Bee Culture

AUGUST 1995

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COLUMNS

DEPARTMENTS

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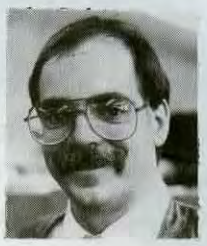
Publisher



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Subscription Rate:
United States, one year, $16.50; two years, $30.00. Newsstand price: $1.95. All other countries, (U.S. Currency only), $9.50 per year additional for postage. Send remittance by money order, bank draft, express money order, or check. Published monthly. Change of Address: Return completed form contained inside issue. Articles are solicited. Opinions expressed by the authors are not necessarily those of the publishers.

ISSN 1071-3190

Advertising
For information on placing display advertisements, contact our Advertising Dept. 1-800-289-7668. Ext. 3220

Postmaster:
Please send form 3579 to: The A.I. Root Co., 623 W. Liberty St., Medina, OH 44256 Tele. 216-725-6677.

Circulation Figures reviewed monthly by Deloitte & Touche, CPAs, and are available on req

The A.I. Root Co., Publishers 623 W. Liberty Street Medina, Ohio 44256

Second Class Postage Paid at Medina, OH and additional offices.

Bee Culture is Printed on Recycled Paper

VOL 123 ▯ NO 8

st '95

Cover
Spring flowers, such as this wild mustard provided the resources for your "honey flow" bees, and will be needed again next spring by your (indoor) overwintered bees.
by Kim Flottum

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INNER COVER

Here's a story you should hear, and, if you're lucky, and do things right, you should hear it from someone other than me.

A grocery store owner called up one of the people who sold him honey. It seems the small chain of stores he was a part of wanted to start dealing with brokers and the main warehouse for supplies. They were pretty much ruling out his options on where to get the stuff he sold. But not completely. And than's why he was calling.

His previous experience with honey from the warehouse was less than exciting. Sticky jars, short weight, uninspired labels and an only average margin didn't make his day, ever. His other local supplier was too-often late with restocks, argued about replacements and just seemed to take his account for granted. The broker didn't have anything local to offer, and, although his national brands were well known, they, too, only offered average margins. Even so, the grocer decided to keep only a single, well known national brand.

This grocer decided that the local honey he was going to sell was not going to cause him any problems. And his first and only choice was a single, local supplier. This was the one who was always ahead of schedule, was always ready to help, always had an attractive product, never quibbled on details, and gave a good product at a fair price.

It was a case of the customer making sure he kept his supplier.

Are you that in-touch with the people you sell honey to? Do they need you? They should.

•

Winter. You may think it strange to think of winter now, when it's about as far from winter as the weather allows. But now is a good time to think about it. Don Jackson has an article on wintering bees in a building, way up in Minnesota. He has solved many of the problems inherent in getting something as fragile as an insect through times of cold weather and no food.

And, wintering in the north is becoming more appealing to many who annually escape the months of cold, snow, sleet, ice, wind, and the like. This is because, for those big enough, the opportunities and locations for moving bees south each winter, to produce honey, to grow and then divide and increase to move north again in the spring are diminishing. And with the spread of African honey bees from Texas east those locations and opportunities will continue to decrease. This is a given.

For most of us though, moving south each winter is not an option. We have day jobs that keep us shoveling snow, scraping ice off windows and splitting wood for heat.

But indoor wintering may not be for you, either. There's a building to build, fans and vents to buy, pallets to move more than many care to or can deal with. But the real value of Jackson's article isn't in the structure he uses. Nope, it's in the basic care he provides for his bees before, during and after winter. That's what you should study.

Food – good food – is important, and he feeds sugar. Not corn syrup. I'm not sure the difference is significant, but some do. And Don does.

Nosema is lurking in nearly every colony, though it seldom sends up a warning flare. But it takes a toll on every single colony that has it. Prevention only makes sense.

Dealing with the other common ailments – AFB, EPB, mites – goes without saying, but if you don't, you don't have bees in the spring. Take care of that investment. Like changing oil in your car, or keeping paint on your house, the principle is the same.

It is fundamentals. Take care of the basics, understand the biology and do what needs to be done, when it needs to be done.

It's simple, really. Only, it's a lot of work.

•

This last is, I think, a bit more personal. Twenty-one years ago, on the 31st of this month, I spent the better part of an afternoon in the delivery room of a hospital in Madison, Wisconsin. The day my daughter was born.

During the interim we have played many roles with each other – doting father, adoring child, precocious toddler, brilliant student, serious father, teammate, pitcher, hitter, chaser, supervisor, disciplinarian, helper, foe, enemy, long-distance counselor, english tutor, confused adolescent, confused father, almost-grown-daughter, proud father, and, through it all – friend.

Jess still lives in Madison, but may be moving to a far-western state soon. Taking a long weekend to visit will be more difficult, I suppose. The weekends will be longer, though, and that's good.

Happy 21st, kiddo. But remember to be careful, behave and be home early. And don't forget, I love ya!

Kim Flottum

Needed

KEEP IN TOUCH

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FAX: 216-725-5624
EMAIL: BCULTURE@AOL.COM

MAILBOX

Bee Stings and Thoughts

I wanted to write and tell you folks how much I enjoy *Bee Culture* magazine. It does not take long for me to read from cover to cover. I think it should have more in it.

Please pass on to Larry Krengel that his article on "Don't You Get Stung" was right on. I do not mind getting stung because I feel that it helps my arthritis. Don't get me wrong. It still hurts when one of the ladies decides to plant one on me. When I first got started in beekeeping I would swell up and stay that way for a week. Now it only lasts a day or so. My doctor thought that I might have to give up the hobby. Not a chance!

Ron Harriger
Cambridge Spring, PA

Yes, I Do Get Stung

This is a note in response to "Don't you get stung?" in the June 1995 issue of *Bee Culture*.

I take my observation hive to schools and talk about bees. My wife assists me by demonstrating the protective clothing. I tell them about the honey bees and then at the appropriate time my wife will dress up in the bee coveralls, veil and gloves to show what a typical beekeeper looks like. At the end I try to save time for questions. A very common question is "Don't you get stung?"

My reply is as follows: "Yes I get stung about everytime I open a hive." But I add, "I get stung because I examine many of my colonies not wearing any protective clothing, not even a veil. But by wearing protective clothing and by using a smoker you can work the bees without being stung."

