GLEANINGS IN BEE CULTURE JUL '90

INSIDE

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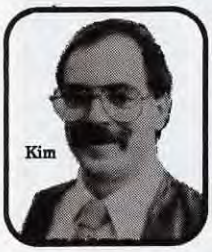

THE A. I. ROOT CO., Publishers
623 W. LIBERTY STREET
MEDINA, OHIO 44256

Phone No.: (216) 725-6677

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SUBSCRIPTION RATES: United States, one year, $13.95; two years, $26.50. **Newsstand Price: $1.95.** All other countries (U.S. Currency only), $7.50 per year additional for postage. Remittance should be sent by post office money order, bank draft, express money order or check. Published monthly. Subscription stopped on expiration. Change of Address: Return completed 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 authors are not necessarily those of the publishers.* Advertising: For information on placing display advertisments only, contact Kathy Gault, 207 Cincinnati Ave., Huron, Ohio 44839 or call (419) 433-3521. Queries directed to the editorial offices will be forewarded.

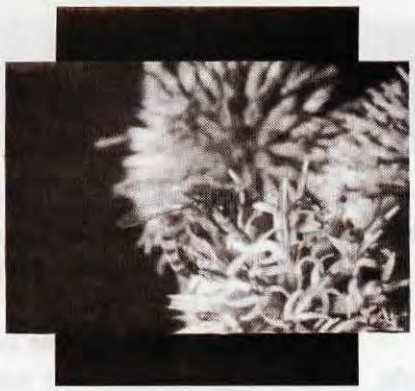
POSTMASTER: Please send form 3579 to: The A. I. Root Co., 623 W. Liberty St., Medina, Ohio 44256. Telephone: 216-725-6677.

Columns

Departments

COVER . . . *Chapman's Honey Plant is a handsome addition to any garden and bees seem to like it, too. The history of this well-known honey plant is on page 422.*

Photo by Diana Sammataro



JULY '90

CONTENTS

(ISSN 0017-114X) Vol. 118, No. 7

117 Years Continuous Publication by the Same Organization

Features

INNER·COVER

Good Ideas

Good ideas, I mean really good ideas, are worth their weight in gold. No, make that platinum. They are also incredibly rare. Like a 200 pound crop, a four leaf clover, or a good friend.

And when a good idea is simple to enact, inexpensive and, of all things, profitable, that good idea borders on genius.

Are you interested? You should be, because one of these pearls surfaced recently.

I'm ashamed I didn't think of it, but I have the bad habit of thinking difficult problems should be difficult to resolve. Obvious solutions to complicated problems are often overlooked because the two seldom seem to go together. Or rather, the more complicated the solution the more prestigious the solver. An intricate answer, requiring lots of money, paper, people and press seems to be good for egos and images. Ask anyone who deals with congress.

Oh, didn't I mentioned the problem? Well, let me explain.

Often, (many think far too often), the concept of marketing honey consists solely of filling out the right paperwork at the local ASCS office. And that's it.

The honey is taken out of the mainstream of commerce and put in the hands of the government. Poof! Gone, without a trace. Well, not quite. It does return, in bottles and jugs, and is given away — freely and without strings for the most part.

Meanwhile, somewhere out there in the real world other people can't find enough honey to buy. Honey to sell, to put in the hands of customers and turn into money. They really can't.

So, what's this great idea?

Bob Brandi, President of the American Beekeeping Federation (ABF) says it quite well. ". many producers were forfeiting their honey to satisfy their loans because they simply didn't know who would want to buy it. Forfeitures increase the cost of the honey program, and the more it costs the more difficult it is to convince congress to keep it going.

"A lot of producers who got into the business when forfeiture was the custom never developed a relationship with buyers. We (the ABF) approached ASCS to see if we could remedy the situation."

The result is that anyone who wants to *buy* honey can now be listed in a county ASCS office. Then, anyone who wants to *sell* honey (as opposed to giving it to the ASCS) can check the list, and the free enterprise system takes over.

Given the choice, a producer would probably be better off selling to a packer than forfeiting to the government, considering barrel exchange, paperwork and the rest. But I'm not so naive to think that a business relationship based on trust, and money doesn't enter in here.

Nevertheless, honey is on shelves instead of in warehouses, the program cost is decreased, and the ASCS is happy.

I know some feel this is simply a ploy by packers to squeeze producers even more. Especially now, when supplies are tight and prices high. And others feel that it is a capitulation to government pressure to reduce costs or lose the program entirely. And, there may be some truth here too.

I also suspect that this idea has surfaced before, and that somebody right now is screaming bloody murder about how they said that very same thing back in '81, and why didn't anybody listen then. If you did, and nobody listened, I'm sorry, because it's a great idea, and should have been done a long time ago.

But all that aside, I'd like to think that the solution to this sticky problem came about because of genuine concern — and maybe a touch of genius.

If you're interested in buying honey, you need to contact your state's ASCS office and let them know. They'll get your name to the county office which will post it for all to see. You can get your name on other states' lists too, but you have to let each state know. For a list of ASCS state offices, call the ABF office at 912-427-8447. They'll be glad to help.

Continued on Page 429

Reader Assistance

To subscribe, simply fill in the form below and enjoy the exciting features awaiting you this year — Insurance Regulations, Smoker How-To, Requeening Tips, Inspections, Feeding, Pesticide Protection, and Wintering. It's all here — every month!

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• Circulation figures may be obtained by contacting the advertising department, the editor or the subscription department. Circulation is monitored continuously by Arthur Andersen and Co., an international accounting and auditing company.
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NEXT MONTH

As summer begins to wind down, thoughts of harvesting and what we use (or wish we could use) begin to surface. One requirement for almost any beekeeper is an uncapper and the machine that Dakota Gunness produces has made quite a mark for itself during it's short appearance. We'll take a close look at the machine, a little of it's history and background, and why all the fuss.

Peripheral hive products are important to the financial side of beekeeping and we'll look at two of them next month. An interview and analysis of a commercial meadery is first, in an article about a successful business in NY state. And, an interview with the owner of a thriving propolis sales business is also featured. Two good ways to add to the bottom line.

And speaking of bottom lines, we've a couple of good pieces in store on marketing — getting ready for the big September push. Two great how-to's, right here.

August also signals the beginning of school and with kids in mind, we have a great piece on kids 'n bees — something we all need to work on.

Finally, in preparation for national honey month in September, we have two exceptional articles. The first, from Mary Humann, deals with a subject we all need to focus on — working with the media. Ms. Humann is probably the most articulate spokesperson our industry has and her background and exposure in public relations show in every paragraph.

But, just to keep you honest, we've commissioned an investigative reporter to tell us why it is reporters (and editors and publishers) act the way they do and do the things they do.

Two sides of a very controversial issue — Next Month in *Bee Culture*. ☐

MAILBOX

■ Great Release!

In the May issue of *Bee Culture*, I read with great interest the generic news release about swarms. I filled in the blanks and sent it to *The Cumberland Times News*. They not only printed it, but did a front page story on my beekeeping operation.

They also mention Harry Mallow, a local A. I. Root dealer, who has helped me both with information and quality A. I. Root products.

Thanks for the fine magazine. I look forward to it's arrival each month.

Mike Savage
Cumberland, MD

■ Single Brood Best

I am starting my fourth season of beekeeping. This is something I really never expected to do since I knew absolutely nothing about bees when I started keeping them. My learning experience has been both enlightening and rewarding to say the least.

I never dreamed bees could be such interesting creatures and I didn't know so much was in print about them. I have been an avid reader of *Bee Culture* for almost two years and have read everything else I could get my hands on about bees. I really enjoy the fine articles and writers who contribute. I especially enjoy Mr. Taylor's 'Bee Talk' and his answers to questions. I always find myself turning first to his articles to see what he has to say.

However, I am writing to commend a fine article in the December 1989 issue entitled "Single Super Brood Chambers" by Lewis Dabb. You see, my experience has been identical to his except for a shorter period of time. I also went to double brood chambers because of the recommendation of almost everyone; alas, swarm after swarm — even five this spring.

So what started out as a real joy had become, in three years, a real headache. I have gone from six hives to fourteen and have not been able to get any honey except from two hives the first year.

I was about ready to give up altogether; but thanks to that common sense article, I have reduced my hives to single brood chambers and found them exactly as Mr. Dabb described. No honey or brood in the lower box — just queen cells inbetween. I am already seeing the bees move above the brood chamber with pollen and nectar; so I am anticipating a different summer with the bees.

Thanks again for a fine bit of information and a great magazine. Keep up the good work!

Raymond Caudill
Bluff City, TN

■ The Beekeeper and The Poet

I second the sentiments of Walter Swartz's letter in March's 'Mailbox'. I find your magazine the best for my beekeeping interests. You cover the whole field with style and grace.

In concert with his desire to hear from the "poets and philosophers" of the bee world, I thought I'd pass along the enclosed poem by my 6 year old son, Liam. This year the local Library had a poetry contest and he received honorable mention for it in the elementary school section.

Although I've only had a hive for two years, I've had him helping me a couple of times. I've shown him adult bees hatching, pollen coming back on the bees' legs and guards protecting the entrance. Yes, he also has been stung a couple of times.

Most kids play cowboys and Indians, or cops and robbers. Last year I noticed he had talked another young playmate into playing guard bees and robber bees with him!

Thanks again for your fine magazine.

James W. Castellan
Wallingford, PA

Honey sweetens up the bees just like
it sweetens up us,
But you have to be careful, sometimes
they make a big fuss.
They get the pollen from blossoms
and the nectar from them, too,
The bees work hard all day through.
The queen bee doesn't work but she
lays eggs
When the bees get nectar the pollen
sticks to their legs.
Guard bees stand in front of the
entrance guarding the hive,
You don't know for sure that the bees
will survive.

William Kelley Castellan

■ Persistent Critters!

Last July I was in my garden picking thornless blackberries, hoping to finish before the rain came. The sky was very black and threatening, with thunderclaps like sonic booms coming with increasing frequency. Scattered raindrops began to fall, but I kept on working. The berries needed to be picked. We needed the rain since it had been very hot and dry for several weeks.

I heard a bee buzzing nearby. This reminded me that this had been a very poor year for my bees. February and March had been cold, followed by a very warm, dry April. Early May brought cool, rainy days. The bees just hadn't had any decent weather to work. Late May turned nice and the bees were just beginning to work in the supers. Then rains came again, lasting until mid-

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MAILBOX

June. The bees had to replace the honey they had used out of the brood chambers during the rainy days. I had checked the supers and there were only a few half-filled combs in some supers. "I guess I will have to go back to using sugar," I thought.

The buzzing of a bee interrupted my thoughts. I looked down at my feet where the sound came from. No! It can't be! I rubbed my eyes and looked again. Surely I was dreaming. Then I pinched myself. It *had* to be a dream. I rushed to the beehives. I stood and stared. I rubbed my eyes twice and pinched myself real hard *three times*!

It can't be true! There they were, coming in like a squadron of paratroopers. As each bee landed, she handed her tiny umbrella to an outgoing bee, who flew off to some distant source of nectar, heedless of the rain which by now was increasing. Well, maybe I *was* seeing things.

Loren Davis
Decatur, AR

■ Language Revisited

Anyone who happened to read my letter regarding training bees (page 135) probably realized there should be another zero in the line " robot sent from 20 to 100 bees to their goal" I also have an addendum from Elsie Collias. When she and her husband Nickolas moved from Cornell to the University of California at Los Angeles, they set up an observation hive as an exercise in the animal behavior course. But what worked at Cornell did not succeed in Los Angeles! After a semester of trying, they could not get the bees to dance as they had at Cornell and hypothesized that the profusion of flowers all year round made the dances redundant. Dances are "intention movements" that predict the food required for the journey (as far as 8.5 miles for water in one experiment in the desert). In Los Angeles the abundance of nectar in the immediate vicinity made food for a foraging trip unnecessary, and hence no need for dancing? If Wenner *et al* were likewise frustrated 91 miles north in Santa Barbara, they questioned the language hypothesis.

Some of the hostility about calling what bees do a "language" may be that such ability was once reserved as a human attribute. But much of our communication involves "body language". A mime entertains without any verbal communication but we get the message with no problem. How we dress is supposed to make a statement, and watch out for those colognes and perfumes; you could get into a lot of trouble. In fact, the primary means of communication of bees within the nest is based on chemicals (pheromones) detected by olfactory sense organs.

Toge Johansson
East Berne, NY

■ From Bees to Orchids

"Where there is a will there is a way." They told me no one can grow orchids in this 13 story tower I share with 300 other tenants. The cooling trade winds that keep these tropical islands so delightful dehydrate orchids as their roots cannot pump up moisture fast enough.

So I built a plexi-glass enclosure only open at the top and now I am growing orchids bigger than you can buy.

When you visit Hawaii, and you should, call me up so we can talk bees. I am listed in the phone book.

P.S. I think it's marvelous what Dr. Roger Morse is doing with British bees (page 304 and 305, May *Gleanings*). "Where there is a will there is a way."

Charlie Koover
from Beautiful Hawaii

MAILBOX

■ Bearly Safe

I hope this helps other beekeepers who have trouble protecting their bees from bear damage.

I have been raising bees for over thirty years and didn't have bear trouble until 13 years ago when local garbage dumps began to close. The bear then started raiding local garbage cans and bee yards.

When they started raiding my yards, I tried many different ways to keep the bear out. I used spot lights, hanging up cloths and tinfoil all to no success.

The I set up an electric fence. I bought an electric fencer and fiber glass fence posts, about four feet long with 3 corners. The posts cost about $1.10 each and can be used year after year. They can either have notches (about one inch apart to space wire) or be smooth. I drive the posts into the ground about one foot and just wrap the wire around the post once. The posts are spaced about twenty feet apart with the single wire strand placed about twenty inches off the ground. I have used this method for the past six years and never had any bear damage done to the bee hives while the electric fence is up and working.

I have tried battery fences but was not satisfied. I feel these fences are not powerful enough because in instances where I used the battery-operated fences, bear attacks still persisted. This has yet to happen with any of my alternating current electrical fences.

Gewase Bauer
Carlton, MN

■ Removing Wax

In response to a letter from Sandy Henry regarding the removal of beeswax from kitchen utensils, this is what I suggest . .

Depending on the size of your container, I would add approximately half a handful of laundry detergent to a pot of water and bring it to a boil for about 10 minutes. This will remove most of the beeswax from the bottom of the container allowing it to float to the top. Allow the pot to cool to room temperature and then remove the solid wax from the surface of the water. Use a butter knife to scrape any excess wax from the edge of the pot. Since the detergent will have an effect on the beeswax, I would discard both the beeswax and the soapy water outside, not down the drain because it could plug the drain.

I would then use a lacquer thinner or petroleum distillate to dissolve the remaining beeswax on the lip of the pot. You can buy lacquer thinner in a hardware store and if you are unable to locate petroleum distillate, WD-40, a commercial lubricant, is approximately 98% petroleum distillate. Remove the 'oil' smell from the pot by using hot soapy water and wash thoroughly.

As far as towels are concerned, the only way to clean them thoroughly is to send them out to a dry cleaners and have them professionally done. Be sure to tell the dry cleaner that you have beeswax on the material as most dry cleaner solvents will remove the beeswax.

Stuart Root
A. I. Root Co.
Medina, OH

■ Clean *and* Clear!

I very much enjoy your magazine, especially the helpful hints and recipes.

I stumbled upon a simple way to liquify granulated honey that I thought your readers would be interested in. I put the honey (in jars) in the dishwasher. You don't have to worry about it over heating and it works quite well.

I also use honey to make caramel corn. I just substitute the corn syrup with honey. I can't make it fast enough for the wife and kids.

Phil Jamieson
Waterloo, IA

■ Wanted: Beekeeping Job

I am a biologist and a 1987 graduate of the Federal University of Bahia, Brazil. I am single and have worked in Apiculture since 1984. I also work with an IBM PC using the following software: Wordstar, Word, D'Base III Plus, Lotus 1-2-3 and others. I am looking for work in your country and would appreciate hearing from anyone. Thank you.

Urandi Alves de Santana
Jardim Madalena, Rua E No. 06
Apto 22 - Brotas CEP 41950
Salvador Bahia - Brasil
(071) 358-6675, 359-3961

MAILBOX

■ Birds & Bees Don't Mix

I live in a town of wealthy retired people who have large lots, mansions, beautiful trees and small gardens. Nearly all have humming bird feeders stocked with sugar syrup. Naturally, my bees stock their comb with it and ruin my honey.

About two years ago I saw an advertisement in a journal for a bee-proof humming bird feeder. Please send me the name and address of this company if you can. This would help many other beekeepers also.

J. R. Zier
309 Wedgewood Lane
Kerrville, TX 78028

(Ed. Note: Our research came up empty. Readers, any help?)

■ Rapeseed Oil Sought

In the Side Bar on page 213, one of the uses mentioned for Rapeseed is as an *illuminant.* We here at Bull Mountain Beekeepers are striving to be as self-reliant as possible and so use oil for lighting. We are using kerosene now and have been searching for a replacement which we would consider more appropriate. Rapeseed oil, perhaps?

Could anyone help us locate a source where illuminant-grade rapeseed oil can be obtained? Perhaps Ms. Moore, in her research for the article, came across a source. Any information on rapeseed oil as an illuminant would be helpful and much appreciated.

Wade Buckholts
R. D. 2, Box 248
Stuart, VA 24171

■ Correction

'Poison in Paradise' by Pamela Moore contained inaccurate information. I must ask that it be corrected.

Roundup and Rodeo are herbicides but THEY DO NOT contain glyphosphate. I can only assume that the author does not know the difference between glyphosphate and glyphosate, a serious point to be confused about.

Despite the similarity in names THERE IS NO CHEMICAL RELATIONSHIP. The active ingredient in

MAILBOX

Roundup and Rodeo is N-(phosphonomethyl) glycine, more commonly called glyphosate, which is classified as an organophosPHONate not organopHOSphate.

