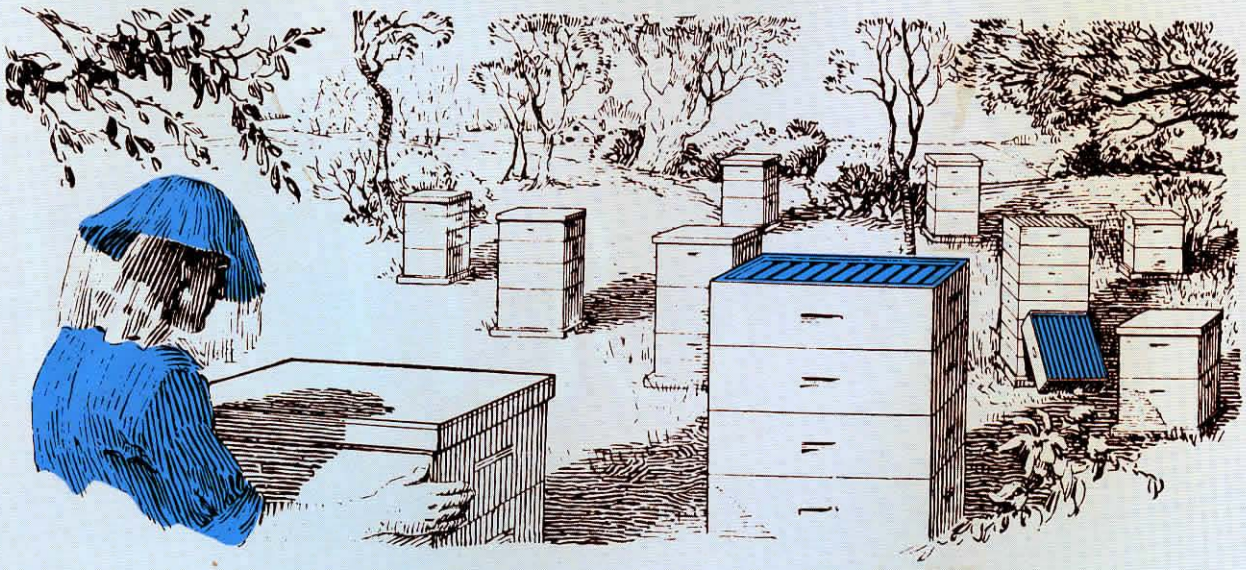
GLEANINGS IN BEE CULTURE

JUNE '87



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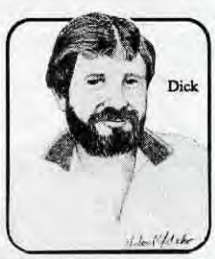

THE A.I. ROOT CO., PUBLISHERS
P.O. BOX 706
MEDINA, OHIO 44258-0706

Subscription Rates: United States, one year, $11.20; two years, $21.70. **Newstand Price: $1.95.** Other countries including Canada, Pan American countries and Spain (U.S. Currency only), $5.75 per year additional for postage. Remittance should be sent by post office money order, bank draft, express money order or check. Published monthly. Discontinuance: Subscription stopped on expiration. Change of Address: Fill out and return form contained inside issue. Articles are solicited. Stamps should be enclosed to insure return of manuscript to author if not printed. *Opinions expressed by the writers in these columns are not necessarily those of the editors.* Advertising rates and conditions will be sent on request. Advertisers' Reliability: While the publishers do not guarantee advertisements in this journal, over the years very few complaints have been received. Microfilm copies available at: University Microfilms, Inc., 300 North Zeeb Road, Ann Arbor, Michigan 48103. Second Class Postage Paid at Medina, Ohio and additional offices.

POSTMASTER: Send Form 3579 to:
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Medina, Ohio 44258-0706
Phone: (216) 725-6677

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114 Years Continuous Publication by the Same Organization
(ISSN 0017-114X) Vol. 115, No. 6

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COVER — "Let us permit Nature to have her way; she understands her business better than we do."
Michel de Montaigine (1533-1592)

Coming in July

Life slows down a bit in July. The hectic rush of May and June are finally behind us and most of us are in the stretch between start and finish. This is a good time to catch your breath, reflect a bit on what was, and what is yet to come.

Marketing should be on your mind now that there is a crop to remove soon, and Bee Culture still offers some of the most unique, up-to-date marketing articles available, and July is no exception.

A short look at "Swarms at Sunset" will perhaps answer a question seldom asked, but — What is the answer?

Does your club or association , or even you do a little research once in awhile? Probably the books and articles don't address YOUR particular location or situation, and there just aren't any answers. So, we have a good story on how to design and carry out a low-key research project that will not only work, but may answer questions that don't have answers — yet!

What about pollen-traps? Which are good, and why, which aren't, and why. We've got the answers next month in a fine article on this necessary activity.

All this, our regular columnists, News, Events, The Mail Box, and the Monthly Honey Report — will help you know why — Coming in July.

ADDRESS CHANGE

If you are moving, please fill in the form below so we can process the change without undue delay. ***Also,*** if you have 2 addresses during the year (i.e., winters in Florida and summers in Connecticut) let us know which months you spend where and we can pre-program your address change so you will find ***us waiting*** when ***you move*** — No Delays, No Fuss!

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ADDRESS NO. 2: Street _____

City _____ State _____ Zip _____

Circle Appropriate Months: J F M A M J J A S O N D

Send Form To: Subscription Department, P.O. Box 706, Medina, Ohio 44258

THE INNER COVER

The Ohio Estate is now completely under cultivation with many early crops already planted and the rest eager to be the same. As we were working the fields this past week we noticed the adjoining field was being plowed by a new renter. Being the neighborly type we went over to introduce ourselves, and be just a little nosey about what the plans were for the field.

We didn't know the fellow on the tractor, nor did he know us, so we made the appropriate name exchange and a little small talk. Then I innocently asked what he was planning to plant.

"Sweet corn and pumpkins" he said. "About four acres of each".

Four acres of sweet corn not more than 20 feet from our colonies. I think I forgot to breath for a few seconds, and I know Diana did. I've had way too much experience with that crop to not get a feeling of impending doom at the mere mention of it.

In retrospect, I suppose the thoughts that went through my mind followed some sort of logic, but I'm not just sure. There was an initial feeling of "(deleted)", then the "why me?" feeling. This was followed by "I wonder where we're going to move them", and "I wonder who we can get to help". Also, I wondered if he sprays, and if he does, what kind of chemicals he uses. And, how does he apply them and is he a registered applicator and finally it was the inevitable shrug, a sigh of resignation, and a barely audible "Damn".

All of this took probably three or four seconds, hardly a noticeable pause in our conversation. And then, miracle of miracles, his next statement, "I'm glad to see you have bees here, they'll really help my pumpkins. I hope you don't mind helping my pollination. By the way, I'm an organic farmer, and I don't use any pesticides, so you won't have to worry about that with your bees."

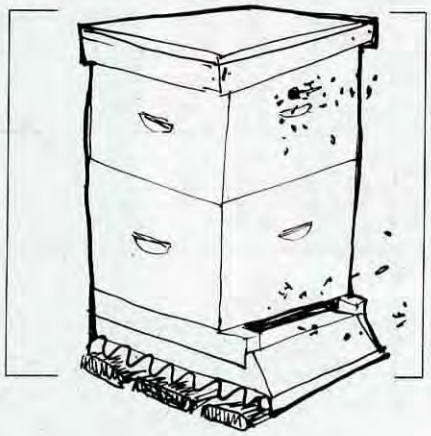
I could have kissed him, but I didn't. Instead I quite casually mentioned that we were glad to be of help with his pumpkins, and were even happier about the corn. I don't think my feet touched the ground on the way back to our place, and Diana and I fairly giggled we were so happy with our good fortune.

But now, a week later I'm even madder than I was that day. The mere mention of Sweet Corn changed our beekeeping habits instantly, if only for a few seconds. But if my new neighbor wasn't organically minded it would have been permanently. Think about it. A new neighbor moves in, does exactly as he pleases with his crop, and I suffer, or go out of business.

Sure, I can monitor his activities to make sure he doesn't spray while the crop is blooming; that he uses a registered chemical; that he applies it at the correct rate, at the right time of day and that there aren't any bees in the area being sprayed. Sure I can. There's no doubt my boss would give me 2 or 3 weeks off to sit home and do that. He's a reasonable fellow. In fact, he'd probably give me all the time off I wanted, for good!!

But even if he were daft enough to grant me that request, why should I have to do it? Why? Because even if 99 out of 100 pesticide applications are legal and appropriate, can I take the chance on that one that isn't? NO!!

So I move, or quit, or put up with it and hope I get lucky. Frankly, that's a hell of a note.



Busy.

Busy, busy, busy!

Run, run, run, run, run!

Is this the way it's been the last few weeks? Feeding those few (or maybe many) colonies that were on the edge of starvation? Checking the queen, her laying pattern, making sure she's doing well. Watching the populations, and looking for signs of swarming? And then looking for those swarms that got away?

Maybe installing some packages, or new queens ordered way last winter. It seemed so simple then. Sure, a few packages and a couple of queens will only take an afternoon to install, right?

Of course, getting everything ready for those packages took a little longer. Refurbishing some old equipment — cleaning supers, installing foundation, making new frames, bottom boards, inner covers and tops isn't nearly as easy (or fast) as it seemed it would be in January is it?

Maybe you're making splits this spring, going from 4 to 8 colonies. Whoops, forgot to get 4 extra bottom boards, right? Had everything else in hand, enough supers, frames & foundation (lots left over from last year because there wasn't much of a crop) so everything's okay — except for those damned bottom boards.

What with last minute equipment building, the necessary checking, rechecking and checking again, the new packages and queens, a couple of school visits, installing an observation hive at the library, a club meeting and chasing swarms all over the county it's no wonder you don't have time to think about the other things going on — but now's the time to start planning for the rest of the summer, this fall and even next spring.

For instance, do you have an inventory of your equipment. Not just the big stuff (extractors, tanks, etc.), but the regular, every day things. You know, deep, medium and shallow supers, (and accompanying frames, foundation etc.). How many hive tools do you own, and where are they all — right now. Smokers? Tops, innercovers, bottoms, feeders, escape boards, pollen traps, frame wire, pins, reducers, mouse guards, slatted racks, queen excluders . . . .?

You may not have, or need all of these, but if you need one, and don't have it — well, just try finding a substitute for an outer cover on a Sunday afternoon 11 miles from home. Right?

My friend Gottrockz has taken

Continued on Page 377

Monthly Honey Report

June 1, 1987

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	R	A
60 lbs. (per can) White	34.50	37.50	36.60	31.20	29.10	36.13	38.63	42.00	31.20-45.00	35.45
60 lbs. (per can) Amber	32.00	46.00	36.75	25.20	28.50	32.10	36.00	39.00	21.00-58.75	35.52
55 gal. drum/lb. White	.50	.47	.62	.52	.44	.60	.58	.56	.40-.60	.54
55 gal. drum/lb. Amber	.46	.44	.48	.42	--	.51	.53	.52	.35-.60	.49
Case lots -- Wholesale										
1 lb. jar (case of 24)	14.03	13.84	13.00	13.48	12.56	12.75	13.13	15.04	11.00-13.75	13.60
2 lb. jar (case of 12)	27.55	27.27	20.00	22.75	23.64	24.80	28.13	28.45	20.00-34.80	25.93
5 lb. jar (case of 6)	28.08	25.00	24.00	23.95	25.10	26.37	25.67	28.35	20.25-34.00	26.14
Retail Honey Prices										
1/2 lb.	1.00	.90	.82	.82	.93	.83	.87	.89	.80-1.10	.89
12 oz. Squeeze Bottle	1.36	1.34	1.25	1.36	1.21	1.23	1.21	1.32	1.00-1.59	1.30
1 lb.	1.51	1.85	1.42	1.79	1.43	1.50	1.44	1.67	1.27-3.25	1.60
2 lb.	2.50	2.89	2.15	2.82	2.61	2.77	2.77	4.05	2.00-3.55	2.68
2-1/2 lb.	3.55	3.67	2.89	--	3.15	2.27	3.41	3.50	2.75-4.50	3.42
3 lb.	4.00	4.12	3.67	3.25	3.55	4.13	3.72	3.37	3.16-4.98	3.77
4 lb.	4.75	4.50	4.05	5.12	4.75	4.57	4.65	--	4.05-5.89	4.67
5 lb.	6.50	5.43	6.50	6.13	5.95	5.27	4.45	5.44	5.19-7.00	5.77
1 lb. Creamed	1.75	1.15	1.89	1.63	1.53	1.30	1.59	1.66	1.15-1.98	1.58
1 lb. Comb	2.25	1.85	2.00	2.39	1.75	1.72	1.75	2.25	1.50-2.52	1.98
Round Plastic Comb	1.75	1.67	2.00	1.85	2.00	1.55	1.64	1.65	1.50-2.00	1.74
Beeswax (Light)	.87	1.15	.79	.60	.88	.85	.80	.90	.70-2.00	.90
Beeswax (Dark)	.80	.78	.75	.50	.60	.76	.70	.70	.50-1.10	.73
Pollination (Avg/Colony)	24.00	16.75	20.00	27.50	15.00	20.00	23.00	21.25	15.00-28.00	20.79

Honey Report Graph Features

On the far right hand side you will see two different columns. The first, labeled "R", is the price range of prices reported from all contributors -- lowest to highest. 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 $1.27 - $3.25 and the average price across the country is $1.56.

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 1.00 this month and remaining regions are compared to that index.

•Region 1.

Price Index 1.00. Prices slow in western areas of this region, but brisker in the northeast. Sales of bees, new and used equipment spotty as winter losses vary extremely across the region. Swarming beginning, while feeding still going on in some areas. (See Mailbox for additional information).

•Region 2.

Price Index .86. Sales steady with prices slightly higher due to shortage of honey. Late spring cool and wet in most areas, slowing flows and build-up. Early swarms and flows look promising for excellent crop.

•Region 3.

Price Index .90. Prices steady to decreasing, some loan honey moving into market. Cool, wet weather has slowed build-up in some areas, while others are normal to above normal strength.

•Region 4.

Price Index .64. Prices steady to lower but sales strong. Colonies generally in good condition, build-up normal to above normal. Swarming strong in southern areas, while feeding still required in some northern spots.

•Region 5.

Price Index .89. Prices steady to slightly lower, but sales strong and building. Many colonies doing well, but some in the north still feed. Building well, but MN very dry.

•Region 6.

Price Index .87. Sales strong where honey available, many areas short. OK dry, but swarming and build-up about normal.

•Region 7.

Price index .94. Sales normal to brisk, prices strong. Erratic weather has interrupted build-up a bit, but early flows are strong and expected to be better.

•Region 8.

Price Index .94. Prices and sales up and expected to be better. Demand increasing. Excellent spring conditions have helped pollination of a variety of crops, with most setting well. Some areas dry, some cool for spotty problems. Build-up early and strong and supering required earlier than usual.

THE BEST AND THE BRIGHTEST
Entering a Honey Show

Entering a honey show contest is an event every beekeeper should experience. It will teach you all sorts of valuable lessons in life, and in beekeeping.

For instance, how to not kill a judge when you know perfectly well your entry is not only the best in its class, the best in the show, but probably the best ever made.

It also will teach you humility. When you see just how great some entries look, you may begin to wonder if you'll ever get that good yourself.

Finally, it will give you some valuable clues on beekeeping. Some of these seemingly silly practices you know other beekeepers routinely perform, suddenly seem to not only make sense, but should become an integral part of producing quality products.

Much of what is published in this magazine is toward that end — producing a quality product. In that vein, this month we not only offer an article by Albert Bell on how to produce a prize winning liquid honey entry, but our continuing series on Cooking and Baking with honey by Ann Harman so you can make those prize winning cooking entries.

We also have a history of entries in the EAS Annual Show, showing the number of entries in a given class over several years. Now, you may not get to enter in the EAS Show, but we did a little checking and found that the proportions are about the same in many other shows around the country.

For instance, extracted honey

Continued on Page 326

HONEY SHOW... Cont. from Page 325
usually draws the most competition, especially in the medium color areas. But many other areas, notably honey frames, honey cookery, mead, creamed honey and a few others, draw far less entries, thus enhancing your chance to excel in these events.

But don't limit yourself to just one or 2 categories. Try as many as you have time and energy for. This will not only increase your chances of winning, but more importantly, make you aware of just what is required to produce a quality product. But by far the most important aspect of all of this is to have fun — competition and learning are the tools, having fun is the goal.

So, participate in your local or regional shows this year, maybe earn a ribbon or prize, learn a little more about beekeeping and HAVE A GOOD TIME!§

EAS ANNUAL SHOW COMPARISON SHEET

Extracted Honey	Class	1980	1981	1983	1984	1985	1986	Avg.
White	1	4	--	8	4	14	3	6.6
Light	2	11	11	26	20	29	17	19.0
Light Amber	3	16	23	32	43	27	23	27.3
Amber	4	13	24	38	28	16	30	24.8
Dark	5	6	9	14	14	8	11	10.3
Comb Honey								
Section Box	6	4	4	10	1	7	3	4.8
Cut Comb	7	6	9	8	5	7	3	6.3
Circular Comb	8	4	11	5	11	12	7	8.3
Creamed Honey	9	5	7	4	6	9	6	6.2
Chunk Honey	10	5	7	10	8	7	3	6.7
Frame of Honey								
Shall. Cut Comb	11	4	3	2	2	3	3	2.8
Shallow Extr.	12	6	7	6	6	10	8	7.2
Full Depth Fr.	13	3	--	6	3	2	0	2.8
Novelty								
Shaped Container	14	1	--	3	6	8	5	4.6
Gift Box	15	5	--	1	5	7	6	4.8
Mead								
Dry	1	4	3	4	5	5	5	4.8
Sweet	2	5	4	3	4	5	5	4.3
Fruit Juice Made Sparkling w/out /with Fruit Juice	3	7	5	5	6	7	3	5.5
Honey Cookery								
Cookies, Crisp	1	4	9	2	3	6	3	5.0
Cookies, Soft	2	6	--	9	9	12	7	8.6
Bars or Brownies	3	6	7	5	6	13	7	7.3
Cake, Unfrosted	4a	5	7	4	--	7	5	5.6
Cake, Frosted	4b	4	--	1	4	3	2	2.8
Yeast Bread	5	7	6	5	8	5	5	6.0
Yst. Brd., Fancy	6	5	6	1	4	4	3	3.8
Yeast Rolls	7	4	--	--	2	7	2	3.8
Quick Bread	8	6	10	8	7	12	8	8.5
Muffins	9	5	7	2	3	4	5	4.3
Candy	10	4	5	4	4	9	5	5.2
Pie	11	3	5	1	3	7	4	3.8
100% Honey	12	6	--	8	13	8	4	7.8
Gadget								
Large Devices	1	5	18	1	7	4	3	6.3
Small Devices	2	6	--	4	9	8	5	6.4
Beeswax								
2 lbs. Pure	1	6	10	18	17	18	15	14.0
Candles Dipped	2	3	3	2	6	8	8	5.0
Candles Molded	3	5	10	9	9	13	14	10.0
Candles Fancy	4	2	--	2	5	5	5	3.8
Candles Novelty	5	1	--	5	1	2	2	2.2
Novelty Beeswax	6	3	--	6	11	14	13	9.4
Photography								
Macro						10	12	11.0
Scenic						8	11	9.5
Portrait						8	9	8.5
Essay						4	7	5.5

Mailbox

MORE ON MARTINS

Dear Editor:

I don't know if I have ever written you about my martin and honey bees. My interest was kindled again as I read the letter to the Editor in the March issue.

I have been keeping bees for 15 years and I have had a martin house for 14 years. For several years I kept my bees within 30 yards of my martin house. There were 10 to 15 hives then. The martin house was in the middle of the hives. I watched the martins and never saw them catching bees. For several years now there have only been one to three hives around the martin house. I have yet to see the martins catching bees. These hives have always been good producers.

Now here is something I see all the time when the martins are here. I see the bees chasing behind the martins. I have watched them with binoculars to be sure of what I was seeing. There will be several bees chasing the martins and they will go in all directions but the bees stay right behind them. I'm not sure how far they will follow them. I know for sure at least 20 to 30 yards.

There is some interesting information in the book *Purple Martin* by J. L. Wade, pages 85 to 90. I do have a few bee martins (Kingbirds) that I see catching my bees but they don't do enough harm to worry about.

I know a fellow that killed several purple martins one day that were eating his dad's bees. He said they were full of honey bees. They live about 15 miles south of me. He said he knew where the martins were living and after the shooting, there was very few or no martins left at that martin house.

I don't have any explanations. I'm quite well pleased with my bees and martins.

Leroy Findley
5345 Barrineau Pk. School Rd.
Cantonment, FL 32533

LOOKING FOR EXPERIENCE

Dear Editor:

I have been a beekeeper for the past thirty years. I catch swarms and raise them in colonies for honey. I also sell packages and rear queens.

I have some skills but lack certain ability and opportunity here, so am writing you. I would like to migrate from this country to the United States. I would like to know if you or any commercial operation can offer me a job or teach me your style of beekeeping. I raise up to 2,000 colonies and I also produce bees from wild flowers.

Company, Island Bees Ltd. and B. B. Honey Company are the three leading companies so I am asking whosoever reads this letter to please answer as quick as possible. I would be very grateful.

James Martin
Duckenfield
Golden Grove P.O.
St. Thomas

NOSEMA?

Dear Editor:

I wish to report that apricots, pears and peaches have been frozen here. My bees did get pollen from elms and fruit for about 3 days before they got frozen by this "Blue Norther".

When it warms up they get pollen, and I assume some nectar, from dandelions which sure must be rugged to stand near zero temperatures at night.

I hope it gets warmer so they can get nectar or I may have to feed them some more.

Also, the bees can move over to honey in hives if it doesn't stay cold too long. I think this is what might have happened in Florida and some other states are reported in journal reports I just read. I am beginning to wonder if *Nosema* disease could play a bigger part than we realize. I haven't been worrying in the past but could have lost colonies not knowing what was causing it.

Raymond H. Irwin
1023 Madison Ave.
Woodward, OK 73801

PUBLIC RELATIONS

Dear Editor:

In your March issue, 1987, you inserted an editor's note on page 133 "for urban beekeepers this problem (watering) can cause all sorts of bad public relations and may result in zoning, or other ordinances to change *against* beekeeping, do us ALL a favor, keep them home this summer."

I certainly agree with the first part of your quote. It can and usually does end up in bad public relations with devastating results to the beekeeper and the industry. As for the second part of your quote, you and I both know that honey bees will forage within 12 square miles of their hive. At least 80% of beekeepers in the United States live in urban areas. Just to carry on the art of apiculture they will put them in their attics, cellars, garages, etc., you just don't keep them home. Sooner or later an urban beekeeper is going to be confronted by the city fathers, neighbors or health dept. Most likely, not one of them will know much about honey bees, and unfortunately, these are the uneducated officials who are rendering decisions without knowing the facts about bees.

After my first successful year as a beekeeper I anticipated that soon I was going to get a visit from someone who watches over the community. My visitor came on a nice spring day,

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the last week of April, coming through a row of hemlocks that act as a barrier for the honey bees to fly over. She walked smack into the middle of my small apiary of six hives. I happened to be leaning on one of the hives watching bees return. They were laden with heavy loads of nectar and pollen, just resting and waiting their turn to deposit their rich treasure. The incoming bees flew in low, the outgoing bees flew above them. Fortunately, the bees were on their best bee-havior. Looking up, I noticed a middle aged Italian woman coming toward me, absolutely unaware she was standing about three feet in front of my hive.

Totally unaware of what was going on around her, she made it known that she wanted to know about honey bees. I told her she came to the right place. In the meantime, a cloud of bees were gathering behind her, some landing on her to rest. I dared not tell her what was happening, but called her over to me. The woman then realized what was occurring around her and exclaimed "Mama Mia" as only a native Italian can do. God had to be smiling on me, for all the bees, acting like little ladies, were coming and going as fast as they could. After a short time the woman composed herself, and was captured by the fascination of the working bees.