I am curious too. I would be interested in how other people answer this particular question.

K. G. Pipes
Snow Camp, NC

More on *Varroa* Control

On pages 209 and 225 of your April 1995 issue are ads for natural control of *Varroa* mites. We have not seen any articles in either *Bee Culture* or other journals regarding these methods of control. Could you enlighten us as to how these methods of treatment work.

Jim & Karen Gifford
Stanfield, OR

6,000 Year-Old Remedy

Recently I read a letter to the editor of *ABJ* where the reader was asking about a natural extract based miticide. The answer given was that we shouldn't try it because it hasn't been in beehives long enough.

Am I missing something, or isn't 6,000 years long enough? As long as bees and plants have coexisted on this earth, the oil of that plant has been brought back to hives in pitch for propolis, nectar for honey, and pollen. I started using Tuttle's Mite Solution three years ago and I credit it for saving my bees.

Doug Hamilton
St. Helens, OR

Editor's Note: The material both letters refer to was developed and initially tested by Steve Tuttle. His foray into the bureaucracy of EPA to get his product registered as a pesticide has been fraught with the bureaucracy of the EPA. Registration procedures continue, so it is not yet available for sale. Early results indicate his product is both safe and effective but testing is not yet complete.

Swarms

I started keeping bees March, 1995. I have a lot to learn. I'm 58 years old and my health is not good.

I caught five swarms this spring, and all five left. Some stayed in the hive as much as a week and others in three or four days. They all had queens. In fact, two of the swarms took two of my young marked queens with them, that I had just ordered.

I started with two strong hives in March, then got two 2# packages and queens. Then I got five queens, then four 3# packages and queens. Now I have coming this month five select tested queens, clipped and marked from Plantation Bee Co. The cost is $106.25. I only wanted two hives to begin with. Now I have 12. My wife wants to know when will it end, I find it very interesting messing with them.

Herman B. Crutchfield
Brodnax, VA

Honey Ice Cubes

Thank you for the excellent "Honey Ice Cubes" recipe in your June issue. We drink a lot of iced tea in the summer and using honey cubes makes a real difference.

The 20 ideas for clubs and so many articles in this issue are well done and interesting. Keep up the good work.

Henry Bolanos
E. Norwalk, CT

Foundation Equipment

In the April issue of *Bee Culture*, a question was directed to Dr. Taylor about the availability of existing equipment to make foundation for Hobby Beekeepers.

Two types of foundation devices were mentioned. Twenty years ago I purchased the waffle type press and modified it to except crimped wires of my own design.

By controlling the temperature of the wax I can produce a minimum of 15 sheets of beautiful foundation per hour, and my wife says the aroma of the melting wax is quite pleasant.

If interested, here is the manufacturers address: Leaf Products, 24 Acton Rd. Long Eaton, Nottingham, Eng. NG 101 FR.

Robert A. Alten
Lancaster, OH

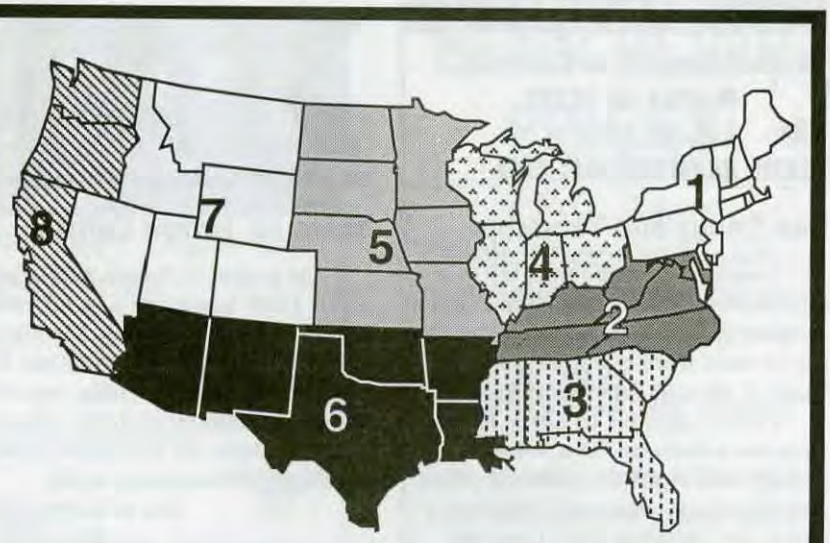
Continued on Page 441

AUGUST Honey Report

AUGUST 1, 1995

REPORT FEATURES

Prices shown are averages from many reporters living in a region, and reflect that region's general price structure. The Range Column lists highest and lowest prices received across all regions, from all reporters.