Rondo is not a Monsanto product, nor is it a herbicide, nor does it contain Glyphosphate, nor, to the best of my knowledge, is it sold or registered in the U.S. Rondo is a fungicide.

Monsanto is a large company that tries very hard to answer all questions that are asked. Phones are manned 24 hours each and every day. Hundreds of people receive prompt courteous responses. If any doubt exists, call 1-800-225-2881 or if that line is busy, call collect at (314) 694-4000 and ask your own question.

What does happen to Roundup and Rodeo when it enters the soil and water? Glyphosate binds tightly to soil or soil particles suspended in water. It then loses its herbicidal qualities and rapidly biodegrades into natural products — carbon dioxide, water, nitrogen and phosphate.

The soil and water microorganisms are not harmed because of their role in glyphosate decomposition.

The surfactant in Roundup degrades rapidly in both soil and water and is not taken up by plants. Rodeo only contains glyphosate and water.

Monsanto stands willing to answer any questions about Roundup and Rodeo. Several informative pieces are available for the asking, by phone or mail. If you'd like to know more, contact me. I guarantee you'll get your questions answered.

James R. Altemus, Monsanto
800 North Lindberg Blvd.
St. Louis, MO 63033

(Ed. Note: Our article was in error. We regret any inconvenience to readers or the Monsanto Agricultural Company.)

■ More Honey!

In the May *Bee Culture*, Mr. Michael R. Haley's "Honey of a Quiz" on page 263 gives the dollar value of U. S. Honey Production as $10 million. The 1990 Annual Honey Report "Production Report" Table on page 272 yields a figure roughly ten times greater. Hopefully the larger datum better reflects the current value. Aren't you pleased that you have such perceptive readers? Keep up the good work.

Ed Rittershausen
Polson, MT

■ Define Tolerance

In the January *Bee Culture*, on page 4 under "Tolerance" I find your comments "overestimated".

Our bees in Israel four years ago got varroa. We went from 70,000 to 40,000 colonies or less. We treated with amatraz and fluvalinate according to recommendations.

After treating we very closely checked the extracted honey from the supers in the spring and in the summer. We did not find any residue of chemical, not even one ppm. In this case it is not clever to speak about tolerance, that the public mostly doesn't understand.

Kalman Chaim, Israel

(Ed. Note: Tolerance does not imply that residue is present but rather that a residue is legally allowed. In a perfect world there are no problems. In ours, however, there are. We just want to make sure we know how big the problems are.)

■ Concern in Oklahoma

Several issues have surfaced over the past few years that have remained difficult to resolve. A meeting is planned to address these industry issues. This meeting is for beekeepers who are concerned about the problems facing our industry. It will enable us to voice our opinions freely and is not affiliated with any national, regional or state group. It is hoped that each organization will be represented. Invitations have been sent to industry leaders and to all in the industry, especially to individuals who have ideas that they feel should be discussed. The meeting has been scheduled for July 16-18, 1990, at the Plantation Inn, in Oklahoma City, OK.

The meeting procedure will closely follow along the lines of a congressional committee hearing where speakers are witnesses, concerned enough to share his/her views about whatever the particular issue is being discussed at the time. Witnesses must furnish background information about themselves for the moderator to use in the introduction. Moderators conduct the hearings in an orderly fashion, insuring that all may voice their ideas and opinions.

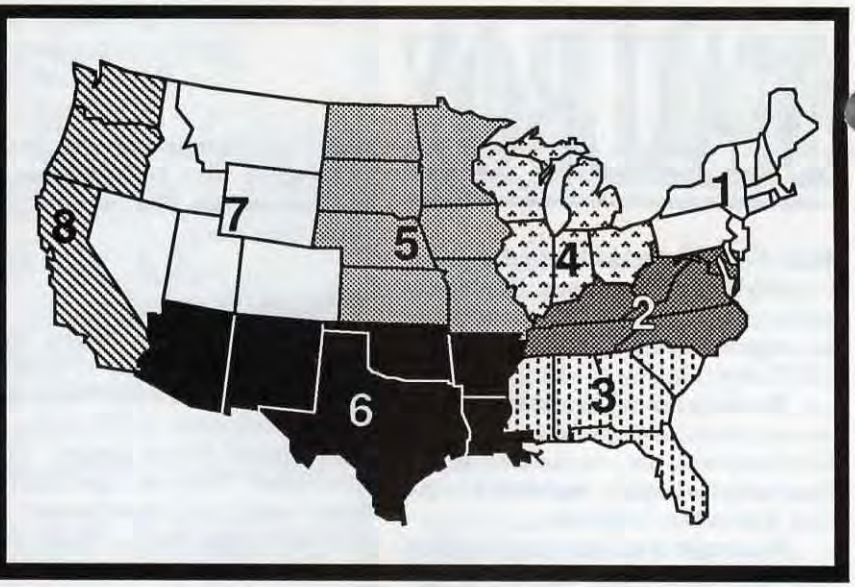
The sessions will commence promptly at 1:30 p.m., July 16, and end at noon, July 18, 1990. Make reservations at The Plantation Inn, 800 S. Meridian, Oklahoma City, OK (405) 942-0040.

T. Ray Chancey
Dayton, TX

JULY
Honey Report

July 1, 1990

REPORT FEATURES SUMMARY: R=Range of all prices; A=Average prices across all regions; LM=Last month's average; and LY=Prices one year ago.



	Reporting Regions								Summary		History	
	1	2	3	4	5	6	7	8	R	A	LM	LY
Extracted honey sold bulk to Packers orProcessors												
Wholesale Extracted												
60 # Wh.	41.00	40.20	44.00	33.25	48.50	49.50	42.00	41.75	33.00-49.50	42.22	41.41	35.69
60 # Am.	39.67	35.20	42.10	31.50	41.00	47.00	38.00	37.15	31.00-46.00	38.72	35.42	33.42
55 gal. Wh.	.45	.58	.45	.52	.61	.59	.60	.62	.39-.65	.54	.55	.50
55 gal. Am.	.44	.50	.43	.48	.53	.52	.55	.55	.38-.56	.49	.49	.45
Case lots — Wholesale												
1 # 24's	26.96	29.20	22.81	25.65	29.21	24.40	30.00	30.20	20.40-38.40	27.10	28.73	26.78
2 # 12's	22.87	27.78	37.19	24.49	29.00	23.50	31.15	27.60	20.05-37.20	26.42	27.21	25.48
5 # 6's	30.83	30.30	24.60	27.36	31.21	25.80	25.30	27.00	23.10-38.50	28.28	27.60	27.30
Retail Honey Prices												
1/2 #	1.51	1.19	.92	1.23	1.12	.91	1.05	.92	.89-2.59	1.17	1.02	.93
12 oz. Plas.	1.64	1.53	1.35	1.42	1.49	1.17	1.33	1.51	1.19-1.89	1.48	1.45	1.33
1 #	1.68	1.74	1.57	1.65	1.63	1.47	1.65	1.70	1.30-2.09	1.65	1.66	1.52
2 #	2.83	2.83	3.00	3.11	3.09	2.55	2.63	2.59	2.25-4.00	2.81	3.16	2.69
2-1/2 #	3.10	3.82	3.75	3.12	3.23	3.25	3.83	3.29	2.60-4.50	3.56	3.63	3.42
3 #	4.33	3.80	4.01	3.64	4.20	3.83	3.65	3.87	3.49-4.80	3.97	3.96	3.81
4 #	3.75	5.20	5.50	4.49	4.59	4.40	4.50	4.83	3.75-5.50	4.67	4.91	4.71
5 #	6.75	6.08	5.99	6.17	6.75	5.05	5.35	6.25	5.00-7.50	6.02	6.27	5.95
1 # Cr.	2.13	–	1.39	1.64	1.29	1.73	1.79	2.33	1.39-2.25	1.80	1.72	1.67
1 # Cb.	2.33	2.17	2.75	3.00	1.83	2.10	2.59	3.68	1.25-5.00	2.57	2.30	2.55
Round Plas.	2.00	2.19	2.00	1.89	1.99	1.75	1.99	1.85	1.75-2.25	1.93	2.07	1.91
Wax (Light)	1.75	1.25	1.17	2.51	1.00	1.02	.95	1.15	1.05-3.75	1.48	1.09	1.09
Wax (Dark)	1.33	.98	.97	2.43	.95	.90	.85	2.50	.85-4.00	1.45	.95	.89
Poll./Col.	30.00	17.00	30.00	28.75	30.00	19.50	23.00	23.00	17.00-35.00	25.60	25.70	26.00

MARKET SHARE

How's the price of wax in your area? With last year's poor crop, light, cappings-type wax is in short supply - along with regular burr and brace comb collections. External market demands haven't let up so prices are increasing. Don't give it away this year.

Region 1

Prices steady but some wholesale prices dropping, especially on small consumer size jars. Bulk prices, like most places, up. Sales steady due to cool, wet weather which has slowed colony building and honey production.

Region 2

Prices steady but just waiting for the specialty crops to come in. Demand steady but not exciting yet. Wet weather has ruined some crops, notably locust and tulip poplar. Later crops should do well because of good soil moisture if it quits raining and warms up.

Region 3

Sales steady but prices generally holding well with a good increase over the last few months. Rain has slowed flows and hurt in some areas but others doing well. Drought not a problem, but boxes floating downstream — maybe.

Region 4

Like the midwest farmers, beekeepers having a hard time with all the rain. Sales steady but not exciting and prices heading down. Weather has been cool and damp, either stopping flows or stopping bees from flying. Some areas need feed this late!

Region 5

Prices steady to decreasing a bit, demand seasonal and unspectacular. Rain has helped drought areas considerably, though, and if the pesticides are kept under control it could be a good year. But watch for grasshoppers. USDA says 100 eggs/yd²!

Region 6

Wholesale lots doing well but retail prices dropping. Demand mixed like the weather. Good rain at the wrong time has slowed beekeepers but bees doing well.

Region 7

Prices steady along with demand. Metropolitan areas stronger than rural. Needed moisture arriving in most places making early spring build-up strong and aids major plants for summer flows.

Region 8

Sales strong over most of region with prices steady to rising. Moisture arriving in most areas where needed. CA had an orange flow while up north the summer crops appear to be in great shape — finally.

RESEARCH REVIEW

DR. ROGER A. MORSE

Cornell University • Ithaca, NY 14853

"Do you know your legal status as a beekeeper? Maybe it's time to find out."

Beekeepers and the Law

It appears that beekeepers are increasingly interested in the law and how it pertains to them and their bees. An interesting review of the law in England and Wales that covers the ownership of swarms, liability, bees as a nuisance and pesticides, appeared recently. While laws vary from one country to another, many have their basis in history and a certain degree of common sense.

In England and Wales, Roman law from the third century is the basis for determining swarm ownership. If a swarm settles in a tree on one's property, it is no more theirs than are birds in a tree, until, of course, it is captured. This same law states that one owns a swarm that leaves his hive so long as he can keep his eye on it; however, one does not have the right to trespass to capture a swarm without the landowner's permission.

As regards liability, English Common Law states that every citizen has a duty to conduct his business in a way that the lives of others are not disrupted. It is, for example, the duty of a beekeeper to avoid the spread of diseases from their hives.

When a non-beekeeper is stung, there can be litigation. In 1906, a judge in England directed a jury that "if they thought that the Plaintiff could not lead his ordinary life at home in the ordinary way of living according to simple English ideas, and that his reasonable comfort was substantially interfered with owning to the Defendant's bees, they might come to the conclusion that there was a nuisance" The writer goes on to state that in former times, "newcomers into an area were obliged to accept inconveniences from existing activities" However, that does not appear to be the case in England today; if a development takes place near an apiary the bees may become a nuisance and the beekeeper forced to move the apiary.

In the case of pesticides, a bee remains the property of a beekeeper while she is foraging and if that bee is injured by pesticides applied without due care, then the beekeeper is entitled to compensation.

All of the above are sticky issues but are coming more and more to the forefront in many countries. Laws vary but in some courts common sense still prevails and may be used to advantage. Beekeepers might consider collecting articles and notes on these subjects in order to better protect themselves in the future.

Reference

Park, R. B. *The social obligations of beekeepers.* Bee World 71:8-11. 1990.

More on Bait Hives

Tests conducted in Arizona, where there are only European honey bees, showed that swarms searching for a new home preferred the heavier, sturdier pulp bait hives over cardboard boxes covered with plastic. Plastic covered cardboard box bait hives have been widely used in Mexico to capture migrating swarms of Africanized bees. The cardboard boxes were attractive to a number of swarms that settled in them but before this there have been no tests comparing them with other types of hives.

In these tests it was also shown that adding a synthetic scent gland pheromone increased the effectiveness of the bait hives; this we already knew but the authors of this paper point out that we have yet to determine the most effective emission rate. Also, in this paper there were some further tests using beeswax. Smearing hot beeswax on the inside of a bait hive did not improve its attractiveness over the use of the pheromone alone. A comparison of hives with and without beeswax was not done.

We have yet to build a perfect bait hive, one that bees cannot refuse; however, we are learning much more about what bees prefer when they select a new home.

Reference

Schmidt, J. O. and S. C. Thoenes. *Honey bee preferences among artificial nest cavities.* Annals of the Entomological Society of America 83:271-274. 1990.

Continued on Next Page

Varroa Resistance

In tests conducted in Germany, bees from the cape of South Africa had fewer mites than did Carniolan bees at the end of the season. Why this is true is not clear but it is in keeping with our knowledge that Africanized bees in Brazil appear to be resistant to the varroa mites. The authors below have two suggestions. It may be the Cape bees develop in a shorter period of time and the mites do not have time to mature or, it may be the Cape bees are better at grooming and removing mites from their bodies. Of course, there could be another, yet undetermined factor.

The important point here is that there are differences in honey bees as regards their resistance (and/or perhaps tolerance) of varroa mites. And, wherever there is variation there is an opportunity to select bees that are resistant to a disease. Prosperous colonies that are found in apiaries where other colonies die or are weak could be valuable breeding stock. □

Reference

Mortiz, R. F. A. and D. Mautz. *Development of* Varroa jacobsoni *in colonies of* Apis mellifera capensis *and* Apis mellifera carnica. Apidologie 21:53-58. 1990.

"HONEY PRODUCTION is not our primary concern, but we'll take all we can get," says Dave Kerr. "Here in Oregon, the average yield is only about 45 pounds per hive. A lot of folks think that they get a lot more than that, but they forget to subtract the feed honey or syrup from their total. When you take away the feed, you are left with a net yield of around 45 pounds.

"In the past, 100 pounds per colony was common. Agriculture here has changed extensively in the last 10-15 years, with larger tractors, larger fields, fewer fencerows and more specialty crops. Herbicides have taken a drastic toll on roadsides, fencerows and fields of forage. Before herbicides, a 100 acre wheat field could contain 15-25 acres of vetch.

"Our main honey flow now is crimson clover. It used to be vetch, but now vetch is a thing of the past and our secondary honey flow is wild berries, chittim, snowberry — what we call 'brush honey'

"Crimson clover makes a very white honey with a mild smooth flavor. It comes in very wet and tends to stimulate swarming. The secondary flows are more of a bunch of short bursts, not as white, but a real nice table grade honey. It takes a lot of acreage to produce a good honey crop. Most of the bee pasture here is overpopulated because the acreage is not there and the bees are.

"When we move into crimson, we already have our queen excluders on. We bottom super — lift up the super and put on two empty 6-5/8" western supers. We put on two supers mainly because of the time factor. We can't get back in time to put the other one on as it is needed. Crimson clover is very high moisture nectar and the bees need to have a lot of room to store it while they are evaporating the water. We leave only three 6-5/8" westerns on them.

"Our honey flows are very fast and short. It comes in like rain when it is coming in.

"Crimson is usually done by the first of June. Vetch and berry flow starts around the tenth of June. By the Fourth of July, we are pulling out of the Willamette Valley and going to the mountains because the valley flows are through. If we did not have the mountains to go to, we would have a lot of "welfare bees" as Ancel Goolsbey calls them — bees that eat up the honey crop after the flow is over.

"It is awfully hard to raise comb honey here because the flows are so heavy and so short. If your bees are not ready, the flow is over before the sections are filled and capped. When we want to make comb honey, we shake out about four swarms and force them all into a western without worrying about brood. We put one or two supers of Ross Round sections on top with a queen excluder over the 6-5/8" western. This usually makes comb honey rapidly enough to match the flow. When we take the round sections off the western, we just put a deep brood chamber under the western.

"About our second or third year of commercial beekeeping, it became apparent we were going to have to learn to use queen excluders. I've heard them called honey excluders and everything else, but I would not run bees without them. Now when we're making divides, we don't have to hunt through two or three boxes to find a good frame of brood — it's all in one box with brood — wood to wood. When we are taking honey off, we don't have to worry about taking brood to the honey house. In some parts of the country, brood in the honey super is not a problem, but it is here. With our short honey season and short, fast honey flows, it is almost impossible to keep brood out of the honey supers without using queen excluders.

"TO TAKE HONEY OFF, we up-super — lifting all three supers with a boom and placing two empties over the queen excluder the day before we take the honey. We take off all the honey from the valley. We pull honey with acid pads and a blower. Our morning temperature is about 60°F and afternoons are about 90°F so we use Benzaldehyde in the morning and Bee Robber® or Bee Go in the afternoon. One person keeps the pads rotated and cleans lids. Honey is stripped down to the top of the two empties put on the day before. Two frames of open honey are put in the upper empty super. The two empty supers give the bees someplace to go. Any bees left in the honey supers are blown out with a bee blower carried on the back of the truck.

"We put the supers on a drip pad and stack them six high. Some people put their honey supers on pallets, but we like to keep our stacks of supers separate because we may pull as many as three different varieties in one load, depending on where we go and where the bees have been. We may have raspberry, clover, and wild berry or poison oak honey all on the truck and we like to extract each variety separately, so drip pads work better than pallets for bringing it in. This is important because specialty honey brings us a much better price.