We walked over to a nearby bench and she explained the reason for her visit. As I suspected, other people were calling her about my bees. They, being a little apprehensive, were not about to approach me on this subject. We agreed that I would give a lecture and demonstration with my observation hive and by-products of the honey bee and a date was set at our community council house. In the meantime, my wife and I prepared a little program with entertainment, education and promotion of the honey bee, and by-products of the hive. A combination of all this creates good public relations. The program consisted of playing a medley of songs relating to honey, such as "Won't You be my Little Honeybee", "Honey Comb", "A Taste of Honey", etc. We gave out door prizes, honey, wax, candles, etc. After the lecture on honey bees, there was a question and answer session. A display table was set up with assorted products of the hive and also with honey and items to be sold. Our girls dressed in a yellow blouse and antennas on their heads, with black slacks. After it was over, I was impressed by the ovation and

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invitation to come back. The next time I returned, they had a surprise for me. It is Springfield's 350th

anniversary and each community adopted a banner, ours was for Pine Point. The flower is the Hollyhock, the bird is a Dove, and the insect is the Honey Bee. My wife and I were given, by the Commonwealth of Massachusetts, House of Representatives, a citation for our work in nature, and a State Award for the development of Creamed Honey. When this is given to you by your state representative, your community had to be behind it. It made me quite proud, for myself, and all the beekeepers. In the next town north of Springfield, a court case was pending on the outcome of keeping bees. The health dept. was accusing the beekeepers of their bees being a hazard and a nuisance to the public. Shortly thereafter, they were vindicated from all charges.

Maybe by now you're saying this guy is really sitting on a fence and crowing. But there are still good bee "managers", not just bee "havers". They give our industry a bad name.

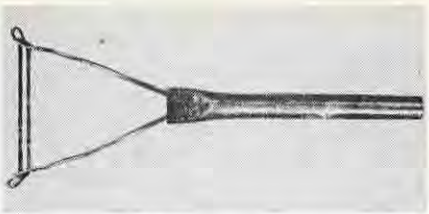
Roland B. Jarry

TOOL TIP

Dear Editor:

Here, for you, is a free example of a tool I make to pin and hold the queen bee on a comb for marking and clipping. Feel free to print a description of it for the other readers of *Gleanings* if you think they would be interested.

I make them from a short piece



of copper tubing, a large paper clip and a rubber band.

Happy Beekeeping.

Gerald Cosgriff
Cosgriff Honey Co.
P. O. Box 269
Libby, MT 59923

FUTURE SHOCK

Dear Editor:

I found your letter in some very old files in our local library and thought that you might be interested to your problem even though this answer is 10 years after the fact.

In 1995 the U. S. Gov. realized that they goofed in outlawing bees in the country in 1990. By 1992, the Gov. Scientists developed a bacteria that "accidentally" killed ALL the bees in the country instead of those with the African Strain only. In the spring of '93, they found out the consequences of this accident. They

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tried importing new colonies from Europe but the bacteria was still alive and it promptly killed the imports too.

In the fall of '93, the Dairy Industry collapsed due to the lack of Alfalfa for feed (along with several other feeds) so the Gov. had to start importing milk.

In the spring of '94 the fruit industry died along with most food production in Florida, Texas and Calif. that required bees to pollinate the crops. That was that much more to import.

Last fall, '94, the last available supply of bulk garden seed was sold at auction. They really got a price for it too. An ounce of gold for an ounce of seed. What was really bad was that the stuff was at least 5 years old and no one was sure it was any good. Oh yes, all the Government stored seed supply was used up in the spring of 94 for the last crop to be grown in the U.S. At the moment, the government knows they really blew it when they realized what amount of food is required to be imported each day to feed this country; fruit, milk, most green vegetables, etc.

The beef market is thriving out West. They can get any price they want for beef and the quality? Well, you thought you had inflation in '85. You should see it now. Sometimes we see 10% a MONTH and EVERYONE is on food stamps. If you don't have food stamps you can't even enter the grocery stores as the gov. has had to take them over to keep order and make sure everyone was getting a minimum diet.

There ain't no fat people now. Rationing is the rule with the Army in control of the stores, but the black market is flourishing. By the way, before killing off the bees, the U. S. bought a strip of land across Mexico 200 miles wide, moved everyone off it and sterilized it totally. The cost of the land and moving everyone was about equal to 1/5 of your national debt. Too bad it only slowed them down a few months, we could sure use the money now.

John Doe
319-55-8694

COMPUTER PROGRAMS

Dear Editor:

I am an amateur computer person (nut) and am curious. Is there a demand for computer programs to keep records on hives and/or yards? I am talking IBM PC compatible now, and not Commodore or Apple. I am just not familiar with those computers. What, if anything, is needed? Hive records? Example:

Hive #:
Checked When:
Requeened When:
Honey Produced Last Year:
Honey This Year:
Notes:

Or is a full set of books needed, production, expenses, inventory, sales and payroll?

Anyone out there got any ideas or programs that you use?

John's Apiaries & Computers
134 S. Fountain
Republic, MO 65738-1932

LIGHT FOR BLEACHING

Dear Editor:

An enterprising individual in British Columbia is developing markets for alternative beeswax uses and sales. He is interested in using artificial light for bleaching beeswax. Does anyone have information on this? For instance; What wave length is responsible? What intensity might be required? Is there any experimental or developmental information available?

I have searched Apiculture abstracts but can find nothing. Any leads or suggestions would be appreciated. Can you let me know as soon as possible?

D. M. McCutcheon
Supervisor, Apiculture Program
Ministry of Agriculture/Fisheries
32916 Marshall Road
Abbotsford, B. C.
V2S 1K2

GETTING YOUR HONEY IN

Dear Editor:

After having had bees for 12-13 years, I cannot claim to know all there is to know about bees. But every year it seems, they teach me another lesson.

Here in Western Washington, we have essentially two honey flows. One rather early when the Alders and Maples bloom and the second one during the blackberry bloom, which is in July. After that it really is pretty much over with. There is always something coming in, but it is not all equally good. And it is the privilege of the hobbyist, who does not have to make a living of it, to be a little choosey.

So we have made it a point to get our honey in before the brown stuff of fall starts. If you don't, it will not only color your early honey brown, but it will also stain the new combs in your honey supers. No good.

So our supers come off, as the berries come on. This is where they showed us a new trick last year.

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Being hobbyists with four hives at the maximum, we have always shaken and brushed the bees off from each frame. This may be too labor intensive for larger operations, but for our size it has always worked quite well. If you open only one hive at the time, use some smoke and do it on a somewhat cooler day, there never has been any significant robbing. The bees have however, become more antsy as we went and clear enough, because of our own less effective method.

We have always started at the top, shaking the bees back into the top super from each frame as we went. This way there are bees that get shaken and brushed off over and over again as they land back on the very next frame to be taken off. Eventually that gets them upset and we have had them mad and coming after us into the kitchen about 80 feet away.

Maybe there are a lot of folks out there laughing about how naive can one be, but only this year we thought of lying a hive top sideways against the bottom board in front of the hive entrance. Now instead of brushing them into the top we brushed them onto the hivetop in front, most of them making their way in. At this time of the year we have a queen excluder over the first box. By the time they decided upon some action, we were long done. At least we never saw much action.

Also there are always some frames, with just the beginnings of some honey deposits, uncapped honey or too little to extract. These were temporarily placed next to the bottom board in front of the entrance.

You want the bees to clean these out anyway, so they can be stored dry for the winter. This kept those bees busy.

This year has been the easiest and quietest honey harvest ever.

Henri J. DeLange MD
1000 Cabrini tower
901 Boren Avenue
Seattle, WA 98104

HONEY COMB COLOR

Dear Editor,

Here is a brief report about color of honey in new and in old, black honey combs. Back in the 1930's I put a few frames of foundation and a few old, black brood combs in a super and then put the super on a strong-in-bees colony. I can't remember how long the super was left on the colony, but eventually I extracted samples of honey. The honey was graded by means of a Pfund honey grader. Again, I can't remember the exact grades but the honey from the new combs was appreciably lighter in color than that from the old combs.

Quite a few years ago Jonathan W. White, et al, reported on the effect of temperature upon the color change in honey, but I do not have a copy at hand. Your readers might find it of interest.

Everett Oertel
Baton Rouge, LA 70808

NORTHEAST CONDITIONS

Dear Editor,

Well fed bees are in very good condition, most of the rest are dead. Reports come in that 7 of 8, or 11 of 12 are dead. Many beekeepers were warned last fall that their bees would need special attention. They felt that they would be okay because they left all their honey on. It wasn't enough, now they will pay more attention to these reports.

Sales of package bees, nucs and queens are up. Also sales of used bee equipment are up, and going cheap.

Well fed bees have brought in much pollen, more than usual. They should swarm more than usual but the demand for swarms will not be met this year because dead bees don't swarm. See your local bee dealers to supply bees for your empty equipment before wax moth time or your combs will be gone.

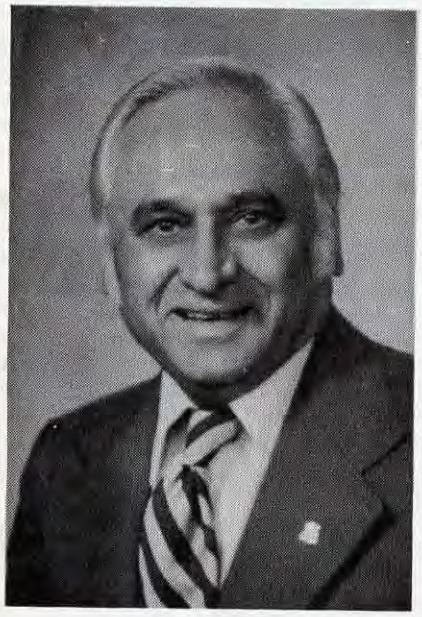
Beekeepers who still have honey are having no problem selling it but all local honey should be gone before the next harvest. New crop honey will be in great demand about July 1.

Demand for pollination bees is high and the price per unit is about $30.00. Many beekeepers just don't have enough bees to fill their orders. New customers will pay about $35.00 because of the shortage. Also, the extra cost of feeding bees was very high. Most units needed a gallon last fall and another in March, but some needed as much as 6 gal.

Norman Farmer
Bristol, CT

Apply Aptitude *and* Attitude for Award Winning Honey

By ALBERT G. BELL • 2857 Colton Blvd. • Billings, MT 59102



Toward the middle of August, 1961, my first supers were finally sealed and ready for extraction. While examining the frames, I noticed the bees had done an exceptional job of filling and capping them with snow white wax. The equipment was new and the bees had done outstanding work. It occurred to me to consider entering an extracting frame in the bee exhibit of the Minnesota State Fair.

And believe it or not, my first year in beekeeping produced a blue ribbon. The Blue Ribbon was a surprise and it supplied a sense of accomplishment to keep me smiling and keep me going.

With such motivation it is easy to see why an entry in a honey show is a climax to each honey season. After the extraction comes an entry and to me this is a natural progression.

My preparation for ribbon winning liquid honey begins with new supers, new frames with foundation and a thorough reading of entry rules. The exhibits must be prepared in accordance with the rules the local judges use. Entry forms are prepared and proper entry fees paid. Some honey shows require membership in the organization sponsoring the honey show.

The supers are identified with a marking pencil indicating colony number, hive location and placement date. The supers are placed to coincide with the desired nectar flow and removed when that flow terminates. At extraction time these selected supers can be processed separately and placed in separate settling tanks.

I examined 4 cases of 1 pound queenline glass bottles to pick out the best 24. These were filled uniformly, just below the screw cap threads and capped with the 24 worst looking new caps that came with the bottles. The case of one pound jars was put in a warm spot to settle.

Ideally, the jars selected for competition should be filled from the middle of the settling tank as this is where the honey will be the clearest. If you only have a small supply of honey, take what is available from the center of a well settled tank.

My case of potential ribbon winning honey was then put on top of a hot-water-heat radiator in our bedroom, out of sight of the children.

Each day I would check the bottles and remove the foam and other items that moved to the top. A silver baby spoon is ideal for skimming. I always checked for crystals, and if too many were noted, I moved these bottles to one side of the carton. This separated the bottles into two categories.

When the jars are washed before filling, they should be air dried, because a towel will leave lint. Ideally, the jars should be handled while wearing cotton gloves. Fingerprints are hard to remove.

Honey is judged by clarity, or freedom from crystals and other matter. When the honey is examined by polarized light, dust specks, lint and other materials are illuminated, which are invisible to the naked eye.

It is best to carry your honey to the honey show. Make certain the six best caps travel with the entry together with the extra bottles. Upon arrival at the honey show, examine the bottles again for crystals. Crystals can be melted by placing the jars in a hot water bath.

Handle the jars with cotton gloves. Level the honey from the extra jar you brought. Clean any water spots on the bottles and put on the new caps you brought. Turn the honey over to the show personnel.

If the honey is shipped, the final preparation is carried out at home paying particular attention to last minute details — leave the honey — put on new caps and include the entry form. Pack for shipping and *hope* the delivery carrier keeps the carton upright.

Honey show judges are experienced and have a score card to follow. The highest scores are given for freedom from impurities, including froth; body and density; clarity (brightness, freedom from crystals). Flavor, aroma, color and uniformity of volume have lessor scores.

Clarity, freedom from impurities, as well as freedom from crystals, counts the most, together with viscosity or thickness, toward winning blue ribbons. To win blue ribbons and other prizes, enter a honey with the greatest viscosity. Thickness can generally be determined by inverting a jar and watching how slowly the balloon rises. Some honey shows give extra points for honey below 16% moisture while others detract points. Know which rule counts in your show. Moisture is determined by the judge using a refractometer or hydrometer. The judge will probably use the refractometer.

The honey was placed in the sunshine on the day it was packed for shipment to the show. (The Class A entry on the left and Class B on the right.) The sunlight streaming through the honey was an impressive sight. Black and white photography does not do it justice.

Al Bell Photo

I know a honey judge that inverts the honey bottles to check the specific gravity by timing the speed of the rising balloon. The balloon that is the slowest wins. This is not always the case, however.

I was once asked how I got my

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BELL... Cont. from Page 332
honey so thick. Most of Montana (my home state) is arid and produces a low moisture honey with a high degree of viscosity and purity of variety. In one show my honey scored 98 out of 100 points. It fell down because of froth and impurities. It was shipped railway express from Helena, Montana to Little Rock, Arkansas. I'm sure it had a little froth beat into it.

Winning a blue ribbon for the best honey in an international honey show is a rhapsodic experience. It still sustains me, but I think I would have remained in beekeeping without the blue ribbons.

Winning was accomplished by positive affirmations and hard work. I visualized the blue ribbon and then worked and studied to achieve it.

Boxers shadow box, football players and bob sled racers mentally cover the activities before participation. Bowlers and golfers use body english to move the ball and Babe Ruth pointed the ball over the fence in a world series game. Beekeepers can also set goals to win with their honey.§

About Washington

Reprinted from the Chicago Tribune, Friday, January 9, 1987.

Ever on the lookout for ways to save the American farmer, the Washington-based National Governors' Association is circulating a report urging farmers to switch from big surplus crops like wheat, corn and dairy products to more diversified things like crayfish, buffalo, asparagus, snails, bees, Christmas trees and catfish. And can't one just imagine them plowing up snails and asparagus in their $90,000 tractors.

As the government's farm programs seem to produce surpluses no matter what the crop, it would seem preferable to have surpluses of wheat than ones of crayfish. At least the wheat doesn't move around.§

QUESTIONS?

Q. If the thinnest man-made foundation is about 100 times as thick as that made by bees, wouldn't we produce better comb honey by using strips of foundation instead of full sheets in the rounds?

Clarence H. Bopp
Kirkwood, MO

A. The bees do not simply build cells upon the foundation, but literally draw it out. If foundation that has been color tinted is given to them, it will be found that the color is carried into the cell walls. The thickness of the foundation in the finished, drawn out comb is thus not directly related to the thickness of the foundation with which one begins. When I have used starter strips in my section boxes I have not noticed any differences in the finished product. How well, and to what thinness, the bees draw out foundation is related more to temperature than to the thickness of the foundation, and comb honey should accordingly be produced during the warmer months. Comb honey from fall flows is apt to be very waxy.

Editors Note: Last month we misprinted Dr. Taylor's answer to this question. We repeat it this month with the correct answer.

Q. We want to produce cut comb honey. Is there a way to keep pollen out of the supers?

Gerbrand Van Dyk
Naugatuck, CT

A. To keep pollen out of supers you must have honey in the brood nest directly underneath the supers. Bees rarely store pollen higher than honey. There is no certain way to be sure that there is honey in the top of the hive before supers go on, but it helps a lot to make sure the bees go into winter with plenty of stores the preceding fall.

Q. Can the bees of a colony that has American or European foulbrood be saved by shaking them from the combs into a hive containing only foundation?

Ralph Bennett
Saranac Lake, NY

A. Yes, in some states that is considered an acceptable procedure, whereas in others, including yours, it is not legally acceptable, though it does in fact work. There is no point in doing this for European foul brood, however, for a well managed colony will overcome that infection, and there is not much point in using this shaking procedure for American foul brood, either, since you are going to have to burn the combs anyway. The bees of a diseased colony are hardly worth saving.

Q. Should brood combs be regularly replaced? I have heard that I should replace one comb each year with foundation, so as to prevent reduction in egg laying.

Robert Lacy
Shade Gap, PA

A. It certainly is not necessary to do this. Many successful beekeepers have no policy of recycling old brood combs, and I have seen such combs still perfectly functional after more than twenty years in the hive. On the other hand, there is evidence that the regular replacement of brood combs does improve honey production somewhat, so it is really a question of whether one wants to take the time and trouble to do this. Old combs do not result in reduced egg laying; rather, they seem to result in slightly smaller adult bees, since the cells become a bit smaller with age.

Q. My honey house is separated from my house by my garage. Last summer American roaches got into my honey house, then spread to the garage. My wife has put up with a lot but a roach infestation would bring the walls down. Roach traps did not work, but something called *Roach Prufe* seems to. Is this toxic to bees? And what about the supers stored in the honey house?

Geoff Frisch
Atlanta, GA

A. Those are probably what we call wood roaches up here. They are harmless to bees but love the crevices of hives and covers. *Roach Prufe* is not toxic to bees and is perfectly safe to use around your honey house, though you should, of course, not let it come in contact with honey, just on general principles. It seems to consist of nothing but boric acid and a bit of coloring. I once put a wood roach in a jar with a half inch of *Roach Prufe* and he was alive and healthy as ever the next day. Apparently roaches are reluctant to walk over it, but it will not hurt them nor will it contaminate your honey house.

Q. Will bees clean up brood combs that have been damaged by wax worms and have moldy pollen in them?

Douglas J. Lake
Dedham, MA

A. Put those combs on a good strong colony of Italian bees and they will do a remarkable job of cleaning them up. First remove any excess webs that can be gotten off easily by hand, and do not expect the bees to restore combs that have been badly damaged structurally.

Q. What do you think of plastic hives and parts?

Name withheld by request

A. Not much. Some plastic bottoms and inner covers that got into my equipment warped. Bees like

Continued on Page 336

& ANSWERS!

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Testing Your Beekeeping Knowledge

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

Effective honey bee management and success in beekeeping requires the individual to have an understanding of colony organization, growth and behavior in relation to environment as affected by seasonal changes and local floral sources. In order to make the right management decisions most of the time, the beekeeper has to sense these natural changes that occur within the colony. No two years are ever alike, so it is not possible to manage colonies by a set of fixed rules.

While a beekeeper can learn a great deal about their favorite insect by reading, attending educational meetings, field demonstrations and short courses, there are still many aspects of colony management that can only be learned by working with your own colonies. Unfortunately, learning from our own errors and suffering from the consequences is often one of the fastest ways of learning beekeeping.

Please take a few minutes and answer the following questions to determine how well you understand basic bee biology and management. The first five questions are true and false. Place a "T" in front of the statement if entirely true and an "F" if any part of the statement is incorrect. (Each question is worth 1 point.)

1. ___ During the winter, colonies heat the entire hive, so it is important to limit the amount of space that is provided for wintering.
2. ___ The presence of a large drone population within a colony is an indication of a prosperous colony or a colony having serious queen problems.
3. ___ Fertilized honey bee eggs typically hatch in three days and unfertilized eggs in four days.
4. ___ In the spring, honey bees are typically clustered at the top of the upper-most hive body.
5. ___ Worker honey bees are female.

6. Explain how the following management manipulations will aid in the prevention of swarming.

(Question is worth 6 points.)

A. Reversing brood chambers

B. Cutting out queen cells

C. Requeening a colony

7. What is the first step in requeening a colony? (Question is worth 1 point.)

8. Name three approaches of introducing a new queen to a colony that you are requeening. (Question is worth 3 points.)

9. Please give two advantages of having marked queens in your colonies. (Question is worth 2 points.)

10. Describe how to stop robbing in the apiary once it has started. (Question is worth 3 points.)

ANSWERS ON PAGE 371.

QUESTIONS... Cont. from Page 334

wood, and hives painted on the outside will last as long as you'll need them, provided they are kept up off the ground.

Q. I painted some supers with creosote and some of it bled to the inside in a few of the corners. Is this okay?

Victor Pfaff
Huntingburg, IN

A. Creosote is no longer considered a safe substance and cannot, I believe, be purchased. I am quite certain, however, that any slight staining such as you describe will be harmless, provided you set the supers out in the sun for a couple of weeks before using them.

Q. Is there any way of keeping and feeding virgin queens outside the hive?

Father Bartholomew
Abbey of Our Lady of the Holy Trinity, Huntsville, UT

A. I know of none. A virgin queen outside the hive is worthless after she has been out of her cell more than twelve hours, for no colony will accept her, so there would be little point in feeding her anyway.

Questions should be accompanied by a SASE and sent to the above address.§

THE BEE SPECIALIST

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

"Weed control, bee diseases, treating Tracheal Mites and another word of caution about Vaponna."

Apiary Weed Control

After you have lost some colonies of bees to suffocation because of heavy weed growth around their hives, you become very conscious of the need to control weeds in the apiary. That happened to me in Illinois when pigweed seedlings became 5-foot plants while I was on vacation.

In our permanent apiaries there, we put the hives on pieces of roofing paper to prevent the growth of weeds and grass close to the colonies and to make mowing easier. Earlier, we used herbicides to control plant growth, particularly amino triazole and paraquat. They left the ground bare and allowed it to erode easily on sloping sites.

Orchardists must manage the vegetation between their trees, and they have recently come up with some ideas that may be of value to beekeepers. Parry Klassen reported them in the March issue of *Ag Consultant*.

The new object of vegetation management is to control, *but not kill* the weeds in the row centers. This leaves some protection for the soil against erosion while also reducing the amount of mowing and the competition for moisture. Apiaries treated in a similar manner would allow unhindered flight of the field bees and yet keep air temperatures somewhat lower because of the soil cover. Bare soil reaches higher temperatures and also reflects more heat onto the hives than does a vegetative cover, whether weeds or a planted crop.

This new control system makes use of Roundup herbicide (Glyphosphate) applied at rates of 8 to 16 ounces an acre to control both winter annuals and summer perennials. In California, an early spring treatment catches the winter annual plants. A second treatment one or two months later may be required, depending on rainfall and growth of additional weeds. The herbicide, applied in 10 to 20 gallons of water per acre, stunts the weeds with some die-back. Orchardists put on a final, more concentrated spray before harvest, and may do some mowing, to get a clean "floor" when picking the crop. Beekeepers could use another treatment at the same low rates as earlier, depending on the results and regrowth after previous sprays.

If you are caught with weeds that have grown tall before treatment, try knocking them down before spraying. A California peach grower has had improved weed control by dragging a 4" x 10' pipe in front of the sprayer as he applies chemical treatments.

Roundup is one of the safest weed killers available. Its safety is further enhanced by using it at lower-than-usual rates which leave a soil cover against erosion wherever it is applied.*

Juvenile Hormone, Diseases, and Bee Behavior

For many years I have been fascinated by the similarity of physiological and behavioral changes of adult worker bees infected with sacbrood virus and *Nosema* and similar bees treated with carbon dioxide and juvenile hormone. In each case, the bees suffer from poorly developed hypopharyngeal glands (broodfood glands), they eat less pollen, they become field bees earlier in life than normal, and they usually have a shorter life.

When I began work with juvenile hormone in the early 70's, I suggested that the level of the hormone in the adult worker bee was responsible for the changes in duties and activities of bees as they aged. This idea was developed further with a group of Swiss researchers who found that the level of the hormone increases with increasing age in the worker bee and thus appears responsible for the transition from hive to field bee and for the internal changes that accompany it.

If we anesthetize bees with carbon dioxide, we see the same permanent changes in behavior as if we treated the bees with juvenile hormone. We also see those changes in bees infected with sacbrood virus and with *Nosema*, the protozoan disease. In the latter cases, the results are highly detrimental to the infected colonies because the diseases reduce the amount of food available for larvae; infected bees change early to field duties and also die at an earlier age.