	Reporting Regions								Summary		History	
	1	2	3	4	5	6	7	8			Last	Last
Extracted honey sold bulk to Packers or Processors									Range	Avg.	Month	Yr.
Wholesale Bulk												
60# Light	45.61	44.00	36.60	45.00	44.90	45.00	42.00	43.06	34.80-56.00	43.90	46.68	41.58
60# Amber	44.19	45.33	31.20	42.00	50.00	42.50	40.00	40.18	30.00-52.00	41.80	44.47	39.81
55 gal. Light	0.59	0.68	0.61	0.65	0.54	0.58	0.55	0.60	0.52-0.90	0.62	0.61	0.57
55 gal. Amber	0.54	0.56	0.52	0.63	0.61	0.55	0.50	0.54	0.48-0.78	0.57	0.58	0.53
Wholesale - Case Lots												
1/2# 24's	22.47	24.00	16.47	19.20	38.00	20.50	22.85	22.00	16.47-38.00	23.55	23.45	24.61
1# 24's	29.95	31.85	27.84	30.80	30.40	32.00	31.25	30.13	26.00-37.90	31.48	33.40	31.10
2# 12's	27.90	29.63	27.88	28.50	26.95	27.75	30.25	32.00	26.40-34.80	29.50	31.69	31.67
12 oz. Plas. 24's	24.92	28.20	25.65	26.40	12.50	26.40	27.50	24.53	12.50-37.90	26.55	28.25	28.04
5# 6's	27.48	34.50	33.20	31.50	25.50	28.00	29.20	28.00	18.00-35.45	30.39	32.66	30.69
Retail Honey Prices												
1/2#	1.51	2.29	0.99	1.19	1.15	1.85	1.18	1.24	0.99-3.50	1.51	1.46	1.46
12 oz. Plastic	1.56	1.80	1.61	1.69	1.39	1.82	1.70	1.51	1.19-1.99	1.65	1.74	1.58
1 lb. Glass	1.82	2.07	2.03	1.79	1.78	2.10	1.90	1.74	1.69-2.50	1.90	1.95	1.79
2 lb. Glass	2.99	3.19	2.89	2.69	2.96	3.35	3.15	3.20	2.66-3.79	3.17	3.21	3.19
3 lb. Glass	4.01	4.96	4.28	3.79	3.65	3.95	4.50	4.41	3.50-5.00	4.33	4.34	4.42
4 lb. Glass	4.74	4.62	5.23	5.23	5.23	5.35	5.25	6.25	3.99-6.30	5.40	5.66	5.69
5 lb. Glass	6.55	7.95	7.31	6.75	6.59	6.20	6.35	6.57	5.97-8.95	7.02	7.12	6.79
1# Cream	2.33	3.35	2.65	1.99	1.99	3.25	2.15	1.65	1.50-3.95	2.49	2.78	2.68
1# Comb	3.07	3.35	3.08	3.75	2.96	3.85	3.75	3.31	1.95-3.95	3.34	3.49	2.85
Round Plastic	2.57	2.72	2.72	2.72	2.72	3.30	2.72	3.06	1.75-3.50	2.92	3.01	2.84
Wax (Light)	1.96	1.50	2.47	1.60	4.00	1.65	1.45	1.58	1.40-4.00	2.00	1.91	1.69
Wax (Dark)	1.46	1.33	1.77	1.45	1.77	1.05	1.30	1.40	1.05-2.75	1.51	1.51	1.25
Poll. Fee/Col.	29.86	30.00	33.38	32.50	33.38	12.50	35.00	33.50	12.50-55.00	32.63	31.25	30.07

MARKET SHARE

The China Syndrome becomes curiouser and curiouser. The compromise proposed by DOC hasn't run out at press time, but either way Chinese imports have been brought under some (if limited) control. The U.S. market, at the big packer level, is rearranging itself to accommodate. Prices will increase as product becomes less available. Competition will be, to quote one packer, keen.

Region 1

Prices down a hair since last month, but demand average for season. Crop mixed, some locations dry early and slow to start, others exceptional. Colony conditions good to great – big populations common.

Region 2

Wholesale prices stronger this month, but retail only steady. That should change. Demand increasing as new crop comes in. Strong swarming this spring slowed some colonies, but most in pretty good shape. Sales about the same as last year.

Region 3

Prices lower than expected this month. Most crops didn't do well so demand should be strong. Go figure. Colony conditions average to strong. Some mite problems in untreated colonies.

Region 4

Prices steady at both retail and wholesale, but increases on the very near horizon, according to most producers. Honey crop spotty, but much of region reporting good to great crops in June and early July. Sales slow, but weather's been warm.

Region 5

Prices showing some decrease, but wholesale prices improving and retail must reflect that soon. Expect some big bumps. Colony conditions good to great, but summer flow a bit lower than expected – rain and cool weather – should keep prices high.

Region 6

Prices increasing and near the rest of the country. Demand, both wholesale and retail strong, which helps. Colony conditions good, sales strong and outlook promising. AHB stirring things up a bit, but not nearly what they could.

Region 7

Prices steady, demand strong and crop short. All add up to even higher prices this fall. Cool, wet spring slowed production, and hampered colony growth. Late flow will help, maybe.

Region 8

Prices only steady, even decreasing in some areas but only average production and increasing demand should change that. Colony conditions average, generally, but southern areas slower than the north.

MAILBOX

Beekeepers Vs. Packers

This is a letter to the beekeeping industry to be read by beekeepers and packers alike.

There has been an ongoing mistrust between beekeepers and packers in our country for as long as I can remember. In the past year, I have been working hand in hand with beekeepers as a packer and have had no problem getting along with maintaining a great relationship with many of the best beekeepers in the country.

I have found that honesty goes a long way in repairing the hard feelings created in the past. If we were all honest with each other instead of trying out do the other I believe we would have a much stronger industry. I think we are going to have to learn to work together better or both packers and beekeepers are going to suffer. We have seen some much needed increase in the value of raw honey in the past few months. It is unfortunate these increases had to come at the expense of legal action and an inability to get along. Somehow, we have to repair the industry. This will take a lot of honesty, hard work and serious effort by both sides.

I know honesty works as that is how I have come to gain the friendship and trust of a great many honey producers.

Every packer should be aware that beekeepers could not sustain their businesses with prices at the levels of a few months ago. These honey producers are the lifeline of packers and we should make every effort to get them a fair return on the honey they labor to produce. If we don't have a supply of honey we won't have anything to pack.

Letters are encouraged. Let everyone know what's on your mind.

Beekeepers are enjoying a very fast moving escalation of prices currently being paid for raw honey. We have to understand what kind of strain this puts on packers. Price increases in the packing industry take more time and are very hard to secure without substantial evidence that they are warranted. This is done by comparison with competition and opens the door for some less honest packers to gain market share by not reflecting increased costs, deflating the whole market. When prices move as fast as in recent months, it should be the responsibility of packers to get the increases needed to keep the raw prices from loosing the much needed increases they have shown.

These are my personal views and should be taken as such. I only hope to stimulate the thinking of honey producers as well as packers to work toward a fair and equitable solution to save our great honey industry in the U.S.

Brent Barkman
Hillsboro, KS

? DO YOU KNOW ?

Foraging Behavior

clarence collison

Honey bee colonies use a variety of strategies to integrate individual worker activities to meet colony requirements efficiently. The collection and storage of nectar and pollen, the primary food sources, is basic to colony development and survival. Many factors regulate the foraging activities of the colony. The type and quantity of forage collected is related to colony needs and environmental conditions. How well do you understand foraging behavior and the factors that affect it?

Please take a few minutes and answer the following questions to determine how well you understand these important topics.