"As soon as the valley honey is off, we start taking the bees to the mountains, putting 100 colonies in a yard. Some yards are on a private timber land and some are on Bureau of Land Management land. The leases for the yards allow no more than 100 colonies per yard, and that's about the right number to work well.

"Our first loads go up around the Fourth of July and we have them all moved by the end of the month. We bring them down before the opening day of general deer season. Bowhunters are out earlier, but we never have any vandalism problems from them. But deer hunters with rifles like to use the boxes for target practice. This year we had six plastic feeders ruined. We find .22 slugs on top of the queen excluders sometimes.

"We go to the Coast Range instead of the Cascades, not because the honey is better, but because the flow is more reliable. Salal, hawkweed, fireweed, and pearly everlasting are the main honey plants in the mountains, along with some other wildflowers. The honey flow is not the only thing we go after — pollen is also important. The Coast Range provides a long pollen flow late into the fall and the bees brood heavily until the first frost. The young bees make a strong overwintering colony good for pollinating almonds in California the following spring.

"We have to fence for bears. We use a New Zealand electric fence charger called Superspike®, powered by a car battery. We used to use solar fence chargers and they worked fairly well, but the Superspike works better. We put the battery and charger in a deep hive body with a hole in the side for the wires to come out and an interior ramp that leads up from the entrance. We pick up a regular hive and slide the charger box underneath. The bees come in the regular entrance and follow the ramp upstairs. This eliminates theft almost completely. We lift the hive off once to change batteries while we're in the mountains.

"Most people build their bear fences too high. My first wire is a ground wire, four inches off the surface and wrapped around the steel posts.


KERR'S HONEY

"When placing the fume boards on, we put them sideways first. This gives some an easy way out and doesn't stun those that stay."

When blowing bees out, blow from the bottom. There are always a few even after a fume board, and blowing finishes the job.

A family operation. Rose (right) working the bees, Dave (center) loads full supers and Mark (left) gets more gear ready.

The second wire is hot, eight to ten inches off the surface, attached to insulators on the steel posts. The third wire is another ground wire, wrapped around the posts, about six inches above the second wire. The top wire is hot, about 32-36" off the surface. When the bear sticks his head in, he makes contact with a hot wire and a ground wire and gets a strong shock. I have seen paths worn around the outside of fences from bears going around and around, looking for a place to get through but I have never had a bear get through a hot fence.

"If a battery goes dead or is shorted out, bears can still be a problem. In some particularly bear-prone yards, a secondary, back-up system is sometimes used: a freon powered boat horn is rigged to a couple of trip wires inside the yard. If a bear does get in and starts tearing the hive apart, it will trigger some loud blasts of the horn which sometimes are enough to deter a bear. The horn has also been used successfully in discouraging human hive thieves in locations where theft was a problem.

"We take the bees to the mountains with two empty supers on and we let the bees plug them all the way down. We don't add any supers in the mountains. Before we bring them down, we pull the top super off. Then we reverse the super and the brood chamber, remove the queen excluder and do the first round of TM medication. We do the reversing in the mountains because we found that if we reverse in the valley where there is nothing in bloom, robbing becomes a serious problem.

"We used to use a Cowen uncapper and a Cowen extractor and conveyed the cappings wax into a spinner. We like the set-up, but we were only as fast as the uncapper. This year we began using a Dakota Gunness uncapper and doubled the speed of extracting. We used to need two people extracting all the time, while four pulled honey. Now we need only a crew of four. They pull honey in the morning, then two extract in the afternoon while the other two do the up-supering for the honey supers to be taken off the next day. Since labor is our biggest expense, eliminating two jobs is a considerable saving.

"We run all our honey through a Cook and Beals Spin Float and into two 600 gallon tanks which have heating coils. The honey sits overnight and is drummed off the next day. Sometimes

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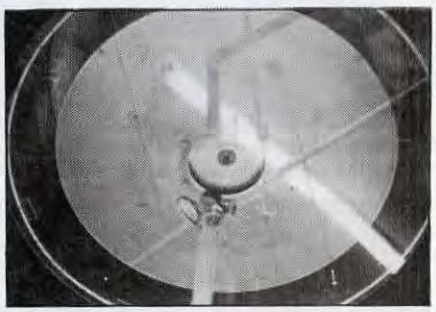
When the fume boards are on, all the burr comb from the lid is scraped into a box which is taken home and melted down. Nothing is wasted.

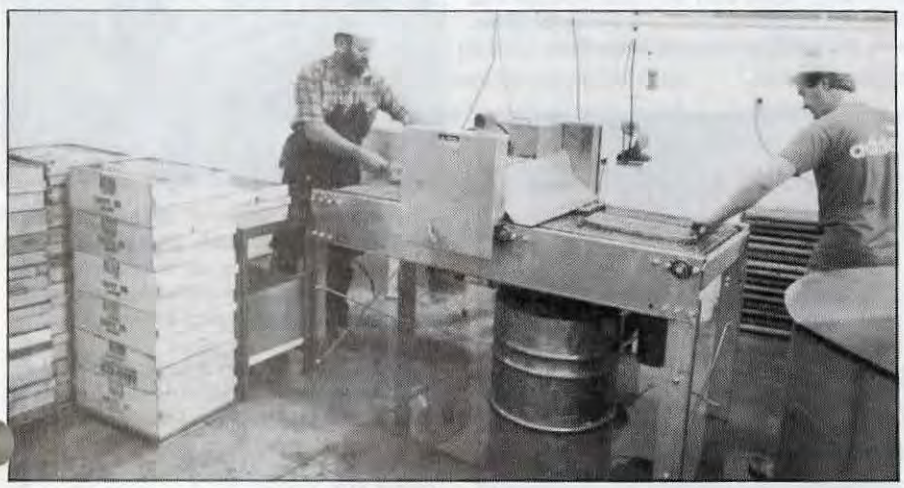
A loaded extractor. The Kerr's use two — one can be down being unloaded and then loaded while the other is running.



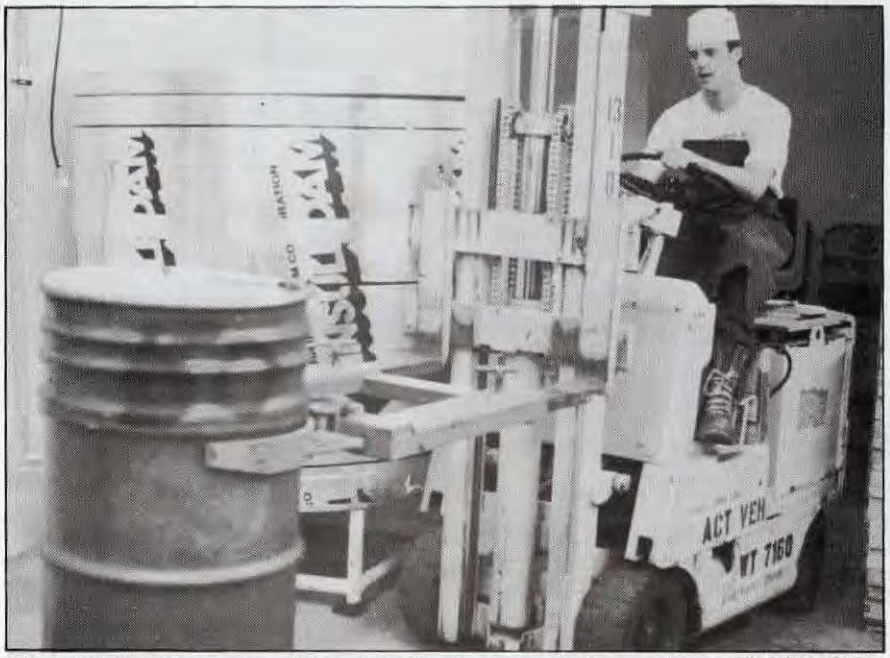
The top of the Cook & Beals Spin Flow cappings separator. The machine has a clear plastic cover (note light reflection) so operator can observe cycle.

Honey supers are stacked on drip pads rather than pallets. A cover is placed on top of each stack to keep honey clean and bees out. This also shows the boom used for up-supering.

Extracted honey eventually ends up in one of the storage tanks. These are insulated with two layers of 1/2" foil-backed insulation and kept just warm enough to keep honey flowing.



Dave and Mark on the Gunness Uncapper. The drum under the extractor is a sump for collcting the wax and honey that drips out.



When full, barrels are moved from the extracting room to the warehouse. Nick VanCalcan drives the electric forklift, easily moving a 700 lb. barrel.

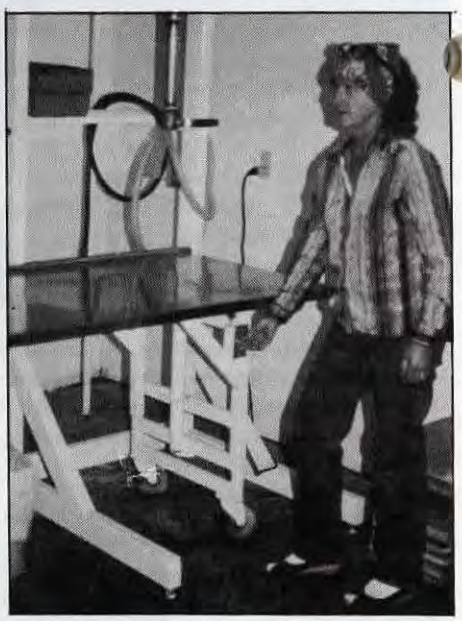
At the end of the day the extracting room's floors are hosed down with hot water, scraped and scrubbed. "Here in Oregon, our extracting plants have to be licensed food processing facilities. An inspector can show up any time. Keeping clean is a good investment," says Dave.

our specialty honeys are run directly into drums off the Cook & Beals. The Dakota-Gunness uncapper does beat a small amount of air into the honey, but it clears up quickly when the bulk tank is warmed. It is also easy on frames.

"Full drums are stacked three high in the warehouse with the forklift. When we bottle our own honey, we put the drums upside-down into a stainless steel meltdown case."

Dave designed and built his meltdown tank to hold six drums. When the honey has drained out of the drums, it is pumped into stainless steel tanks in the bottling room.

The temperature of each bottling tank is thermostatically controlled to keep the honey flowing easily and to maintain the delicate flavor of the honey. Below the overhead bottling tanks is an adjustable stainless steel bottling table, another device Dave designed and built to make the work of putting honey into varying sizes of containers faster, easier, and more efficient. Kerrs use everything from four gallon buckets to tiny gift pack jars, and next time we'll take a look at how they market all that fine, Oregon honey. □



Rose moves the height of the bottling table with the flick of a switch. This makes filling any size jar easy. Rose not only works in the field and extracting room but does most of the packaging, deliveries and bookkeeping.

FAR LEFT: The Kerr's have four of these bottling tanks, each holding two barrels of honey. This way, four varieties of honey can be bottled at once.

LEFT: "When filling buckets, we limit size to four gallons because OSHA allows women to lift no more than 50 pounds.

News Release

The _____ Beekeeper's Association reminds you that this is the time of year that hornets and yellow jackets become most abundant and most annoying.

_____, President of the group, says that these other pesky bees are often confused with honey bees and as a result, beekeepers take the blame. He adds that honey bees rarely cause problems around homes or picnic areas while hornets and yellow jackets actually seek these areas out in search of food for their young.

_____ sends along some common sense guidelines while outside during the summer, especially when having a get-together in the backyard, or a park or camp ground.

- ✔ Wear smooth, tan or white colored clothing.
- ✔ Avoid excess hair spray, perfume, cologne or sun tan lotion.
- ✔ Do not rely on insect repellents, they are not effective on ANY of these pests.
- ✔ When outside, keep sweets like candy, cakes, cookies and the like covered, and avoid spilling crumbs, if possible.
- ✔ Keep glasses or bottles holding beer, pop or juices to a minimum.
- ✔ Promptly dispose of empty containers, wrappers and fruit peelings as they attract pests. Keep your area neat.
- ✔ Before choosing a picnic site, scout the area briefly to locate any obvious nests. Remember where to look, and what to look for.
- ✔ Check with nearby picnickers to see if problems exist, or if they are inviting pests. Avoid them if possible.
- ✔ Don't leave food unattended for long periods of time.
- ✔ Always, *always* double check a glass or bottle before drinking from it.
- ✔ Prepare foods, especially grilled meats in a timely manner, and don't leave that last hot dog on the grill.
- ✔ Clean up plates, dishes and glasses when finished and rinse off, dispose of, or keep covered.
- ✔ If one of these insects lands on you, *gently* and *slowly* brush it off. Do not panic, they are not looking for a fight, just for lunch. Swatting, waving and bouncing will only aggravate them. Slow, gentle movements will not be threatening. Foragers are not protecting a nest, and tend to be non-aggressive unless threatened when away from it.

_____ says that honey bees only seek sweet liquids, not other types of food. He adds that honey bees are golden brown and fuzzy, while the other two pesky bees are NOT fuzzy and are shiny yellow and black.

Practice common sense when outside, keep your picnic areas tidy and keep your eyes open — you'll easily avoid problems this summer. □

BEAR

"You can't imagine what a bear can do to 14 colonies."

LARRY GOLTZ

The call came from over by Round Mountain, where I had a yard of fourteen colonies.

"We were going out to cut firewood and we passed your bees back in the woods. A bear or something has been in them. Stuff is scattered all over and the bees are flying everywhere."

During the forty-five minute drive to the apiary, I speculated about what I would encounter when I arrived. It was a good location in a woods opening about three hundred yards from the residence of the property owner. This had been my third year at this location and up till now I hadn't the least inkling bears were in the neighborhood. The surrounding countryside was a mountainous wilderness though I guess I hadn't thought about it much. We had been enjoying a warm, sunshiny autumn and the bears were evidently foraging widely in preparation for winter sleep.

This was my first experience with a problem common to many northern California beekeepers. I have occasionally lost colonies to starvation, from suffocation after heavy snows, from poisoning, disease and even a few "appropriated" by persons unknown. Bear damage was something that happened only to others, I thought. All of my colonies are on ranches within barking distance of the inevitable dogs and so was this one. I thought I was safe. The dogs at this particular site invariably greeted me as I drove back the lane to the bee yard, but today they were silent and unseen. The huge husky that I had come to know was nowhere about.

He would nearly always follow me to the yard, spend a few minutes sniffing around, "mark" my tires and return to the house.

I continued on, hopeful as I drove back that I would get off lightly, perhaps a few colonies tipped, a hive body or two askew, damage easily righted after smoking the bees and putting things back together. I had witnessed this type of bear damage several times in Canada when a bear had plundered a hive or two and left.

I found otherwise, and it was almost unbelievable. Not a single hive body of the original fourteen, three-story colonies remained on a bottom board. Covers, tops and hive bodies, the latter stripped of combs, were scattered over the approximately fifty by fifty foot opening in the woods. Brood comb and honey frames littered the area, even among the surrounding brush. Honey had been eaten out of the frames, some of which were chewed, broken and splintered. On some, even the two frame wires were gone where to I could not imagine.

Strangely, only one hive body was damaged. Most were dirt-and honey-smeared, but none bore the teeth or

claw marks I would have expected. Apparently a bear can be very deft in removing frames from supers or hive bodies, but then it attacks the frames and combs ruthlessly.

A few clusters of bees clung disconsolately to scattered frames. I gathered together what I could of frames, honey and bees and set up three hives to contain them. I had hopes of salvaging at least these few colonies, although I have learned from past experience that placing together a miscellany of strange bees does not a colony make.

In a couple of hours I had gathered up the bottoms, tops and empty hive bodies and loaded them into my truck. The trashed frames I threw together in a heap. By then it was late afternoon, and time to call it a day.

The next day was Sunday and I was unable to return to the apiary, so early Monday morning I returned to the bee yard. The bear had struck again. The three hives I had "salvaged" were totally dismantled, the equipment scattered as before. The frames of honey had been robbed clean by the invaders. This time I could make up only one hive of angry and disorganized bees.

I set this colony aside and began the cleanup. Even the heap of partially destroyed combs had been picked over and any remaining honey chewed out of the frames. Only a very few dark, empty brood frames remained intact.

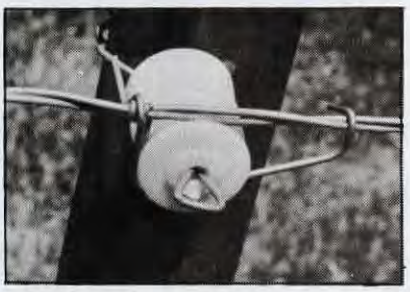
I dug a shallow hole in the opening that had been my apiary location. I raked the ground litter well away from the hole, soaked a few frames with gasoline and started a fire I continued to feed from the trash pile of damaged frames. In two hours, the last of the trashed equipment was gone. Half of the wooden pallets I'd been using showed some rot so I fed those, one at a time, to the fire, too. By mid-afternoon, the remaining hive parts along with the sole remaining colony were loaded on the truck. The hive of bees would be transported to another location.

Lost bees continued to circle about in fair number, though. Some had escaped from the hive I had screened and loaded onto the truck. They began a concerted attack as I shoveled a heavy layer of soil over the firebed and several times I had to retreat to remove an agitated bee from inside my veil. The only explanation for their unusually vicious behavior was that the bees had escaped from the hive and were condi-

Continued on Nest Page

BEAR FENCE BASICS

The three strands of barbed wire should be strung 10, 20 and 30 inches above the ground. Strips of suet or bacon rinds can be tied to the strands with fine wire or wrapped at a barbed location between each post. Also, be sure to keep the hives at least three feet from the fence so the bear can't reach through and do damage without touching the fence.



ABOVE: A close-up of the proper installation of barbed wire on a metal post using a regular insulator and a wire clip. RIGHT: A close-up of the proper installation of barbed wire on a metal corner post using a corner insulator.