Apparently, in all the cases mentioned, the CO_2, the viruses, and the *Nosema* organism either stimulate the production of juvenile hormone within the workers or, perhaps, produce the hormone-like product themselves. The latter possibility is suggested by the work of Fisher and Sanborn in 1964. They found that a *Nosema* species produced the same effect as juvenile hormone on several insect species and that extracts of the spores also had hormonal activity.

It would be of value to know

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more about the relationship of sacbrood and *Nosema* diseases to the secretion of hormones by the adult worker bee. Such information might lead to better control methods but, if not, would be worthwhile for our general knowledge of the diseases of bees.

Menthol and Tracheal Mites

Reports about the effectiveness of menthol fumigation have received enthusiastic responses from many directions. Menthol crystals are being advertised in beekeeping publications. Some states are asking permission to use the material under special permit; others, such as Mississippi, are using menthol on infested colonies and also putting it into uninfested colonies "as a precaution". They are placing their hopes on the treatment being 100 percent effective so that quarantines will no longer be justified. Is all this optimism justified?

Two Italian investigators first tested crystalline menthol against tracheal mites in the 1960's. M. A. Vecchi and G. Giordani studied eight volatile materials including menthol, eucalyptol, terpineol, cade oil, gomenol, and Oleobalsamina, a liquid mixture of juniper extract, salicylic acid, methyl salicylate, essence of eucalyptus, camphor oil and creosote. All of the materials were placed in containers at the bottom of cages of infested bees held in incubators. The researchers evaluated the results in relation to the level of infestation, the amount of material evaporated, and the mortalities of both bees and mites.

Of the materials tested, menthol was the most effective, sometimes killing 100% of the mites. In other cases, it was less deadly to the mites and considerable number survived the tests. It also killed bees in the tests, and in one test the menthol was removed after 3, 5 and 7 days because of worker deaths. Another test was concluded after 8 days because "the vitality of the bees was lowered".

Vecchi and Giordani concluded that menthol was more effective against adult mites than against immature stages. They also found that the mites could survive in fair numbers in heavily infested tracheae and in the air sacs of the bees' heads. Eggs and larvae survived the treatments and continued to develop normally. It seemed as if such adults were less sensitive to the action of menthol.

Three years ago I visited the University of Nuevo Leon in Monterrey, Mexico. At that time, Ana Luz Legorreta, a faculty member working with honey bees, told me that the Mexican beekeepers were causing more damage to their bees with treatments than the mites were. One of the popular materials being used was menthol.

All fumigants, including Folbex VA (bromopropylate), formic acid, methyl salicylate, menthol and others, are subject to conditions that reduce their effects on tracheal mites. The temperatures during fumigation are critical: too high and the fumgants kill bees, too low and they are ineffective in killing mites. Low temperatures affect fumigation by reducing evaporation and causing the bees to cluster, thereby preventing the smoke or other fumes from reaching the tracheae of many of the bees.

It is difficult to control the dosage when using fumigants. It is usually based on the size of the hive, not the numbers of bees; wicks, or exposed crystals release gas in relation to the

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size of the exposed surface, the temperature, and any air movements. *In other words, dosage usually turns out to be guesswork.* Many bees receive an overdose while others do not receive enough material to kill any mites. This is the basis, along with temperature variations, for the extended periods of fumigation with menthol, and repeated applications of smoke treatments using Folbex VA, as many as one per week for seven weeks.

Systemic Control?

Systemic acaricides (miticides) offer the best chance of effective control of the tracheal mite if we can prevent the contamination of honey when they are used. Some of the materials that are very promising, including amitraz and chlordimeform, have little chance of approval for use around a food product such as honey. They could be of use as a quarantine treatment for bees and queens in cages.

We need some tests on feeding systemic acaricides to bees only in pollen patties during the late winter, just as brood rearing is about to begin in temperate climates. At that time, there are mites in the old bees but no new generation of susceptible bees. As new bees emerge, they begin to feed on pollen within hours; treated pollen could make them toxic to mites, thus protecting them and killing the migrating mites during the period of less than 10 days when the young bees are susceptible to infestation. The old infested bees would soon die, taking with them the mites in their bodies. By feeding the acaricide *only* in pollen, we would greatly reduce the chance of contaminating honey. The timing, in late winter, would also be a factor in lowering the possibility of adulteration of commercial honey.

Such a system, with the right killing agent, would overcome the mites while also making stronger and more productive colonies. A candidate material for such tests is coumaphos, already an effective ingredient of the new *Varroa* treatment called Perezin, which has been approved for use in West Germany.

We don't need to reject the use of menthol for reducing infestations of tracheal mites, but let's recognize its shortcomings that it shares with all other fumigants. We will be much better off to continue the search for the right systemic that can be used in colonies with minimal risk to both bees and honey.

Vapona Strikes Again

Vapona, also known as DDVP and dichlorvos, is an organic phosphate insecticide used as a spray for flies, gnats, and mosquitoes, and in resin strips to kill insects in homes by fumigation. **It is readily absorbed by beeswax and has been responsible for bee kills after combs and foundation were stored near an open resin strip, usually in an attempt to prevent wax moth damage.** Combs exposed to Vapona are toxic to bees for a month or more, depending on the length of time they are subject to fumigation.

G. M. Reid reported another unfortunate tale about bees and Vapona in his newsletter from Hamilton, New Zealand. A beekeeper/orchardist took off his honey for extraction but also brought in some patches of brood and a lot of bees. Apparently knowing the fumigant properties of Vapona, he sprinkled it on the concrete floor of the room where the supers were stacked. The bees died and the beekeeper extracted the honey — so far so good. When he put the combs back onto the hives, "disaster struck". Of about 30 colonies involved, 6 died, 10 may not recover; the rest were reduced to nucs. The whole affair took only two days.

Don't get caught this way. Clear the combs of bees in the apiary, not on the highway or in the honey house. ***There are no safe materials to kill bees brought in with the honey supers.***

DiBeta, New Insecticide/Miticide

Abbott Laboratories has applied for registration of a new kind of pesticide that may become important to beekeepers in areas where it is used. The active ingredient, thuringiensin, of the new product is a metabolite, or metabolic product, of a strain of the bacterium, *Bacillus thuringiensis*, closely related to strains of the same organism found in the products Certan, Thuricide and Dipel.

The new product, called DiBeta, controls all the major species of mites on cotton as well as the nymphs of lygus bugs infesting that crop. It also shows promise for controlling house flies, armyworms, and the Colorado potato beetle. It is most active on immature insects and mites where it blocks the production of new proteins in the body cells. It also acts as an insect growth regulator. It is primarily a stomach poison, but has some contact activity against mites.

While it has a relatively high toxicity to rabbits, and acts as a strong skin irritant, it shows low toxicity to important beneficial insects including honey bees and some predatory species.§

Editor's Note: As with all pesticides, read the label and make applications according to and ONLY according to the instructions. Glyphosphate and other chemicals may be restricted use pesticides in your area. If in doubt, contact a County Extension Agent.§

PERSPECTIVES ON PESTICIDES

Protecting Bees and Beekeeping

THE PUBLIC

Protecting Bees from Pesticides

By Doris Crowley

Protecting bees from pesticide poisoning is a challenge for farmers and home gardeners alike. Without bees, people couldn't grow apples, pears, melons, cucumbers, squash and many other crops. And seed companies wouldn't be able to produce many kinds of seeds. Even crops that are less dependent on bees, such as soybeans and lima beans, yield better when foraged by them.

Pesticides are equally essential in crop production. To achieve marketable yields, farmers must protect plants from harmful insects, diseases and weed competition. Though less economically dependent on what they grow, home gardeners, too, must sometimes protect plants by using chemicals. Herbicides and fungicides generally pose no danger to honey bees and other beneficial insects, but some insecticides will kill them along with the targeted pests.

"Pesticides are very much a necessity," says Dr. Dewey Caron, an apiculture specialist at the university. "The challenge is to use them in ways which don't endanger bees. In some situations, the bees are in a field or orchard for their pollination services. Sometimes, they're just there collecting nectar and pollen. Either way, when they come in contact with chemicals applied to protect a crop, they may be poisoned."

Exposure occurs either because the bees are foraging at the time sprays are applied, or because they begin collecting nectar and pollen before pesticide residues have had time to break down. Many bees are poisoned, not while pollinating the crop itself, but while foraging in nearby contaminated weeds. Their death is usually accidental. Caron says most people recognize the value of honey bees both as pollinators and as producers of wax and honey and don't intend to kill them.

Early in the growing season, heavy infestations of mustard or dandelions in treated orchards are a common hazard to bees, which like to forage the flowers. Later in the summer, on the Delmarva peninsula, sprays on commercial lima beans pose another serious threat. But the danger to pollinators exists in any treated crop that's in bloom — including soybeans, early season potatoes and corn.

Chemical formulation and means of application affect pesticide toxicity to bees, Caron says. Soil incorporated chemicals are safe because honey bees don't

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THE BEEKEEPER

Reducing Pesticide Losses

By Roger A. Morse

Pesticides, especially insecticides, continue to kill large numbers of honey bees each year. Herbicides and many fungicides cause beekeepers little difficulty, though the herbicides may reduce bee forage in some areas. Colonies that are poisoned may recover when the chemical is applied in the early spring or summer if subsequent conditions are favorable. Those colonies that are affected in the later summer or fall, especially if their stored pollen is contaminated, often perish during winter.

LONG AND SHORT RANGE CONCERNS

There are two aspects of the pesticide problem: there are long-range and short-range concerns. I suggest that too few people have emphasized the long-range concerns and I would like to deal with these first. They are the most important of the two. The Environmental Protection Agency (EPA) was created for the express purpose of creating long-range answers to problems concerning pesticides, toxic wastes and other environmental hazards. They have made some good progress, but it has been slow.

All pesticides used in the country must be registered with the EPA and that agency must approve the wording on the label before the material can be sold. More recently, those that apply especially hazardous materials must take courses of study and be licensed by appropriate state agencies according to EPA rules. This is a much improved situation over that of a few decades ago when there was little or no control over what pesticides were being used or those making the applications.

READ THE PESTICIDE CONTAINER LABELS

One change beekeepers have helped to make in Washington is that the EPA has *forced* pesticide companies to write specific guidelines on their labels so as to help avoid honey bee losses. If the pesticide is not applied in accordance with the instructions on the label, there is a violation of the law. New pesticides are being made and registered all the while, though at a slower pace than several years ago. In part, this is true because there are now more critical tests required of new products. It is important that beekeepers remain in contact with those that approve pesticide labels in the

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come in contact with them. Granular materials are also usually safe. However, powders and liquid sprays can be a problem.

Pesticides kill bees in two ways. Some, like parathion and malathion, kill them on contact if the bees are present during treatment. But the materials of greatest concern to beekeepers are insecticides like Sevin and Penncap-M which, because of their small particle size, are collected with pollen and carried back to the hive, contaminating pollen stores and other bees. When this happens, all or a large part of the colony may die.

"In commercial agriculture, large aerial applications pose one of the more serious pesticide threats to bees," the scientist says, "especially where there are lots of weeds and the crop itself is not in bloom. Though the bees may be foraging weed flowers, when the crop reaches a certain stage it's got to be sprayed to protect it. In the process, flowering weeds, and thus bees, get contaminated."

Timing of pesticide applications can reduce the danger to bees, as can choice of materials. "Late afternoon or early evening sprays are generally preferable because honey bees and other beneficial insects are less likely to be foraging then," Caron says. "Aside from direct contact, the critical factor is whether the insecticide gets onto or into flowering plants. For example, you can spray your lawn without endangering bees provided no dandelions, clover or other weeds are blooming there at the time."

Given a choice, Caron suggests farmers and home gardeners use pesticides known to be less toxic to bees. Pesticide labels contain this information, along with advice on protecting honey bees.

Biological insecticides such as *Bacillus thuringensis* and milky spore disease are completely safe for bees, the apiculturist says. *B. thuringensis* is a bacteria which destroys the digestive tract of leaf-feeding insects. It is used to control worms on cabbage and other cole crops and is also favored for use in large scale aerial applications to control gypsy moths in forested areas. Milky spore, another bacteria, is used to treat lawns infested with Japanese beetle grubs.

A recent study at the Delaware Agricultural Experiment Station has helped refine information on the impact of several chemicals on bees. Recently, insect ecologist Dr. Charles E. Mason compared knockdown and mortality effects on honey bees of

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EPA. The toxicity of individual pesticides varies a great deal but thanks to the work of several researchers, but especially Lawrence Atkins of the University of California at Riverside, we have a great deal of data as to which materials are most troublesome to bees.

THE EPA TODAY

Today it is those concerned with toxic wastes that appear to have the ear of the EPA. Beekeepers have not applied pressure on the EPA to force them to think about bee problems ten and twenty years from now. It is true that the EPA has sponsored some research on honeybees, but not enough to do much good. Unfortunately, the money has always been for short-range projects.

In some years, representatives from the EPA have been asked to attend beekeepers meetings and have talked about the agency's goals and objectives. In recent years, beekeepers have been more concerned about other problems and have not been keeping in contact with the EPA. I feel we have made a serious error by not keeping up the pressure on that group to monitor the honey bee pesticide problems. There is no question that the EPA, like every other government agency, responds to "squeaking wheels".

What can the EPA do to aid beekeepers? Agricultural practices and pesticide problems are different in almost every state. The EPA works closely with state groups, usually departments of conservation, to monitor what is taking place. While beekeepers can often pressure their state agencies into taking some action it is more effective, in my experience, if the pressure comes from Washington. Before one can do much of anything to eliminate a honey bee pesticide problem, it is necessary to learn what material is being applied where and for what purpose.

THE EXAMPLE OF NEW YORK STATE

Let me explain my premise further by relating what is taking place in some New York State apple orchards that has caused many of our beekeepers considerable grief.

It is well known that water and nutrients are necessary to grow big apples. The public prefers big apples over little ones and they receive a premium on the market. In years past, apple growers mowed the grass under and around their trees once or twice a year, usually in the fall near picking time. In the past decade, major changes have been made. Many growers now apply weed killers under and near the trees to eliminate grass and weeds. This makes more water and nutrients available to the apple trees since they are not used by the undergrowth. In addition, many growers mow the grass in the rows between the trees frequently. This reduces the amount of vegetation and especially the loss of water. However, mowing encourages the growth of clovers between the rows and the clover flowers may become contaminated with insecticide in July and August when the trees are sprayed.

Years ago, beekeepers often kept large apiaries near apple orchards all year. Even though many sprays were applied in the orchards they had little or no effect on the bees because there was nothing in the orchards on which the bees might forage and they did not visit there. This summer, as a result of pressure from state beekeepers, we will spend considerable time in apple orchards in the largest apple growing county in the state to determine what pesticides are causing the difficulty and at precisely what time of year. Hopefully some simple solution, such as changing the chemical, might eliminate or reduce the problem. Unfortunately, we cannot correct these problems overnight

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seven commonly used insecticides, including Sevin, malathion, Lannate, Vydate, Ambush, Zolone and Penncap-M. He also studied the effect of mixtures of Penncap-M with several of these materials.

Mason found that when sprayed directly on honey bees in a manner simulating field exposure, each insecticide combination had an effect similar to that of the most toxic chemical in the mixture. His results also suggest that Vydate — previously considered only moderately toxic to bees — is actually highly toxic to them.

Bee protection is a season-long challenge, Caron says. Pesticide treatment generally starts in early spring with fruit tree sprays. Orchardists apply some materials prebloom, then treat again immediately after flowering, spraying at intervals throughout the summer.

"Apple, melon and cucumber growers know they must rely on bees for pollination," he says, "so they don't put insecticides on these crops while they're in bloom. Most of these growers rent bees, paying a beekeeper to move his colonies to the site for the period of bloom and then removing them. You wouldn't want to keep a bee colony in an apple orchard through the season," he explains, "because of the need to follow up with post-bloom sprays. You also don't want the bees around during harvest when they'll go after fallen fruit and create a problem for picking crews."

Caron says home gardeners, like commercial growers, can help protect bees and other beneficial insects by applying insecticides in late afternoon or early evening. He recommends treating only those plants which need protection and avoiding anything that's in bloom to lessen the chance of exposure.

"Where there is a continual problem with pesticides," Caron concludes, "the only solution for beekeepers may be to relocate hives. Trying to confine bees to a hive can be risky during warm weather because the colony may overheat and suffocate."

There are no easy answers, and safe pesticide use is everyone's responsibility.§

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and we must have precise data before changes can be made.

AGRICULTURAL PRACTICES CHANGE

One of the most important things a beekeeper can do is to keep alert to changing agricultural practices in his area. Every year little changes are made that can have a profound long-range effect. We are all aware that farmers continue to go out of business each year but overall production continues to climb. This would not be possible if changes in farming practices were not being made. Many of these include changes in the type and quantity of chemicals and the methods by which pesticides are being applied.

Honey bees forage over an area several miles across. However, the bulk of the food they collect is gathered close to the hive. I once observed colonies suffering losses when an airspray was being applied over three miles away but such instances are rare and the losses are never so severe as to cause the death of colonies. It is therefore being alert to what sprays are being applied within half a mile of an apiary that is most important.

Airsprays are far more of a problem for beekeepers than when the pesticide is being applied by ground equipment. The simple reason is that there is always a small amount of drift from an airspray no matter how carefully the material is applied. If there are flowering weeds where the drifting pesticides are deposited there can be serious honey bee losses.

In some areas pesticide problems are cyclical. The gypsy moth problem is one such, especially in the northeastern U.S. In many years, natural diseases and enemies keep gypsy moth populations under control. It has been several years since we have seen a serious, widespread problem. Outbreaks can be predicted on the basis of egg masses laid the previous summer. In the case of gypsy moths there are several pesticides that may be used for control but one needs to have advance warning of an outbreak so as to make arrangements to have the right one on hand.

SHORT-RANGE PROTECTION OF COLONIES

Almost no serious honey bee losses will take place unless the flowers from which bees are collecting pollen are contaminated. Most flowers display their pollen so that it is easily seen by the bees. Pollen that is exposed is easily contaminated by a spray. Minor losses may occur if nectar producing plants are sprayed but since most nectaries are hidden at the bases of the flowers' sexual parts there is seldom contamination of the nectar. We have suffered some small honey bee losses when contaminated water is collected but this is much less of a problem today than when arsenicals were used in quantity in orchards. The arsenicals had a long life and did not break down readily. A small number of bees may also be killed when they fly through an airspray as it is being deposited.

From a practical point of view there are only two things that a beekeeper can do to prevent losses when a toxic pesticide is applied to pollen producing plants near the colonies. One is to **move the bees out of the area.** The safe distance is six to eight miles, sufficiently far that the bees will not find their way back to their previous location.

Another action that may be taken is to **restrict flight from the colony.** Many people have recommended covering colonies in a spray area with wetted burlap so as to confine the bees during the time of greatest danger. The method will work if the burlap is put into place in the early morning before the bees fly and provided it is wetted several times during the day. The burlap should be damp at all times so that the evaporating water is continually

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RESEARCH REVIEW

By DR. ROGER A. MORSE • Cornell University • Ithaca, NY 14853

More on AHB Identification; Varroa in Asia and a bit about Major Honey Markets

Identifying Africanized Bees

The American press is continuing to "have a ball" with Africanized bees. Facts are hard to find; speculation is rampant. Very few people are familiar with the extensive commercial beekeeping industry in Brazil, which is based on the use of these bees. I fear the situation will get worse before the whole question calms down as it has in Brazil, where the "problem" started.

Meanwhile, we are without a good method of identifying these bees and saying which are Africanized and which are not. This isn't because people aren't trying. Ten papers, involving 18 researchers, covered various aspects of identifying these bees at the recent conference on Africanized Honey Bees and Bee Mites held March 30 - April 1 at Ohio State University. Still, there is no perfect method.

Professor H. V. Daly of the University of California told me the following: "We have found a few colonies of feral honey bees in California that have the morphometric characteristics of Africanized bees. But further testing of alozymes, cuticular hydrocarbons and worker brood comb cell diameter indicates these colonies are European. This is a kind of genetic variation we didn't know about." I asked Professor Daly if this could be an explanation for the finding of Africanized bees in California earler and he replied it was not. The question of identifying races of bees remains a difficult one.

The Resistance of *Apis cerana* to the Mite *Varroa jacobsoni*

The dreaded Asian honey bee mite, *Varroa jacobsoni*, now infests colonies of European and Africanized bees in Europe, North Africa and the southern half of South America. We expect it will enter the U. S. in the next ten or so years. Studies in China, by Californian Christine Peng and associates in China, indicate how the mite's native host, *Apis cerana*, resists the devastation brought about by the mite. Populations of the mite are never very high in Asian honey bee colonies and Peng and associates have determined why this is true.

It was observed that *Apis cerana* bees are unusually sensitive to mites on their bodies. When mites were placed on these bees experimentally, the bees began immediately to clean themselves. The mites were groomed off by the bees. Furthermore, the bees were seen to bite the mites, sometimes causing death, and to carry them from the hive. *Apis cerana* appears to be able to bite more strongly than European honey bees can.

The article cited below includes a black-and-white illustration of a mite with a bite wound. However, when Dr. Peng showed some Kodachrome slides of mites with bite wounds at the recent meeting of those interested in Africanized bees and mites in Ohio, we could all see the effects of the biting much more dramatically. There is no question that such a wound would lead to the death of the mite.

European honey bees react much more slowly, if at all, when they encounter mites. The European bee, say the authors, "has a limited capacity to detect and recognize the mite". Of course, in their evolution, European honey bees have had no exposure to these mites so one should not expect too much in this regard. However, a small number of European honey bees did show a response and attempted to remove the mites from their bodies. This suggests that the genetic potential for better cleaning is present in European bees and that one could select for it in a breeding program.

Honey bees resist the organisms that cause disease in many ways. One of the most important is the ability to keep hives clean and free of parasites. In our search for better methods of disease control, it is well to remember that certain groups, races, or species of bees are better at this. Dr. Peng and her associates have focused attention on this important point.

References:

Peng, Y., Y. Feng, S. Xu and L. Ge. The resistance mechanism of the Asian honey bee, *Apis cerana* Fabr., to an ectoparasitic mite, *Varroa jacobsoni* Oudemans. Journal of Invertebrate Pathology 49:54-60. 1987.

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A Study of the Major Honey Markets

The International Trade Center, an arm of the United Nations Development Program, has had a strong interest in honey marketing for several years. In 1977 the Center published a market survey entitled Major Markets for Honey, Openings for Quality Supplies from Developing Countries. It has now come forth with a second study, Honey, A Study of Major Markets.

This study provides information and figures that are important in understanding what has taken place in the world honey market in recent years. Unfortunately, the projections and suggestions as regards the future are essentially useless, if only because of the change in the U. S. market. Who would have predicted a few years ago that there would come a month (January, 1987) when ***no honey was imported into the U.S.?*** Still, for those who follow the market closely, this 167-page paperback will be most useful. It is filled with tables, names and addresses of importers and exporters and good reviews of the most important markets.§

References:

International Trade Center.
Honey, A study of major markets. ITC. UNCTAD/GATT Palais de Nations, 1211 Geneva 10, Switzerland. (Cost: $30.00).

IN DEFENSE OF WEEDS

— Fanny Kraiss DeVine

A yard should be a meadow, not a lawn
Weeded of all but grass, close-clipped, precluding flower and seed.

My house stands in a meadow holding sun near to its brow
And sprouting dandelions in perfect imitation of their god;
In shadow where the pine grove leans
The purple violets hold their heads above the grass
And evening mists drift by to drink this fragrance
For an offering to the searching stars.
Spring beauty's delicate pink skirts
Flounce on the root of spreading oak;
And in its secret ways, beneath protecting needles of a former year,
The partridgeberry trails and shows four-petalled flowers —
Enough to enchant the bee drawn from its sunlit haunts.

A yard should be a meadow, (not a lawn
Of close-clipped weeded grass)
Where one can see the gifts of spring as March and April pass.

London Awaits Southern States Beekeepers in October

By SHIRLEY CURTIS • Lucas Travel Agency • Greensboro, NC

This October, Beekeepers from around the world will attend the "International Honey Show" at Portchester Hall in London. The Southern States Beekeepers Federation is sponsoring a trip to London including a 'pre-Honey Show' excursion to Cardiff University in Wales and a visit with Brother Adam at the Buckfast Abbey in Devon. The majority of the trip however, will be spent in London and for those of you who have never traveled there . . . you are in for a honey of a treat!

