount of time and money available.

SUMMARY

Making good new combs is an art. The cheapest way is one that has been used for over 100 years and involves wiring frames by hand and using plain sheets of beeswax foundation. Wired foundation or plastic foundation is quicker but more expensive. In any event, the best combs, no matter what type of foundation used, are made when the frames are put onto the hive during a honey flow. regardless of the foundation used care must be taken when extracting new combs for the first few times.□

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Answers to Testing Your Beekeeping Knowledge

1. **True** Very young bees, less than a day old are unable to sting because the sting structure is not fully developed and venom has not been secreted into the immature glands.

2. **False** Even though the shaft of the sting appears to be a solid structure, it is composed of three separable pieces: the central stylet which has a large bulb at the anterior end and two lancets which are attached to the stylet by a sliding mechanism.

3. **True** The total number of guard bees found at the colony entrance is related to the amount of forage that is available. The number of guards decreased when the amount of nectar and/or pollen are abundant and increased with a dearth. When forage is scarce and the colony is in danger of being robbed, a large proportion of the bees, including out-of-work foragers undertake guard duty.

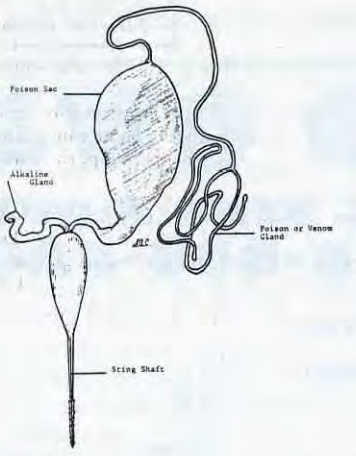
4. **False** While the queen does not have a strong instinct for stinging, they will occasionally sting while being handled, especially if you have been handling other virgin queens. Typically they sting only other queens.

5. **True** Venoms from the various species of yellow jackets, hornets and bees differ from each other chemically. Thus, an individual may not be allergic to the stings of all species.

6. **False** The poison or venom gland is involved in the production of venom whereas the alarm pheromone ispentyl acetate is produced by the cells lining the sting chamber or pouch.

7. **True** Guard bees generally will not be aggressive toward foreign worker bees that accidently enter the hive with a load of food. Upon returning from a successful foraging trip, the stranger walks into the hive without hesitation and when intercepted by guards, it rarely stops and submits to examination.

8. See the diagram that follows:



9. **C) 2%**

10. The sting of the queen is longer and stouter than that of the worker and is more solidly attached within the sting chamber. Also, in the queen the stylet and lancets are curved instead of being straight, and the barbs are very small and few in number. Poison glands in the queen are will developed and the poison sac is very large.

11. In order to defend their colony, guard bees must be able to distinguish workers from their own and other colonies. Odor is the primary stimulus used by guard bees to recognize intruders. All adult bees in a colony share the same odor which is different from tha of any other colony. In addition, the behavior of the bee they are examining is also used by guard bees to determine if they are friend or foe. Some intruders fight back or attempt to escape while others exhibit a submissive behavior during examination.

12. Since the stingless honey bees cannot sting, they defend their colonies by swarming vigorously over an intruder and biting. Some species also secret a fluid which is irritating to the skin.

13. The effect of a sting on another worker bee is instant disorientation followed in a few seconds by paralysis and later, death.

There were a possible 20 points in the test today. Check the table below to determine how well you did. If you scored less than 12 points, do not be discouraged. Keep reading and studying—you will do better in the future.

NUMBER OF POINTS CORRECT
20 —18 Excellent
17 — 15 Good 14 — 12 Fair

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INDIAN BEE JOURNAL Official organ of the All India Beekeepers' Association, 817, Sadashiv Peth, Poona 411030. The only bee journal of India Published in English, issued quarterly. Furnishes information on Indian bees and articles of interest to beekeepers and bee scientists.

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WANTED

WANTED—All varieties bee gathered pollen. Must be clean and dry. Pollen traps available. Hubbard Apiaries, Onsted, Mich. 49265. Phone: 517-467-2151. TF

Wanted Bees or shares on my No. Dakota Location. Call 701-235-5964 after 7:00 p.m.6/86

Wanted : Used Maxant Combination Uncapper & Spinner. Can buy separate units, Jim Higgins, 3801 U.S. 50, Hillsboro, Ohio 45133. Ph. 513-364-2331 6/86

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200 Hives to work on honey contract. (308)754-5641 5/86

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Beekeepers & Helpers wanted for migratory Texas operation. Resume to: 17307 Windypoint Dr., Spring, TX 77379 TF.

Help Wanted: Commercial Outfit needs hired help for the 1986 season. Please write, don't call, to Golden Valley Apiaries, Rt. 1, Box 48, Fairmont, Nebraska 68354 5/86

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INSEMINATION DEVICES. For prices write to Mackenson, Box 1557, Buena Vista, CO 81211 TF

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Estate Sale:1, 45-frame Root extractor. Approx. 10 colonies bees. 1 Jr. brand capping melter. 1, 55-gal. and 1, 90-gal. honey tanks w/stand. 1 strainer. 1, 8 ft. uncapping tank w/baskets. 2 steam uncapping knives. double tank honey, sump tanks w/auto. pump start. 1 balloon tired hive mover. Cut-comb foundation. Misc. hive equipment. Items may be purchased as a group or seperately. Melvin Soderstrom, 2543 N. Lincoln Rd., Ludington, MI 49431. (616)843-3883. 5/86

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Mixed sweet clover seed, 50% yellow, 50% white, 10# $8.50. White dutch Clover $1.90/lb. Birdsfoot Trefoil $2.40/lb. Inoculant $2.00/lb. Plus U.P.S. charges. Visa or Mastercard. Higgins Apiary, 3801 US 50, Hillsboro, OH 45133. ph (513) 364-2331.

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WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. Hubbard Apiaries, Onsted, Mich.TF

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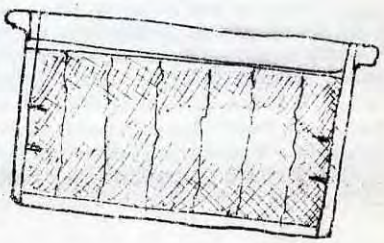

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2-lb. w/Queen (1-5) $15.00 (6-Up) $13.00 3-lb.w/Queen (1-5) $19.00 (6-Up) $17.00

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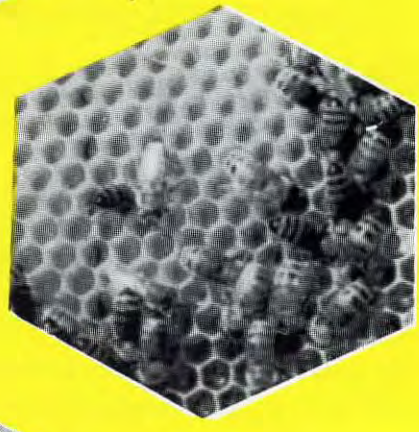

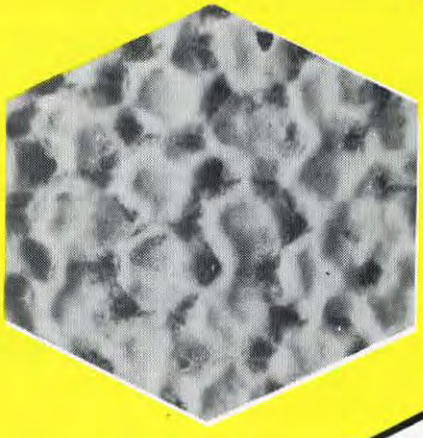

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