Gate hooks should be installed on each of the wires at a convenient location to allow vehicles easy access into the fenced apiary.

In 1980, *Bee Culture* published an article by Gary Alt, Wildlife Biologist for the State of PA, on how to construct an electric fence that worked well in keeping bears and bees apart.

Materials consisted of three strands of 12-1/2 gauge, 4 point barbed wire placed 10, 20 and 30 inches above the ground on standard metal fence posts. Conventional insulators and wire clips were used to fasten insulators to posts.

Alt used a 12-volt fence charger, powered by two 6-volt dry batteries in series. A rechargeable car battery can also be used. Since then, solar powered recharging devices have come into use and should be investigated, especially for seldom visited yards.

Alt suggests keeping weeds under control so they don't touch the wire, effectively grounding it. □

BEARS ***From Page 407***

tioned to attack anything that moved in the area because of the series of bear raids. No doubt I had accumulated ample bear scent on my gloves from having handled the eaten combs. Bees clustered on the handles of the rake and shovel whenever I laid the tools aside.

Finished with tending to the fire pit, I loaded my remaining equipment. I removed my veil and ducked into the truck cab. As I left, I glanced back at the forest opening that had been one of my favorite apiary locations. Only a low mound of freshly turned, black humus soil remained of what had been a group of strong, productive colonies going into winter. A robin, down from the north, sang its caroling song, notes rising and falling in a nearby tree. Likely never again would the steady hum of busy honey bees fill this peaceful forest glade.

I guess I have been fortunate up till now. I harbor no grudge against the bears, although I feel my loss was fairly significant. Placing my bees, unprotected in their foraging range was my error; but it was most unfortunate for the bees. I think my other yards are reasonably safe from raids because they're close to buildings and habitation, but one can never be sure.

During the long, warm autumn days in northern California, bears range widely, and sometimes fearlessly, in search of food. Bee yards are particularly vulnerable during these days. □

Larry Goltz is a former editor of *Bee Culture* and now lives in Redding, CA where he keeps bees (and feeds bears), teaches parttime at a local college and enjoys retirement.

•OBSERVE•

LEWIS DABB

"Using my observation hive as a guide, I've improved my beekeeping. Here's how."

How often have you wished you could see inside a hive without suiting up and disrupting a days work for the bees? And, how many times have you opened a hive after three weeks expecting to find it stuffed with honey and needing a new box, only to find a half empty super sitting there? Or, you find that after only a week they've filled the super to capacity and are making burr comb all over the queen excluder?

A few years ago I stumbled, unsuspectingly, upon a fairly good solution to this problem. Just for the fun of it I ordered an observation hive. To start it, I took a frame of brood, bees and all, from one of my hives. Immediately the bees made a couple of queen cells and produced themselves a new queen. It was a totally delightful experience, watching her lay eggs and then watching the larva grow. It was fun to see the new bees hatch out of the cells. In spite of what you have read or what you see when you get into the hive, it is far more interesting to be able to watch the entire process in motion rather than just a step here and there.

As the summer progressed, I realized something else about my observation hive. I found that whatever was happening in the hive *in* the house was also happening in the hives *out* in the yard. It was like having a TV monitor in my house that showed me what was going on in the hives outside. If my observation bees were packing in honey and filling up frames, I knew the bees outside were doing the same. If the honey flow slowed for a week or two, the bees indoors would indicate it and save me from bothering the hives in the yard when they really didn't need any attention. I noticed that about the time I added the second frame to my three frame observation hive, I was also adding a box to each of the hives outside.

In my opinion, the less you bother the bees the fewer problems you're going to have, as long as you're giving them what they need. Bees have an insight for producing honey. As long as they have plenty of room and good equipment, they can pretty well take care of themselves.

By using the observation hive as a guide I've found that I can give my bees the maximum service with a minimum of interruptions in their work. By not entering the hive as often you certainly reduce the risk of injuring or killing the queen, too!

An observation hive can also be compared to a spare tire in your car. If you find one of your hives queenless in the middle of the honey flow, you can replace her immediately with the queen from the observation hive, minimizing down time from that colony. Since the bees in the observation hive aren't going to produce much honey anyway, you can let *them* take the time to make a new queen. Or if necessary, they can wait while you order a new one.

To an extent the observation hive is a non-profit project. The one I have is only a three framer. With only a couple thousand bees, they very seldom do more than fill these

frames. On the average I usually feed them 10 to 20 lbs. of honey to get them through the winter, a small price to pay to have a TV camera inside the hive. The pleasure of watching the bees year 'round is well worth a gallon or two of honey.

Watching the bees in the winter is also interesting, though I doubt if you get a true picture. Since the observation hive is inside the house, the bees don't have to cluster so tightly to keep warm.

Quite often I'm asked by school or special interest groups to come and explain my hobby. By removing the tube entrance at night when the bees are in and putting a screen over the hole, I've taken my hive to three different schools and showed them to the classes of my grandchildren. Surprisingly the four hour trip didn't seem to disrupt the daily routine of the hive at all. In each of the classes I visited, the queen went right on laying eggs while the children observed. I used a flash light to point out her location and as kids will do, there was some tapping on the glass and a lot of noise. Some of the older bee books I've read say that you must cover the glass of an observation hive because the light will disrupt the bees. I have switched the flashlight on just as the queen is backing into a cell to lay an egg and she went on with the process as if I wasn't there. The hive seems totally oblivious to what goes on in the room where they are kept. Lights are turned on and off as needed and they don't even seem to notice.

"Maximum Service. Minimum Work."

Besides giving you the pleasure of watching bees year 'round, monitoring the activities of your hives through the glass of an observation hive is a very helpful tool. □

Lewis Dabb is a lifetime resident of Northern Utah, currently residing in Smithfield. A Safety Engineer by profession, he has been a hobbyist beekeeper for the past 12 years. He contributes occasionally to *Bee Culture* and writes about other hobbies, including gardening and show chickens.

A BETTER BOX

TOGE and MILDRED JOHANSSON

"Building an observation hive that you can manipulate, without bees escaping, was a challenge."

A colony of bees on display behind glass panels is guaranteed to draw a crowd wherever they are displayed, and is the favorite exhibit in insect zoos. Pliny recorded that an ex-Counsel in Rome had hives made with thin horn used for lanterns and "lapis specularis" (mirror-stone of talc or mica) through which many persons watched the bees, just as the fashionably dressed people in the illustration from Reaumur's *Memoires* (1740) were doing.

Any hive that can be taken apart so that each comb can be examined could be considered an observation hive. The Wilson Observatory Hive that took first prize at Edinburgh in 1877, consisted of six frames with glass sides each connected by a tunnel to a pile of wooden cylinders that permitted viewing any frame separately. The queen passed freely from one comb to another through openings at the top of each "section" as they were called. This was more elaborate than Thos. Nutt's hive (1832) consisting of two rectangular frames in the form of a cross that revolved on a hollow shaft.

F. V. Hadlow took a first prize in 1882 for a hive that permitted stretching out the frames in a pleated or zigzag arrangement within a five foot long show-case. In addition to his leaf or book-hive, Huber used a box with combs on "wooden slips" that could be raised individually for observation by means of a screw. Glass slips alternated with the wooden bars to serve as a lid or cover.

Generally, we use the term observation hive for those made of two sheets of glass mounted in a frame with a narrow space in between for the bees to build a single comb, and shutters to keep out light. Maraldi is considered the inventor (1712), but Cassini (1682) and Robert Boyle (1688) are credited with earlier versions. Swammerdam undertook his seminal studies on bees using a hive in which one of the wooden sides has been replaced with a pane of glass (1667?).

The first of Huber's famous letters to Bonnet reported success using Bonnet's recommendation that Huber try using half the width, or 18 lines (1.5984 inches) of Maraldi's hive to prevent bees building two parallel combs that obscured a view of the inner comb surfaces. To ensure combs parallel to the glass slides, Huber inserted a piece of comb as a guide, leaving a space of three or four lines from the glass sides (0.2664 - 0.3552 inches). Della Rocca's description of the ancient Greek hive published in 1790 (two years prior to Huber's letters) cited similar dimensions: Bars 17-18 lines wide with three lines between them. A line (0.0888 inches) = 1/12 of a pouce (1.066 inches).

The "bee space" is now defined as 1/4 - 3/8" which is sightly less and greater, respectively, than the dimensions cited

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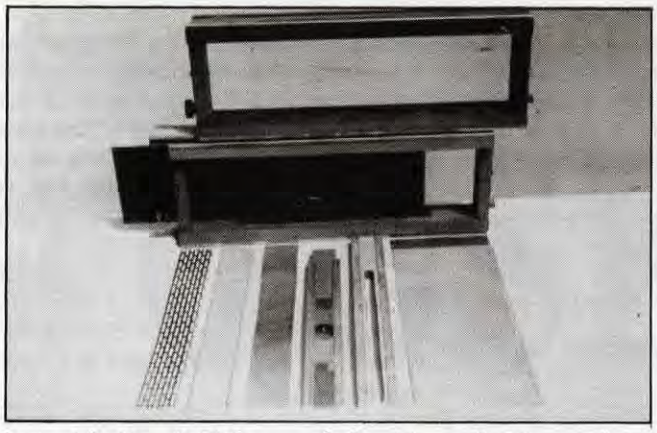
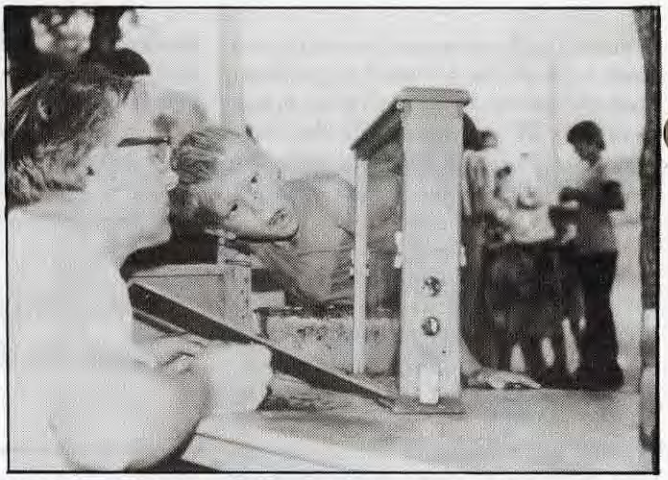


Parts of the hive. (L-R) Queen excluder strip; mesh strip; metal strip for closing; bee escape used between supers 'normal bee passage' screened side when using units side by side. Top shows two units fastened together using the slide mechanism shown below.



No matter what kind of observation hive you use, they will always attract attention.

by Huber and Della Rocca. A few thousandth's of an inch here or there may not seem important until you talk to a plastic fabricator who works with tolerances (or intolerances) of 2/1000. It is also frustrating to discover that plans for observation hives do not usually give the dimensions between the glass, and when calculated vary from 1-1/4 to 2 inches.

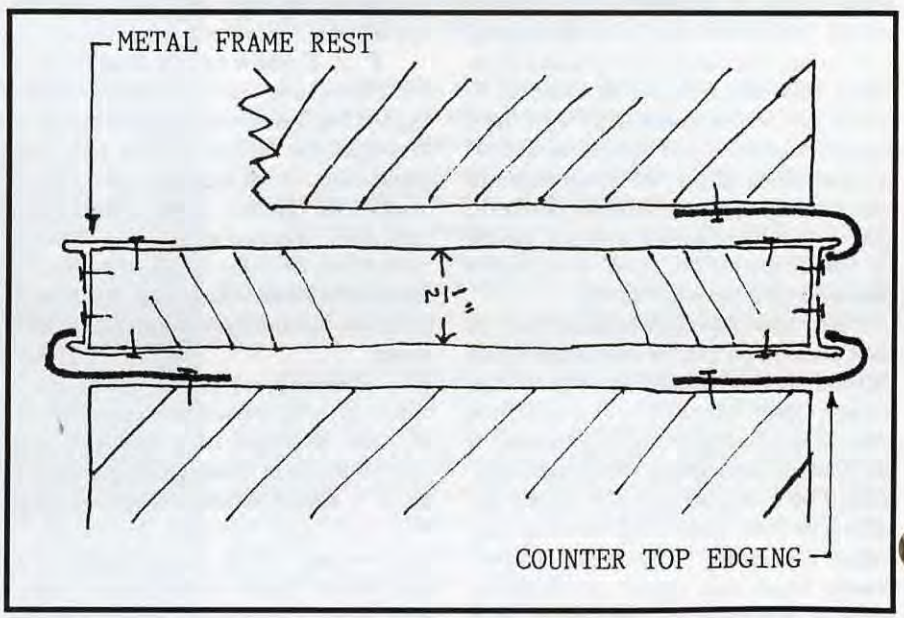
The observation hives now available are quite useful, and some have been constructed for several combs. But when it is necessary to undertake various manipulations such as adding or removing frames, etc., most hives must be taken outside under circumstances that may be difficult or even impossible. At the 1957 meeting of the Eastern Apicultural Society, James I. Hambleton threw down a challenge to participants to improve observation hives which would permit manipulation, without bees escaping into the room.

In 1964, we designed a bee-tight hive that fulfills this requirement, and meets Mr. Hambleton's suggestion that it be a "do it yourself job" A portable skill saw mounted on a saw table, and a 1/4" power drill were used to manufacture 25 additional units for use in experiments. The metal edging was purchased at a hardware store. Specifications depend upon the frame used, and can be determined by measuring the super used for the frames. The side pieces should be 1-10/16" wide to provide a bee space of 1/4" on either side of the comb. The length of the side pieces should be 3/8" deeper than the super to provide a space underneath the frame. A space of 1/4 - 3/8" permits bees to move freely, but they will not build comb in it or seal it with propolis.

A single unit is sufficient to maintain a small colony, but additional units for brood rearing or stores are added by using a slotted, sliding connector which can be made of wood, metal or plastic. We explored the possibility of obtaining a connector produced as an extrusion of aluminum (or plastic) but this was not feasible at the time.

A strip of queen excluder or five mesh-per-inch wire screening is inserted between the units to confine the queen. When several units are connected together, any one unit can be removed (or replaced) by using strips of metal to close the openings of units above and below the unit to be moved. Ventilation is provided by sliding a strip of 8 mesh screening over the opening of the uppermost unit. Containers to feed syrup, sugar candy, water, and pollen can be attached above the upper unit opening, or a comb of honey and pollen can be added at will. A hole in one end permits attaching a plastic tube as an exit to the outside of the building.

The sides are closed with sheets of glass or plastic which can be replaced with hardboard panels for moving by



End view of connector between upper and lower hive units. Grooves for sliding sides are not shown.

BOX... From Page 410

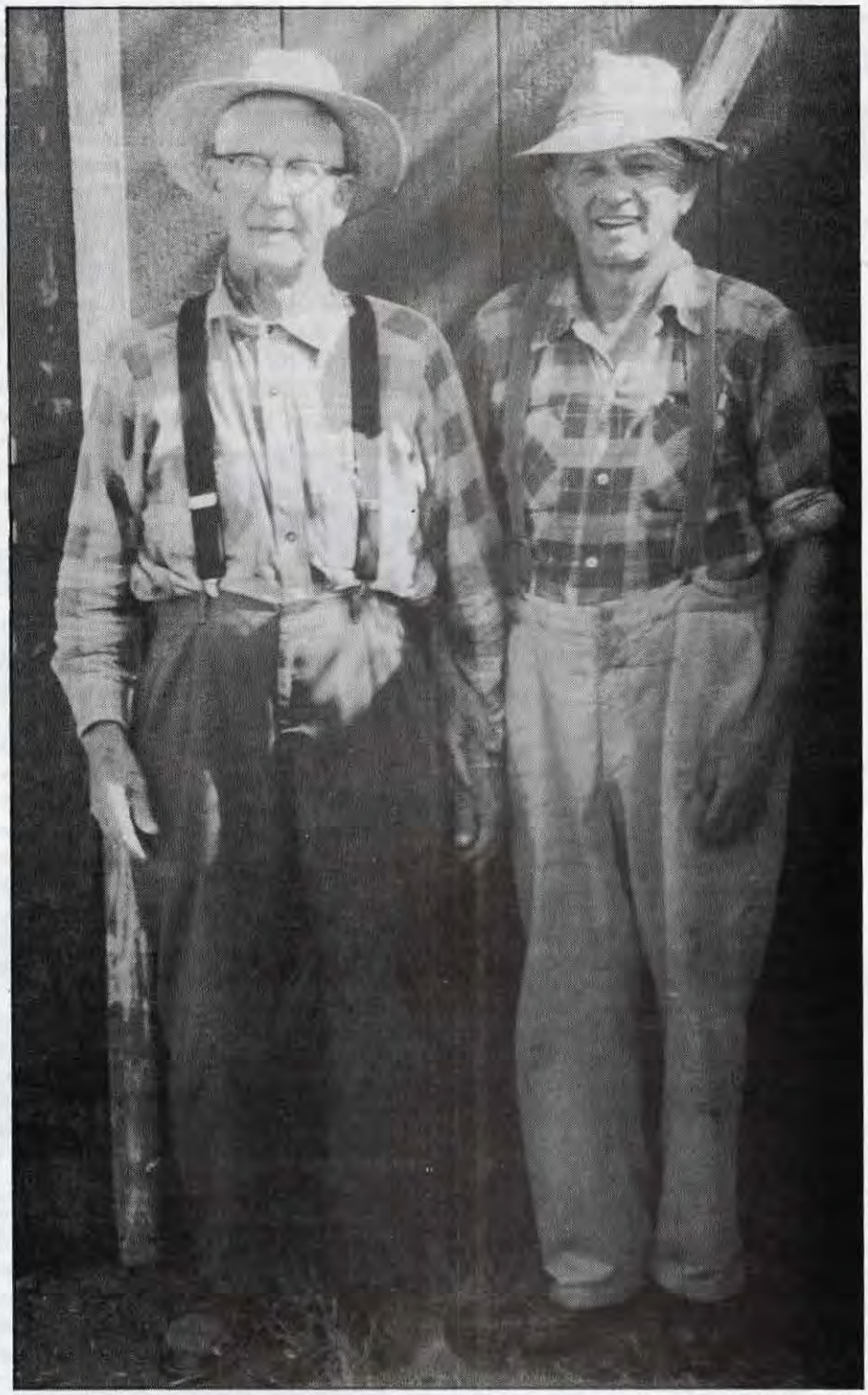
pushing the hardboard through the slot against one end of the glass. The frame is secured with screws in the end pieces to prevent crushing bees or breaking the glass when the hive is moved. The units can be used side by side with 5 or 8 mesh screening between them, or hardboard panels with passageways permitting movement of bees between the units but preventing bees building extra combs in the space between adjacent units. The units can be united in tandem by coupling end pieces together with plastic pipe connections.