London has so much to offer. To the lover of history, what city can be more exciting! Every street, every building has a story to tell. The Tower of London and Westminster Abbey are two of London's famous buildings whose walls have borne witness to the pageant of history. Or, if your inter-ests lie in the arts, you can admire and enjoy the priceless treasures in its great museums.

Walking in the streets of London is a delight for the eye (and camera too!) and you can often see a typical colorful London scene such as the Horseguard Cavalry in Whitehall or the Changing of the Guard at Buckingham Palace. And, of course there are London's famous red double-decker buses in Piccadilly.

As well as being a historic city, London is also a modern one that looks to the future. St. Katharine's Dock . . . the colorful marina by the Tower Bridge, is just one example of the transformation of an old district into a modern and attractive area full of lively shops and eating places.

Central London can be said to consist of three main areas. The City is the oldest, with its Roman walls, ancient buildings and its fascinating narrow streets. The second area is Westminster with its Royal Palaces, its Abbey and Parliament. The third area, the West End, is the setting for fine shops and entertainment with such well-known shopping streets as Piccadilly, Bond Street, Regent Street and Oxford Street.

You won't want to spend *all* your time in London at the Honey Show . . . there are excellent optional conducted coach tours available. You may choose from morning, afternoon, and day tours based on the City and West End with visits to famous places such as Westminster Abbey, Madame Tussaud's, St. Paul's Cathedral and the Tower of London and Greenwich visiting the National Maritime Museum. In the evening, there are panoramic tours of "London at Night" which include a cruise on the river Thames, a traditional English Pub visit, or dinner and floor show.

There are a variety of fascinating places outside of London that you can visit for the day. You may either travel independently by train or join one of the many organized tours available. Take a coach trip to Windsor Castle or Hampton Court, or explore the countryside of the Home Counties. Shakespeare's Country is a popular destination as well. All of these trips will be available for sign-up at the hotel's activity desk or with the British Travel Centre offices located around London.

Last, but never least, London is a shoppers' paradise . . . the range and variety of goods is immense and the prices are very competitive. Some of the best buys are antiques, cashmere, woolens and bone china. Normal shopping hours in Central London are 9 - 5:30 p.m., Monday - Saturday. Although some West End shops close on Saturday afternoon. You'll not want to miss the famous "Harrods Department Store" or "Furtnum & Mason" and "Selfridges", just to name a few. Shopping in Britain offers excellent value for the visitor from overseas in the form of tax relief from the VAT or Value Added Tax. Some of the major department stores as well as small shopkeepers will offer a refund on the tax and will fill out the appropriate form for you.

We hope this all too brief description of London will help you give serious consideration to joining us for the Southern States Beekeepers Federation trip to London on October 17. Hotel space is limited in London, so we need your deposits as soon as possible in order to guarantee your reservation. Call Lucas Travel for a detailed itinerary and brochure. We have a toll-free number: 1-800-632-3070. Hope you can join us!§

Requeening Requires Careful Understanding of Queens Biological Role Inside the Colony

By LARRY CONNOR, Ph.D. • P. O. Box 817 • Cheshire, CT 06410

Requeening may be divided into two general categories — simple and difficult. Simple requeening basically deals with the requeening of reduced-size colonies such as increase, splits, swarms and packages. Difficult requeening deals with requeening large, established, overwintered colonies. I make this distinction because it is usually more difficult to requeen larger colonies than smaller ones, but not always. There are times when large colones may be easily requeened, and times when small colonies are reluctant to receive a new queen. There are several reasons for this, and to understand what is happening in the requeening process, we must review what we now know about the queen, her behavior in the colony, and her pheromone production. As nice as this system may sound, colony size is not the only factor which affects requeening efforts.

First, find the Queen . . .

Most beekeepers have spent a great deal of time searching for a particular queen. If you are in this category, you probably realize that the position of the queen within the colony is rarely predictable. I have even had difficulty finding a queen in a 2 or 3 frame nucleus colony because the queen was "out for a walk" in a corner of the hive away from the brood nest. To understand this, there are at least two things we need to discuss. First, by opening a colony, we unintentionally stimulate the queen into avoidance behavior, a most-likely genetically-programmed action designed to preserve the queen in the event of some natural disaster. To understand this, observe how many queens will often avoid light by walking to the dark side of a frame as you hold it in front of you.

You will find queens much more quickly if, as you remove one frame, you look inside the colony at the next frame to be removed and search for the queen. If she is on that side of the comb, she will walk toward the dark areas of the hive. Once you have looked at the frame still in the hive, look at the frame in your hands. If you cannot see the flash of swollen abdomen, a result of her intense egg-laying, then quickly, yet carefully, set the frame aside and remove the next frame, with your eyes on the frame still in the hive as you work. If you can train yourself to do this, you will spot the queen without as much difficulty. I have found it easier to find the queen if I move deliberately, yet quickly, as I work through the colony. By inspecting all frames once as I remove them, and again as I replace them, I will see the queen in most cases. If I do not see the queen on this inspection, I return later for another inspection.

There is a second point to understand about queen behavior. Work done by Dr. Tom Seeley, now at Cornell University, documents the remarkable movement of the queen around the surface of the comb. Seeley used an enormous observation hive, 4 standard Langstroth frames high and two wide. The intersecting wooden portions of the frames were removed, and the wax comb fused to form a large surface where bee movement could be observed and recorded. Seeley used overlays to record movements of bees, including queens. Seeley found that queens are constantly on the move, seeking a place to lay eggs. They do not confine themselves to the brood area only, but will move into the pollen-storage and nectar-storage areas of the colony in their activities. Does the queen move more when conditions are crowded, and less when space was available for laying? Seeley observed that crowding forces the queen to move about more.

Chemical Queen Control . . .

As the queen moves on the face of the combs, she is constantly approached by nearby workers, not the same ones all the time, but different workers, who feed and groom her. In the process, they serve as messengers of the queen's pheromone control on the colony. The pheromones we collectively call the queen substance, made up of over 30 different compounds, are critical to the queen's biological 'hold' on the remainder of the colony, and are probably the factors which make requeening such a challenge. If each chemical pheromone serves as a message, and each queen produces at least 30 different chemical messages, but not each in the same ratios, we can then understand that the queen is an individual, with her own pheromone "fingerprint" as she moves about the colony. Added to plant-produced odors in the hive (wood, nectar-honey, pollen and propolis), this may be the mechanism of identification of the queen by her bees. It also appears that the worker bees chemically change the queen's pheromone messages in a feed-back mechanism undoubtedly used in other behavioral sequences in the colony. Certainly, this is one of the complicated factors involved in queen-worker interactions.

As the queen normally moves about the face of the combs — deliberately and without accident — she distributes these chemical messages to the attracted worker bees. These workers spend only a short period of time around the queen, from a few seconds to a minute. These individuals then move excitedly through the colony, walking at right angles away from the queen, and distribute the queen's messages to other worker bees. In experiments using these messenger-carrying bees, some scientists have found that these worker bees will receive hostile responses from other colonies, apparently due to the queen's chemicals on the worker bee's body.

In the past 10 years, there have been several studies which show that closely related queens are more readily accepted than queens of different genetic background. I have observed that inbred queens were accepted by a colony at a much higher level if the inbred line was incorporated in its own bloodline.

Conversely, unrelated bees,

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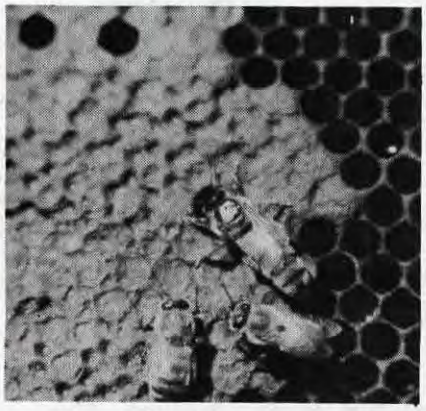
especially changes from yellow to non-yellow lines were much more difficult to accomplish. (While the lines I observed were established on yellow = Italian and black = Caucasian, one might base some racial difference. However, the genetic background of these lines cannot be assumed as pure.) And I observed as much difficulty in queen introduction between different



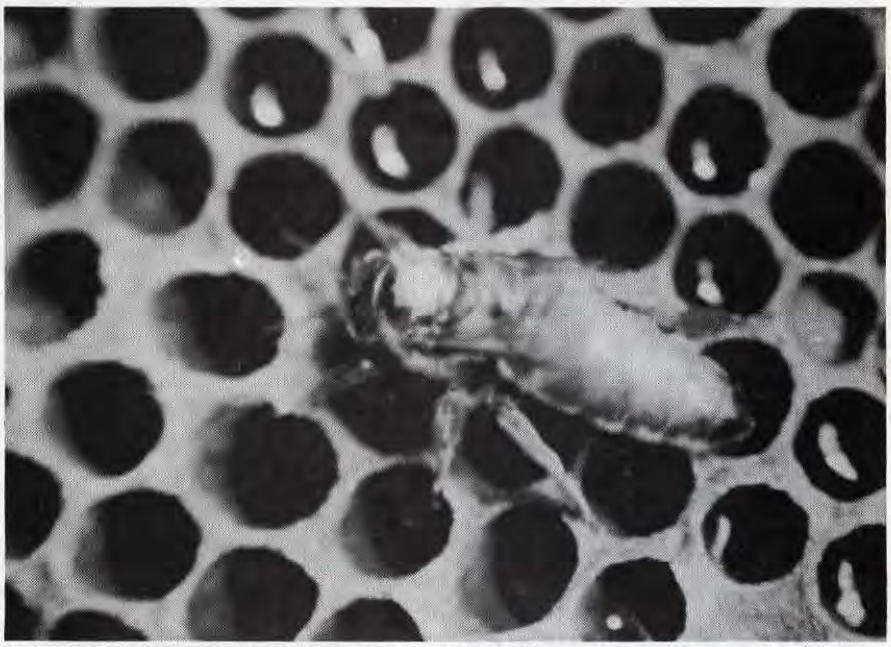
One expects to find the queen bee in the brood nest of a colony, and this is usually the case. This queen is searching for available laying space, and distributes her pheromones in the process.

yellow lines of very different genetic background. It appears then, that in those situations where we wish to introduce a valuable queen of a different stock into a new colony, we do so very conservatively, attempting to protect the queen as much as possible.

The population of the colony we wish to introduce is a critical factor in requeening. Requeening a nuc is easier than requeening a full-sized colony. And if you make up a "fresh" nucleus with brood and young bees from a strong hive, you are eliminating the old bees from the unit, and increasing acceptance chances even more. Once the queen is established in the nucleus, you may introduce the entire nucleus to the strong colony for requeening — without even caging the queen. Apparently the entire population of bees from the nucleus protect the queen from harm. Here is a summary of suggestions on how to best introduce queen honey bees.

Steps to Successful Queen Introduction

1. **Remove all the queens.** If there is any debate about the need to remove a queen before introducing a new one, I think the above discussion will help you understand that the existing queen in a colony has a biological advantage over an unrelated queen. So the old queen must be removed. Since a high percentage of colonies will have two or more queens, especially in the spring, look for *all* queens, including queen cells and virgins. Multiple queens are often mother/daughter arrangements, and certain strains of bees in England were maintained for up to one year with two queens. Some estimate that 10 to 20% of *all* spring colonies will have more than one queen. What is the biology of this event? Probably the decline in pheromone production by the old queen, so the other queen and the workers do not react to her in a hostile manner.
2. **Introduce the new queen immediately — but in a secure cage.** There is no advantage for you to delay the introduction of a new queen after the removal of the



The queen has moved onto a section of comb containing pollen and honey. This is probably due to her instinctive avoidance of light, a behavior she fortunately overcame as a virgin during the mating flights.

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old queen. The new queen, kept in a cage, should be placed into the center of the brood area of the colony, where young bees, food and uniform temperatures are found. This allows her pheromones to move through the colony via the messenger bees who will obtain the chemicals through the screen in the cages, perhaps even licking her through the cage. The cage should, of course, be designed so that worker bees cannot sting the queen through the cage. Possible exceptions would include the requeening of very old bees, or a genetic stock which is traditionally very aggressive toward queens, or to queens of a different race. Here, there may be some advantage to delay the introduction of the queen after dequeening to allow the pheromones of the old queen to fade before a new queen is added. I would delay the introduction *a few hours to a day*, but no longer, since queen absence in bees may be detected within 15 minutes of her

As this queen attempts to go to the darker side of the frame, we can see worker bees approach the queen, extend their antennae, perhaps lick the queen, and thus pick up the pheromone she carries.

removal. If you allow the colony to be queenless too long, there is too great a chance of rejection because of queen cell initiation.

3. **Keep the queen in the cage for 3 to 10 days.** Because the caged queen cannot move in the colony, she must depend upon worker bees to distribute the pheromones throughout the colony, and to feed her. Because the new queen may go through a period of hostile behavior, best seen by worker bees curving their abdomens into the cage as if to sting the queen, we want time to allow the bees to become chemically acquainted. During this time, the pheromones from the old queen will dissipate and be replaced by those of the new queen. I routinely leave the queen in the cage for 3 to 5 days. When I release the queen, I do it myself, opening the cage, and letting the queen walk onto a frame of brood. This is an important point to learn. The queen may appear to be ignored. That is good. She may be approached by a worker and fed or groomed. That is also good. If a number of bees run to her and crawl over her body, gently put the queen back into the cage and keep her locked up for a few more days. Then try to release her again. This release system also lets you see if the queen is alive, and intact. If she has lost a leg in the cage — and this happens with any release system — you can see it and deal with it immediately. And if she is dead in the cage, it is far better than finding the colony without a queen, and doubting your ability to find the queen. This delay release will not seriously affect brood rearing, since the workers and queen have had a small vacation from brood rearing, and will be biologically ready to produce a large cycle of brood with a new, hopefully vigorous queen.
4. **Provide sugar syrup before, during and after introduction.** It appears that the transfer of queen pheromone is much greater when there is a nectar flow on, so as a beekeeper, you should supplement by feeding a thin sugar syrup a few days prior to requeening, and continue feeding until the new queen is well established in her laying pattern. I'm sure this affects a number of bee behaviors, but the important factor is that feeding improves queen acceptance.

Here is a short list of the factors which favor and interfere with queen introduction:

•Factors which favor queen introduction:

many young bees in the colony
small population of bees
incoming food, natural/man-made
genetically related stocks
freedom from robbing

•Factors which interfere with queen introduction:

many old bees in the colony
large population of bees
lack of incoming food
vastly different genetic stocks
common robbing,
colony to colony§

HOME HARMONY

By ANN HARMAN • 6511 Griffith Rd. • Laytonsville, MD 20879

POT LUCK PICNIC

It is Potluck Picnic time of year! Every weekend seems to be filled with end-of-season potlucks, office picnics, church picnics, beekeeper association picnics. The dilemma is what to take that won't wilt, spoil or turn sticky in the early summer sun.

A recipe for a meat salad is a rare item. This particular recipe is delicious — and unbelievable. I have never had anyone guess what the ingredients of the dressing are. And when I have given someone the recipe, the usual comment is "I don't believe it". Try it and I think it will become one of your favorites, especially for a potluck picnic.

TURKEY WALDORF SALAD

Dressing:
1/2 cup applesauce
1/3 cup honey
3 T vinegar
1 tsp. poppy seeds
1/2 tsp. paprika
1/2 tsp. grated lemon rind
1/2 cup oil

Combine and mix well all the ingredients except the oil. Then add the oil gradually while beating. Chill.

Salad:
2-1/2 cups diced, cooked turkey
3 cups torn-up salad greens, your choice
2 medium apples, diced or coarsely grated
1/2 cup coarsely chpd. walnuts

Combine these ingredients, then add dressing and mix.

Since everyone else will be bringing potato salad, why not take the following salad. Use the unsweetened canned grapefruit and oranges and adjust the proportions according to your own whim.

SPINACH SALAD WITH HONEY DRESSING

Dressing:
1/4 cup honey
1/2 cup grapefruit juice
1/4 cup olive oil or salad oil
2 T grated onion or finely minced
2 T poppy seed
1/4 tsp. salt
2 T prepared mustard

Salad:
one bag spinach (or same loose)
one can grapefruit sections, drained
one can orange sections, drained
one red onion, sliced

Remove stems from spinach and tear leaves into bite-size pieces. Combine with rest of ingredients. Toss with dressing.

So often cole slaw ends up as shredded cabbage stirred around with some mayonnaise. The title of this next recipe sums up how interesting that dish can really be. An added attraction: you make it in advance!

GREAT COLE SLAW

1 cup honey
1 cup cider or white wine vinegar
1/2 cup finely chopped onion
1 tsp. salt
1 tsp. whole celery seed
1 large head cabbage, finely chpd. (about 4 cups)
1 cup diced green pepper
1 cup diced celery

Combine honey with vinegar, onion, salt and celery seed in a small saucepan. Simmer 5 minutes. Cool to room temperature. Pour dressing over prepared vegetables and toss lightly. Cover and chill overnight to blend flavors. Makes 10 to 12 servings.

COOKING WITH HONEY
Judy Powers

At some time you may be asked to bring a dessert. Honey cookies are definitely NOT recommended for summertime outdoor picnics, unless you live in a very dry climate. The humidity that blankets the United States in summer will soon turn those cookies into a limp, glued-together mess. Instead, try this pleasant loaf cake.

LEMON LOAF

1/2 cup butter or margarine
1 cup honey
2 eggs
2 cups sifted flour
1 tsp. salt
1-1/2 tsp. baking powder
1/4 tsp. baking soda
1/4 cup milk
2 T lemon juice
1 T grated lemon peel

Cream butter or margarine; continue creaming while adding honey in a fine stream. Add eggs, one at a time, beating after each addition. Sift dry ingredients together; add alternately with milk. Fold in lemon peel and juice. Pour into 9 x 5 x 3 inch loaf pan which has been greased and lined with paper (waxed or parchment). Bake at 325°F for about 1 hour or until done. Let cool in pan about 10 minutes, then turn out on rack and remove paper. Allow to cool before slicing.

Essex County (Mass.) Beekeepers Association Cookbook

Sometimes it's a nuisance to "expand" a recipe. You have to multiply all those numbers just to get enough lemonade for 50 thirsty people. Save your brain for something else — here's —

PICNIC LEMONADE FOR LARGE GROUPS

1 quart lemon juice
1 quart honey
2-1/2 gallons water

Combine lemon juice, honey and water; mix well. Chill until cold. This will serve 50 people a 6-ounce glass each.

Nature's Golden Treasure Honey Cookbook
Joe M. Parkhill

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MAKING A BEE MOVIE

By DR. JAMES TEW • The Agricultural Technical Institute • Wooster, OH 44691

It's an old tired trick, but I thought the title might help grab your attention long enough to read a bit here. We did, in fact, make a movie — I think it is a good one, too, but it's more of the documentary type than what the reader is probably expecting.

I'm very much a novice at the entire process of "videographing", but I've found it to be an exciting and demanding medium of information distribution. I think it works at the very heart of the belief that, "A picture is worth a thousand words".

The purpose of the video on Africanized bees, that we recently completed, was to support the International Symposium on Africanized Bees and the Bee Mites conducted during late March, 1987, at the Ohio State University. This type symposium was a first ever for beekeeping. Most of the world's authorities on Africanized Bees and Predaceous Mites were in attendance and presented material and ideas for several days. The proceedings should be available within a few months.

With this back drop of professionals, the Ohio Cooperative Extension Service and the Agricultural Technical Institute, both units of the Ohio State University, supported a grant to develop a video consisting of original footage collected in Venezuela. A panel of authorities on the subject of bees and mites added their comments and responded to caller questions.

Some of the results of the Symposium were reported in the May issues of the *American Bee Journal* and *Gleanings in Bee Culture*. The effort appears to have been successful by all standards. In a different vein, the video up-link was also successful. Even though videography is popular, the technology is still developing. No doubt, it will be even more useful in the near future as more people learn to operate the equipment.

The process and the equipment is expensive if one wishes to produce a quality tape. That doesn't mean that the information in an inexpensively produced tape is suspect, but rather the quality of the subsequent generations of copies will be low. We are all accustomed to watching commercial television or high quality movies. It takes a dedicated beekeeper to hang on through a tape of good educational quality if the technical quality is low.

Then there's the vast amount of tape that no one ever sees. Some of the material was just footage to set the mood; some of the tape was just technically bad, and a surprising amount is interesting but inappropriate for general use. For example, the Africanized Bee video won't show a big warm weather breed bull threatening us with all kinds of gestures. Nor will it show everyone dead from heat exhaustion; nor will it show the police escort that we requested in some of the public shots. You'll never see the shots of a USDA technician climbing a tree to shake a swarm down so we could refilm the swarm settling. Then there was the occasion that called for taping foraging bees on cultivated plant corps. The bees moved so fast that we had to capture a few foragers, let them bask in our "Igloo" ice cooler until they were chilled enough to stay in one place long enough to be photographed. Those things never make the final cut, but they are entertaining.

Even with the stress and pressure that is required to make videos, they are still satisfying when the job is done correctly and finished. We will soon be releasing a video of the process of taking bees from a house and later this summer, we are going to re-make the video on "Queen Production Techniques". We hope you enjoy these efforts and feel better about beekeeping after watching the tapes. They represent a brief window, a picture if you will, of the events that were going on at the time. The bees are not always cooperative — the final product not always predictable but always entertaining.§

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You just might decide to stay at home for a change and have your lemonade in your own backyard.

ALWAYS-READY LEMONADE

1 cup lemon juice
1/2 cup honey

Mix lemon juice and honey well. Store in refrigerator in tightly covered jar. Add 1 cup ice water to each 1/4 cup of sweetened lemon juice, and there is lemonade as quick as can be.

Nature's Golden Treasure
Honey Cookbook
Joe M. Parkhill

As long as you are staying home you might as well spoil yourself a bit with some of that strawberry crop.

STRAWBERRIES WITH BRANDIED HONEY & CREAM

1/2 cup honey
1/4 cup fresh lemon juice
1/4 cup Cognac or other brandy
1-1/2 quarts whole strawberries

Halve berries. Mix honey with lemon juice and brandy. Pour over berries and chill several hours. Spoon into individual serving bowls or glasses. Serve with anything creamy. Makes 6 servings.

Strawberries
Maggie Waldron

Hello to state Honey Queens and Princesses! If you have recipe leaflets you would like to share, please send them to me.

NEWS RELEASE

It's swarm season again, and the _____ wants to remind you of some of the Do's and Don'ts of dealing with swarms.

A honey bee swarm is a natural biological function of a colony of honey bees. Although occuring most frequently in the spring, they may be seen at any time during the summer.

Following are some common sense rules that _____, _____ of the _____ suggests you follow if you find a swarm in your yard . . . .

1. Remember, honey bee swarms are as a rule gentle and non-aggressive. However this depends on how long they have been there, so caution is always suggested.

2. Contact _____, at _____, or _____ at _____ for the names and phone numbers of beekeepers who will remove the swarm for you.

3. Swarms are simply clusters of living, moving honey bees enroute from an old home to a new one. Occasionally they will build an exposed honey comb nest in a tree or bush. They NEVER build nests of paper or mud.

4. Honey bees are brown or yellow with black markings. They are also fuzzy, NEVER shiny.

5. Don't spray the swarm with insecticides to remove it. This is a violation of ANY pesticide label.

6. Don't spray the swarm with a hose to remove it. This technique rarely works, and will only make removal more difficult for the beekeeper.

7. Don't panic, or be afraid of the swarm. An undisturbed swarm rarely causes problems.

8. Some swarms come from colonies of bees managed by beekeepers, but many also come from wild colonies in hollow trees or other places. Do not assume a local beekeeper is responsible for the swarm in your yard.

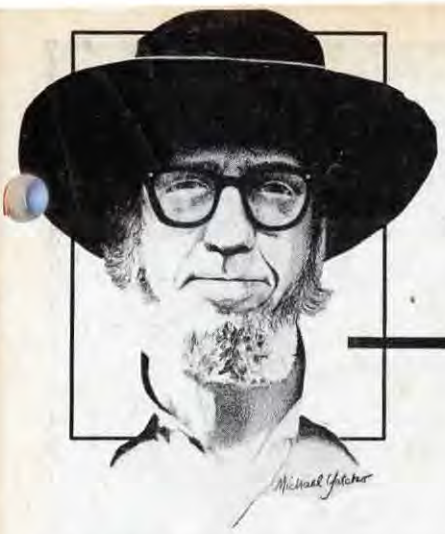
Remember, swarming is the natural means of colony reproduction. It is no more unusual than cats having kittens or dandelions producing seeds.