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

1. ___ Individual honey bees typically forage in a relatively small area.
2. ___ Honey bees collecting pollen normally have longer foraging trips in comparison to those collecting nectar.
3. ___ Honey bees have a strong tendency to forage at the nearest source for each floral species in the area of the hives.
4. ___ Workers tend to prefer nectar collection over pollen collection.
5. ___ Workers normally visit several species of flowers on each foraging trip.
6. ___ Pollen loads tend to weigh more than nectar loads.
7. ___ Foraging honey bees make an average of 100 foraging trips per day.
8. ___ Workers will travel further for a pollen load than for nectar.
9. ___ Many workers return from foraging trips with their honey stomachs only partially filled.

Multiple Choice Questions (1 point each).

10. ___ Workers as they forage choose which pollens to collect based on pollen _____
    A. moisture content
    B. nutritive value
    C. age
    D. odor and physical configuration of the pollen grains
    E. color
11. ___ Foraging for either nectar or pollen generally does not begin until the temperature reaches:
    A. 70-74° F
    B. 50-54° F
    C. 64-68° F
    D. 45-49° F
    E. 54-58° F
12. ___ Winds in excess of ___ mph will cause foraging honey bees to stop flying.
    A. 10
    B. 5
    C. 25
    D. 15
    E. 20
13. ___ House bees typically become foragers when they are ___ days old.
    A. 15
    B. 21
    C. 18
    D. 24
    E. 30
14. Besides nectar and pollen what other two materials do honey bees collect from their environment? (2 points)
15. Name two senses used by the honey bee to find its way through a changing environment while foraging away from the hive. (2 points)
16. In reference to food sources what information is conveyed by scouts to recruits with the round dance and wag-tail dance. (3 points)
17. How do dancing bees convey the profitability of food rewards to potential foragers? (2 points)
18. Various floral characteristics are used by foraging honey bees in distinguishing between floral species. Please rank the following characteristics in order of importance with 1 being most important and 3 least important in discriminating between flowers. (3 points)
    ___ Shape or floral pattern
    ___ Odor or fragrance
    ___ Color markings

ANSWERS ON PAGE 464

PEER REVIEW, ETHICS AND 'USER OPINION'

The Challenge Of New Product Research

mark winston

Most of us do not get our opinions about commercially available products by carefully reading the best of newspapers, viewing only public television and perusing consumer guides. No, most public opinion comes from a curious creation of the North American advertising industry: the Celebrity Endorser. We seem to think, for some reason, that an athlete, movie star or model knows more than we do about what car to buy, shoes to wear or deodorant to put under our arms. You would think that society would look to its most well-educated, thoughtful and careful members for opinions. Yet, have you ever heard of a university professor being used as a Celebrity Endorser? I drive a car out to the beeyard, wear shoes and sweat; why shouldn't I get million-dollar contracts to try out products and endorse those that bid the highest for my endorsement (Oops, I mean: those products that are of the finest quality.)?

I think bee supply companies are missing the boat here. Why not create a series of advertisements using distinguished professors to promote their products? Can you imagine what it would do for sales to have a photo of Roger Morse on the back of *Bee Culture* magazine, lounging on a tropical beach, with nothing but a towel draped over him, a beautiful long-haired blonde at his side, saying something like: "I only use A.I. Root foundation?" Or perhaps Chip Taylor posing in a steamy locker room after finishing a tough game of squash, ready for the shower, saying: "I never use anything but a Maxant hive tool." Or maybe even Mark Winston, naked in a bathtub filled with propolis lozenges, saying: "When I have a sore throat after a long day of lecturing, I take Such and Such brand lozenges."

No, the companies that make bee-related products haven't been banging on researchers' doors for endorsements like those listed above, but they do approach us to test their products and give our "opinions." Some of us have even invented products, and of course, our opinion about our own products is that, whatever their function, our inventions are the best thing since sliced bread. Product research of any kind, whether it involves testing someone else's product or inventing our own, provides one of the greatest ethical dilemmas faced by researchers. We're caught in a real bind here, because one of our responsibilities to the beekeeping community is to come up with chemicals, devices and methodology to use in bee management, but it's very difficult to accomplish this in a truly independent, non-advocacy way. This problem is getting worse because, as government funding diminishes, we have to look to industry to finance our work, and the companies that provide the necessary funds often expect a particular answer for their research dollars.

The simplest product dilemma comes from free products. I have received a steady stream of free products over the years, including "new" designs of bee hives, plastic combs, pollen supplements, pollen traps, feeders, queen cages and more. These products usually come with long true-believer speeches extolling the virtues of these revolutionary new inventions, and asking me to try it out and "tell them what I think." Researchers don't work that way, however; we're not supposed to have an opinion about something that hasn't been thoroughly tested in a properly conducted experiment. Those of us who survive in the competitive research world of contemporary science learn quickly to keep our opinions about products to ourselves, because almost anything we say will be misquoted somewhere and come back to haunt us. So, for these freebies, it's best just to mumble something about how interesting the product is and promise to try it out at the first available opportunity.

A more difficult ethical dilemma develops when companies approach us to test their products and provide dollars to do so. Here, there can be subtle or not so subtle pressure to design an experiment in a way that will bias the experiment toward producing a particular conclusion, or perhaps to interpret the data in ways that lead towards a desired result. The pressure to do this kind of advocacy research is increasing as government research dollars diminish, and perhaps the strongest argument for continued government involvement in research funding is the need for a truly independent research community to provide unbiased analyses of products and issues.

The most difficult product dilemma occurs when a university or government researcher invents something that really might be use-

Continued on Next Page

"Why not create a series of advertisements using distinguished professors to promote new products?"

CHALLENGE ... Cont. From Pg. 445

ful. Here it becomes difficult to maintain an unbiased perspective in the face of the excitement that comes with creating something new that can make a scientific reputation. Even more, some products can be highly lucrative, and income is something that even we life-of-the-mind academics value as much as we do our reputations. The dilemmas here are twofold. First, how can we make new, exciting inventions without losing our rigorous analytical perspective and scientific credibility, and second, how do we keep our research balance in the face of a potential cascade of money from a successful product?

Perhaps the strongest brake on our making unwarranted product claims is that, while a useful invention will make us heroes, a highly heralded invention that turns out to be a bust will turn us into bums. Science is full of windbags who thought they had invented or created something, held well-attended press conferences to announce it, then ended up in the scientific dustbin when their claims proved to be exaggerated. Remember the announcement that swept the scientific community and the newspapers a few years ago, that cold fusion had occurred in a scientific laboratory, heralding the invention of a new energy source? The data turned out to be improperly interpreted, the results not repeatable, and the proponents of these experiments have more or less vanished from the respectable scientific community. I would not underestimate the fear of looking like an idiot as an important restraint on scientists to make sure that the data are truly solid before announcing a breakthrough.