A bee escape incorporated into a connector can be used to clear a unit of bees. A unit can also be used to add bees to the colony, or remove excess bees. Cardboard, or thin wood shutters, cover the sides of glass to shut out light when the bees are not being observed. Fiberglass bats, or two inch styrofoam panels, can be strapped to the sides when temperatures fall below 50°F. Alternatively, a box can be constructed to fit around the hive, but the top must be left open for ventilation. The hive should not be placed where it is exposed to sun or it may overheat. □

A CLASS ACT

CHARLES SIMON

World Class Honey Production isn't an accident.



Ormond and Harry Aebi

A. I. Root established the world's record for wildflower honey production from one hive with a single queen in one season in 1895 – with a 300 pound crop. That record stood until 1974, when it was broken by Ormond Aebi and his father, Harry, with a 404 pound crop, duly recorded in and officially established by *The Guiness Book of Records*.

Aebi means honey bee in Turkish which is where they came from – through Switzerland to Oregon, and finally to Santa Cruz, CA in 1950. That's when they set out in earnest to achieve the world's record, which after 24 years, they finally accomplished.

Ormond, now 72, remembers even earlier, when as a child of about eleven he talked with his father about the record. They poured over Root's *ABC and XYZ of Bee Culture* but found the particulars of A. I. Root's techniques for maximum production conspicuously absent.

"We'll have to give up the book and figure it out for ourselves," said Harry. Ormond's mother encouraged their efforts, only she had a somewhat different goal. "You go out and get that record," she said, "only give the honey to me, for honey is money."

Fifty-some years later they'd done it. And during that time they also wrote two books: *The Art and Adventure of Beekeeping* and *Mastering the Art of Beekeeping*, both essential and both rare and unavailable except directly from Ormond.

Now this business of competitive, maximum-production beekeeping for a world title is a horse of a different color. Ormond's going-for-the-record hives have about as much in common with the industry standard beehive as a world-class race car has with, say, a nice, clean '53 Buick. Mind you, they're both cars – both with four wheels, an engine, brakes, exhaust systems, a steering wheel and the rest. Likewise, the hives all have tops, bottoms, supers, frames and the rest. But the comparisons stop there.

Tolerances in a world-class bee-

Continued on Next Page

hive are accurate – extremely accurate. I stress this because anyone who has dealt with commercial grade equipment knows, in the real world, "Stuff doesn't fit like it's supposed to." Even rulers aren't accurate, leastwise not to a bee.

We all know that bee space is a quarter to three-eighths of an inch, but did you know that some parts of the hive function better at the quarter inch space while others do better with the three-eighths space? Admittedly, those tolerances don't mean much for the average beekeeper. In the real world we get by. But everybody has, at one time or another, seen equipment sold by reliable dealers where the space above the top bars was an actual half inch, requiring the addition of shims and diminishing the practicality and the longevity of the set-up.

Ormond Aebi at the 'height' of the 1989 season.

But these exact specs aren't all. An Ormond-style, world-record-potential hive is *always* operated with only a single story, full-depth brood chamber beneath the queen-excluder, or sometimes, a brood chamber composed of two medium-depth (six and three-eighths) supers – but never more. This eliminates the possibility of the queen's becoming honey bound and provides the bees with maximum motivation to move upwards, into the storage supers.

The frame's top bars have rounded edges, too, a nice touch, not unlike polishing the ports of the intake manifold on a high-performance engine. Of course there are many factors that influence a world's record other than the mechanical. There is the skill to know exactly what to do, and to know when to do it. This skill, according to Ormond, "comes directly and only from God."

Besides the equipment and the skill of the beekeeper, there's the natural profile of the location – the climate, available wildflower forage, the state of the eucalyptus, the humidity, rainfall, and all the rest of the uncontrollable environment. It is said that beehives situated above a major water source produce twice as much as hives not over such a source. A pair of scientists tested Ormond's record-breaking location and found that indeed his hives were eighty feet above a major water vein. How's that for control?

Then there's the not so ordinary. Ormond grounds his hives by attaching a grounding wire to the wire grid of the queen excluder and thence to a stake driven into the ground. Alternatively, he runs the wire from the excluder to another wire spiralled a few feet into the air as an antenna. He says these techniques increase honey production by 25%.

There are other personal touches and idiosyncrasies, too. Ormond runs his hives on stands with iron legs painted with motor oil to eliminate ant predation, and uses extended landing boards. It all adds up, micro-drop by micro-drop, to an awesome amount of honey. And, no doubt, some techniques work simply because the beekeeper believes they do.

However, the world's record is in a cloud – or maybe I should say a fog. Without proper guidelines, it's a free-for-all, up for grabs. Guiness doesn't really have the apicultural expertise to judge the subject, let alone pronounce the official verdict.

To compete, Guiness requires your scales to be checked and validated by a representative of the Bureau of Weights and Measures. You must register your intent with Guiness and have all supering, both adding and removing, duly recorded, witnessed and notarized. The weight of the total crop must also come under these strict guidelines. Obviously, there's no way to control the fierce and devious world of competitive beekeeping. The kinds of tricks that could be pulled would make pro-wrestling appear unsophisticatedly straightforward.

In today's world it too often appears that what we used to consider cheating is not only acceptable but even admirable – as long as you win. A man recently visited Ormond and announced that he was going to get the record. He couldn't fail, he said. Why, he's already fed his bees fifty pounds of honey. I had no comment, save that A. I. Root attained the record honorably and so did the Aebi's – one hive, one queen, one season. By the way, this contender was forced to drop out of the competition, at least for this year. He had to move. It's always something.

And the man who did take the record in 1983, Mr. John Clift, with two queens and 622 pounds, wrote Ormond a letter beforehand, telling him how he was going to beat him, how he had everything going – the vegetation, the climate, the stock, the know-how. And, God bless him, he got the job done. But not really, I think, needing two queens to do it.

Why, if you used two queens, or three, or four, or even five (no law against it, apparently), fed those bees liberally and continuously, clipped their wings so they wouldn't waste precious time flying around, heated them electrically and hot-rodded all the equipment, there's no telling how much honey you'd get. Thousands of pounds no doubt. But that wouldn't make you a champion, not like Root and not like the Aebis'. □

For information on the Aebi's books contact Ormond at 710 7th Ave., Santa Cruz, CA 95062. Phone: (408) 475-2065. Ormond welcomes visitors, correspondence, inquiries and even orders.

Mr. Chapman's Honey Plant

by
B. A. Stringer

In the early 1880's, Mr. Hiram Chapman of Versailles, New York, brought home seeds of plants which he had gathered on a Florida vacation. One of these species, when it bloomed the second year after planting, attracted honey bees to such an extent that Mr. Chapman saved the seeds and increased his plantings.

Before the identity of the plant became known, it was popularly called 'Chapman's Honey Plant' by beekeepers. In December, 1885, Mr. Chapman took seeds of the plant and comb honey purportedly gathered from its flowers, to the National Beekeepers Convention in Detroit. So much excitement was generated by his glowing accounts, that a committee was appointed to observe his plantings and report at the next convention.

The plant was finally identified by a botanist as *Echinops sphaerocephalus*, commonly called Globe Thistle. It is not a true thistle, and considerable confusion seems to have surrounded the naming of this particular plant. Its name is Greek, meaning "like a hedgehog", combined with the descriptive 'sphaerocephalus' "round-headed" The plant has thistle-like leaves and round, spiked heads of steel blue or whitish flowers.

The convention committee's report was long and favorable, and was published in both *Gleanings in Bee Culture* and the *American Bee Journal*. On Mr. Chapman's farm, on July 28, 1886, caged flowers were seen to be dripping with nectar, and all other flowers on this marvellous plant were attracting 8-10 bees per head. Mr. Chapman offered plants to the ABJ staff to test. Their conclusions, in the January, 1887 issue said; "We cheerfully and confidently recommend this plant to the beekeepers of North America, as a most valuable acquisition to the list of bee forage plants." Mr. A. E. Manum, who also grew the plants, ventured to predict that "the time is not far distant when it will be extensively cultivated for its honey-producing qualities."

Mr. Chapman distributed seeds and plants from Vermont to Nebraska and good reports appeared in the journals for the next few years. As early as November

Flowering Branch of Echinops Spherocephalus

of 1887, there was discussion on whether the government of the time should be encouraged to add Chapman's Honey Plant to the list of seeds that it sent out free, but a Mr. Baldridge was not in favor of planting anything for honey alone.

The attraction of the plant was summed up by Mr. T. F. Bingham, who stated "The new Chapman Honey Plant adds a five week honey flow just after the clover and linden bloom is passed and before the autumn flowers blossom. The great richness of the secretion of nectar, the opportune period of bloom, and the hardiness and beauty of the plants, promise much to the practical honey producer."

Dr. C. C. Miller, an eminent bee man, planted quite a patch of the honey plant on its introduction. He wrote "No bee plant that I have ever grown was so attractive to the bees. Whenever the weather was favorable, the heads were crowded."

However, although Chapman's Honey Plant was obviously very attractive to bees, uncertainty arose as to the actual amount of nectar collected from the flowers. Dr. Miller later wrote, "I never saw bees so thick on any other plant. But close observation showed that the bees were not in eager haste in their usual way when gathering a big yield, but were in large part, idle. It looked a little as if the plant had some kind of stupefying effect on them."

commonly called Globe Thistle

The nectar is secreted at the base of the flower's corolla tube, and rises 5-6 mm into the bell of the flower. As the flower is split almost to its base, the nectar is easily accessible to honey bees.

After many years growing Chapman's Honey Plant, Dr. Miller eventually stated in the early 1920's, "I should not take the trouble to plant it now if land and seed were furnished free". Mr. A. I. Root cautioned also, "I believe that there is no plant that it will be profitable to cultivate for honey alone"

Chapman's Honey Plant is of historical interest as another of the "miracle honey plants" which failed to live up to its claims. Originally from Europe, the plant is still frequently cultivated for ornament or dried flowers. And, of course, its attraction to bees — whether or not great quantities of nectar are collected! □

DOUBLE TREAT

GWENN EISENMANN

Choosing the right cover crops not only helps your soil but helps your bees.

Long ago in the schoolyard I wanted to ride the merry-go-round, but before I could jump on, some of the big kids gave it a mighty running start and I could only watch until it slowed down. It was a big decision choosing the right time to jump on to get the most ride and avoid disaster.

Now it is the planet Earth going 'round and 'round, carrying so many people it is getting all rubbed bare, old and worn. The decision is not when to jump, but how to stay on and survive. Obviously the "big kids" that keep up the momentum, with pollution and destruction of environment, are not going to slow down to fix anything. But some of us who have been riding a long time are beginning to get the hang of it and are learning ways to stay on and maybe improve the ride.

Cover crops and green manure, which are planted as we go, patch, repair and even renew to give the next generation of riders a good trip. This is not a new idea, but common sense gardening sometimes gets lost among glossy ads, bags of hybrid seed, and fertilizers unrelated to the natural scheme of things. But buckwheat and clover are still common sense. Add wheat and rye and you have buckwheat cakes and honey for bees and people — on this Earth-go-round.

Cover crops are grown to provide soil cover, suppress weeds, reduce insect pests and diseases, and prevent wind and water erosion. When turned under they become green manure for soil improvement. As catch crops they reduce nutrient leaching following a main crop. Green manure increases organic matter in cultivated soils, and increased soil biological activity makes nutrients more readily available to a following crop. Leguminous green manures contribute fixed nitrogen also.

Cover crops can be grown all or part of the year. When utilized as green manure, cultivation and warm temperatures speed up oxidation and decomposition of organic matter. Sod-forming grass or grass-legume mixes are the most effective for increasing total soil organic matter, or "nutritive humus" Fresh, rapidly decomposing organic matter is better than stable humus for improving soil because higher populations of microorganisms with soil-binding secretions improve tilth.

> One doesn't have to have a farm to use cover crops.

Extensive root systems of some cover crops are highly effective in soil loosening and aeration. Rooting depths from 1-7 feet are expected with clovers and vetches.

Green manure cover crops are classified into four main types. **Main crops** are grown the entire summer to improve structure and fertility of poor soils. **Interplanted crops** are mixed with a main crop. **Catch crops** are grown after harvest or before a main crop. **Winter cover crops** are planted in late summer or fall, so must withstand low winter temperatures.

What to plant? There are many choices. We are gardeners, not farmers, and think of our gardens as pasture for birds, butterflies, bees and other beneficial creatures (how about toads and lizards?) as well as a source of food and satisfaction for us. We plant buckwheat, crimson clover, Austrian winter peas, wheat, rye and ryegrass. We might even try some "spring gold" canola. When patches of clover volunteer, they are sometimes left among other plants as we spade or hoe around them.

Austrian winter peas are very hardy and can overwinter in most of the United States, with vigorous spring growth. In northern states there are three ways to increase the likelihood of good overwintering. Plant early enough to get them off to a good start, by early or mid-September. Plant in combination with a good overwintering grain. Inoculate, and plant at the rate of 50# of peas and 50# of grain per acre, or if planted alone use two to four pounds per 1000 sq. ft., or 70-100 lbs. per acre. This ground-hugging pea withstands heavy frosts and matures early (April in warm areas).

Crimson clover is the showiest of clovers with bright crimson spikes on 18" plants in May. It is absolutely beautiful, and can be grown for landscape effect alone. It makes good cool weather growth and is shade tolerant. It is seeded in fall between a quarter and half inch depth and one half to two

pounds per 1000 sq. ft. or 20-40 pounds per acre.

Buckwheat, with only 60 days from seeding to maturity, allows us to plant most anytime from April through August. It is a "phosphorous pump" and grows on almost any soil. Because of its rapid germination and growth, it is a great weed inhibitor, and non-invasive. The white flower panicles are lovely to see en masse, and create bee music wherever they are. It is clearly our favorite cover crop. Seed after frost in spring, three pounds per 1000 sq. ft. or 30-60 pounds per acre.

Consider also, for seeding in spring and summer, crotolaria, guar, soybeans (good mixed with buckwheat), and sudangrass (the king of organic matter crops).

Hay Day

Today my neighbor mowed his hay
As I looked on in sorrow.
It might have been my honey crop
Had it been done tomorrow.

Load by load he filled the barn,
His farm hands worked like troopers,
And more and more each stack, I thought,
Began to look like supers.

I'm sure it is the finest hay,
Its content worth top money,
But nicer still, I thought, if it
Had gone into my honey.

Theresa Crone

For annual seeding in fall, besides Austrian peas, the list includes fava beans, fenugreek, lupines (sweet grain), mustard, sweet clovers, vetches and fescue.

Peaceful Valley Farm Supply lists many more cover crop seeds and mixes to suit any area or condition. Grass, forage and erosion control mixes are included, and ten different kinds of clovers are described with requirements and planting specifications. They also have the required inoculants (and just about anything else an organic farmer or gardener might need).

One doesn't have to have a farm to utilize cover crops. Start in your own backyard, or front yard if that's where your garden is. That's where mine is, all raised beds made of soil hauled to a rocky hilltop from river bottom land. What was once topsoil on the hill became poor sandy leftovers dropped by floods into the river plain, and obvi-

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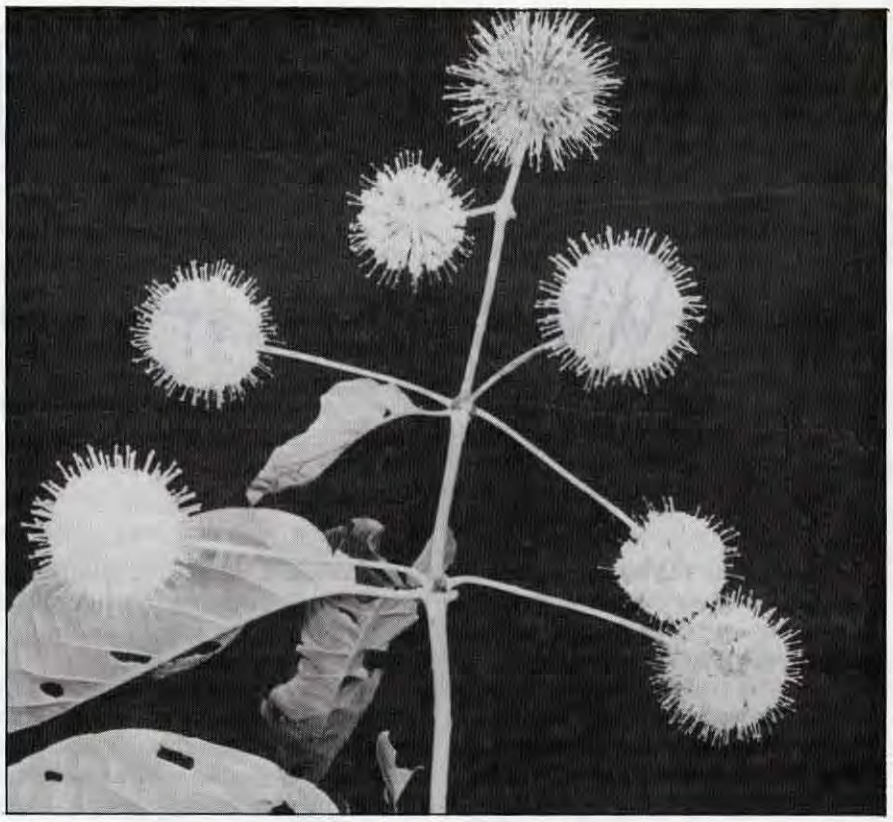

AMAZING HONEY PLANTS

JAKE LANDERS

Some plants have dozens of names by which people identify them. Others like buttonbush and redbud have one. This is a bit surprising for buttonbush because it is so widely found along rivers, streams and marshes. Ordinarily it's overlooked by people. When I looked it up in Vine's book on woody plants of the southwest I found a dozen more names for it, including buttonwood. For the longest time I thought the name was in reference to the round balls of flowers that appear in mid summer like large white bachelor buttons. Now I think it's more likely due to the use of the wood for buttons. The limbs are small, the wood is dense and tough, and it can be shaped and holed for threading without splitting. It would be a lot easier to make buttons out of wood on the frontier than clam shells.