It can also be a unique learning experience for you and your children. Watching a trained beekeeper "hive" a swarm is fascinating, educational and even entertaining.

There is never a "charge" for removing a swarm, as most beekeepers are happy to do so.

We suggest you remove this announcement and keep it close to your telephone.

A public service announcement of the _____ Beekeepers Association.



BEE TALK

By RICHARD TAYLOR • R. D. 3 • Trumansburg, NY 14886

THE Honey Getting Principle — "Have Strong Colonies"

Have you ever heard of the "clear brood nest" system of colony management? It was described by Edward Lloyd Sechrist, a beekeeper very well known in his day, in a little book entitled *HONEY GETTING*, first published in 1944. It is practiced on a large scale by Walter Diehnelt, of Ashippun, WI, who comes from a long line of beekeepers dating back at least to his great grandfather who came to this country from Germany in 1852. The family are now proprietors of the famous Honey Acres in Ashippun, where immense crops of honey are produced and sold each year.

Mr. Sechrist enunciated three "Great Commandments" of honey getting and claimed, with some justification, that "there are no others". These are (1) to get each colony to its maximum honey-producing strength at the beginning of the honey flow, (2) to keep it at this strength through the flow by preventing swarming, and (3) to conserve colony strength at all other seasons so that it will be strong again at the right time. These three principles can, of course, be reduced to just one, which I have enunciated many times: *Have strong colonies.*

I cannot set forth Mr. Sechrist's and Mr. Diehnelt's methods in detail, and in fact, they seem to me excessively complex, but the basic idea of the "clear brood nest" system is certainly a good one. It aims to ensure that there are always empty combs in the brood nest before and during the honey flow so the queen can keep right on laying without interruption and the bees will not be induced by a congested brood nest to make swarm preparations. One way of doing this is to remove sealed brood from the brood nest every ten days or so and put it up above, in full-depth supers, replacing these combs with empty combs or with frames of foundation. This requires using a queen excluder over the bottom story, to prevent the queen from moving up to where you have put the sealed brood, establishing a brood nest up there and thus defeating the whole purpose of the manipulation. I believe, in fact, that Mr. Diehnelt keeps a queen excluder on the one-story brood chamber the year 'round. You can see that the principle is a very good one. The brood all stays in the hive, so the population of the colony keeps right on building up, the queen goes right on laying, increasing the population still more, but swarming is inhibited by the presence of those empty combs right in the middle of the brood nest.

The famous Demaree system of swarm control utilizes the same principle. In fact, I think every worthwhile method of swarm control involves something like this, namely, the continuous presence of empty combs, ***in the brood nest***. Just one or two such empty combs will inhibit swarming somewhat. More such combs will inhibit it even more, but of course there are other things to take into account, such as what you are going to do with the combs of sealed brood that you remove.

The clear or open brood nest system as described by Mr. Sechrist cannot be used in comb honey production, unless you are willing to use two full-story hives, and the disadvantages of that far outweigh any advantages. But the basic idea of keeping empty combs in the brood nest can be applied to comb honey production, in ways I have described many times.

And that brings to mind the so-called "shook swarm" method of raising comb honey. Interest in this system never wanes, and I am constantly asked about it. I cannot describe the system here, as I have done this before, more than once, but the basic idea is to shake all or most of the bees from the combs of a strong colony, hive the resulting "shook" swarm in a shallow super of foundation, and add comb honey supers over that, using an excluder. The result is an open brood nest, albeit a rather shallow one, ***par excellence***. There is not a bit of brood, honey or pollen in that brood nest, at least to begin with. And it does sometimes get spectacular results. The accompanying photo was sent to me by Mr. Rich Fleming, of West Chester, PA. Last summer he shook swarmed a colony and was rewarded with four supers of round section comb honey plus six shallow supers

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of extracting honey from the parent hive, and his area is not in a primary honey region.

There are beekeepers who regularly shook swarm a dozen or more colonies every year as their standard method of comb honey production. I don't, for two reasons. One, is that it is a lot of work, and I just don't have that much time. The other reason is that you are apt to get pollen in the comb honey, since there is no honey barrier at all between the brood nest and the first comb honey super. *A section of comb honey with a plug of pollen in it is, in my opinion, unsaleable.* But I do shook swarm a colony once in a while, more or less as a stunt, and it's fun, if you have the time to do it.§

Questions and comments are welcomed. Please use Trumansburg address above and enclose a SASE envelope for prompt response.

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cooling the hive. The burlap should fit over the colonies loosely. The entrances should not be closed. Plastic must never be used to cover colonies as it will cause them to overheat and/or to suffocate.

The critical time to protect colonies is the first three days after the spray is applied. Usually, in that period of time there is a sufficient turnover in flowers so that those that are contaminated have wilted and new ones have opened. Because there can be variation in the length of time a flower remains attractive to bees most people have advised that bees be kept out of spray areas for a week to ten days; however, as above, I have found that in New York State it is the first three days that are most important.

I have never recommended covering colonies and have been critical of the method even though I know it will work under the right circumstances. I think there are good reasons for this position. Obviously there are limits as to the number of colonies that can be cared for using this technique. The cost of the burlap is also a consideration. Most important is the labor cost involved. Putting the burlap in place and keeping it wetted takes a great deal of time, especially if it is done for a full three days. I'd hate to get stuck with such a chore myself.

Hitting colonies with an airspray does them no harm. This is a fact that is little understood. Too many times I've had airspray pilots tell me that they have taken care to shut off the spray when they approached an apiary so as to not deposit the material on the hives. I have carefully applied sprays to the outsides of colonies, even in heavier doses than normal, without difficulty insofar as the bees are concerned. A few years ago we had a severe gypsy moth infestation in our main apiary. I had an application of Sevin, a material that is highly toxic to honey bees if it contaminates the pollen plants on which they are foraging, applied to the trees all around the apiary. Some spray drifted onto hives. This was done at a time when the trees were about 10% defoliated. If I had not do so the infestation was so heavy that we would have had a great number of gypsy moth egg masses deposited all over the hives. No honey bees were killed. ***What I want to emphasize here is that for the most part, it is the contamination of pollen that kills bees.*** Of course, one can kill bees in colonies if a spray gun is pointed into an entrance. Materials that drift down over, and cover the outsides of the hives themselves are no problem because bees rarely walk over the outsides of their hives and the amount of spray on the bottom board entrance is not sufficient to cause difficulty.

CONCLUSION

Pesticides continue to be a problem for beekeepers everywhere. There is no good way to avoid losses if the pollen bees are collecting is contaminated. We are aware that insecticides vary in their toxicity to honey bees and that the selection of the right material can do much to avoid losses. We also know that the time of application is important.

The solution to the pesticide problem will come about through long-range programs that emphasize alternatives to pesticides and the development of chemicals that are not toxic to bees, or that can be applied in such a manner that the bees do not come into contact with them. A closer association of the beekeeping industry and the EPA, and the EPA's counterparts at the state level, will help through the proper labelling and licensing of toxic materials that will better control their use.§

Problem Products and Materials Used by Beekeepers

Excerpts from a talk given at the AIA Meeting

By MARION ELLIS

There are a number of products and materials used by farmers, gardeners and others which can cause problems for beekeepers and their colonies. There are also a number of products and materials that are used by beekeepers themselves which can likewise cause problems. I would like to review some of the more common self-induced problems that I have encountered in the field.

Wood Preservatives

In our eagerness to protect beekeeping equipment from the elements, we often forget that many of the products we use to treat our equipment are *pesticides.* Few beekeepers would consider locating an apiary in a field recently treated with a pesticide; however, we often overlook that the same caution is necessary in selecting and using wood preservatives. Most wood preservatives act by killing fungi and insects that feed on or in wood. Honey bees are just another insect as far as the wood preservatives are concerned. With honey bee colonies, the problem may not be a dramatic kill but rather a gradual loss of bees over time. A good example is CCA (copper chromated arsenic) treated lumber. When beekeepers use this material for bottom boards, it causes little problem when the bottom is dry, but after a rain when water puddles on the bottom it leaches small amounts of arsenic out and adult bees are killed when they contact the material. The effect is not dramatic. The colony just fails to build up due to the on-going abnormally high adult mortality. There is no brood loss or big piles of dead adults, just a colony that will not progress normally. Two commonly used wood preservatives that have been shown to *contaminate honey* are pentachlorophenol and creosote.

Below are the directions for making a water repellant and a water repellant plus preservative. These are currently recommended by the USDA's Forest Products Lab in Madison, WI for use on beekeeping equipment. Dr. Martins Kalnins and Mr. Benjamin Detroy recently completed a study titled "The Effect of Wood Preservative Treatment of Beehives on Honey Bees and Hive Products". A copy of this study may be obtained from the USDA Forest Products Lab, P. O. Box 5130, Madison, WI 53705. (For a review of these products, see the June 1986 issue of *Gleanings in Bee Culture.*)

A home pressure treatment with the below named materials may be made as follows: you will need two tanks of hot material, one hotter than the other. Make the warm tank 160°F and the cool tank 110°F. Dip the wood into the first tank for one minute, then transfer to the cooler tank. This causes a reduction in air pressure (creates a vacuum) in the wood and the material is sucked into the wood.

Pesticides Absorbed by Beeswax

Some pesticides, if used for termite, fly or other pest control in buildings where comb or beeswax are stored, can contaminate the wax permanently. Two good examples are using chlorodane for termites and vapona for flies. The only way to deal with combs contaminated with these materials is to destroy them. ***They should not be rendered and sold.***

Terramycin

A common misinterpretation is for beekeepers to think that the 6.4 ounce packets of *Terramycin 25,* commonly used in beekeeping, are *Terramycin 10.* This is because the packet states that it contains 10 grams or oxytetracycline. It is helpful to remember that 10 grams in a 6.4 ounce packet is the same as 25 grams in a one pound packet. To understand this, remember that the designations TM 10, TM 25 and TM 50 refer to *grams per pound* of the antibiotic in the package. Terramycin is also

Continued on Next Page

ALTERNATIVE WOOD PRESERVATIVES

Forest Products Laboratory's Water Repellent

One gallon of the repellent can be made from the following ingredients:

3 cups	exterior varnish (or 1-1/2 cups boiled linseed oil)
1 ounce	paraffin wax
Add to make one gallon	solvent (mineral spirits, paint thinner or turpentine), at room temperature

Melt the paraffin over water in a double boiler. *Do not heat over direct flame such as a pilot light as the paraffin can ignite.)* Remove melted paraffin from heat and slowly pour into the solvent while stirring vigorously. Add varnish (or linseed oil) and stir thoroughly.

FPL Water Repellent Plus Preservative

In humid climates, or when wood is in contact with the soil, addition of copper-8-quinolinoate or supper napthenate to the water repellent gives added protection (although not to the degree provided by "Penta", etc.) Copper-8 is approved by the Food and Drug Administration for use on surfaces (e.g., picnic tables) where food is served and contact with human skin occurs. This suggests it is less toxic than other preservatives, although published literature on its toxicology is limited.

One gallon of the water-repellent preservative can be made from:

1-1/2 cup	boiled linseed oil
1 ounce	melted paraffin wax
Add to make one gallon	solvent (mineral spirits, paint thinner, or turpentine
9.6 ounces	copper-8-quinolinoate or napthenate (if wood/soil contact, use 19 oz. copper material)

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available in stronger formulations. Generally, it is not advisable for beekeepers to use these because small errors in measuring become magnified when using concentrated materials. The Terramycin 50-D formulation is not water soluable and should not be used to make medicated syrup.

Wax Moth Control

The most common problem product used in wax moth control is napthelene crystals. *Napthelene is not registered for use on stored combs,* but beekeepers occasionally buy it thinking it is the recommended material, paradichlorobenzene crystals. Much of the older literature simply recommended using moth balls since PDB was the only material sold as moth balls at that time.

Napthelene lingers much longer than PDB in fumigated equipment. If not thoroughly aired for a long time, the colonies will die or abscond when combs fumigated with napthelene are placed on them. Airing time after napthelene fumigation of *a month or more* is usually necessary.

If you use Phostoxin for wax moth fumigation, be sure you have an air tight fumigation chamber. Combs must be exposed to the phosgene gas overnight to be effective. The product is not effective in storage areas that are not air tight.

Feeding Bees

Many beekeepers have started using high fructose corn syrup for supplemental bee feed instead of granulated table sugar. When you buy high fructose corn syrup you are buying some water with it so you need to know how to convert corn syrup to its dry sugar equivalent to compare its cost to that of dry sugar. The formula for doing this is as follows:

$$\frac{\text{Cost of corn syrup per pound}}{\text{Percent solids (73\%)}}$$

Example: Corn syrup costing 13 cents per pound and having 73% solids.

$$\frac{.13}{.73} = 17.8 \text{ cents/pound}$$

High fructose corn syrup is sold for bee feed in 2 forms, Cornsweet 55 and Cornsweet 42. Both have 73% solids. The 55 and 42 refer to the percent inversion to fructose. *The 55 is better bee feed.*

Other sweeteners such as Karo syrup, molasses, brown sugar, and maple syrup should not be fed to bees as they contain materials bees do not have the enzymes to digest.§

Laying Workers:
Dealing with the Revolution

By KATHY AND ROGER HULTGREN
• 155 Lovell Rd • Holden, MA 01520

Finding a hive with laying workers requires immediate attention on the part of the beekeeper. What you are observing is a queenless hive which has no means of rearing a new queen and a colony which is completely demoralized. The colony, as a last hope of survival, has workers beginning to lay eggs. These eggs are unfertilized and the results are only drones. And these drones, produced by laying workers, are even smaller in size than drones of a mated queen. A hive of only drones is terminal, there is no one to carry on the jobs of the workers.

In the past, it was thought that the laying workers were those raised near queen cells. These particular workers, it was hypothesized, received small portions of royal jelly which was the triggering mechanism which allowed them to start laying eggs. This theory has been disproven through experiments. However, there was a grain of truth in the hypothesis. All workers do receive some royal jelly but only queens continue with a diet of royal jelly through all stages of development.

The Cause . . .

The root cause of a colony developing laying workers usually resides with a careless beekeeper. The apiarist has failed to recognize the queenless situation and the hive has remained in this state for 10 to 14 days. At this point, there is no longer larvae suitable for rearing a queen. This, coupled with the fact that the queen's pheromones are now missing, results in several workers finding their ovaries maturing. These workers then take on the duty of laying eggs. However, instead of finding a single egg per cell you will note several eggs residing in the same cell. The brood pattern from several laying workers is scattered, with many cells empty and those worker cells which are capped possessing convex cappings. This type of capping is indicative of a drone occupant. Occasionally, one might even find a queen cell over a drone larva.

At this stage, introducing a queen usually results in the bees attacking and killing her. Even if you supplied the colony with a queen cell they would probably tear it down. A colony with laying workers, even when provided with eggs, will seldom raise a queen. In order to set this colony in the right direction, the laying workers need to be removed. And locating these culprits is like looking for a needle in a haystack. If you are lucky, you might observe one of these laying workers depositing eggs in a cell. However, there are usually several laying workers present which makes the task insurmountable.

One way to fix this . . .

This situation might sound hopeless but there are several corrective measures that have proven successful. One approach involves scattering the frames, and adhering bees, among several queen right colonies. It's best to exchange no more than 1 or 2 frames in each colony. The extra frames from the queen-right colonies should contain eggs in various stages of development. These are used to replace those from the laying worker colony. With the new frames in place, the old laying worker hive is prepared to receive a caged queen. The bees from the queen right colonies, which were placed in the laying worker hive, will usually exit and return to their original hives, while the bees which were adhering on the laying worker frames, will do the same. In order to orient their fellow workers, the bees expose their scent glands and begin fanning. This aids in dispersing the caged queens' pheromone and helps insure her acceptance. With the presence of the queen's pheromone, should a laying worker return, she will be barred from entering. Usually, the laying workers remain in the colony they were introduced into, and are eliminated by their fellow workers.

The residing occupants of the former laying worker hive will now begin the task of cleaning and preparing the frames for their new queen. Any excess drones will be eliminated in order to establish the proper balance of inhabitants.

Another Solution . . .

Another solution uses only an empty hive body. The methodology involves removing all the frames, with their bees, from the laying worker hive. These frames are placed in an empty hive body located some 200 plus yards away. The original hive body is filled with frames of drawn comb and is given a caged queen. As the bees exit from their new location they perform their duties as field bees and return to their original hive stand. One of their first tasks is to dispense the queen's pheromone by fanning. In a few days the queen is

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HULTGREN... Cont. from Page 357
released and she immediately will begin laying to build her work force. After the hive is established you can introduce the previous laying worker frames. These frames will be cleaned by the house bees.

An easy, one step procedure...

This next method is the one we frequently employ as it involves only one step. Once a hive has been diagnosed as containing laying workers, you must obtain a caged queen *before* beginning this process. With the queen in hand, the only other equipment needed is a large cardboard box. The hive, with bottom board, is removed and placed approximately forty feet away. The bottom board is removed with any adhering bees and is shook into the cardboard box. Make sure all the bees are off the bottom board before replacing it back on the original stand.

Next, take your caged queen and place her on the bottom board. Return to the cardboard box. From the bottom super, take each frame and shake the bees into the box. When the super is free of bees, take it to the bottom board, return it to its original position and place the caged queen on top of it. Repeat this procedure with the next super.

Be careful not to kick the cardboard box during this process. The bees will eventually return to the hive, and as they do, will begin fanning and scenting to aid their cohorts in returning.

Repeat this process with the second brood chamber. When you have finished with the second chamber, insert the queen cage between two center frames, screen side down. The inner cover is replaced with the *rim side down* before installing the outer cover. After four or five days, inspect the hive to insure that the queen has been released and started laying. At this time, remove the cage and reverse the inner cover.

Should you find the queen has not been released, either release her yourself or remove the majority of the candy plug. The laying workers are bared from returning to the hive by the guards. The queen's pheromones have now become dispersed from the bees fanning.

An ounce of Prevention...

The above solutions should help if you have found a colony of laying workers. But remember, an ounce of prevention is worth a pound of cure. What should you do if a colony becomes queenless? The colony should be given a caged queen, if at all possible. Should there be a delay in obtaining a queen, then it is wise to provide the colony with brood of appropriate age so they can begin raising their own queen. The brood should be less than 24 hours old, which means the eggs are still standing erect in the bottom of the cell. Remember, it never hurts to give a queenless colony eggs and brood to help them out. Even if a queen cell has been started, when your new caged queen arrives she can be introduced into the hive.

Some beekeepers, at this point would just let the bees raise their own queen. However, when making this decision, keep in mind that a queen that is caged is usually released in three days while growing a queen requires 16 days until she is fully developed, 3 to 5 days to maturity, 6 to 7 days till mated and 2 to 3 days till she begins laying within the hive. This delay can be costly to a honey crop, and puts additional stress on an already stressed colony.

References:

Hultgren, Kathy and Roger, *Requeening —How and When, Gleanings in Bee Culture*, Medina, Ohio, August, 1984.

Root, E. R., *The ABC of Bee Culture*, The A. I. Root Co., Medina, Ohio, 1905.

By CARSTEN AHRENS
3461 Harrisburg Street
Pittsburgh, PA 15204

A BEE WORD QUIZ

Words may read up, down, forward, backward or diagonally.

T	B	U	R	G	H	O	N	E	Y	Z	P
R	H	A	S	T	I	N	G	L	Z	O	E
E	B	G	S	I	R	T	L	U	L	V	R
K	B	E	I	E	L	E	B	L	I	B	U
R	E	M	W	L	J	O	E	H	M	Y	T
O	E	O	O	L	F	N	P	O	M	R	L
W	L	X	A	C	B	G	C	O	A	A	U
F	A	Y	P	A	D	Y	N	T	R	I	C
W	O	E	S	R	E	O	C	I	I	P	I
R	K	K	O	N	O	E	O	E	T	A	P
S	E	N	O	U	N	S	L	R	L	A	A
T	E	H	Q	U	E	E	N	Y	B	L	M

The poet, Emily Dickinson, advised one how to participate in eating and drinking. Unused letters will complete her suggestion:

"Partake as doth the Bee _____."

APIARY	CELL	HONEY	POLLEN BASKET	STING
APICULTURE	DRONE	HONEY COMB	PROPOLIS	WAX
BEE	FLOWER	MATING FLIGHT	QUEEN	WORKER
BUZZ	GRUB	NECTAR	ROYAL JELLY	
BROOD COMB	HIVE	POLLEN	SKEP	

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WINTERING INDOORS

By GEORGE COOMBES • R.R. #1 • Vankleek Hill • Ontario, KOB IRO

Introduction

June may seem an unlikely time to be considering overwintering, but this system provides some excellent information that, if you are interested, needs to be acted on now. Setting up this system will require some time, so we publish this now to give you adequate opportunity to start — before the winter winds blow.

The situation now . . .

Wintering honey bees outside in any Northern latitude requires very good management and considerable honey. Even with the best efforts there are too many winters with prolonged cold spells, severe winds, and not enough snow. Then severe losses occur. Under such conditions strong, well stocked colonies usually survive if adequately prepared, and I have found Dr. Roger Morse's method of winter packing to be the most successful. However, to achieve these conditions often requires combining colonies in the fall, with a consequent decrease in the number of colonies.

With the ban on the importation of bees from the South in 1986 in an attempt to prevent or retard the invasion of bee mites, maintaining the number of colonies has become a major problem. We must devise a method of maintaining colony numbers as well as producing surplus honey. Our main nectar flow occurs early and only lasts about three weeks, beginning about June 25th.

Until the middle of May it is just too cold to consider queen rearing. We need all the overwintered bees just to rebuild the colonies which have survived the winter so they will be strong enough to forage by June 25th. Queens started in nucs after the middle of May do not begin to lay in time to produce foraging bees for the main nectar flow, and making nucs only weakens producing colonies.

Research has shown that strong colonies wintered in dark, well insulated and ventilated buildings do well, and consume only about one pound of honey per week until the middle of March. After this time, it is necessary to put the bees outside because on sunny days, ventilation alone cannot keep the temperature inside the building at 41°F since the temperature of the air coming in from the outside is in the 50's. As a result of the high temperatures the bees become very active, they egress from the hives, cannot or do not return, and die on the floor. Artificial refrigeration would solve this problem but is prohibitively expensive.

Strong, heavy, two-super colonies would do well outside after the middle of March. The bright sunny days would stimulate the queens to lay, but the cold nights would require the workers to consume tremendous amounts of stores. Carrying two-story colonies into a building in the autumn, and stacking them three tiers high is hard work for two tall strong men. Most beekeepers who winter their bees inside place their two-super hives on the floor and put their single brood chamber hives on top of these because it is easier. From the bees standpoint, it would be better for the smaller colonies to be on the bottom because it would be cooler on the floor and fewer bees would die.

When single brood chamber hives are put outside in March, they are put under tremendous stress. This size colony has great difficulty maintaining the brood rearing temperature and the ratio of stores consumed per bee is greater. Further, stores are rapidly depleted, dwindling progresses faster and even top feeding increases the stress of maintaining temperature — and colonies die. All this happens three weeks before pollen is available naturally.

An alternative you may want to consider . . .

I am experimenting with a system which I think will increase the chances of survival for the honey industry in the North. I equalize my colonies in the spring, to produce a maximum crop of white honey from June 25th to July 15th. Then I split my colonies and allow them to raise their own queens according to the philosophy of Charles Mraz. If I want to achieve maximum increase, I make up nucs in four frame nuc boxes and check them a week later for queen cells. Those with more than one queen cell are marked and checked at about fourteen days. I have saved as many as four virgin queens this way.

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As soon as they are made up, I move all these nucs to a new location to avoid robbing which can be severe in this location just after the main nectar flow. The body and bottom of my nuc boxes are one piece, so they are easy to transport in a pickup. When the queens are laying well they are returned to the main headquarters and put into standard single brood chamber hives to build up for winter. They are fed if necessary.