Peer review and repeatability are two additional barricades that hold back the waters of unproven products and ideas. Have you ever wondered what happened to some of those announcements you've read in the popular beekeeping press about a new finding or product that you subsequently never heard of again? Usually, the scientific articles that were more rigorously reviewed by peer scientists were rejected. Peer pressure insists on proof, and scientists that make unwarranted claims find that their articles and grant applications are rejected by peer juries. Repeatability performs a similar function. If your studies lead to what you think is a truly exciting result, you can bet that someone else will try to repeat your findings, and you can expect some serious criticism if your work can't be duplicated by others.

User opinion also is a jury that brings in verdicts that can sink a poorly researched but heavily publicized product. Beekeepers may be tricked once into buying a highly heralded new product, but the crucible of user opinion and the beekeeper grapevine quickly torpedo something that really doesn't work. Indeed, most of us get suspicious when we hear a new product announced without qualifications; almost nothing works every time, in every situation. Scrutiny intensifies as the claims for a product's efficacy increase, and it doesn't take long for the word on the street to spread about a product that doesn't work as advertised.

The final check on researchers' unqualified advocacy for inventions is that those of us in government or academia rarely make money on products developed in our laboratories. First of all, most of our work is in the public domain, and anyone can pick up the information and use it for product development. Thus, it is private industry and not the inventor that benefits. Secondly, our employers have fairly strict guidelines concerning how we can interact with industry, and an arms-length relationship is required in most situations where personal money might be earned. We need to walk a fine line here; we are encouraged to interact with industry, but using University or government facilities for personal benefit is a quick road to prosecution and dismissal. Our mandate is to create useful products and ideas for society, not to make money on top of our salaries.

An independent research community performs an enormously valuable service to society by providing reasonably unbiased information about products and inventions. There has been an increasing trend in recent years for researchers to interact more with industry and commodity groups, and I think this is very healthy. However, "interaction" does not mean "dependence," and, while we should foster these useful relationships, we need to keep academia-industry interactions as partnerships between equals rather than as one serving the other. Those of us in academic research should embrace society-serving work without becoming product advocates, while industry should expect us to give them the bad news when a product simply doesn't live up to expectations.

The key to maintaining this jewel of an independent research community is funding with no strings attached. Industry funding rarely comes with the freedom to take off in any direction your work may go, or to come up with an answer that isn't self-serving, but is accurate. No, a delicate balance is required here between useful work and independence, and although the "useful" part might be funded by industry, the "independence" can only come from funding without strings. I don't think the small amount of money our society invests in research support is too big a price to pay for that independence. If nothing else, taxpayer support for research means that you won't have to put up with Celebrity Professor advertisements! BC

"An independent research community performs an enormously valuable service to society by providing reasonably unbiased informaton about products and inventions."

Mark Winston is a professor and researcher at Simon Fraser University, Burnaby, B.C. Canada.

Lithuania's Museum Of Ancient Beekeeping

"They take you back in time, and you find their development was very similar, and very different than ours."

william j morrison

A travel poster that I saw at a hotel in Vilnius, the capital of Lithuania, read in English: "Visit Lithuania, a country of a peculiar culture." I recall chuckling at that mistranslation; surely they had meant to say "*unique* culture." I have made several trips to Lithuania both before and after it became the first Soviet republic to gain independence. On one of these trips, as a guest of the Lithuanian Institute of Ecology, I had the pleasure of being taken by my hosts for a visit to a rather imaginative museum, the Museum of Ancient Beekeeping. It was there that my prior impression that bees and beekeeping played a significant role in the culture of my Lithuanian ancestors was reinforced.

The museum is located in the National Park of Lithuania in the northeastern part of the country, where the idyllic landscapes, with lakes nestled among low hills, are very pleasing to the eye. Many of the lakes are connected by slow-moving streams, and the park map shows the routes and campsites canoeists might use for weekend excursions. The park does not attempt to preserve a pristine wilderness the way many national parks in the United States do; instead, it consists of a mix of natural and managed forests, farmland, inhabited villages and old homesteads. One can find old log barns with doors, nails and hinges made entirely of wood. But in spite of the somewhat developed character of the park, the howls of wolves can still be heard at night.

Europe has many museums devoted wholly or partly to beekeeping. This one seems to be only one of three that existed in the former Soviet Union. A tiny, rustic cottage, the headquarters of the museum, contains displays of old and modern beehives and beekeeping tools. Across the yard from the cottage is a typical log granary or storehouse with a large front room furnished with rustic tables and benches arranged to seat lecture audiences. Toward the end of my visit, this is where we sat and sampled the local honey from miniature paper cups.

The most fascinating part of the museum is the quarter-mile-long trail which takes the visitor back in time to when bees were kept in the forest. The guide who escorted me, an off-duty teacher, developed and ran the museum. Through various exhibits set up along the trail, the creators of the museum intended to demonstrate the stages in the development of beekeeping in this part of Europe. Some of the displays included life-size wooden figures, carved by folk artists, which depicted beekeepers, bears and even a bee god.

The first stage of beekeeping represented was a step removed from wild bee hunting. Instead of simply finding and chopping down a bee tree, a rectangular opening was hewn into the part of the hollow tree in which the bees had their nest, and the tree was left standing. The opening was fitted with a narrow, wooden door which permitted access to the combs. The beekeeper would chop his personal mark on the trunk of the tree to indicate his legal right to the colony within it. Just off the trail was a tree prepared in this manner. The guide explained to me that existing cavities too small to accommodate a colony of bees were sometimes enlarged by the beekeeper.

As we strolled further along the trail through the forest, we came to another tree into which had been hoisted a section of hollow log. The ends of the log were closed off with wood, and its side was fitted with the same type of door previously seen in the hollow tree. The log was tied firmly to the trunk of the tree in a vertical position quite high off the ground, perhaps 20 feet. This was the second stage in ancient beekeeping; if nature did not provide a sufficient number of hollow

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Log beehive in a tree with a nearby platform for the beekeeper.

LITHUANIA'S MUSEUM ... Cont. From Pg. 447

trees in the beekeeper's territory, then he could put up this movable kind of primitive hive.