As a range plant, buttonbush has been listed in the books as poisonous. But my neighbor's Spanish goats obviously can't read. Bushes along Spring Creek, here only a draw, were stripped of leaves last fall and the twigs goat-pruned. When I asked if any goats were lost, my neighbor said, "No, but I've had trouble getting them to auction fast enough to keep their numbers down" Obviously buttonbush was not poisonous under those conditions. It is supposed to contain prussic acid, similar to Johnson grass. Maybe it poisons only under a specific set of weather conditions, and those haven't occurred lately around here.

The scientific name of buttonbush is *Cephalanthus occidentalis*. Roughly translated from the Latin it means western flour head. It is an attractive bush in flower and could be used in landscaping to cover up wet spots. Its ball of flowers provides a good source of honey. I have seen some trunks six inches in diameter and foliage no more than 8 feet high. If it's not growing in the stream channel, it's on the bank where flooding would easily wrench off branches or pile up debris. It drops its leaves in the fall, but sometimes the balls hang on through the winter. □

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Waste Not Want Not

KIM FLOTTUM

How using the leftovers from my wax rendering work made my tomatoes bigger, my eggplants heavier and put bigger green peppers on my table.

Every beekeeper who has had to deal with old combs, burr comb and the other odds and ends of beeswax ends up with a residue of 'stuff' when all the wax has been rendered and removed. This residue is the 'solid waste' of the honey bee community but it's the beekeeper who usually ends up with the land fill problem.

Composed of pollen, cocoons, dead bees, bee parts, propolis, crystallized and carmelized honey, and other unidentifiable organic components — the name given this mess is slumgum.

Most beekeepers don't produce large amounts of this material, but for those in the business of rendering wax, either fresh from the hive, or even once-melted by others, the amount of slumgum produced in a year can add up.

The fact that slumgum is composed almost entirely of organic matter has led to speculation concerning its use as an agricultural soil amendment.

The addition of organic matter to enrich soils for agricultural use has been extensively documented. There are three basic types of organic matter materials used. Animal waste products are usually used where plentiful. Green or composed vegetation can be added and plowed under to further decompose. Finally, processed or refined materials, such as peat moss or sewage sludge can be added and incorporated.

The benefits of adding organic matter to soils are legion; these include 1) improving structure and aggregation; 2) increasing aeration and water penetration in heavy soils; 3) improving water holding capacity in sandy soils; 4) humus formation and 5) providing a source of plant nutrients.

Several years ago, while working at the USDA Honey Bee Research Lab, we decided to see if this material actually was any good as a soil amendment. We set up several experiments — both in a greenhouse setting and out in a 'real world' garden to measure its effect on the production of several common garden vegetables.

Before using it though, we had it analyzed for nutrient content. We wanted to see if it would aid in plant nutrition.

It was obvious that slumgum wouldn't make a good fertilizer.

We started with the greenhouse experiment comparing two soil mixes in pots. The first was a loamy topsoil, mixed with sand for added drainage. The ratio was five parts soil to one part sand. The second soil mix consisted of five parts topsoil, five parts composted slumgum and one part sand.

The slumgum had been obtained from a local rendering facility and had been sitting in a large pile outside for at least one year with some having been outside three or four years. The complete sample was well mixed.

pH	%P Phosphorus	%K Potassium	%Ca Calcium	%Mg Magnesium	%B Boran	%Mn Manganese	%Zn Zinc	%S Sulphur	NO_3-N(ppm) Nitrate Nitrogen
5.6	.01	.03	.09	.03	.04	.001	.002	.002	53.3

The analysis provided some interesting results, especially when compared to other commonly used organic soil additives.

Source	%P	%K	NO_3-N(ppm)
Dairy manure	.30	.65	7,000
Poultry manure	1.25	.90	16,000
Alfalfa Hay	.50	2.10	25,000

There were 30 pots with each soil mix, randomized on a greenhouse bench. Green beans were planted in each pot (two seeds per pot, one removed after germination), and the plants were grown to maturity. When mature, the pods were harvested, the seeds removed, counted and weighed.

We looked at several aspects of production from these plants — we put them under the microscope as it were — and carefully measured the differences between the two soil mixes.

Treatment	Avg.# Pots/set	Avg. # seeds/plant	Avg. Dry Wt. seeds/plant	Avg. Wt. individual seed
Soil	6.40g	12.55g	3.89g	.31g
Soil + Slumgum	5.13g	17.90g	5.75g	.32g

Although the slumgum plants produced fewer pods, there were more seeds/pod and the seeds were bigger. The results were very encouraging so we took our work outside to see if it carried on there as well as in the controlled environment of the greenhouse.

We set up three soil treatments this time. The first was a 20:1 soil:slumgum mix (#2) and the second a 10:1 soil:slumgum mix (#3). The slumgum was evenly spread over each 12M² plot and tilled in. The third treatment was soil alone (#1).

In each plot we planted tomatoes, green peppers and egg plants. Then, as the fruits ripened over the course of the summer, they were harvested, counted and weighed. One benefit of this research was you got to eat your results. No pesticides were applied and the area was protected from small animals.

At the end of the season we looked at all the data we had collected. We added and multiplied, factored and fussed, and did all the rest of the statistical analysis tricks needed to make sense of the results.

TRT	Total fruit	Total fruit weight, g	No. fruit/ indiv. plant	Wt. of fruit/ indiv. plant, g	Individual fruit wt., g
			GREEN PEPPER		
1	65.3 A*	184.9 C	10.0A	27.2 A	2.8 B
2	53.7 B	193.1 A	7.9 B	28.3 A	3.5 A
3	53.5 C	187.2 B	7.6 B	26.7 A	3.5 A
			TOMATO		
1	105.4 C	620.2 C	34.5 A	48.5 B	5.1 A
2	125.7 B	728.1 B	34.5 A	60.2 A	5.4 A
3	136.5 A	729.3 A	35.5 A	57.0 A	5.0 A
			EGGPLANT		
1	19.4 B	305.4 C	2.7 A	41.0 B	5.0 A
2	20.5 AB	357.5 B	3.8 A	43.1 B	4.8 A
3	24.4 A	458.2 A	3.7 A	53.2 A	5.5 A

*Means followed by the same letter are not significantly different at the 5.0% level.

The results were about as perfect as could be expected. As the amount of organic matter increased, so did yield. Though not a perfect correlation, the relationship held up and fully supported the results of the greenhouse experiment.

As previously mentioned, one of the biggest benefits of adding organic matter to the soil is that the nutrients present are made more readily accessible to the plants roots. These nutritive ions, held in the soil particles, are released and then dissolve in the now increased water held in the soil.

Of course, adding additional organic matter increases the water holding capacity of sandy soils, and conversely, increases aeration of heavy soils. These benefits, though appearing contradictory, actually provide the same benefits for plants.

Sandy soils, with relatively large particles and interparticle spaces allow rapid water drainage — sometimes too rapid. Also, there are few places for nutrients to be released and little water for those released to dissolve in.

Clay soils, like we have on the Ohio Estate, generally have exceptional water holding capacity and lots and lots of ion exchange sites. However, the problem is that clay soils hold water very tightly between the layers of minerals and is only released with difficulty. The biological action of organic matter decomposition causes these layers to break down and reform into larger aggregate particles, creating or enlarging interparticle (pore) spaces. The soil goes from being solid and rock hard to sort of chunky.

This breakdown frees the water which can drain, or better, to accumulate in these newly formed pore spaces. Nutrient ions are at the same time released and dissolve in the water in the pore spaces, becoming available to the plant.

The implication of all this is that increasing organic matter in your soil will generally enhance plant growth which means that adding slumgum increases yield in proportion to the amount added (to a point, of course). Slumgum contains negligible fertilizer levels, but the organic components made the nutrients that were already present available in greater quantities and at faster rates. This, in turn, helped make more peppers and bigger and tastier (in my opinion) tomatoes.

Slumgum definately NOT a waste product! □

INNER COVER . . . From Page 388

The newspaper you read each day, the magazines that show up regularly, the forms you use at work, along with tons of stuff thrown away each day at the copier, our envelopes, junk mail and newsletters all have one thing in common they are made of paper. You have to get up pretty early to get something by this sharp-eyed editor, I'll tell you.

But there's a dark side to the bright, light, and even the not-so-white paper we use each day. The process that paper mills use to make brown and lumpy wood pulp into these smooth and glistening sheets also produces a very nasty by-product — dioxin.

Probably the most toxic non-nuclear substance produced by our sometimes less than perfect society, dioxin is a result of the bleaching process, which uses chlorine as a whitener.

In fact, one and a half million tons of chlorine are used every year in paper production, because it is the most effective product for the job. But that's changing. New processes have been developed because of cost, and demand for reduced dioxin production. One process uses hydrogen peroxide as a bleaching agent, with only a little bit of chlorine added. Some mills use varying amounts of sodium chlorate, which reduces dioxin output significantly. A new process is using electric charges to separate and brighten, but chemical bleaching agents are still used.

Which brings me to what this is all about — recycled paper. Which, I admit sounds a far cry from beekeeping, but not so far as you might think.

For instance. One copy of this magazine weighs about five ounces. That may not sound like much, but here's what goes into making all 13,500 copies of this months issue:

- Three and a half trees
- 820 kwh of energy (enough to heat the average American home for five weeks)
- 1400 gallons of water
- 12 pounds of air-polluting effluents, one cubic yard of landfill space, and $20 worth of taxpayers dollars in landfill maintenance.

Recycled paper uses fewer of these natural resources, and produces fewer environmental contaminants too. And, although some problems arise with deinking and sludge production, it can be used for, of all things, a soil amendment for heavy soils. And, in fact, is sought after by farmers in mill areas.

Discarded paper, on the other hand, amounts to about 50.1 million tons of waste in municipal land fills. This is about a third of what we throw away. And magazines are about 8.0% of this waste. That's a lot, in fact that's too much.

So, when our printer informed us recently that the cost of paper was going up, we began an earnest search for a source of recycled paper to print this magazine on. We're still looking for one that we can both afford, and that our printer can work with. Too, it must be a steady supplier for a long time, and it must be headed in the right direction price-wise. Recycled paper is becoming more popular as the quality improves and the demand increases, and that means prices should go down.

What does this have to do with beekeeping. Well, directly not much I suppose. But as an industry we proclaim to play a significant role in the world of agriculture — certainly no small part. But we all know that honey bees, and beekeepers, have a much bigger, albeit more subtle role in the rest of the world.

Saving three and a half trees, (that's 40 trees per year), the water, energy and the rest, is a positive, and active step we absolutely must take to reverse what we have already done to our children's home. It is an investment in both our industry, and the future of our planet.

Kim Flottum

DOUBLE . . . From Page 425

ously needed humus and nutrients replaced.

Hauled soil was dumped, spread and planted with buckwheat even before beds were defined. Buckwheat popped right up, thriving in poor soil, bloomed, and surprised our bees with pasture in a forest clearing. As the blooms faded the buckwheat was spaded under and winter rye planted. (That was 12 years ago and we hadn't yet heard of Austrian peas.) By spring our first compost was ripe and was spaded under with the rye. That was the beginning.

The cycles of seasons whirl around too, but one can jump aboard either spring or fall. Most things start in spring, so we planted early vegetables in newly spaded beds. By the end of April here in the Ozarks, soil is warm and frost is over (we hope). Time for the first cover-up. Under cole crops buckwheat is sown and covered lightly with mulch -hay or straw. Also under climbing peas buckwheat crowded out weeds, blooms by the time early crops are harvested, and is there for the bees just as fruit bloom is done. In July or August buckwheat is spaded under before beans or fall crops are planted. If a bed is idle, the buckwheat can be left for mulch, or to bloom and ripen until frost. If it seeds itself, so much the better.

In the fall when garden beds are cleared, they are spaded again and a mixture of Austrian peas or Crimson clover and rye grass is planted. Sometimes winter rye is too big and coarse to spade under well in small raised beds, so ryegrass is planted instead. By the time winter turns off production outdoors, cover crops are well rooted and the beds are green again. All that lovely soil is anchored, covered, and busy making worms while long roots are cracking hardpan.

Come spring again, Austrian peas and ryegrass are spaded down or cut for mulch. Crimson clover blooms, feeds bees, then is spaded under where annual flowers or maybe squash and sweet corn will be planted.

On Grandpa's farm with its corn, oats, wheat, clover and timothy rotation, sustainable agriculture was a natural. Ground was covered all seasons. Today's gardeners can sustain and improve their gardens with cover crops and green manure. They are a least labor way to add organic matter, and are naturally the best soil conditioners available. Re-cover for good footing, food and fragrance, and insure a long ride on this Earth-go-round. □

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About the Author: Gwen Eisenmann and her husband keep bees and garden on the top of an Ozark hilltop in Brixey, MO. She has won awards for her poetry and her honey.

BEE TALK

RICHARD TAYLOR

9374 Route 89, Trumansburg, NY 14886

"Violating the bee's space is a law broken not only by beginners and old timers but even supply companies."

Sometimes the simplest lessons are the hardest to learn. What I'm thinking about now is the principle of the bee space. The principle itself is of the essence of simplicity. It states that bees, within the hive, require corridors of (5/16", plus or minus 1/16" Or, expressed a bit more loosely, it says that spaces within a bee hive must be not less than 1/4", nor more than 3/8" A smaller space is promptly filled with propolis, and a space larger, with burr comb. And this is a law of nature from which the bees seldom, and only imperceptibly, deviate.

The practical consequences to apiculture of this simple rule are enormous, seldom appreciated by beginners, and often ignored by beekeepers of long standing. Indeed, even manufacturers of bee equipment sometimes disregard it, causing horrendous problems.

Thus, to note a few simple applications, the space between an inner cover and the tops of the frames must not be more, nor less, than the bee space. If more, that space will be filled with burr comb, which will be filled with honey, which will drizzle into the hive when the inner cover is pried loose; and if less, then the inner cover will be glued to the frames with propolis, and may even come apart when pried loose. But if the bee space is preserved, then it will remain empty. It is perhaps the most common mistake of beekeepers not to realize this, when they put the inner cover on upside down, that is, *with the deep side down*.

The principle applies also to queen excluders, of course. Those with rims should be placed in such a way as to not leave too much, nor too little, space between the excluder and the frames above and below it. Neglect this, and the excluder will become plastered with burr comb. This may not be possible, though, since some excluders are made in such a way that any method of application violates the bee space between either the super above or the super below.

If you keep bees a long time, as I have, then eventually a lot of second-hand equipment becomes mingled with your woodenware. You learn of some beekeeper who has lost interest, or moved, or whatever, and whose equipment is all for sale at an absurdly low price. Some of this is likely to be home-made, and even when it is otherwise well-made, you sometimes find that the maker did not adhere fastidiously to the principle of the bee space.

Thus, a few years ago, I bought up a large stock of equipment, among it a lot of home-made inner covers. The beekeeper had simply nailed half-inch rims to both sides. Result: Drizzly burr comb in every one. Another of my home-made hives — not, of course, made by me — is just a wee bit too short, perhaps a sixteenth of an inch. That does not seem like much of an error. But it is now almost impossible to take combs from that hive, because the end bars are glued with propolis to the inside of the hive, and break loose when I pry the combs apart.

Every beekeeper sooner or later learns, the hard way, what happens if frames of foundation are not properly spaced, as when only nine are used and one of them ends up just a tiny bit too far from the adjacent one. The bees build two combs in it. They adhere to the principle of bee space, come what may. Nor should you think that you can hive a swarm in a hive that is missing a frame, with the idea of supplying the missing frame in a day or two. You find that the bees will not tolerate that empty space, and build a comb in it, frame or no frame.

There is one apparent, but only apparent, exception to this rule of the bee space, which I was once embarrassed to have pointed out to me. I had expounded on the principle to a bee club which I had been invited to address, and then, later on, I displayed the type of round-section super I use, containing only eight frames, with spaces of about a half-inch, and so-called follower boards, on both sides. I like to set up my supers this way, because it seems to me

Continued on Page 433

QUESTIONS?

Stay Close, Please

Q. In *Honeybee Ecology* (1985, pp. 86-71) Thomas Seeley writes that "In nature, honeybees rarely forage within 500 meters of their nest . ." Does this contradict the view that a crop is best pollinated by positioning hives near the crop? And what purpose is served by workers ignoring nearby pollen and honey sources?

Charles Brand
Beltsville, MD

A. Dr. Seeley's statement applies to bees in a "natural" setting, that is, in a territory where agricultural crops useful to bees are not cultivated. Bees do in fact forage close to their nests when nectar and pollen sources in sufficient quantity can be found there, as in the case of nearby fruit trees, alfalfa fields and so on. Dr. Seeley advises me that, when nearby crops of this sort are not to be found, or "in the wild", bees are found, on the *average* to be about 2,100 meters from their nests, that is, well over a mile.

Safe Smell?

Q. Are the new bee pheromones that have been developed for spraying on garden plants to improve pollination good or bad for the bees?