My wintering quarters for these colonies are log cabins built on top of the ground from either used utility poles or used railroad ties. I find the optimum size to be about eight feet by sixteen feet by three and a half feet high (Fig. 1). Caulking isn't necessary

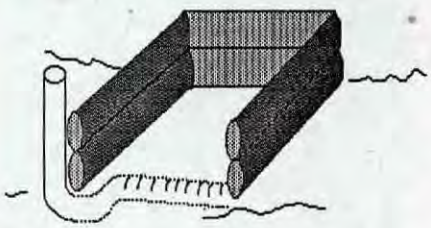


Figure 1.
Showing ventilation pipe.

because the outside is wrapped with a layer of heavy tar paper and then covered with four mil polyethylene film. Then the entire structure is banked to within 6" of the top with sod or earth using a tractor with front end loader. Before building up the earth berm a four inch plastic drainage tile is placed under one corner. An elbow is attached and an extension is run above the side on the outside (Fig. 2). Inside, this tile is connected to a ten foot section of perforated plastic drainage tile which

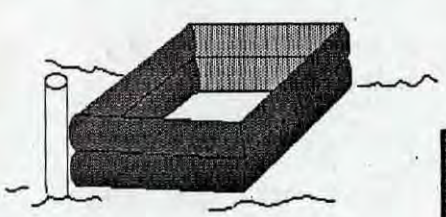


Figure 2.
Finished structure.

runs along the floor at the back of the cabin, allowing the evenly distributed entrance of air from outside. There are no doors. Hives are put in from the top and then a ceiling of rough boards is placed on without nails to support batts of R12 fiberglass. Over this is a small air space to allow the escape of moisture from the cabin and then sheets of white enamelled steel roofing is put on and held down with stones (Fig. 3).

The utility poles or railway ties are about ten inches thick and the earth berm varies in thickness from

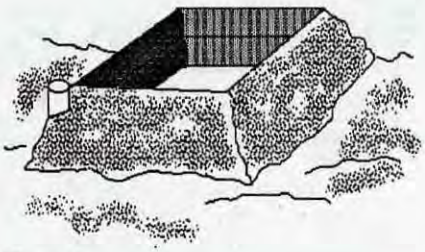


Figure 3.
With berm in place.

six feet at the bottom to eighteen inches at the top and freezes solid in the winter. When covered with grass this maintains a cool environment within the cabin for weeks longer than an insulated frame building. The hives do not have to be removed until there is pollen available.

The hive covers are removed and stacked outside before the hives are put in, and the plastic inner covers are tacked back at one corner to provide upper ventilation. The moisture in the cabin easily moves between the ceiling cracks of the rough boards and the fiberglass and escapes through the ribs of the steel roofing. I was fortunate to buy this roofing as surplus from a large construction job and the white

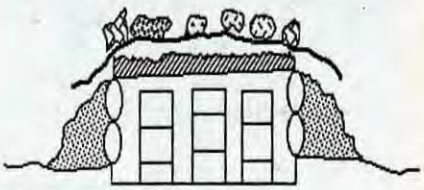


Figure 4.
Cross-section of finished cabin.

enamel reflects the heat of the spring sun. Hives are stacked three tiers high (Fig. 4).

Inspection on a cold night in early April will show the temperature inside to be 41°F., the hives are dry and the bees quiet. When placed outside after pollen is available, the colonies will still have considerable honey, very little cold stress to overcome and will be ready for the main nectar flow. An added bonus is that the young queens are not likely to swarm.

This is a very brief description of this winter management system. If you are interested in further details, please write to the address above with a SASE, and I will be pleased to offer suggestions.§

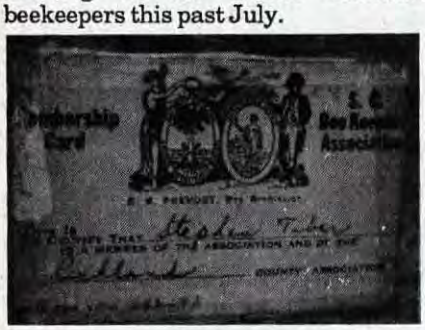
Steve's Homecoming, Or the South Carolina Summer Bee Meeting

By STEVE TABER of Honey Bee Genetics • P. O. Box 1672 • Vacaville, CA 95688

"And a Good Time was had by all!"

A long time ago, I kept bees in South Carolina where I grew up. By 1943 I had 13 colonies, before selling off most of my bee equipment to get into the war. From about 1939 until 1940 most of my bees were kept in the city limits of Columbia, but I moved them out to a farm in 1942, where they produced a crop of 220 pounds per colony in 1943. You may find this dull, and it probably happened before most of you were born, but I'm not done yet.

After the war, I kept bees in Wisconsin and Ohio while getting a degree in Entomology, specializing in bees. Then I was off to do bee research in Louisiana and Arizona for the next 30 years. The only time I ever came back to South Carolina was to see one sister that lived in Charleston and that was always a very brief visit. So it was very exciting, and I mean *really exciting* to be invited to address the summer meeting of the South Carolina beekeepers this past July.



I carried my old expired membership card back to show off to present members of the South Carolina beekeepers, it's dated 1942-43.

Bees have been kept in South Carolina since the earliest English settlers came to that state, almost 300 years ago. It's a good state for beekeeping but not a place for much commercial beekeeping. It's not difficult to make crops of 75 to 150 pound averages there, but it's not easy either. The problem with most of the Southeastern United States is the rather poor, sandy soil, with much of the land covered with pine trees. And the honey is produced by trees that are considered to be "weed trees" by the forest managers — holly, persimmon, sparkle-berry, tulip poplar, redbud, sourwood, gallberry and huckleberry. Some agricultural crops yield honey, such as cotton, soybeans, fruit trees, clovers and vetch, the plant that I made my surplus from in 1943.

There has always been one or two commercial beekeepers in the state, but I think it unlikely South Carolina will develop a commercial beekeeping industry, similar to other states, for producing honey, queens or packages. And the money to be made from bees used as pollinators probably will remain slim for the future. But there is a large, and growing, population of hobby and part time beekeepers in the state.

It's hard to say exactly who pushed and shoved the most to really get hobby beekeeping going in the USA but my vote would go to Mr. E. R. Root, the son of A. I. Root, and to the individual beekeeping extension specialists that many states employed in the 20's, 30's and 40's. When I was just starting in 1939, the extension bee specialist in South Carolina was Ned Prevost, who had held the position for at least 30 years and maybe more.

At that time, many farms had a few hives kept in "gums", and it was the extension beekeeper's job to teach and instruct these farmers how to transfer those "swarms" from gums to modern movable frame hives. Also, along with modern beekeeping in movable frames came bee diseases, and it was also their job to educate all the beekeepers to the dangers of American foulbrood.

Provost retired in 1944 and he was replaced by a person I never met,

Left, the first commercial beekeeper I knew, T. P. Gaskin from a town near Columbia where I grew up. He made a significant portion of his income from the sale of sealed drone brood for fish bait. Right, W. H. Purser, Extension beekeeping from Clemson and state inspector. Photo about 1945 from J. Howard.

named Purser, who had the job from 1944 until 1969 before he too retired. This left no one to organize and help small local hobby beekeepers get together, have meetings with a swapping of experiences and lies, or for whatever reasons beekeepers like to get together.

When I joined the association in 1943, and went to their annual meeting in Columbia, there were scarcely 30 people present. Actually, the South Carolina beekeepers ceased to exist as a group for several years after Mr. Purser's retirement, until Jimmie Howard, employed by Clemson University as an Extension

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Entomologist, revived the group. Jimmie had the bee bug and he interpreted that job title liberally as primarily an Extension Bee Specialist. About 10 years ago he got a list of the names of people who used to keep bees in the state, sent them all a letter telling them about an organizational bee meeting. Most of the letters were returned with the word "deceased" stamped on them.

Jimmie Howard making an important point at a meeting. He is Extension Entomologist and carries that into organizing beekeepers with great enthusiasm.

But, Jimmie kept at it, pushing and shoving, until he had a winter meeting and a summer meeting too. The summer meeting is held on the campus of Clemson University, where it is usually cooler in the summer than in any other part of the state. Attendance at these meetings has been upwards of 200 persons — quite remarkable, I think.

Jimmie puts on a good meeting with a reasonable cost to the attendees, about $15 per day, which includes rooms and meals. The program offers something for everybody. This past year the program featured two out-of-state specialists: Dave Fletcher, an authority on the African bee, and myself. In addition there was a retired Clemson professor, along with commercial and hobby beekeepers from around the state and commercial out-of-state beekeepers. As you might expect there was a good turnout of beekeeper families for the 2-1/2 day meeting and also good commercial displays from the major bee supply manufacturers.

The highlight of the meeting is a chicken barbecue at Jimmie's farm home that is held in conjunction with a horse shoe pitching contest. And that contest is a *real* contest. He has organization charts, teams, cheerleaders, bleacher seats, plenty of soft drinks and beer for all who qualify.

Serious business at the SC meeting held toward the end, horse shoe pitching. Two pitching pits were faced by borrowed bleachers filled with cheering spectators. Held on the farm of J. Howard. 1987 meeting will be held July 9, 10 and 11.

Well, for me it is a real bit of nostalgia to come home, to see, visit and talk with beekeepers who keep their bees near where I kept mine when I was a boy, and to hear them tell of honey plants that only South Carolina beekeepers know about. This summer, when you see the announcement of the South Carolina beekeepers meeting in Clemson, I suggest you contact J. Howard, S. C. Crop Commission, Plant Pest Regulatory Service, Clemson University, Clemson, SC 29631 (803) 656-3111. I know you will enjoy the meeting, but a final word of caution: practice your horse shoe pitching first!§

AIDING and ABETTING — Being a Beekeeping Landlord

By KEN OLSON • 87417 Halderson Rd • Eugene, OR 97492

Keeping bees fascinates city dwellers just as definitely as it does the farmer in the country. Unfortunately, city dwellers usually face more protests and angry neighbors than a country cousin. The city beekeeper often finds controlling bees an urgent matter. What can be done?

Do YOU live in the country? Do YOU have space for a fellow beekeeper in the city to place HIS bees on YOUR property?

You can rescue your city brother from angry neighbors, earn a few dollars, learn a few things, gain a new friend and enjoy several other benefits in the process.

Here are ten enticing reasons why you should become a beehive landlord.

FIRST. Beekeepers like bees, and they usually behave as though "the more, the better". So, if you live on a ranch or farm, or on a few acres in the suburbs, you can multiply the number of hives you now have on your place by inviting other beekeepers to place their hives on your property. This will give you the pleasure of seeing thousands of bees filling the air on sunny mornings. Viewing these insects on the wing gathering nectar for winter stores catches our attention, and the sight becomes proportionately more impressive as more hives increase the size of the apiary.

SECOND. Rent from the beekeepers for the space to park their hives adds income to the land owner. The rent per hive may be as much as five dollars per month or certainly less. This doesn't amount to very much for one hive, but if your renter has twenty hives, and wants to leave them for five months, the revenue can be substantial.

THIRD. Fellow beekeepers usually share knowledge and techniques readily. Veteran beekeepers, as well as those new to the industry, have experiences which are unique and can provide helpful instruction to others. Procedures for removing frames from hives or for removing bees from frames or for removing hives from fields are not standard. Each person has little twists to the trade that others can learn from and adapt to his own operation. These gimmicks and procedures can be shared and discussed and evaluated when the tenant comes to work the hives. The landlord benefits by listening, by watching, by helping. Eventually the landlord becomes quite proficient at manipulating his own hives.

FOURTH. The landlord can share the equipment the tenant owns. If the renting beekeeper has extractors or hive-loading devices, trucks, trailers, holding tanks or uncapping facilities, the landlord may be able to borrow this equipment, or trade use of equipment for use of the land. The two beekeepers can strike a bargain about rates and times that are mutually satisfactory.

FIFTH. The two beekeepers may be able to obtain price reductions on the purchase of woodenware, glassware, lids, or wax purchased in quantity. A single beekeeper may not have use for a thousand lids for a thousand bottles but two beekeepers, or three, may find that a thousand bottles with lids may serve them well.

SIXTH. The partners may similarly share markets. If one fellow can sell honey to a certain merchant, the same merchant may be willing to purchase the second fellow's honey at the same time, or later in the season. This eliminates the need to search far and wide for someone to buy honey.

SEVENTH. The city beekeeper who puts hives on the countryman's acreage can be spared some trips to the apiary. Beekeepers are especially curious about the condition of hives after severe storms. Did any lids blow off during the night? The man in the country can check his own hives, then casually check his friends hives on the same trip. This inspection and reporting service makes the rent reasonable. Similarly, during the swarming season, the beekeeper is anxious about the swarming tendency of the hives. If swarms have left from a particular hive, the landlord can check and report on the problem for the tenant and save him the trouble of visiting the beeyard.

EIGHTH. The tenant eventually becomes a friend of the landlord. If the relationship grows over time, occasions will arise when the two will discuss disease, swarms, honeyflow, or other problems. Emergencies may arise where the tenant will want to use the telephone or the facilities. Or, his truck or car may need a pull from the mud. When these situations appear, the landlord has opportunity to further develop a friendship by offering to help a fellow in need.

NINTH. The tenant beekeeper has experiences, books, magazines, and other acquaintances that the land owner can learn from. They may loan books back and forth, or they may verbally refer other people in the business to one another. Soon the intertwining, the society of beekeepers in your area enlarges and these mutual friendships lubricate the whole operation.

FINALLY. The burden of lifting and loading can be shared. The many hands that make the work lighter rescue us from discouragement and fatigue. The principles of sharing the work at work in America since the settlement days still apply. Trading work-days and trading one job for another cements friendships and makes work habits safer.

If you have space in the country to rent to other beekeepers, count your good fortunes. You can earn a few dollars from the rent, but that's a small part of the benefit package. You can also find information that's not ever been printed. And you can find friends that will be more meaningful than brothers.§

Work WITH Your Competition — Not AGAINST Them

By R. T. EDWARDS • 1233 Laurel Street • Westlake, LA 70669

The phone rings.

"Hello, this is Eddie's Honey House, how can I help you today?"

"I'm calling because I'd like to know your price on a gallon of honey. Is your's as high as Franks and Johnnies here in town? I want the best price."

Is this the voice of competitive phone shopping, the voice of insecurity, or is it a voice of a person wanting to rip you off?

I think it is a rip off. I think the consumer is playing high pressure selling techniques on you, the beekeeper.

If you have had a consumer call you, ask basically this kind of question, the consumer is doing a lot of assuming.

They are assuming that you want to sell your honey because they have the upper hand, knows there are more supplies than demand and wants you to quote a price that certainly won't make the product as much profit for you.

Consumers may not be as smart but this example runs off of some basic principles which can easily be corrected. If beekeepers got together, talked over price *standardization* and worked on supply and demand figures, they would give all parties a good picture of what they can expect to sell in an area for the upcoming year.

You will discover that when supply exceeds demand, consumers will react by assuming the price of the product can be chiseled down so a buck or so can be saved.

This attitude is fueled by publicity or handouts which make the consumer aware of a supply overage. Hence, when the feds went to beekeepers to buy surpluses and started handing out the goods, they established federal price control.

In fact, federal buying, and giving away, produced a real quality versus quantity anti-positive consumer awareness program. One that is going to take this industry several years to get out from under.

It would have been better for the *industry* to either have channeled the extra honey into the national school breakfast and lunch program themselves, rather than have the government give it away, right in front of the general consumer.

This definitely has an effect on your business. You have gotten those kind of "how much less can I get your honey for" type of phone calls. You have felt the effect of the cause, induced either willingly or unwillingly, by the federal government.

In order to rid yourself, and your community beekeepers of the stigma, you must band together, induce consumer awareness on the positive and upbeat side of consumer information and education. You need to show the consumer the value and importance of beekeeping. In a sense, rebuild the wheel.

Gleanings in Bee Culture has run articles showing you how to use inexpensive ways to advertise in order to get this kind of message across to the public. Other articles will be forthcoming which will help you increase consumer awareness on the value and importance of beekeeping.

Now it is time to focus on what you and your fellow beekeepers can do as a non-competitive team in your local area.

Get together and talk over the territory

You have common ground. You are small business people. You share the same regional territory.

You also have years of experience at selling honey and hive products. When you get together, talk business and other selling strategies, you have power in numbers and product control.

You can talk about the amounts of honey and by-products you produce, totally. You will discover that honey and other products can be channeled so that when one beekeeper runs low, other honey producers can transfer supplies to him or her so that more honey is sold in the area.

One beekeeper may not be able to advertise the way they feel would work best for the area, but when two or three pitch in to produce one ad, the combined effect produces a much more visible ad. All beekeeper's names and addresses could be included in the cost of the ad and the percent of the cost of the ad could be arranged so that the beekeeper who benefits the most, pays the highest. OR, the alternative would be to adjust the cost of the ad by estimating an agreement stating that the one who sells the most, helps the others.

The group could also sponsor consumer awareness and education programs, produce fliers and brochures as well as work the quality of the product line up, while reducing the quantity down through co-op giveaways through non-profit organizations.

If you can sell 500 gallons of honey at one dollar per lb. more than you are now, you have $500.00. That can go into advertising, promotional campaigns and public relations efforts. Without this organizing, if you have to sell your same 500 gallons of honey for one dollar less, you have lost the income, lost the power of that money to affect your areas consumer awareness.

Another reason you should work with other beekeepers in your area is to share experiences, gain new information concerning beekeeping and bee management.

You can look over the goals each of you have. You may decide that one beekeeper would do best working solely on liquid honey production while the other works well selling comb honey or other products.

One might be good at selling pollen. Another might know ways of marketing excess wax. Another might know how to organize a mall

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show or set up demonstrations including grade schools. One might be willing to work with young men and women teaching them the skills required to become professional beekeepers.

One might be better at writing stories and taking pictures, and in fact, likes to do this. **Management.** It is possible for the group to organize all assets so that the group as a whole can come up with all the necessary ingredients to establish total management of the area's beekeepers so that all within the group would realize their individual short and long term goals.

It is not necessary for everyone involved with beekeeping to be part of the group. But the more beekeepers that get involved, the quicker future growth and realized individual goals will become reality.

Working together as a group means you have protection in numbers, and that all within the group benefit. Since it does take time to organize marketing, promotional and advertising campaigns, and since individual efforts might be wasted without the group organization, further savings involving time, effort and money are realized through the group than through buck-shot individual effort.

One voice also provides you with clout. If you call up a newspaper, radio station or television station as an individual beekeeper, you are facing an uphill battle to capture their attention. Working through a group, as one voice, has a way of opening doors when the individual could not. Also, one of the beekeepers might just happen to know the city editor or radio and/or television talk show host.

Bumper stickers: MY BEEKEEPER HAS A HONEY OF A DEAL with small print below: This sticker sponsored by the Lake Charles Beekeeper Association has a way of showing the consumer that the beekeeper with the bumper sticker is proud of, is willing to support, and wants to let consumers know, local beekeepers are organized in the area.

All of these are good reasons beekeepers should work together as a group. I am sure someone out there will come up with reasons why beekeepers should not work as a group. *AND I WELCOME COUNTER POINTS.*

But when you consider barn storming, the ability to feel securer about pricing, the possibilities of co-op advertising and the ability to pool human resources, working as a group has a lot of positive potentials which should not be shoved to the back burner.

If there are more than three beekeepers in your area, chances are good that you can quickly put a halt to the consumer who is looking to undercut your honey and other products with a phone call like the one mentioned at the beginning of this article.

Further, having group direction, creating a full-fledged working relationship with other beekeepers in your area can certainly be uplifting as well as educational.

All are very good reasons why you should work *with* your competition.§

WHY ARE INSECTICIDES A PROBLEM?

An Editorial

You may think the answer to this question is obvious — they kill honey bees. But lots of things kill honey bees; American Foulbrood, Nosema, starvation, poor management, bears, birds, skunks, are all responsible for killing bees. So why are insecticides such a problem, or perceived as such a problem?

Unfortunately, since the ASCS killed the indemnity program, there aren't good records that track bee kills on a national level. Some states do, but not all, and some university extension people do, but not all. The result is that there is not a good central source to study the problem from and little data available to determine just how bad the problem is.

If you own 10 colonies and find 8 of them dead, and two nearly so, to you, the insecticide problem is critical. If on the other hand, you notice a handful of dead bees in front of a colony 2 or 3 weeks after the fact, you may only suspect a pesticide problem. And even less obvious is the situation where you have 1 of 10 colonies that just never does well. You'll more than likely blame the queen, the location or even your management skills.

But for now, lets take a look at the two most obvious factors in this situation: Insecticides themselves, and the people who apply them.

THE CHEMICALS: THOUSANDS AVAILABLE

I recently purchased a book entitled *The 1986 Insecticide Product Guide*, published by Meister Publications, Willoughby, Ohio. If you're an applicator or a crop consultant, this is a Bible. It contains every bit of information you can imagine, and lots you probably can't, regarding what chemicals to apply to what crops for what pests. It has 199 pages telling you how to protect field corn, soybeans, cotton, wheat/small grains, other field crops, vegetables, fruits/nuts, lawns/turf, ornamentals, pastures and non-cropland. It provides a thorough coverage of agriculture in this country.

Let's take a for-instance — vegetables. Thirty-two are covered. Of course most vegetables don't have bees around them, unless there are flowering weeds in the field. But many do, like peppers. The following is a list of insecticides labeled for use on peppers for a wide variety of insect pests:

Sevin Bait
Sevin 50w & 80w or XLR Plus
Dibrom 8
Methyl Parathion 4E
Guthion 25 or 50wp
Metasystox-R 25C
Orthene 75S
Diazinon 4EC, 50w & Ag500

Diazinon G
Dimethoate 2.67EC
Ethyl/Methyl Parathion
Malathion
PB-NOX
Ambush 2E or 25w
B.T. wp
Cygon 400
Endosulfan 2EC
Methoxychlor 50wp, 2EC or 4L
Thiodan 3EC
Nudrin 1.8 or 90
Phosdrin 4EC
Pounce 3.2EC
Proxol 80SP
Pydrin 2.4EC
Systox 2 or 6

That's 35 chemicals registered for use on peppers. If you consider the same chemical produced by different companies (with different names [i.e., Drexel D-26414G and Prentox Diazinon 14g]) the number goes to 61 chemicals. Some of these (those followed by a G [granular] or the word Bait) are not applied to growing plants, so the number is reduced to 33. Of these 33, 30 can be applied to blooming plants. For instance:

Hopkins (a brand name) Malathion 57% EL
Pest: Aphids
Rate: .625 lb. active Ingr./ac.
Pest: Maggots (type not spec.)
Rate: 1.5 lb. active Ingr./ac.
Remarks: Thorough full coverage application should be made. Begin application when insects first appear and repeat as necessary. Days to harvest - 3.

That's during bloom — no doubt about it.

Peppers require insect pollination for fruit set, and insecticides for blemish free fruit. The irony is obvious. Spraying endangers the very insects necessary to set the fruit that the spray is protecting. The extreme here is that you could have absolutely insect free plants, but absolutely no fruit to harvest.

And peppers are only one vegetable requiring insect pollination. Consider cucumbers (27 chemicals), melons (20 chemicals), pumpkins /squash (21 chemicals), and watermelons (14 chemicals).

And then there's those crops that, although not requiring insect pollination, do have honey bees visit them. Beans (20 chemicals), potatoes (22 chemicals), and sweet corn (15 chemicals) are the most prominent on the list that call for insect control during bloom. Since insect pollination isn't required, bloom sprays won't (in theory) reduce production, and in many cases will increase or enhance it.

Then there are those crops that don't require insect pollination, and are not harvested for human consumption. Cotton for instance. This crop used to have the distinction of having more insecticides applied during a growing season than any other crop. With the advent of the boll weevil eradication project and several IPM programs, I'm not sure if this is still true, but use still remains high.

Alfalfa is another crop in this category. Since most farmers cut alfalfa for hay when roughly 10% of a field is blooming for maximum hay protein content the problems are minimal. But they do exist, and cutting at 40-60% is not uncommon, along with bloom sprays for aphids, weevil and other pests.

Finally, let's take a quick look at ornamentals. On a commercial basis,

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there are 9 chemicals listed that talk about spraying during bloom. On a home owner scale, I counted over 12 available that could be used during bloom.

THE PEOPLE: THOUSANDS REGISTERED, THOUSANDS NOT

Off hand, I don't know how many people who apply restricted use pesticides are trained and certified to do so. I'm not sure anybody does, but from experience my guess would be over 90%. Maybe as high as 95%.

There are two levels of certification — application for hire, and application on your own property. Professional applicators are the most highly trained. Their schooling is quite rigorous, and they need continual re-certification on a routine basis. Of course they are also liable if a problem occurs — crop damage, residue, wrong application, etc. They not only need, but usually seek out training. Many, but not all are trained entomologists or plant pathologists, and many also are consultants. There also aren't very many of them, but their numbers are increasing. A similar analogy is the person who services your automobile. You practically need a college degree in computer electronics just to do a tune up anymore. The service people are becoming more and more specialized, and the shade tree mechanic is slowly disappearing.