I asked my guide why bees were kept so high up in the trees in these log hives and not on the ground. After all, forest beekeeping was extremely dangerous work. Hoisting oneself into a tree on ropes while putting up with bee stings is no picnic. I expected that the guide's response to my question would have been that the honey-laden hives would have been safer from attacks by bears. In fact, the next two displays depicted some rather barbaric anti-bear devices. One of these was a huge, spiked club hung like a pendulum in front of the bee entrance. The theory was that if the bear swatted the club to get it out of his way, it would swing back and jab him. A bear, being an irritable creature, would swat all the harder and possibly be knocked to the ground where sharpened, upward-pointing skewers awaited him. Scientific research shows that honey bees do tend to choose nest sites high up in trees as opposed to near the ground, a behavior trait no doubt favored by natural selection. But the guide's response to my question about this had nothing to do with the bears or natural selection. His ready answer, which I found startling, was that Lithuanian beekeepers of old felt that the bees preferred to be located high up where they would be close to their gods. Hold it, I thought! Close to their gods?

A consideration of Lithuanian history and mythology might clarify my guide's odd explanation. Lithuania was the last European nation to be officially converted to Christianity; it did so in the year 1385. The folk culture remained extremely rich in customs, beliefs and superstitions well into the 20th century. Linguists regard Lithuanian, a Baltic tongue, to be the most conserved of all the living Indo-European languages.

Folklore experts think that Lithuanians used to recognize at least two bee deities or spirits. One of these, the god Babilas, was depicted by the large woodcarving mentioned earlier. He was a corpulent, gluttonous, oversexed, hairy, buzzing spirit whose model may have been the drone bee. A second and, I think, more appealing bee deity is the goddess Austeja, a fertility goddess and protectress, not only of bees, but of women, especially pregnant women. Her name is connected with the word *austyti* which today means to repetitiously open and close a door or to go back and forth repeatedly and is also related to a word meaning to weave. Bees were sometimes thought of as weaving their combs inside the hive, an image analogous to women weaving cloth. Collectors of Lithuanian folklore have recorded riddles like this one: "There sits a maid in a dark chamber weaving without a loom or a heddle" (What is it? A bee!) Of course, there is also a connection with the constant coming and going of foraging worker bees. Both Babilas and Austeja are thought to have been air deities as opposed to those associated with the earth. When a Lithuanian bride used to toss mead from her cup upward toward the ceiling during the festivities following a wedding, perhaps she was paying her respects to Austeja. So, the reasoning on the part of Lithuanian forest beekeepers may have been that if the bees' god and goddess are air deities, then they should be up in the air near them. It's all very consistent and logical.

As we strolled back toward the cottage, the guide further explained to me that the Lithuanian beekeepers centuries ago were members of a kind of brotherhood. Evidence of this is a curious word in everyday use by Lithuanians that links the Lithuanian culture and language with bees and beekeeping. This is the word *biciulis*, pronounced bitch -*ull* -iss, with the ull as in "pull." Derived from the two-syllable Lithuanian word for bee, *bite* (bit-eh), it was originally used among beekeepers. A beekeeper was a *bicius* (bitch-uss with the uss as in puss). *Biciulis* is a diminutive and it literally means "dear fellow beekeeper." Beekeepers kept bees as common property and had close relationships among themselves that were almost as close as blood relationships. It is said that there was a strong moral code among them. As in other cultures, the Lithuanians saw the bee as a fiercely moral creature. She stung dishonest people, for example. This carried over to human life. Someone who was adept enough and morally good enough to handle bees, as you were, clearly would make a trustworthy friend. It is said that bees were never bought and sold among *biciuliai*. Nowadays, Lithuanians commonly use the delightful word *biciulis* simply to mean "friend" or "pal."

Toward the end of my tour, we took time to examine the log beehives that were set up in the yard next to the cottage. These hives were of the type widely used up to the time of the introduction of movable frame hives, and there was little difference between them and those shown in the displays of forest beekeeping. Some of the hives were capped with fanciful cone-shaped roofs made of wood and bark. On the peak of each roof was a decorative iron

finial in the form of a stylized sun. Such traditional blacksmith art, which is said to be a holdover from pre-Christian times, is commonly seen on Lithuanian wayside crosses and miniature chapels.

In a recent article in the newspaper *Lithuanian Weekly*, it was stated that Lithuanian apiculture is undergoing a period of transition. The former large collective and state farms used to have apiary divisions, some of which have fallen into disarray. On the other hand, with independence and new laws permitting free enterprise, private beekeepers have been able to expand their operations. At the present time, there are an estimated 300,000 colonies in Lithuania. Equipment such as hives, extractors and smokers is manufactured primarily by a wood processing firm in the town of Ukmerge. During Lithuania's between-the-wars period of independence, honey was one of the country's exports, and especially noteworthy was the delicious linden blossom honey. I have tasted some of the excellent meads and other, stronger honey-based beverages produced by one of the country's oldest breweries located in the village of Stakliskes. These products are packaged in attractive bottles on which a honeycomb motif is embossed. It is often said that the former socialist bloc countries don't make anything marketable in the West. It struck me that here was an attractive line of products, worthy of export, that carries a mystique rooted in an ancient, and perhaps slightly peculiar, culture in which bees played a significant role. BC

William J. Morrison is a Professor of Biology at Shippensburg University in Shippensburg, PA.

WINTER INSIDE

don jackson

During my 25 years of beekeeping, I have often asked myself what are the central concepts of beekeeping as a hobby, as an avocation or as a livelihood? At the top of my list are the problems of unpredictable weather, especially as it relates to wintering bees. At first, I wintered mine outside, in central Minnesota, where it gets mighty cold. Then I tried cellar-wintering with our local bee inspector. After that, I hauled colonies to Texas or to California. Finally, in the late 1970s, I ran into some of the writings of Henry Pirker of Debolt, Alberta (Canada). Henry was wintering indoors, above the ground, in a climate-controlled setup using cheap buildings. In fact, he was selling package bees out of his hives way up north in Canada. I was astounded and wondered why we couldn't do something similar or even better here in Minnesota.

"My first winter inside paid for the cost of the building because of reduced feeding."