Sarah Kuntz
East Boothbay, ME

A. I do not believe such synthetic pheromones will ever come into sufficiently widespread use to have any significant effect on bees.
(Ed. Note: The chemicals used are identical to those used in bait hives sold commercially. They mimick the attraction odors used by bees and are in no way harmful.)

Cover Up

Q. Can creosote be used on supers? If so, where can it be purchased?

John E. Palmer
Newmarket, NH

A. Creosote has been banned from public sale. Regular house paint, among other wood preservatives, is usually recommended.

Sting Therapy

Q. I had been bothered by arthritis for years. I bought four hives of bees and several months later I noticed that I no longer was suffering from the pain of the disease. I wear a veil but no bee gloves. Is there any proof from a reliable source that bee stings prevent arthritis?

Orville K. Wray
Maryville, MO

A. I think you have convincing proof from your own experience. I know of no proof from generally accepted medical authority, but some physicians are persuaded of the claim, and testimony from other sources is very strong.

Too Tall?

Q. I have a standard two-story colony (two full-depth supers) over which I put a queen excluder and a shallow super. The bees never occupied the shallow super, so I got no honey. Was the colony too weak or the hive too big? Should I go to a one-story hive and super over that?

Bill Henry
Trenton, NJ

A. I suspect a two-story hive might be too large for your territory. Perhaps a story-and-a-half hive would be better. The thing to know is that bees store their honey just above the brood nest. If that is mostly in the bottom story, then the bees will not go to work on the top story until they have pretty much filled the second story, especially if the top super goes on after the honey flows are underway. A single-story hive would be worth trying, especially if you make sure it is heavy in the fall, with honey, not sugar syrup.

Solar How-To

Q. How do you make a solar wax melter, of a size suitable for 40 hives? Do you need one place for honey to run out and another for wax?

John W. Bilbro
Forsyth, Montana

A. All you need for a wax melter is a box painted black on the outside. Tack a piece of plywood to the bottom and find a pane of glass large enough to lay on the top. Glass need not be fastened. My melter is an old hive body. You might need something twice as large if you plan to melt *all* your wax this way. Inside the box fix a trough from side to side of metal or plastic and make it removeable (for occasional cleaning). Tilt the box with a brick or chunk of wood, facing the sun, put a pan under the trough in the box to catch honey and wax. Load crude wax scrappings or cappings or whatever onto the trough. Fix a scrap of screen or hardware cloth in the trough end to prevent unmelted wax from sliding into the pan and lay the glass on top. In the evening there will be layer of hard wax "floating" on some honey (in case the wax was sticky before melting).

Best Choice?

Q. How can you get bees to pollinate cucumbers in late summer? My hives are in the middle of the field, but the bees go for the early goldenrod instead. I have the same problem with cranberry pollination, when the bees prefer to go to sumac. Would it solve the problem to feed the bees sugar syrup with cucumber pollen mixed in, thus attracting them to the cucumbers?

John Zak
Amherst, MA

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ANSWERS!

Richard Taylor

the sections toward the outside get filled up faster and better, and are easier to remove. But there are those spaces at the sides of the supers, larger than the bee space, and the audience was quick to point out that I seemed to be contradicting what I had just been telling them. Well! The point to be made here is that bees, in filling a super, start at the center and work outwards. If left on long enough, those supers will get burr comb in those empty spaces at the sides, too. But when you produce comb honey, you do not leave the supers on long enough for that to happen. Even so, I do sometimes come upon one of my supers with burr comb at the sides. I didn't get it off quite soon enough, or the honey flow was unusually fast and heavy. The result is a drizzly mess. But it doesn't happen very often.

It is bad enough that a beekeeper should disregard the bee space principle, but it is unpardonable that a bee supply manufacturer should do so. Yet is has been happening, with respect to the supers sold for producing round-section comb honey. Some manufacturers, including one or two of the large and well-known ones, simply supply their regular square-section super, furnished with round-section frames. But the regular square-section supers are 4-3/4" deep. *A round-section super must be no more than 4-1/2" deep.* Is that a small difference? By no means! Because the result is a space of over a half inch above the round-section frames! The bees, of course, fill this space with burr comb, and when the honey is harvested, the honey in this burr comb drizzles all over the comb honey in the frames. It is a serious fraud upon the purchaser of bee equipment. Make sure, before you purchase any round-section super, that you are not a victim of such fraud. □

Comments are welcome. Use Trumansburg address above, and enclose a stamped envelope for reply. No phone calls, please.

A. Bees tend to go to the blooms that offer the sweetest nectar in the greatest abundance. Orchardists have this same problem with apples and pears, especially pears, because the bees find the dandelion bloom more attractive. It is also characteristic of honey bees to stick to the same kind of bloom, rather than flitting indiscriminately from flower to flower. I know of no workable solution to this problem. In the case of cucumbers, however, usually a few bees will visit the blooms, in spite of the competition, and this suffices. Removing competitive blooms will help, if possible.

Light or Dark?

Q. Has the question been resolved about whether honey is darkened by being extracted from old, darkened combs?

Joe Cerwonka
Westminster, MD

A. Not really. I know of several experiments in which dark combs were alternated with foundation in supers, and the honey then extracted separately from these and compared. In each case there appeared to be no discernible difference in color. On the other hand, my comb honey is so consistently lighter than any extracted honey from local sources that I cannot consider the question resolved.

To Join . . .

Q. I hived a swarm and want to combine another one with it, using the newspaper method. Should I also use an excluder, in case I do not find the extra queen? And should the newspaper go above or below the excluder?

John Curtin
Gladstone, MO 64118

A. I have sometimes hived a swarm in a shallow extracting super and then, after the combs were drawn out and it had built up with lots of brood, combined it with an existing colony. It is a good way to use swarms when you do not want more colonies, because swarms draw out foundation very well. It is desirable to have a sheet of newspaper between the two when they are combined, but an excluder is not needed. The bees will eventually dispose of the extra queen.

Questions are welcomed. Address to Dr. Richard Taylor, 9374 Rt. 89, Trumansburg, NY 14886 and enclose a stamped envelope for prompt reply. No phone calls please.

GLEANINGS GLOBE

JULY, 1990 ALL THE NEWS THAT FITS

Differing Perspectives

AG CHEMICAL POLICY DEBATE

"Society's challenge is to strike a balance between the benefits chemicals bring and their costs — risks imposed on farm workers, the environment and consumers," asserts Dr. Sandra O. Archibald, assistant professor at Stanford University's Food Research Institute.

"However, in many cases, we do not fully understand the biological or the economic relationships that would permit precise calculations consistent with what theory suggests we do in order to find the balance between benefits and risks."

Writing in the current issue of *CHOICES*, a publication of the American Agricultural Economics Association, Dr. Archibald observes that while the benefits of chemicals in agriculture are quickly perceived, the risks and their associated costs are not as readily apparent and do not become obvious for years.

Moreover, those who benefit most from the use of agricultural chemicals are often not identical with those who bear most of the costs. Scientists and economists, Dr. Archibald reports, are unable to identify, with any degree of precision, the amounts or the kinds of chemicals whose benefits are in balance with the costs they impose. The roles of scientists and economists, while significant, are also circumscribed by politics. Consequently, our society "muddles through", imposing or changing regulations as new technologies are developed and new information becomes available.

"The benefits and risks of agricultural chemicals in food products," writes Dr. Archibald "are perceived differently by the four principal groups which are concerned with food safety regulations: consumers and consumer advocates; food producers, processors and retailers; chemical manufacturers; and scientific risk assessors or regulators.

All four of these groups are dissatisfied with current food safety standards. All of them agree that there is a need to improve the scientific data base used for assessing and managing the benefits and risks of chemical technology. And all of them favor more effective and less costly regulation. Underlying these common concerns, however, are differing and often conflicting impressions of the source of the problems and the method of their solution.

Consumers, who derive much of their information on food safety from the news media, suspect that chemicals used extensively in food production may be dangerous to their health. They are demanding higher levels of protection, and some consumer organizations believe that any residue in food is potentially dangerous and should be eliminated.

Continued on Next Page

New Members All Around

HONEY BOARD LOOKS FOR DIRECTOR

The National Honey Board announced that Mary Humann will serve as the National Honey Board's acting executive director. Humann is replacing Dan Hall who resigned from his position with the Board in early May.

MARY HUMANN

Humann has worked as the Board's public relations director and assistant executive director since January, 1987.

"Dan deserves tremendous credit for his service to the honey industry which helped to establish the National Honey Board's office and programs," said Harry Rodenberg, Board chairperson.

The National Honey Board will launch a search for a new executive director at its June annual meeting.

Meanwhile . . .

On May 11, Secretary of Agriculture, Clayton Yeutter, appointed ten members and alternates to three-year terms on the 13-member National Honey Board.

Honey Board producer members are appointed to represent seven regions throughout the country for three-year terms. Producers, handlers, importers, marketing cooperatives and the public are represented on the Board.

Yeutter named Binford Weaver, Navasota, TX, to represent Region 5 honey producers in Texas, Oklahoma, Missouri, Arkansas, Tennessee, Louisiana, Mississippi and Alabama. Harry Fulton, Starkville, MS, has been appointed as his alternate.

Reappointed to represent Region 6 honey producers in Florida, Georgia and Puerto Rico is William Merritt of Tallahassee, FL. Frank Randall, Umatilla, FL is the alternate.

Appointed to represent honey handlers is Neil Miller of Blackfoot, ID. Shirley Miller of Midvale, UT, is the alternate.

Appointed as a board member representing honey importers is Michael Ingalls, Sultan, WA. Linda Sandt of Easton, PA is the alternate.

Appointed as a public member representing the interests of the general public is Melissa Hart, Huntsville, AL. Betty Lane, Statesboro, GA, is the alternate.

Less is Better?

EASY HARVEST METHOD

Every beekeeper has recognized that when honey is removed during the early part of the season, when the honey flow is still ongoing, the bees will continue foraging and ignore full boxes of honey even when totally exposed. This is certainly not the case during the latter part of the season, particularly once the honey flow has ceased. During this time, the bees very quickly find the honey supers and begin to rob them.

At the Feb. Meeting of the Saskatchewan Beekeepers Ass'n. a novel technique for harvesting was described.

The method is simply to open a honey bee colony, take off the full supers and set them off of the hive. On a commercial scale this is done starting mid-morning. When all of the honey has been removed, the crew then goes to the next yard and repeats the procedure until mid-afternoon by which time four or five yards would have been made ready. In the afternoon the crew returns to the first apiary to collect the boxes and put them on the truck. By this time, the bees have left the supers and returned to the hive.

The beekeepers who reported on having used this method indicated a number of variations. Some placed emtpy supers on the hive before leaving the yard, others did it later. The boxes are tipped up on their end so that both the top and bottom of the super is exposed. Some left the supers next to the colony, others stacked them in a long row away from the hives so that they were easier to load when they were empty of bees.

A variation was to place full boxes of honey on top of the hive. Apparently, the bees left the exposed honey super much more quickly and returned into the hive which is open below them. In an apiary of 30 or 40 hives, by the time the super on the last hive was tipped, the super on the first hive was now empty of bees and the process could start over.

Obviously, this type of system depends on good flying weather and on the honey flow continuing during the time the supers are being removed. It was noted that care should be taken to ensure that the supers contain no brood because bees will be reluctant to leave the brood and in fact, may not leave the super. Also, some beekeepers indicated that when they returned to the apiary, they found some boxes which had a lot of bees, akin to a ten pound swarm, while the remainder of the supers were empty. This usually necessitated the use of a blower.

Beekeepers who have tried this system and have been successful with it are planning to continue. They claim that it is easier work than using fume boards or blowers and that the work progresses rapidly.

from *Beelines*,
Sask. Beekeepers Ass'n.

(L to R) Sen. Riley Darnell, Senate Sponsor Greene; Tom Hart, State Apiarist; McWherter; Rep. Doug Jackson, House Sponsor; and Rep. Fred Hobbs, House co-sponsor.

On March 23, 1990, the honey bee became the official agricultural insect for the State of Tennessee. This came about primarily through the efforts of Ken Greene of the Dickson County Area Beekeepers and his daughter, Stacey, the 1988 Tennessee Honey Queen.

The new law reads as follows: "Be it enacted by the General Assembly of the State of Tennessee - The honey bee is designated as the official agricultural insect of Tennessee in tribute to its fundamental role in the production of crops"

Why Buy?

FENCES YOU CAN GROW

When it's time to build new fences or replace old ones, people usually turn to store-bought metal or treated posts. But if you own or have access to a woodlot, there are trees that do the job just as well.

Numerous species of hardwoods can be used successfully as fence posts, says Randall B. Heiligmann, forestry specialist at Ohio State University. Heiligmann says that many of the species need not and should not be treated with preservatives.

"Untreated hardwoods used for fence posts should have a high concentration of heartwood, the darker colored wood in the center of a branch or tree. Heartwood is much more resistant to decay than sapwood, the lighter colored wood between the heartwood and bark."

The heartwood of some tree species, such as osage orange, bur oak, mulberry, black locust and eastern red cedar can provide 20 or more years of service as fence posts. Catalpa, white oak, white cedar and swamp white oak should last 10 to 20 years as fence posts.

Count on five to 10 years of service from black ash, slippery elm, chestnut oak, sassafras, black cherry, butternut, and from softwoods tamarack and hemlock. Expect about five years of sturdy support from ash, red oak, black oak, basswood, hickory, beech, sycamore, yellow poplar and ironwood.

By comparison, commercially

Continued on Page 438

Chemical, Continued

Food Processors claim that a "zero risk" goal is unattainable.

Agricultural Producers believe that current food safety standards are already restrictive and should be applied to imported, as well as domestic food products.

Chemical Manufacturers believe that current laws and regulations are often based more upon political expediency than upon scientific knowledge. They advocate uniformity and stability of federal and state regulations in order to facilitate corporate planning and compliance.

Regulators and Risk Assessors are concerned that the current debate over unknown risks of chemical residues in food may divert scarce resources from the regulation of known and greater risks to public health — naturally occurring toxins; groundwater contamination; sanitation standards; and farm worker health and safety. They believe that legislation too often gets ahead of science.

It is obvious, Dr. Archibald concludes, that while all of these groups share certain beliefs, they also have different perspectives of the choices that lie ahead. "If the policy debate is to move forward, there must be some compromise ... only through cooperation ... can the present policy quandary be resolved ... the results will come only with considerable effort and costs. However, the costs of continuing to 'muddle through' promise to be far higher."

(Dr. Archibald chaired the public policy group during a major study of chemicals in the human food chain that was conducted in 1987-88 by the University of CA.)

Maryland Hosts a Winner

1990 EAS MEET

The 35th Annual Conference of the Eastern Apicultural Society will run from July 30 to August 3 at Salisbury State University in Salisbury Maryland. The EAS Short Course will begin Monday, July 30 at 8 am and will end at noon Wednesday, August 1. The Short Course offers a concentrated learning experience with lectures, lab. and field sessions, and Monday and Tuesday evening lectures.

The main EAS Conference begins Wednesday afternoon (August 1) when a special panel meets on 'THE TRIPLE WHAMMY', a discussion of the challenges facing our honey bees from varroa mites, tracheal mites and Africanized bees.

As the conference continues on Thursday and Friday, morning sessions will begin at 9 am with a series of lectures by a variety of noted speakers. In the afternoon, the traditional workshop sessions will feature a wide range of topics where participants will be able to work hands-on with workshop instructors.

Thursday evening will feature an Eastern Shore Buffet. Friday evening will feature the annual awards banquet. The conference ends with the banquet; there will be no Saturday program.

Participants for the EAS Short Course may arrive Sunday, July 29 and use the dormitory facility. Beekeepers who attend the main conference only may arrive early on Tuesday night (but may not attend the Short Course on Wednesday) or may arrive Wednesday morning. To register, beekeepers must complete a registration form by July 9 to avoid a late charge. The registration address is:

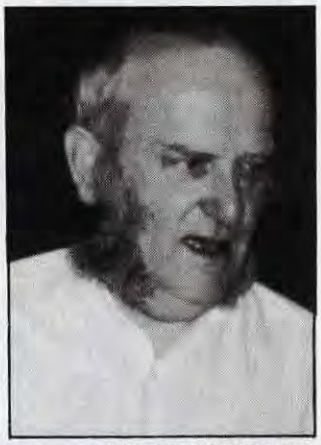
Ann Harman, President,
EAS-90
6511 Griffith Road
Laytonsville, MD 20882
Phone 301-253-5313
(Message recorder, 24-hour service).

WORKSHOP PROGRAM

The majority of the daily workshops during the main meeting are designed to be a "hands-on" experience for those attending.

1:30 - 2:20

Comb Honey, Gene Killion; Skep Making, Karl Showler;



KARL SHOWLER

Experimental & Other Bee Equipment, Diana Sammataro; Bee Diseases, Robert Mitchell

2:30 - 3:20

Home Uses of Honey, Marnie Berthold; Ukranian Easter Eggs, Eleanor Abplanalp; The Computer Bee, William Towne; Newsletters, Larry Connor

3:30 - 4:20

Candle Making, Don Newlin; Wax Flowers, Wade Lawrence; Max, the AFB sniffing Dog, Jerry Fischer

ANITA COLLINS

You will stay in new dormitories at Salisbury State University. The arrangement of rooms is very pleasant: a cluster of 5 double rooms with double bathroom.

The cluster arrangement means that you and your friends can be together. Just be certain to indicate this on your registration form and we will try to accomodate all requests. Single rooms are in very limited supply.

The 1990 EAS Student Award

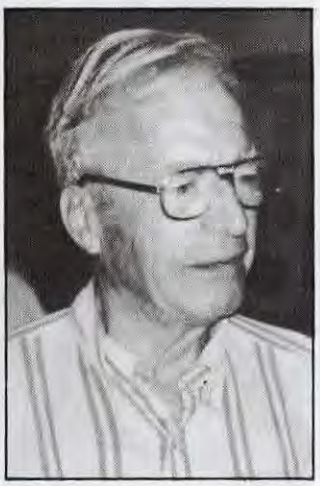
This year the Eastern Apicultural Society recognizes Jeffrey S. Pettis of Texas A & M University for the Student Award.