By far the vast majority of insecticide applications are farm owners though. To purchase and apply restricted use insecticides requires certification, and to become certified you need to take a written test. This test includes questions on how to read a label, insect identification, specific crop pests, sprayer calibration, protective clothing and other measures, pesticide disposal, protecting honey bees and some common sense behavior while handling toxic materials. These tests are fairly all inclusive, and any person passing them should have a pretty good idea of what's needed to do a spraying job accurately and safely.

But herein lies the problem. Actually, several problems. First, I've already mentioned the fact that several chemicals are labeled to spray during bloom. Specifically, most of these labels will *recommend* not spraying while bees are foraging, or while plants are blooming. Some of the more conscientious even go so far as to *suggest* that blooming weeds be removed from the spray area. And in fact, an evening spray, with no weeds in the field, at the correct label rate would probably not cause much harm — bee wise.

But how many times have you been able to get everything done exactly when it should be? If an insect population is building and there are three days of rain, a spray gets postponed. In fact, several sprays may get postponed. So when the weather breaks — it's obey the spirit of the law, or lose or reduce the value of a crop. See the problem? Any one of the precautions may be neglected. The spray may be applied at any time during the day, bees or not. Flowering weeds may not get removed. In haste, the wrong chemical may be applied, the right chemical may be applied at an incorrect rate, or the sprayer may not be calibrated as accurately as needed. Any and all of these can and will cause problems. Not only for the beekeeper whose bees were in the right place at the wrong time, but the farmer who may either not get adequate control, or do damage to plants because of incorrect application.

The situation is one of simple economics. Very much like speeding. A farmer takes a chance and hopes it works out. If it does, he's ahead of the game, if it doesn't, he pays. As long as he wins more than he loses he's okay.

But often the economics aren't dictated by outside forces such as the weather. Mowing an orchard floor (or applying herbicides) to remove flowering weeds is expensive. Many do, but some don't. It adds a little to the bottom line by ignoring the clover on the floor, and if you don't have a problem you're okay. Right?

And then there is the home owner. Unregistered, untrained and many times uncontrolled. There is almost an infinite variety of things that can cause problems here. Wrong chemical, wrong rate, wrong times, misidentification of the problem (disease vs. insects, or beneficial insect vs. pest), misapplication, etc., etc., etc.

Granted, a problem caused by a single homeowner will not cause serious problems with any particular beekeeper. However, magnify this situation by the number of home vegetable gardens in this county (34 million) and the potential opportunity for disaster boggles the mind.

All things considered, it is somewhat amazing there are any bees at all.

Obviously there still are bees. They haven't (yet) been annihilated by insecticides, and in all probability, never will be. Why?

- Most farmers are trained and correctly apply insecticides.
- IPM techniques are improving, and are being better received by farmers.
- Chemicals are becoming (albeit slowly) more pest specific.
- There is less and less agriculture in this country.
- Past agricultural practices are becoming today's problems (ground

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INSECTICIDES... Cont. from Page 368

water pollution), and new practices are only being initiated with these considerations.

•Most people are becoming aware of 'planet pollution', and are avoiding some past practices!

However, insecticides continue to cause problems for beekeepers, acute problems in some regions and chronic problems in other areas. Why?

•Some farmers are not trained in proper legal and appropriate application procedures and techniques.

•Bottom line economics determine seasonal procedures.

•There are still a multitude of broad spectrum chemicals available for use.

•Agriculture is becoming more diversified, meaning a larger variety of crops are being grown in smaller areas.

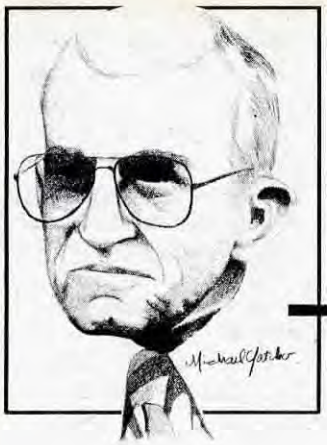
•Some people still don't care.

Until these five items are addressed, by beekeepers, state and national regulatory agencies and the public as a whole, there will continue to be problems with insecticides. If you want this to change, this is what must be overcome.§

HINT OF THE MONTH

One of my favorite "kitchen tools" is the wire whisk. These come in different sizes and I highly recommend at least two or three sizes. Mixing salad dressings is so easy. You whisk away with one hand and dribble the oil from a measuring cup with the other hand and in a very short time you have the dressing mixed. The whisks are also perfect for the instruction "beat eggs lightly". However, they are much too efficient for mixing muffins and pancake batter where you want lumps for lightness. That mixing is better off done with a spoon

Ann Harman



WASHINGTON SCENE

By GLENN GIBSON • Minco, Oklahoma 73059

"Enhancing our Public Image"

For all practical purposes, the beekeeping industry does not have a program in or out of government where regular news releases are made available to the news media (print and video). Seemingly, we accept this state of affairs with little concern. As a result of this lack of attention from our industry people, we have no clear image. In addition to this, it is most difficult to get a consensus of beekeeper thinking. Consequently, the politicians will make decisions with very little factual information. And, we are painfully reminded how expensive this can be. We are responsible for this state of affairs. We can and should correct this lack of attention in the news.

Undeserved Negative Publicity

Beekeepers both large and small are really concerned about the type of attention we will get from the news media when the Africanized bees arrive in this country from the South. There is general agreement that one of the biggest problems will be misinformation in the news written by people who know nothing about the bee business. Some beekeepers report that negative publicity is already a problem. Jerry Stroope, a commercial beekeeper from Alvin, Texas, fears a rash of bee-banning city ordinances will be his first problem. Others rightly mention the danger of being sued by suit-happy neighbors. Almost daily I am asked what we plan to do about the Africanized bees (more often than not they use the term "Killer bee"). An Extension Apiarist would be helpful by disseminating correct information.

Publicity at the Corpus Christi Convention

One of the main topics covered at our recent convention in Corpus Christi was Africanized bees and the Department of Agriculture's recommendation for a bee barrier in lower Mexico. The subject was thoroughly discussed from the podium and in the halls, but we could not get a consensus for or against a barrier. This did not mean that there was any disagreement about the seriousness of the problem. It did mean that a majority attending the convention could not endorse the barrier plan.

The local Corpus Christi newspapers tried to sensationalize the stories on "Killer bees". A news reporter interviewed me and Richard Adee for the greater part of an hour. We answered all questions, but the editor didn't like our story so he sent the reporter back to the hotel to get a sensational story on "Killer bees". We had told the reporter that one of the big problems would be the press when the Africanized bees reached our country. This editor's attitude proved our point.

Our Fuzzy Image

Other examples of negative publicity can be cited. Much of it had its beginning from incomplete government reports. This scarce data with a wee bit of journalistic imagination produced some fantastic conclusions that nearly killed our honey program. The most damaging were:

- Raise your pollination fees to offset the effects of cheap honey.
- If a shortage of bees develops, the farmer can own his own bees.
- Only a tiny percentage of beekeepers participate in the program.
- The price of honey has nothing to do with the availability of bees that are needed for pollination purposes. Other bits of misinformation can be cited.

Viewing our programs strictly from a cash in and cash out standpoint, the uninformed will readily conclude that our programs are too expensive. Unfortunately, most journalists and a number in Congress are not informed about the great value of free honey bee pollination. Consequently, they will base their decisions on the value of the honey crop and ignore the great plus of free honey bee pollination.

Humbly, We Ask You:

a) TO ASSIST US WITH OUR EFFORTS TO ESTABLISH AN OFFICE FOR AN EXTENSION APIARIST. For a number of years, we have asked Congress to fund this position, but so far, we have failed. We plan to repeat this request until the position is established. Advise your congressional delegation that you wholeheartedly support this program.

b) TO ASSIST US WITH OUR EFFORTS TO FUND AN INDEPTH STUDY ON THE VALUE OF HONEY BEE POLLINATION. We have asked the Economic Research Service (ERS) USDA, to commence a

Continued on Next Page

Answers to Testing Your Beekeeping Knowledge

1. ***False.*** Honey bees survive the cold of winter by forming a tight cluster and generating heat from *within* the mass of bees. They make no attempt to heat the interior of the hive apart from themselves. Therefore, the number of hive bodies left for the winter is not critical as long as they have adequate space for food stores and cluster formation.
2. ***True.*** Drone production is seasonal and dependent upon colony conditions. The number of adult and immature drones present is an indication of colony strength, quality and quantity of food that has been available during the previous month. A large drone population can also be an indication that a colony is having serious queen problems; laying workers and drone layers.
3. ***False.*** Both fertilized and unfertilized eggs hatch in approximately three days. Some variation will occur, however, in relation to differences in broodnest temperatures.
4. ***True.*** In the fall, bees normally cluster between the combs near the bottom of the stored honey. During the winter, bees gradually eat their way upward between the combs and are normally found in the upper-most hive body by spring. Since heat rises, this is the warmest part of the hive.
5. ***True.*** Worker honey bees are sexually undeveloped females and under normal hive conditions, do not lay eggs.
6. A. Reversing brood chambers — congestion in the brood area is considered to be the primary cause of swarming. In the spring, the queen is normally locked in the upper hive body, thus the size of the brood area and colony development is limited. Moving the brood nest from the top of the hive to the bottom permits brood nest expansion and reduces congestion.

   B. Cutting out queen cells — the presence of queen cells in the brood area is the first indication that the colony is preparing to swarm. Once the bees succeed in capping a queen cell, they are committed to swarming. While cutting out queen cells will not stop swarming, it will delay it while the colony develops more queen cells.

   C. Requeening a colony — colonies with queens more than a year old are more likely to swarm than those with young queens. Queens either produce less queen substance as they age or enter a cycle of production with periods of lowered secretion that are more conducive to swarming. Therefore, requeening on a regular schedule is an important part of swarm management.
7. Finding the old queen and killing or removing her from the colony to be requeened.
8. •Introduce the queen in a Benton mailing cage and allowing the bees to release her.
   •Release the queen into a push-in cage that is forced into the face of the comb over a small area of capped brood.
   •Introduce the queen into a nucleus colony by one of the above techniques and at a later time, combine the nucleus colony with the queen after she has started laying, into the colony to be requeened.
   •Place the queen in some type of protective cage, suspend it into the colony to be requeened and release her in 3 to 4 days.
9. Honey bee queens are marked for the purpose of 1) quickly locating them within the colony; 2) recording their age; 3) identifying genetic lines or suppliers and 4) knowing when natural queen replacement or supersedure has occurred.
10. The best way to control robbing is through prevention. Upon noticing robbing in the apiary, the beekeeper should 1) close up the hive they are currently working; 2) reduce the entrances of all colonies; 3) close all cracks and openings in the equipment and 4) lay a board from one side of the bottom board to the other or throw a large bunch of grass or weeds in front of the entrance.

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

Number of Points Correct

20-18 Excellent
17-15 Good
14-12 Fair

GIBSON... Cont. from Page 370

detailed study of the value of honey bee pollination to agriculture and the environment. ERS is willing to make the study if they can get additional data from the industry (they are leery of using the outdated information that is available in Washington). Advising your congressional delegation that you support this effort will certainly be helpful.

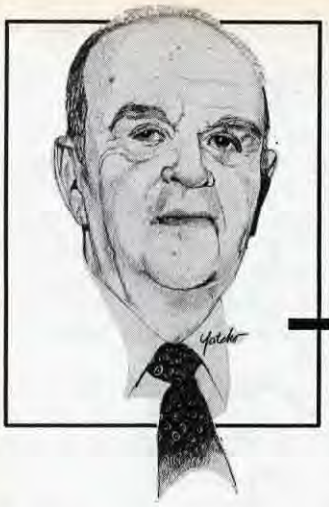
c) TO ASSIST BRADY MULLINAX WITH HIS EFFORTS TO GET THE HONEY BEE DESIGNATED AS THE NATIONAL INSECT. This is another opportunity (not especially big-time, but important) for us to point out that the pollination of the honey bee is important. This legislation will not likely brook any opposition, but it could die from the lack of interest. Ask your congressional delegation to support H. J. Res 171.

d) TO TAKE ADVANTAGE OF ANY OPPORTUNITY YOU MAY HAVE FOR LOCAL PUBLICITY. In-state newspapers and local TV stations will probably welcome your appearance at least once a year.

e) TO JOIN THE BEEKEEPING ASSOCIATIONS AND PARTICIPATE IN THE DECISION-MAKING. So few are active over the country. Right or wrong, these association members call the shots.

f) TO BE CHARITABLE TOWARD OUR INDUSTRY LEADERS WHEN THEY MAKE MISTAKES IN THEIR REPORTS. Dick Hunger, Burlington, Washington, advises beekeepers how to respond to mistakes in his secretarial report. The gist of the advice — *"There are some mistakes in this report. I have included them for the amusement of the nitpickers."*

g) TO TAKE US TO TASK WHEN YOU FEEL WE ARE WRONG. Few will do this and this is unfortunate. One correspondent asked if I would consent to a debate. Certainly — under recognized rules of debate.§



KOOVER'S KORNER

By CHARLES KOOVER • 1434 Punahou St. #709 • Honolulu, Hawaii 96822

Plastics — "You can't fix a broken plastic frame"

Mention the word and I get mad. When my daughter was a little girl she would tell her playmates, "My daddy can fix everything". So they brought me their toys. I did pretty well except for plastics. They were my down fall. Kids cry when their toys get broken. Beekeepers don't cry when the end lug of a plastic frame full of brood snaps off. They cuss. There ought to be a law that no children's toys or frames for beekeepers shall be made from plastics.

Woodman Company of Grand Rapids, MI, used to put out a fine beekeeping supplies catalog and each year they featured a beautiful picture pertaining to beekeeping. One year it was a view of the top of a broodnest, and sure enough, one frame has a broken off lug fixed with a big fat nail.

You can make do with a nail driven into the end of your topbar. But you can't do that to the top bar of a plastic frame. Nor can you glue it, or fix it with a metal replacement end lug, available from beekeeping supply catalogs.

Those advertisements telling you that plastic frames are stronger than wood frames get me down.Perhaps only when they are new.

Honey in Five Pound Cans

Before I got the bee bug and started with bees of my own, I bought our table honey in five pound cans. It was strong stuff but it was cheap. I know now that some packers unload honey for table use that never should see the inside of a can. The admirable exception was table honey packed in five pound cans by the Superior Honey Company of South Gate, CA, a suburb of Los Angeles. I hope that you can read (pictures below) what this company stated about honey on the label. They are the honest facts about honey — well told!

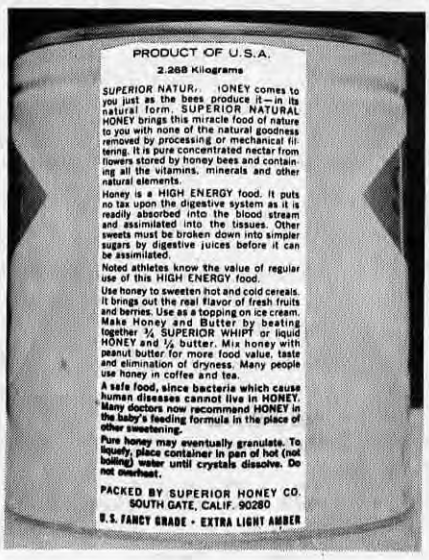
Now that I live in Hawaii, I have to get honey in the supermarket. The small jars, with their glistening contents and fancy labels are up on the top shelves, next to the peanut butter and the preserves. The five pound cans are on the bottom shelves.

Thanks to the pollution scare, unfiltered, uncooked, raw, wild, unblended or organic honey is fast becoming the favorite of the health-conscious consumer. If you are a honey producer, large or small, you can learn a trick from these packers of honey. They don't argue that there is no such thing as "wild honey or organic honey"! They are out to sell. In Hawaii, for instance, "raw" honey is what the Oriental population wants. They have no use for filtered, heated or blended honey.

The raw honey in Hawaii is really raw in taste too, and bitter as gall. I heartily dislike the bitter taste, caused by the Java plum. What was once a delicacy, pure Kiawe honey, today is difficult to obtain due to the Java plum having overrun most of the islands of Hawaii. But the Oriental population doesn't mind, just so it is raw honey.

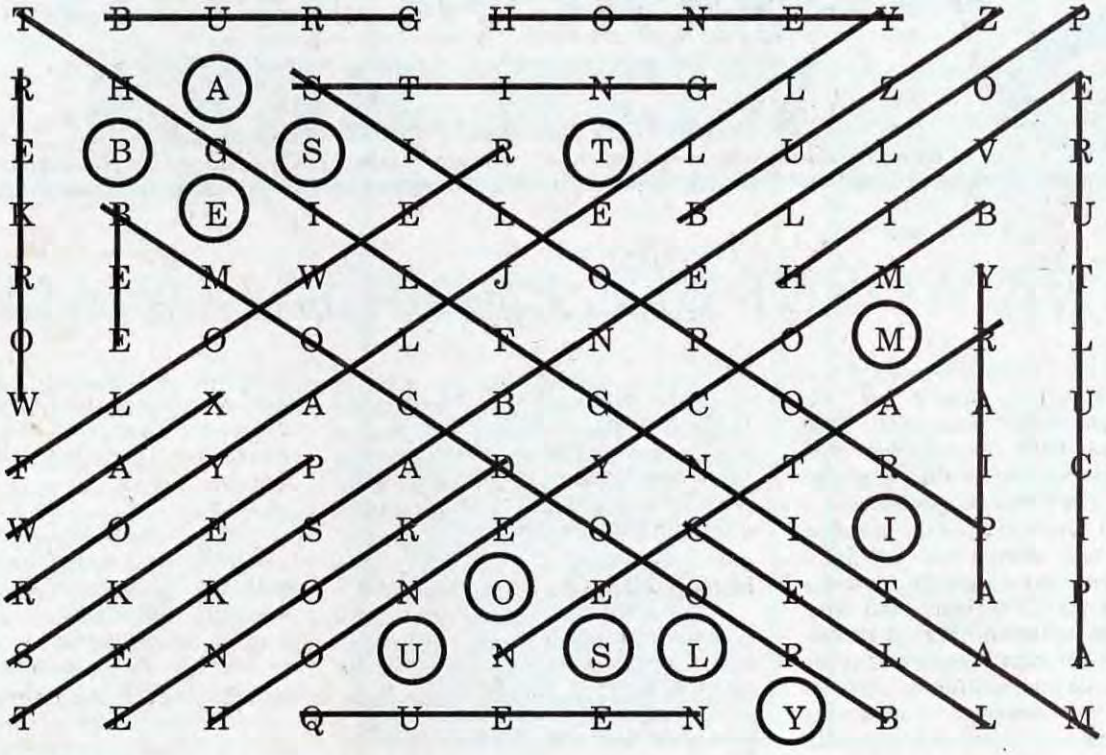
In the olden days, when the steamer stopped in Honolulu for the day, missionaries on their way to China would rush uptown to buy a large can of Kiawe honey to take with them to China. Such was its fame.§

FRONT



BACK

ANSWERS TO A BEE WORD QUIZ



Missing Letters:

"Partake as doth the Bee ABSTEMIOUSLY."

STARTING RIGHT WITH BEES

THE WORST BEE PROBLEM OF ALL

There are basically three kinds of beekeepers. First, there are the commercial honey producers. They manipulate bees, equipment and markets like farmers do field corn or soybeans. For them, beekeeping is a business. Everything falls into a category, and every unit within a category gets treated pretty much the same. Their scale dictates that they operate much like military generals. Individual colonies (soldiers) never enter the picture — they deal in battalions (states), regiments (counties or regions) and platoons (apiaries).

Next, there are sideliners. These folks run a business, but usually have another job, either to support their habit (beekeeping) or because of it. They are in business though, sometimes doing quite well as a part-time job. But, depending on size, they too tend to treat their business in terms of groups, but in smaller groups. Perhaps just apiary sites, and similar colonies within an apiary. For instance, strong and weak.

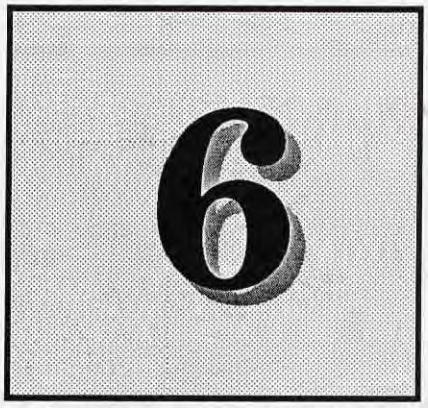
Then there's the rest of us. Hobbyists. Beekeepers first, business people second (or not at all). Most beginners fall into this group. But there are two sub-groups within the hobbyist cult.

First, there are those that want to (and probably will) move up to the sideliner class. So even though they have only 1-10 colonies, they treat them in groups. Strong and weak, hot and gentle, near and far.

Marketing, though not crucial, is important, and producing a quality product is always a goal. Finding more efficient methods of starting, keeping, harvesting, bottling and selling is always important, as is gaining new skills and improving old skills. You might say these folks are journeymen beekeepers.

Then, there are beekeepers who have no intention of upgrading their operations. Increasing in size is probably the worst thing that could happen to them. Larger size means more work, and for them, beekeeping SHOULD NOT BE WORK. It is to be enjoyed, a pastime, a leisure activity, a hobby — in a word, FUN. I suspect most beekeepers fall into this category. Recreational beekeeping.

But there are some of these folks who have no end of trouble with their bees. Although they're not in it for



production, they generally judge skill by the amount of honey produced. And that's where the problem lies.

For many (or at least some) a colony of bees becomes very much like a pet. A cat or a dog. Now cats and dogs like attention, in fact they thrive on it.

But a colony of honey bees DOES NOT thrive on constant attention. In fact, probably the worst thing a beekeeper can do is to over attend a colony. Opening, smoking, looking for the queen, checking the brood, looking for queen cells — these are all necessary management manipulations. But four or five times a week is just too much. In fact, two or three times a week is probably too much, unless there is a life threatening problem that requires this much attention.

I'll admit, the urge to "just watch" is one of the strongest pulls there is, and overcoming it can actually be the hardest part of becoming a beekeeper. Let's fact it — bees are uncommonly fascinating to "just watch"!

But even though bees are classified as "social" insects, this behavior does not extend itself to constant interruptions of a daily routine. Opening and smoking a colony, just to see how they're doing causes several things to happen.

It immediately alerts the guard bees to possible danger, so they start to get riled up. When the smoke enters the colony, both house bees and field bees in the hive begin th honey gorging behavior that they're programmed to do. This in itself isn't dangerous, but while they're busy filling up on honey, they're not tending brood, foraging, cleaning or any of the other activities that should be going on.

When frames are removed, the queen does all sorts of things to avoid being found. If you're good you'll find her right away, but nevertheless, while she's running around trying to get away she's not laying eggs, looking for cells, eating — she's not being a queen, just another bee in trouble.

If, during this casual observation you crush a bee, or get stung, the alarm odor that starts permeating the area will instantly alert other bees that all is not right with the world, and they better check it out.

So no matter how careful you are, nor how gentle and unobtrusive your intentions, you have changed the whole complexion of the colony. Nearly all normal activity is affected, and other, non-productive activities take their place.

Further, this constant "barging in" activity trends to stress a colony Morale suffers and production slip

Continued on Next Page

STARTING... Cont. from Page 374

In fact, there are documented cases of absconding after only two or three months of this interference.

Even if this drastic an action doesn't take place, it does take from 1/2 to 2 days for a colony to re-orient itself, and this is time lost in production.

The other side of this is, of course, the question: How can I, as a beginner, learn how, why, what, where and when, if I'm not looking inside to see what's going on? Certainly a legitimate question. And one that has no easy answer.

You have to know how the queen is doing, occasionally; you have to know about swarming, occasionally; and you should be seeing things like brood patterns, disease, queen cells and all the rest, occasionally. The key word here is *occasionally*.

When you do go into a colony, have a plan. Beforehand, decide what you are going to look for, what it should look like, and where you will probably find it. That way, anything amiss will be noticed. And, if things are running smooth, they will look just like they should.

If you follow this procedure, you will accomplish two things. First, you will be able to see "how things are going". You'll get the satisfaction of learning what's going on — but with a purpose, because at the same time you'll be checking the important things that need checking.

"Just watching" bees is one of the most rewarding and satisfying activities I know of. If done on a somewhat structured basis, with a purpose in mind and with a tad of moderation, both you and the bees will benefit.§

INNER COVER... Cont. from Page 323

the art of inventory to the extreme. He keeps a journal (actually it's now a collection of journals) that tracks absolutely everything he owns. Here's how he does it.