I jumped into my truck and drove to the lumber company, where I picked up nails, some four-by-eight-foot fiberboard and fiberglass insulation. When I got home, I grabbed my saw and a pile of two-by-fours which were lying around and got to work, making a simple structure eight-by-eight-by-16 feet, with holes through the walls to the outside. I insulated the floor, walls and ceiling and put in a plastic vapor barrier, along with shelving for beehives in four rows on each side, with a 1-1/4 inch hole leading outside for each colony. There was space between the rows to stick jars of syrup on top of each inner cover. I then put 69 single-story colonies inside.

The first winter inside paid for the cost of my building by saving most of my bees. But I kept losing some of the colonies on the bottom row of shelves – they were full of dysentery and obviously under stress. So, I reviewed the writings of Henry Pirker to see what I might be doing wrong. First, I needed a milkhouse heater to keep the temperature from falling much below 40°F in subzero Minnesota. Then I needed to equalize the temperature between the ceiling and the floor, so our local hardware store sold me a duct (furnace) fan, to which I attached some additional furnace pipe, hung from the ceiling and turned on in the fall, moving the warm air from the ceiling down to the floor. Then I bought a small bathroom exhaust fan to remove the carbon dioxide-laden air from the ceiling (the carbon dioxide mixes with the rising air in the building and concentrates at the top, even though, alone, it is heavier than air). Finally, I bought a $12 vaporizer, which I plugged in for periods of 10 days, beginning about the middle of January, when the queens begin to lay, and especially from March 1 on. The vapor enabled all the freshly laid eggs to hatch (some were dehydrating in the dry winter air) and also prevented excessive drifting and outdoor water gathering as the bees settled down contentedly in the moist atmosphere.

Now, my big problems were management at the other ends – before and after winter. I learned that bees that do not quit brood rearing at the end of the summer flows will eat themselves out of house and home early in the winter and starve to death later on. Even putting two-story colonies inside didn't solve the problem – they just ate more, wore the queens out with excessive brood rearing, and came out in the spring weaker than my single story colonies. So, I began using Carniolans and continue to do so to this day; an added advantage is the apparent tracheal mite resistance of some of the Carniolan strains. I also learned to go after nosema infection in the fall with a vengeance, and use Fumidil-B to control it. And finally, while some feeding indoors is possible, the bees seem to do best if placed inside very heavy, for they will not need any feed before the willows

The South end, showing roof, vents and human door.

bloom in the spring.

Eventually, my first building wore out, and I built another. The present one is 40 feet in length, 10 feet wide and eight feet high, with a cement floor, insulated walls and ceiling, small double doors on the south end for human entrance and insulated doors on the north end which can be unhooked and removed in a few seconds for placing the beehives inside. The hives are now palletized, and are moved mechanically. The building holds 400 colonies, stacked five high on pallets, with a flight-through-the-wall hole (1-1/4 inch plastic) for every four colonies. The bees are placed along the long east and west sides, but not on the south end, to minimize drifting to the south during cleaning flights (of course, hobby beekeepers with just a few colonies can place them all on a south end with little worry of drifting). To the west and north is a healthy wind break, necessary in Minnesota's cold.

The north end, with large door and colonies inside, on pallets.

Management hasn't changed much. I use Carniolan strains and am completing a change to tracheal-mite resistant stock. The hives are wintered as singles, which are made up in October (I simply remove the bottom box, set the second story with most of the bees back on the pallet and shake any remaining bees from the removed box back into the hive). They are fed up heavy with medicated sugar syrup (not corn syrup); and questionable colonies get a patty made with granulated sugar, Terramycin and Crisco oil on top. Entrances are left wide open as the stacks of pallets are wheeled indoors about November 1, and real tight covers are a no-no as they restrict air flow. When inside, I plug in two 10-inch duct fans (about 1,500 cubic feet per minute apiece) which run continuously until the bees are removed, about March 21. A bathroom exhaust fan goes on for eight hours out of each 24 until January (broodless period), then the exhaust fan running time is doubled as food consumption also doubles with brooding up; exhausting takes place from the ceiling. No supplemental heat is needed as the bees maintain their own needs; and the flight channels are left open all winter to bring in oxygen-fresh air, enhanced when the exhaust fan kicks in.

Temperatures generally remain in the 40°F range until about the middle of January, and I may shovel in some snow or open the north end, especially if November is warm, to maintain the 40 degrees.

When the queens generally begin to lay small patches of brood in January, I let the temperature rise, and add moisture with cheap vaporizers. In the enhanced humidity, the bees are very quiet, even with temperatures up to 70°F (the principle here is to work with the natural instincts of the insects to raise a little brood, to help them along). If I would try to artificially cool the building during this slight brooding-up process, I would over-ventilate with dry outdoor air, putting the entire operation into dry stress and forcing the bees to consume more food stores in order to raise that bit of brood which they are driven to do.

In this sense, many northern indoor wintering systems use 90 to 150 times the amount of air exchange that I use, which would be totally unacceptable to my bees. My only concern is to keep the carbon dioxide level down to two percent, which is acceptable to the insects.

When the bees are removed in March, they need to be checked for food and pollen stores, some of the bottom boards may need to be cleaned, and queenless and small colonies need to be united. Losses by March may be as low as one percent or less – that will go up by culling weak or queenless colonies. About 50 percent should be strong enough to split, using new queens ordered from the South or West, or they can also be *bottom* supered for the dandelion flow and split later when I may raise my own queens from productive, well-wintered, selected hives. There is no dwindling until the field force dies working the spring alders, willows and maples; and by then a good batch of replacement brood is on the way.

Some other area beekeepers are now catching on to this economical and predictable method of wintering, both on hobby and commercial scales; and I have been monitoring their progress and making suggestions on their management procedures. At least several will be highly successful, and I recommend a daily log of temperatures (both inside and outside), humidity and observation notes on the bees themselves. Over the years, these notes can become invaluable reference points. I can now see that some of these people will be buying only one thing this spring: queens, to split their strongest colonies. BC

Don Jackson is a commercial beekeeper in Pequot Lakes, Minnesota.

SURVIVAL

the old timer

The real import to this story (which I must get off my chest) is survival although the stimulus was honey bees.

Last fall, I went to a different part of the country – a far piece from my regular stamping grounds – to help an old friend with his grandson's apiary. I came to be involved mainly because my flat-deck truck, rigged as it is with ramp and dolly – which of course has been well used and proven through the years for this purpose – was a far better arrangement, we thought, than their pickup truck. We had an early supper at my place on account of my wife had inherited a flock of hens – about 60 – from our daughter, who calls this the year of the chicken (another story) and because Harry and his grandson Fred were giving me a hand to put a log addition on the existing henhouse before winter made its debut.