CHRISTINE PENG

The 1990 Hambleton Award

In keeping with the international stature of James I. Hambleton, this year's award is granted to Dr. Christine Peng of the University of California at Davis.

Dr. Peng's research spans many different aspects of honey bee life, and stands to benefit all people, not only beekeepers. She is widely known for her studies on honey bee nutrition and 'disappearing disease', particularly the digestion of pollen. As a result of her pollen work, beekeepers have been able to save failing colonies by adjusting their feeding programs.



CHARLES MRAZ

Divelbiss Award Winner

The 1990 Charles and Evelyn Divelbiss Beekeeper-Educator Award is conferred upon Charles Mraz of Middlebury, VT.

Short Course Schedule

MONDAY, 7/30/90

Bees and Beekeeping: Gene Killion; Bob Berthold. **Basic Management:** Karl Showler; Maryann Tomasko; Gene Killion. **Advanced Management:** Larry Connor; Anita Collins; Christine Peng; **Field and Lab. Sessions:** Mary Ann Tomasko; Christine Peng; Gene Killion.

TUESDAY, 7/31/90

Diseases and Mites: Varroa Maryann Tomasko; Africanized Bees Anita Collins; Tracheal Mites Jeff Pettis; Brood Diseases - Karl Showler; Adult Diseases - Bob Berthold; and Pesticides Larry Connor. **Field and Lab. Sessions:** Tony Jadczak; Maryann Tomasko; Gene Killion

WEDNESDAY, 8/1/90

Life Functions: Anita Collins; Larry Connor; Christine Peng. **Products of the Hive:** Honey Gene Killion; Beeswax Bob Berthold; Venom Anita Collins; and Marketing Mary Humann

MAIN CONFERENCE

1:30 President's call to order, Ann Harman

1:55 **Challenges of the 1990's:** Moderator: Dr. Robert Berthold. Panelists: Dr. Alfred

Continued Next Page

AL DIETZ

National FFA Scholarship

Each year the EAS awards a scholarship to a FFA member who has met criteria set by FFA for a beekeeping award. From a field of 97 applicants, the FFA has selected Nancy Sears, RD 1 Box 613, Falconer, NY 14733 as the winner of this award.

EAS, Continued

Dietz; Dr. Nicholas Calderone; Dr. Anita Collins; Dr. David Fletcher; Jeffrey S. Pettis

4:00 Master Beekeeper Review Session, Dr. John Ambrose; Delegates Meeting
7:30 Apitherapy, C. Mraz
7:30 Directors Meeting

THURSDAY, 8/2/90

9:00 Master beekeepers exam, Dr. John Ambrose and Master Beekeepers
9:05 Keynote Address: The joys of beekeeping, Eugene Killion,
9:40 Hambleton award winner; Development of a laboratory test for chemicals to treat disease, Dr. Christine Peng
10:35 Sound detection by honey bees, Dr. William Towne
11:00 Educating today's consumer, M. Humann
11:30 The bee breeding and selection program, Dr. Roger A. Morse
12:00 Workshops
6:00 Eastern shore buffet

FRIDAY, 8/3/90

9:05 Bees in art, Ellis Hayden
9:40 Student award winner, Jeffrey S. Pettis Tracheal mites in honey bees
10:35 Karl Showler
11:00 Identification of Africanized honey bees with sound measurement, Howard Kerr
11:30 Dr. James Tew
12:00 Workshops
6:00 Banquet and awards program

FENCES, Continued

available fence posts treated with preservatives generally should last 20 or more years, Heiligmann says.

"Fence posts are most easily made from smaller diameter trees that don't need to be split," Heiligmann says. "Also, if you prefer your fence posts without bark, cut them in the spring when bark is easiest to remove."

WAS MEET IN AUGUST IN CA.

The 1990 Annual Conference of the Western Apicultural Society will be held on the "Cal Poly" campus, San Luis Obispo, CA, Tuesday, August 14 through Friday, August 17.

A short course covering Spring Management, Dealing with Surplus Bees, Rearing Queens, Inducing and Dealing with Honey Crops, and Fall Management will be presented free to registered participants on the afternoon of August 14th.

Program speakers include: Mike Burgett, Africanized Honey Bees in Belize; Evan Sugden, Preparing for AHB's in Texas; Lynn Royce, Hymenopteran Micro-features; Adrian Wenner, Life After Bees on Santa Cruz Island; Rob Page, Laying Workers in Honey Bee

MIKE BURGETT

Colonies; Brian Sheriff, British Beekeeping; Margriet Wyborn, Mass Storage of Queens Over Winter; Mark Winston, Essence of Royalty Queen Pheromone; Bill Chaney, Pesticides and Bees; Joe Stone, Boys' Camp Beekeeping; Jolie Winer, Birds in the Bee Yard; Norm Gary, Learning to Live with "Killer" Bees; and Ann Harman, Apitherapy, the Good Side of Bee Stings.

NORM GARY

ROB PAGE

Workshops on topics including candle making, analyzing bees for tracheal mites, controlling tracheal mites, and high speed extraction of uncapped honey combs will round out the program.

Registration materials must be received by: Housing and Conference Services, California Polytechnic State University, San Luis Obispo, CA 93407 (805) 756-1586 before July 13th to avoid an additional $15 "late fee" The registration fees for the four day conference will vary with the options selected, but should be in the range of $132-$181 per attendee. Self-contained campers are allowed on campus for $15 a day.

Registration materials are available from Eric Mussen, Entomology Extension, U. C. Davis, Davis, CA 95616. Ph. (916) 752-0470.

A Lyrical Drink
MEAD GROUP SPONSORS POETS

MEAD — the ancient alcoholic beverage made from honey, has inspired mankind for ages. Believed to be the Nectar of the Gods, mead was thought to impart the gift of poetry, too.

In honor of that tradition, the American Mead Association is sponsoring a poetry contest with a cash prize of $100.00 for the winning poem.

Any poem (up to five) deemed by the judges to be worthy of honorable mention will be awarded a $10.00 cash prize.

Winning poems will be published in the fall edition of the *Mead Maker's Journal* in celebration of National Mead Month, which is October.

Contest rules:

1. Poem must feature mead, honey or bees.
2. There is a $3.00 entry fee for each poem submitted.
3. Each poem must be the original work of the entrant.
4. Entries become the property of the American Mead Association and cannot be returned.
5. The American Mead Association reserves the right to publish winners in the Associations publications without further compensation to the author(s).
6. Deadline for entries is Aug. 31, 1990.

For more information contact Pam Spence, P. O. Box 206, Ostrander, OH 43061.

"If the world were a single town with a population of 100 inhabitants:
- One would have a college education
- Six residents would own half the wealth of the town
- Fifteen would have adequate housing
- Thirty would be able to read and write, and
- Fifty would be hungry most of the time."

Lord Henry Plumb, Chairman International Policy Council on Agriculture and Trade, April 26,

U.S. Department of Agriculture's Policy on Honey Bees
Phil Villa-Lobos
USDA, Office of Press & Media Relations
Room 459-A Admin. Bldg.
Washington, DC 20250
Tel: (202) 447-3088
Fax: (202) 447-5340

Honey Bee Management, Honey Production
Dr. James Tew
USDA, Extension Service
ATI-OSU
1328 Dover Road
Wooster, OH 44691
Tel: (214) 264-3911
Fax: (214) 264-3911

Stuart Sutherland
USDA, Extension Service
Room 3329 South Bldg.
Washington, DC 20250
Tel: (202) 447-4653
Fax: (202) 475-5289

AHB Research
Kim Kaplan
USDA, Agricultural Research Service
Bldg. 005, Room 335, BARC-West
Beltsville, MD 20705
Tel: (301) 344-3932
Fax: (301) 344-1726

AHB Research at State Colleges and Universities
John Naegele
USDA, Cooperative State Research Service
Aerospace Bldg.
Room 328-B
Washington, DC 20250
Tel: (202) 447-5152
Fax: (202) 382-6152

USDA Program in Mexico, Emergency Actions
Janna Evans (alternate: Caree Lawrence)
USDA, Animal and Plant Health Inspection Service
6505 Belcrest Road, Room 613-FB
Hyattsville, MD 20782
Tel: (301) 436-7251
Fax: (301) 436-5221

Mary Yurkovich
USDA, APHIS, IS
U. S. Embassy-Mexico City
P. O. Box 991
Brownsville, TX 78520

TEXAS
Dave Mayes (alternate: Barry Jones)
Texas Agricultural Extension Service
229 Reed McDonald Bldg.
College Station, TX 77843-2112
Tel: (409) 845-2895
Fax: (409) 845-2414

FLORIDA
Phyllis Habeck (alternate: Maeve McConnell)
Florida Department of Agriculture
Division of Plant Industry
1911 S. W. 34th Street
Gainesville, FL 32608
Tel: (904) 372-3505
Fax: (904) 374-6801

CALIFORNIA
Gera Curry (alternate: Len Foote)
California Department of Food and Agriculture
1220 N Street, Room 304
Sacramento, CA 95814
Tel: (916) 445-3588
Fax: (916) 322-5913

Other Government Offices

Keep the government in mind as a source of information you might use— as a taxpayer, you pay for it. Know what's available.

- Business Assistance Program at the Office of Business Liaison, Room 5898-C, Commerce Dept., Wash., DC 20230. Phone (202) 377-3176.
- Government Printing Office, U. S. Government Printing Office, Wash, DC 20402, Phone (202) 783-3238.
- Congressional offices can usually help find information you need. The good ones stay in touch with the agencies and know what's available. Look up your congressman's or senators' local offices in the phone book. Or write House members at Capitol, Wash., DC 20515. Senators at 20510.
- To get copies of specific bills, write to Senate Document Room, B-04 Hart Office Building, Wash, DC 20510. Or House Document Room, U. S. Capitol, H-226, Wash., DC 20515. Refer to the bills by number.
- If you want to call Wash. offices of congressmen, (202) 224-3121.
- For help in cracking export markets, International Trade Adm. within the Dept. of Commerce has a special Export Counseling Center, Phone 1-800-343-4300.
- "Basic Guide to Exporting" is probably the best government directory on the subject licensing, distributors, insurance and other angles. Sells for $8.50 from Govt. Printing Office. Specify S/N 003-009-00487-0.
- Hiring questions related to the immigration law, (202) 535-0170.
- Questions on minimum wage, other wage-hour issues, (202) 523-7043.

from *Kiplinger Newsletter*

People & Places You Need To Know

Beekeepers Will Profit

EXCESS LAND HELPS LOANS

The Senate Agriculture Committee recently voted to include a proposal by U. S. Senator Bob Kasten (R-Wisc.), in its version of the 1990 Farm Bill to allow farmers to "swap farm debt for conservation"

Under the proposal, farmers could exchange a portion of their debt load to the Farmers Home Administration (FmHA) in return for creating conservation easements on environmentally-sensitive lands on their farms.

"This option should be available to every financially-troubled farmer early in the process of restructuring farm debt," said Kasten.

Kasten's proposal builds on a little-used provision in the 1985 Farm Bill authorizing debt-for-nature swaps.

Kasten said improvements to the 1985 act include removing a limitation to loans made prior to 1985; allowing use of this option for existing or new loans; and allowing farmers to use this option before they get so far into a "financial quagmire" that they are literally faced with losing the farm.

He said the FmHA is projecting losses of over 22 billion dollars as a result of farm debt restructure and farm programs.

"We have a tremendous opportunity to help our farmers by managing Federal relief of farm debt and, at the same time, to protect our precious natural resources.

"This approach pays double dividends by keeping farmers on the farm and protecting environmentally-fragile natural resources.

"And, since this plan uses already-existing Federal loans, we should get more work for our Federal dollars", said Kasten, noting that this proposal is similar to initiatives he has advocated as a member of the Senate Subcommittee on Foreign Operations to protect tropical rainforests in financing developments in Central America.

Floor action on the 1990 Farm Bill is expected this summer.

New Journal for Bee Science

A new scientific journal focusing on the honey bee and the study of Apiculture will be published starting this month. *Bee Science Review*, produced by Dr. Larry Connor, is a quarterly journal of refereed articles, special features and more.

Bee Science Review will have several features which should attract the scientific community: computer disk submission with IBM or Apple capability; top quality peer review; published in English; and an inexpensive subscription price.

Dr. Connor's goal is to have a credible, and rapid, vehicle for honey bee researchers to use when publishing articles.

Individual subscriptions will be $20.00. Institutions and foreign will have additional costs. For more information contact Dr. Larry Connor, P. O. Box 817, Cheshire, CT 06410.

Kaelee Hart is the 1990 Michigan Honey Queen. She lives in Fenton, MI and is a high school senior who will be attending college this fall.

CALENDAR . . . From Page 443

on Thursday, July 19, in the Poole Agricultural Center lobby. Out-of-state featured speakers are: Dr. Jim Tew, Ohio State University; Dr. Keith Delaplane, University of Georgia; Mr. Carter Linkous, Ms. Claudia Linkous, Ms. Chris Sleight, Raleigh, NC; Dr. Arnold Krochmal, Mrs. Connie Krochmal, Asheville, NC; and Mr. George Kelly, Lynchburg, VA.

Some of the topics to be discussed are: The Federal Extension Service Beekeeping Program; The Africanized Honey Bee Moves Closer; Mite Control - Current Status and Developments; Beekeeping in the 1990's; Beekeeping in Georgia; Canola in South Carolina; Buzz the Schools; Pollination Industry in North Carolina; Beekeeping for the Beekeeper; and Beekeepers and Their Neighbors.

An afternoon of concurrent workshops will be given on July 20, 1990 which include: Beekeeping Equipment and Supplies; Beeswax Polish and Other Products; Honey Bee Disease = Pests and Their Control; Queen Rearing for the Hobbyist Beekeeper; Artificial Insemination Technique; and Tracheal Mite Identification.

A spouse's program will include visiting the Clemson University Visitors Center, touring the John C. Calhoun Mansion, the Hanover House, the Clemson Apparel Research Facility and a class on "Cooking with Honey" by Ms. Chris Sleight of Linkous Bee Farm, Raleigh, NC.

A chicken barbeque is planned for 5:00 p.m., Friday, July 20 at Jimmy Howard's home. Evening activities scheduled are the annual Horseshoe Pitching Tourney and the Tall Tales contest.

BOTTOM . . . From Page 448

tigate a sudden intrusion of something unusual, but it kept would-be human pilferers down, too. They used to drive along a mountain road a mile or more away and could see the hives. They say it pays to advertise, but if you're putting bees in bear country, you had better not.

I saw lots of white hives torn up and the entire apiary made into a junk yard. Often, these were just the legal distance from my bees. Sometimes they had electric fences up, too — but they had put their bees on the bear's runway.

If we weren't sure of a bear's route, we tried to put the bees in the least likely place, then we'd put up a bear fence. We experienced more damage from skunks and wood mice than bear — but only because we knew about people, bees and bear. □

Display Index

Things I've Learned About People, Bees and Bears

John Bruce

When I first started keeping bees for a living I often worked on shares. I knew several older men who had from 20-50 hives and were either incapacitated or too feeble to do the work.

One old gentleman had asthma so bad he couldn't care for his hives. He was also one of those people who swore about every aggravation he had.

I was working his bees one day and had my three-year-old son with me. The old man was out watching me work but was standing a good ways away. My boy was sitting by the side of a hive with a little stick in his hand, pushing drones around on the entrance. Of course, that was the safest place in the yard.

Before long there were some angry bees trying to sting the old man. He started calling those bees all the foul names he could think of, and some he just made up without thinking. When he finally quieted down he remarked, "How come that kid don't get stung?", to which I replied, "Mr. Howe, the boy is respectful to girls. He doesn't swear in front of them. You can't expect to talk to any lady in that tone, especially when she's a little bit miffed"

The old man left and I finished the work without being stung. When we got out of the yard, he asked, "Do you reckon that if I quit cussing, the bees would treat me better"?

I did learn from one of these men that the seed heads of sumac made a smoke that quieted the meanest colonies. Apparently it produces a narcotic and takes all the fight out of them. We had lots of those small, black German bees then and it worked wonders. I'm told common puff balls (a type of mushroom) can do about the same. But a word of caution for anyone who uses either of these fuels to drive bees out of a cavity — if you use too much, it may kill the bees. Like all drugs, it must be used in moderation and only in cases of extreme necessity. It pays any beekeeper to gather a sack full of those sumac heads in the fall though, to have in an emergency.

One of the best things I learned, though, was about bears. There were lots of them in the northwest, and I kept bees in bear country for twenty years. But in all that time I didn't have any damage. I attribute some of my luck to the fact that I studied them.

I found they *usually* (just like bees, never say always) have a circuit of about fifty miles and pretty much follow a trail from one source of food to the next. I learned this by hunting them. They will make it from one camping site trash can to another in a regular pattern, unless chased by dogs.

They have hardwood stands where they eat acorns, salmon runs where the dead fish can be easily found after egg laying, riffles where they can pick up fish working through the shallow water, and berry patches for dessert.

Before placing an outyard in bear country, it pays to take some time and explore the area around the floral source you're after. If you see signs of bear, it may still be safe if you note where they travel.

I once had a hundred colonies about 160 yards from a well-traveled bear run. We often saw a bear come down the path while we were working the bees. We had no fence around the colonies and harvested a good crop of honey there.

This wasn't by chance, though. For one thing, we put every scrap of comb and cut-out drone brood in a bucket while working the hives and we took this home with us. Also, bears have very poor eyesight. We painted our hives green to blend with the pine-forest background. This not only kept a low profile for the bees so the bear wouldn't inves-

Continued on Page 446

BOTTOM·BOARD