Everything he buys, and I mean Everything, gets a number either inked, branded or etched onto it. The number gets entered into his journal, and he has a permanent record of everything he owns. He makes notes on cost, source, date of purchase and condition.

He even keeps an apiary record. Every piece of equipment that goes into — and out of — a yard gets recorded. That way, he not only knows what he owns, but where it is — all the time.

I said he carried it to extreme, but he has the time to do it, because he never has those last minute emergencies, those lost or forgotten pieces, or the "I know I left it right here yesterday" crises. And, when a piece is "retired", it's number gets removed from the journal, and he doesn't have to think about it anymore, nor try and remember where he put it last fall.

I'm not sure if his system is more work than it's worth, but I do know he never seems to run out of things, never seems rushed come spring and almost always knows where everything is. Sometimes he makes me ill.

Of course, keeping track of your equipment makes sense. How many times have you bought something, only to find the next day that you already had one? Or thought those supers behind the garage all had frames, only to find they didn't?

Keeping track of your stuff will help at tax time too, if you get that involved, and it just seems to make life easier. Start an inventory now that the big spring rush is about over, work on it this summer and fall — and come next spring you may save yourself some time, money, worry — and bees.

Gottrockz has another habit that I admire, but that I just never seem to get around to. He keeps excellent records of all his queens. He tracks where he got them, the date, installation date, release date, colony production (number of bees, amount of honey, wax, propolis, burr comb, overwintering, spring build-up — the works). He marks them with appropriate queen colors, (white this year I think), and then summarily dismisses them at the end of their second season.

Now you may think all of this record keeping is a lot of bother, that it makes for a lot of work, and most of all — that it takes the fun out of keeping bees. But deep down, you know that isn't true. That even a rudimentary, scratch pad record system of both equipment and stock will help you be, if not a better, at least a more organized beekeeper. And, this in turn will give you more time to do the things you really enjoy. And that's what it's all about, right? To enjoy your bees and beekeeping.

•

Tuesday, May 5, 10:30 AM. One of the people here lucky enough to have an office with a window gave me a call and said, "I'm not sure, but I think your bees are swarming".

I ran outside and sure enough, 12 zillion bees filled the air around our four colonies here at the office. Maybe 14 zillion. They landed in the spruce tree about 10 feet behind the colony, about 30 feet up. And made the nicest looking swarm you can imagine. Easily 18" long and 8" wide.

"Must be 4 pounds if it's an ounce", I told Diana, who came in later to help.

"Right", she said.

"How are we going to get it down?" I asked, only wondering what her opinion was, not actually asking.

"*We* are going to climb the tree and shake that branch", she said, "while *I* do the busy work down here, understand?"

"Oh", I said. And climbed the tree. One good shake, and almost all the bees fell, in a pile, in front of the new hive we'd put down. Of course, the Queen decided to stay, so there was confusion. Some on the ground, some in the hive, some still in the tree.

It was getting dark, and cold.

"We'll finish tomorrow", Diana said. And we did.

Chasing swarms. What a life, but even better with your wife.§

The Swarm

The Place

FOR THE RECORD...

Gleanings continually seeks accuracy in our publication. We recognize that errors do occur and use this space to correct them when discovered by staff or readers. Mistakes may occur in writing, editing or mechanical reproduction of the magazine. It is our policy to correct these mistakes. We encourage questions or comments from readers. Call (216) 725-6677 during business hours or write us at the address on the contents page of this magazine.

News & Events

☆ GENERAL NEWS ☆

Please be advised that the buy-back figures for the 1987 honey are different from the 1986 crop. As of this date the buy-back figures are:

	1986 Crop	1987 Crop
White	40¢	53¢
ILA	37¢	41¢
LA	35¢	39¢
A	33¢	37¢

When redeeming loans, producers need to give this matter close attention. Visits with your local ASCS office about this may save some trouble later in the year. It would probably be fruitful to include this information in your next state beekeeping association newsletter.

1987 AMERICAN HONEY QUEEN

Leslie L. Kuenzi, Aumsville, Oregon, is 20 years old and attends Willamette University in Salem, OR. She is active in school programs, along with the Honey Industry Promotional Programs she engages in.

1987 AMERICAN HONEY PRINCESS

Jayne Reece, Sterling Heights, Michigan is the 1987 American Honey Princess. Active in dance and the theatre, she will be busy promoting the Honey Industry for this year.

To have either of these Industry Promoters visit your area and add a touch of Royalty and Prestige to your promotion, contact: The Honey Queen Program Chairman, Ms. JoAnne Weber, Rt. 2, Clayton, WI 54004.

☆ FOREIGN ☆

APIMONDIA

The 31st International Apicultural Congress will be held August 19-25, 1987 in Warsaw, Poland. The meetings will be held in Congress Hall in the Palace of Culture and Science. Available languages include English, French, Spanish, German, Russian and Polish.

A wide variety of subjects will be covered during this convention including: Beekeeping Economics, Honey Bee Biology, Pathology, Honey Plants and Pollination, Technology and Equipment, Apitherapy and Beekeeping in Developing Countries.

Many sightseeing opportunities exist in the area surrounding Warsaw and participants are encouraged to partake of as many as possible.

For registration or other information contact: National Tourist Enterprise "Orbis", Congress Boulevard, P. O. Box 146, 00-950 Warsaw, Poland.

☆ CALIFORNIA ☆

A two day short course on queen rearing will be sponsored by **Honey Bee Genetics** on July 11 and 12, 1987. The course will cover theories and practise of queen rearing. Participants will make their own grafting needles and will graft larvae into wax cups of their own making. Several different queen rearing techniques will be demonstrated. Registration fee is $50.00 which will cover 6 meals. Advance registration is necessary as the class is to be limited to 30 participants.

Instructors will be Steve Taber and Tom Parisian, both having a great deal of experience in queen rearing on both a practical commercial and theoretical university level.

For registration contact: Steve Taber, P. O. Box 1672, Vacaville, CA 95696, (707) 449-0440.

A short course in Artificial Insemination (AI) of queen honey bees will be held for 2 and a half days in July sponsored by **Honey Bee Genetics**. The course will begin in the afternoon of the Friday, the 17th and continue through the 19th. The course will cover use and practise of AI using the Mackensen device, the collection of drone semen, and insertion into the queen using both plastic and glass tips. Lectures during the evenings will cover basic genetics and different methods of bee breeding techniques which have been developed. The course will be on the premises of Honey Bee Genetics in Vacaville, located about half way between San Francisco and Sacramento, each about an hour away. Instructors will be Steve Taber with over 40 years of experience using AI and T. Parisian former graduate student in bee biology Univ. of Cal. at Davis now a commercial beekeeper. The cost will be $200 which includes all required supplies and meals. Since the size of the class

Continued on Next Page

is limited, an early registration is suggested.

With the predicted invasion of the Africanized honey bee from Mexico in the next several years, the use of AI to keep our bee stocks pure and to maintain closed populations will be essential. For class registration contact: Steve Taber, Honey Bee Genetics, P. O. Box 1672, Vacaville, Ca. 95696, (707) 449-0440.

Plan your vacation early to take advantage of this educational benefit to your professional beekeeping. The cost of meals will be $50 for any family member accompanying a course participant.

☆ CANADA ☆

The 34th Beaverlodge Beekeeper's Field Day will be held on June 12th at the Beaverlodge Research Station between 10 a.m. and 5 p.m. Dr. Don Nelson says the program will include a general display of beekeeping equipment as well as highlights from research programs. In the afternoon talks will be given on bee-related topics by guest speakers, researchers and provincial apiarists. The program will be available by about mid-May.

For further information contact: D. L. Nelson, Agriculture Canada, Box 29, Beaverlodge, Alberta, Canada TOH OCO, Phone (404) 354-2212.

☆ CONNECTICUT ☆

Connecticut Beekeepers Assn. to observe Bee Forage Trials in Goshen on June 27

The Connecticut Beekeepers Association will conduct its annual field day on June 27 at the site of the on-going bee forage trials conducted by CBA President Mr. Chuck Howe. The meeting will be held in Goshen Connecticut.

The program will begin at 10 am with the business meeting at the Congregational Church located at the intersection of Connecticut Routes 63 and 4 in North-Western Connecticut. At 11 am the main speaker will discuss NECTAR AND HONEY FLOWS IN CONNECTICUT. At noon, the traditional carry-in pot luck dinner will be offered.

At 1 pm, Mr. Howe will lead the group to the demonstration plots located in Goshen. There he will show the multi-year program designed to determine the best nectar-producing plants for the northeastern region, with hopes of obtaining increased honey production on a fixed-land secretion operation.

Opportunities will exist to obtain cuttings, seeds and other vegetative forms of the plants for use by cooperating beekeepers.

All beekeepers are invited to participate in this meeting. There is no registration charge.

The Connecticut Beekeepers Association is one of the country's oldest beekeeping organizations, founded in 1891. Membership includes four meetings each year (4th Saturday's of February, April, June and October, as well as 4 issues of *THE CONNECTICUT HONEY BEE* edited by Dr. Larry Connor. This quarterly journal has been in continuous publication since 1929. Membership dues are $10/year. Out-of-state beekeepers are invited to join. Membership information should be sent to Betty Muzikevik, Treasurer — CBA, 226 Charter Oak Street, Manchester, CT 06040.

☆ KANSAS ☆

The June meeting of the **Central Kansas Beekeepers Association** will be held June 13 at the Co-Op community building, 225 S. Broadway, Sterling, Kansas. Topics and speakers will be of interest to the beekeeper who has only a few hives as well as the commercial beekeeper. For more information contact: CKBA President Les Hauschild, Rt. 2, Box 170, Sterling, Kansas 67579, or Anita Mead, RR1, Box 90, Belle Plaine, Kansas 67013.

☆ GEORGIA ☆

The annual beekeepers short course for beginners and more experienced beekeepers will be held on June 6 at the University of Georgia, Athens, Georgia. The meeting, sponsored by the Department 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, Georgia.

The course fee is $20.00 per person. Advanced registration is requested by June 4, 1987.

For more information contact: Dr. Alfred Dietz, Department of Entomology, University of Georgia, Athens, Georgia 30602 or telephone (404) 542-2816 or 542-8711.

☆ ILLINOIS ☆

The **97th annual Illinois State Beekeepers' Association** midsummer meeting will be held June 27, 1987, at the Holiday Inn & Holidome in East Peoria, Illinois. The conference will be hosted by the Heart of Illinois Beekeepers' Association.

Continued on Next Page

Registration for the event will begin at 8:00 a.m. with the sessions commencing at 9:00 a.m. Coffee will be provided at the registration table. Registration fee will be $2.00 per person payable at the door.

The buffet style lunch planned at noon requires advanced reservation prior to June 15 at a cost of $7.30. Checks for the buffet are payable to HEART OF ILLINOIS BEEKEEPERS' ASSOCIATION. Buffet reservations *will not* be available at the registration table. Buffet reservation checks, as well as conference inquiries, can be forwarded to Robert J. Dubois, Secretary, Heart of Illinois Beekeepers' Association, 423 North Lawndale, Washington, Illinois 61571-1647.

Special room rates are being offered by the Holiday Inn for conference attendees. Reservations received after May 27 will be provided on a space available basis.

The conference is open to the public.

☆ MASSACHUSETTS ☆

Cape Cod Bee Course Set for June 6

Beekeepers have an opportunity to combine a beekeeping course with a visit to a popular vacation spot on June 6th, when a one-day bee course, "Beekeeping for Fun and Profit" will be cosponsored by the **Barnstable County Beekeepers Association and Beekeeping Education Service.** The program will be held at the West Barnstable Community Building, Route 149, West Barnstable, Massachusetts, on Cape Cod and is offered to both new, hobby and sideline beekeepers.

8:00	Registration, look at displays
9:00	How Bee Biology Affects the Beekeeper
10:00	How to Establish and Maintain Packages, Swarms and Nuclei Colonies
11:00	Diseases, Pests and Control
12:00	Noon Break, on their own
1:00	(In bee colonies, participants to supply own protection) •Developing your hive-side Manner and Confidence •Inspection Methods •Queen Finding •Requeening •Storing queens
2:00	Swarm Prevention and Control (field and lecture)
3:00	Twenty Common Mistakes
4:00	All About Honey —

Note: Breaks will be taken about 10 and 3, beverages will be provided.

The course instructor is Dr. Larry Connor, currently operating Beekeeping Education Service of Cheshire, CT.

Registration fee: $20.00 per person, or $30 per couple. (There is a reduced rate for Current Barnstable County Beekeeping Association members - $15.00 per person, or $25.00 per couple). Youth (4-H, FFA, Scouts) $10.00 each. Late Registration (After June 1st) Add $5 per person.

To register, send payment to: Beekeeping Education Service, P. O. Box 817, Cheshire, CT 06410 by June 1st. You may pay by check, money order, VISA or Master Charge. Phone (203) 271-0155 for more information.

Cape Cod motel information will be sent upon request.

Registration fee includes course, notebook and breaks. Lunch is not included. It is recommended that you bring a picnic lunch.

☆ NEW YORK ☆

WESTERN NEW YORK HONEY PRODUCERS ASSOCIATION

A beekeeping Seminar will be held on Saturday, June 6th (rain date 6/13/87) at 10:00 a.m. at the Iroquois National Wildlife Refuge Central Administration Building. (Take Pembrook Exit from Thruway, go North on Rt. 77 to Alabama, NY. Continue north 8/10 of a mile on Rt. 63 to Casey Road. Turn left, site is a half mile on right.)

The program will feature Mr. O. Olson, Botanical Technician. A slide presentation will be given on the Iroquois National Wildlife Refuge and its wildlife and insects.

For more information call (716) 599-3491 or (716) 948-5445.

MINER INSTITUTE TO HOLD MEETING ON BURNING DISEASED COLONIES

Miner Institute will be holding a special Beekeeping Meeting on Saturday, June 20, 1987 from 8:00 a.m. until 12:30 p.m. at Miner Institute in Chazy, New York. We will meet sharply at 8:00 and go as a group to the isolated bee disease area.

Francis Ratnieks, from Cornell University will be offering a special program on Bee Diseases. We will have colonies infected with American Foulbrood located in an area that is quite isolated. We will demonstrate the actual burning of these colonies.

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You will need to dress accordingly, (be prepared to get dirty and bring a veil and hive tool, etc.). We will show you how to dig the hole, burn the colonies and clean up the area.

There will be only 1 or 2 of these special meetings held in the whole state and we are inviting neighboring beekeeping organizations to join us. This meeting is sponsored by Miner Institute, the Champlain Valley Beekeeper's Association and the Department of Ag and Markets.

The schedule:

8:00	Kill Colonies with AFB
8:30	Inspect Dead Colonies to observe the signs of AFB
9:00	Burn colonies
10:30	Break
10:45	Inspect other colonies for signs of other brood diseases in order to make a comparison; feeding Terramycin.

For further information contact Loretta Surprenant at (518) 846-8020.

☆ NORTH CAROLINA ☆

Janet Young, 18, Honey Queen and Christine Everhart, 18, Honey Princess were crowned at our December meeting as our 1987 ambassadors to the North Carolina Forsyth County Beekeeping Industry. They will be attending fairs, parades, schools, markets, festivals and several civic organizations and will be very active throughout North Carolina promoting the beekeeping industry.

☆ OHIO ☆

ATI/OHIO STATE UNIV.
Summer Sessions Schedule, 1987

•June 15-19, 1987 — *Honey Bee Queen Production,* Practical class discussing queen biology and production techniques. Students assigned individual colonies and nuclei.

•July 20-31, 1987 — *International Beekeeping Seminar VII,* A comprehensive and intensive introduction to international beekeeping that will enable managers and workers to take better advantage of the apicultural potential in designing agricultural assistance programs. Emphasis will be on tropical and sub-tropical beekeeping.

Week 1: Basic beekeeping July 20-24. A combination of classroom and apiary work directed toward inexperienced beekeepers.

Week 2: Development beekeeping July 27-31. Topics relevant to development apiculture. French & Spanish translation available. Seminar coordinators, Dr. James E. Tew and Dr. H. Shimanuki.

•August 17-30, 1987 — *Honey Bee Diseases,* Covering all aspects of honey bee diseases and pests. Will identify all common bee diseases and pests and be familiar with current treatment techniques.

All classes have enrollment deadlines and limited available space. **Early contact is strongly advised.** For registration information, contact Dr. James E. Tew, Program Coordinator, ATI, Wooster, Ohio 44691, USA, (216) 264-3911, Cable: ATI-WOOSTER.

☆ SOUTH DAKOTA ☆

The South Dakota Honey Princess, Miss Shelly Zerbel, of Mellette, SD, presents Mr. Terry Haven, Dakota Ag Spray Service of Britton, SD with the South Dakota Beekeepers Aerial Applicator of the Year Award. The presentation was made at the annual banquet of the SD Aerial Trades Association held in Brookings, SD on February 5, 1987. The award is presented each year to an aerial spray pilot who has been selected by the beekeepers as having shown a high regard for the safety of the environment in his application of pesticides during the year.

Continued on Page 383

☆ Classified Corner ☆

Classified rates: 49¢ per word, each insertion payable in cash in advance. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it) counts as one word. Copy or cancellation orders **MUST** be in by the 1st of the month preceding publication (Example: January 1 for February publication). If your order has missed the cut-off date, your ad will appear in the following issue. Proof sheets available on request for an additional 2-word charge. Send classified ads to: The A.I. Root Co., Attention: Cyndi Stephens, Class. Ad. Mgr., P. O. Box 706, Medina, Ohio 44258-0706. For more information call (216) 725-6677, ext. 213.

WANTED

THE AMERICAN BEEKEEPING FEDERATION needs your support! Join in supporting efforts to stop adulteration, to improve marketing conditions and to encourage the continued research on African Bees and Varroa and Acarine Mites. Please send for information, membership application and sample copy of bi-monthly News Letter! Write To: THE AMERICAN BEEKEEPING FEDERATION, INC., 13637 N. W. 39th Avenue, Gainesville, FL 32606.

THE SCOTTISH BEEKEEPER Magazine of The Scottish Beekeepers' Association, International in appeal. Scottish in character. Membership terms from A. J. Davidson, 19 Drumblair Crescent, Inverness, Scotland. Sample copy sent, price 20 pence or equivalent.

What do you know about the INTERNATIONAL BEE RESEARCH ASSOCIATION? The many books and other publications available from IBRA will deepen your understanding of bees and beekeeping: an IBRA membership subscription — inclusive of *Bee World*, a truly international magazine published quarterly in the English language — will broaden your beekeeping horizons. Details from IBRA voluntary representative H. Kolb, P. O. Box 183, 737 West Main, Edmond, OK 73034 (phone 405-341-90984); or from IBRA, 18 North Road, Cardiff CF1 3DY, UK.

DAIRY GOATS — For milk, pleasure and profit. Excellent for children, women and family! Monthly magazine $18.00 per year ($25.00 Foreign). Sample Copy $3.00. DAIRY GOAT JOURNAL, Suite 226, 401 N. Broad St., Philadelphia, PA 19108.

SCOTTISH BEE JOURNAL. Packed with practical beekeeping. Sample copy from Robert NH Skilling, FRSA, 34 Rennie St., Kilmarnock, Scotland. Published Monthly, $4.00 per annum.

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

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☆ OBITUARIES ☆

EUGENE V. GRAN

76, of 341 Lawnview Avenue, died at 11:20 a.m. Sunday, March 22, 1987 in Community Hospital following a brief illness. He was born on June 4, 1910 in Pittsburgh, PA the son of Victor B. and Marie (Gershaw) Gran and was a Clark County resident for over 50 years. Mr. Gran was employed by the Pepsi Cola Bottling Company for 16 years and the H. S. Stevenson Company for 10 years. He was known locally as the "Bee Man", was a member of St. Bernards Catholic Church, a member of Toastmasters, the Springfield Management Association, and he was active in the Alzheimer's Care Givers Group. He is survived by his wife of 48 years, Lela (Firestone) Gran; one son, Victor B. Gran of Springfield; one daughter, Ruth Ann Ross of Bowling Green, Ohio; one brother, Charles E. Gran of Bethel Park, PA; one sister, Ruth Johnson of Woodland Hills, CA; four grandchildren, Susan and Amy Jo Gran both of Springfield, Beth and Rich McGuire both of Bowling Green; and several nieces and nephews. He was preceded in death by one sister, Edith Coleman.

EDWARD A. (SMOKEY) KEPPLE

The seventh Sec./Treas. of the Western New York Honey Producers Assoc., Smokey Kepple, of Arcade NY, passed away on February 14, 1987. He was 63 years old and died at Chaffee Hospital after a long illness.

He retired from Overland Express where he had worked for many years. Many considered him a fine driver and mechanic.

A devoted beekeeper, he could be found in the bee yards when he wasn't working. He started keeping bees in 1975. With the help of his good friend, Charlie Hull, he managed 44 colonies and became well known in Arcade, New York as the "honey-man".

His contributions to the WNYHPA will never be forgotten. He devoted many hours to keeping the Association active and financially sound. At the Annual Picnic of the Association, in August 1985, he was given a Certificate of Appreciation for his work.

His lovely wife, J. Ellen, who passed away in 1980, also helped with the work of the Association. He is survived by 6 children, 14 grandchildren and 2 great-grandchildren.

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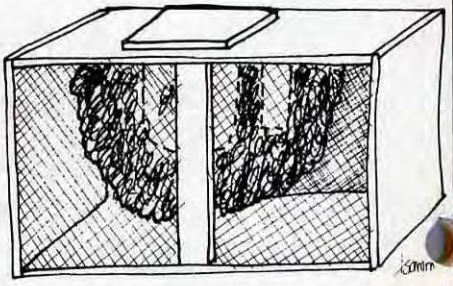

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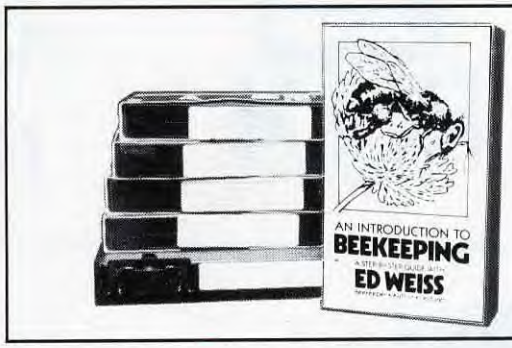

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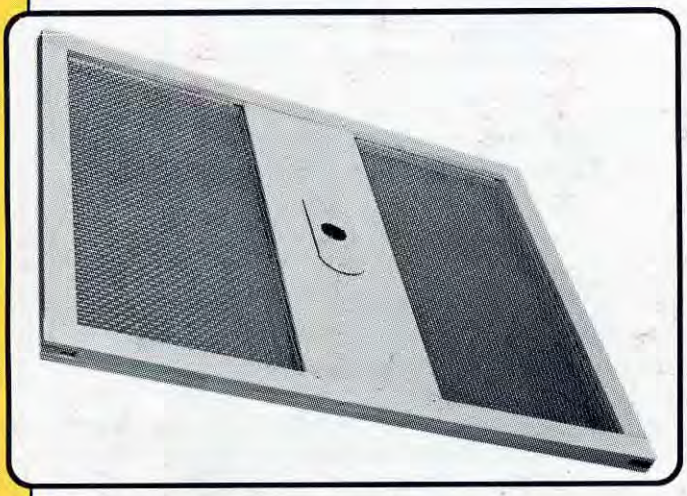

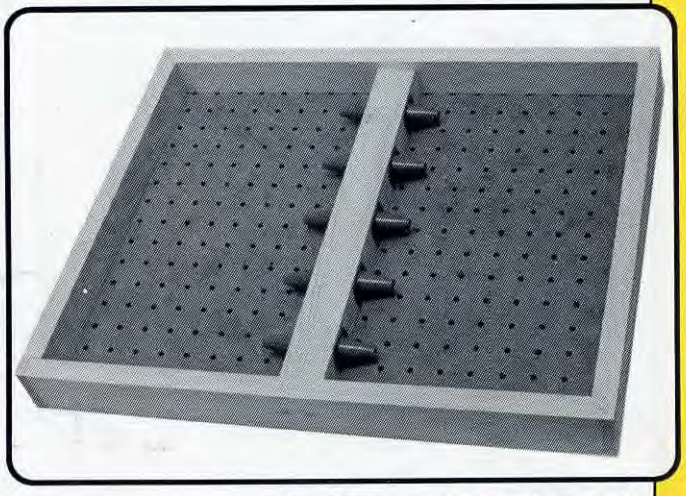

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