In the meantime, those extra chickens were making themselves at home under the cedars, roosting in low branches at night by my regular chicken house. Occasionally one of us (me especially) stepped on an egg among the leaves. I should also mention that, during this meal, young Fred enthusiastically stated that, in time, he would like to get 50 more colonies. At this confession I could see my old friend having a little difficulty swallowing his last bite – and I knew why.

You see, although he and I don't agree on everything, we do believe that about 15 hives are all a man can properly care for. It is true that at present, I have 25 colonies, counting the two swarms that conveniently settled in an old shed; but then I have my wife, and she's a whiz when it comes to beekeeping. My better half is one of those unique creatures who goes at things very methodically. It's a joy, for instance, to watch her very carefully remove the outer and inner covers of a hive – then, in soothing tones, chat away to her little charges. Don't laugh – she convinced me long ago that they somehow sense a kinship in her calm and gentle manipulations. The way she tucks each wayward straggler back in out of harm's way with her fingers when she's ready to close up – makes me feel good all over. As you know, insects, like all animals, can perceive vibrations and sound which we humans cannot.

Along with changing weather, which has a tremendous influence on the behavior of honey bees there is also an immense power or perception in the "lowly" beehive – a lot more than we give these little creatures credit for – everything that goes on in their natural surroundings, or under the earth or, in the air – yep – even in the universe affects them, and we would do well not to forget this.

Anyway, back to the story. When supper was over, the three of us drove down to Harry's place – about 15 miles – and in a little over half an hour, we had loaded 12 hives, a two-frame extractor and a number of supers with frames, bottom boards, covers, etc. The colonies were all in deep supers, three high, and no one was surprised at their great weight as the sweet clover and fireweed around Harry's place are something to behold. He was giving the bulk of his apiary – keeping just three colonies – to his grandson, who had settled near

a town far to the southeast where he worked for the department of highways. He'll do all right there because there are no other beekeepers in the area. Anyway – with young Fred in his pickup, packed with a collection of tied-down equipment, leading, and a nip in the air, we headed out into a perfect night world where a full moon bathed the landscape in silver, sparkling and clear.

In the beginning, our route was generally south, and the great peaks of the Coast Range – whitened with early snows – on our right, kept pace with us like old friends, mile after mile, until, as our course took an easterly direction, they became ever-changing tableaus in our rear-view mirrors.

Now and again we stopped, got out and stretched, tramping about for a few minutes in hushed, primitive surroundings. Then, since Harry had chosen to accompany me, we changed drivers.

Ravens, largely unseen among dense spruce tops, clamorously resented our intrusion as we pulled into an abandoned homestead just after sunup. The log house, with its front door in line with the dirt road, still had its four walls standing, but the roof had completely fallen in on top of the rusted stove and pipes and the few remaining sticks of furniture. A round, galvanized washtub hung on a nail on the back wall.

Surprisingly, the barn – roofed with poles and sheathed with sheets of birchbark – looked as good as the day it was put up and leaked in only one corner. A breakfast of sandwiches and tea round a small fire dispensed with, out came our sleeping bags, and on that first day out, we had a most comfortable rest on dry hay that must have been at least 20 years old, while our restless honey bees became acquainted with stands of tall goldenrod waving in the autumn sunshine.

Scurrying mice disturbed the slumbering barn not at all, and even when an owl dropped down from the rafters for a snack, the frenzied squeaks of its luckless prey registered only vaguely in my torpid state.

The day wore on and we awoke, ate, prowled, and early evening saw us on the move again. At one point during the night, we struck a tarred, hard-surface road where we made better time. Shortly after this, we began to see houses, sometimes with barns. At first, there were long stretches of road between houses, but soon they were closer together. We began to see clusters of brightly lit dwellings back off the road. I find civilization very depressing.

Dawn was well behind us when we began unloading along a south-facing row of trees in his back field and later as we stood on Harry's grandson's deck, a sudden squall peppered the hive tops with big, cold raindrops, raising motes of dust and carrying the scent of miles and miles of wilderness to my nostrils. Afterwards – breakfast and a couple of hours shuteye in an unfinished back room.

We now come to the gist of this narrative. On the way home, we (Harry and I) stopped at a little lake perhaps five miles from young Fred's place and dejectedly talked over what the young man had told us. The authorities were going to drain this idyllic body of water and use it as a garbage dump, and further on down the road, hundreds of acres of lush rolling meadows were slated to become a housing development with golf courses, parking lots, malls and what-not. I could see the bitter look on my old friend's face as the minutes ticked away and a flock of ducks came and went. Distracted, I put the truck in motion

Fifty miles of silence, then, "John, whoa! Turn around! I ain't about to let some jug-headed politician fill that lake with garbage without a fight – you with me?" I braked and gave a big sigh of relief. "All the way, mate. Let's show 'em what happens when a pair of old-fashioned hillbillies kicks over the traces."

P.S. The housing development went ahead as planned despite our tirade. But the lake has been left untouched.

Footnote: Come on let's stop and think about what we have to do, for I'm afraid there's not much time left to pussyfoot around. Do we want to trash it all now or leave some for those coming after? There will come that fateful day – all too soon – when a defeated nature can no longer provide us with the necessities of life. A certain polluted lake could be the point of no return – or will it be that the last crumbling shreds of ozone layer can no longer hold back the lethal unveiled sunlight, or a species poisoned to extinction, or that blackened, oil strip of coastline, or that old-growth tree that was destroyed to make junk mail that ended up unread in some landfill site, or a spray program forced on farmers strictly for profit? Whatever it is, this "straw that broke the camel's back" will be catastrophic and unimaginable. We are systematically tearing down the whole ecosystem.

From where I sit, it looks like the environmental death knell has been sounded – and since you can't ring a bell. BC

The Old Timer keeps bees and fights for the wilderness from his home in British Columbia, Canada.

IRON YOUR TROUBLES AWAY

| edwin rybak

When a container of molten wax erupted, volcano-like, in the microwave oven, I knew I was in very big trouble.

Months later, the oven still bore heavy splotches of beeswax splayed over its interior, and attempts to remove all traces of the mess were not very rewarding. Seasons changed, and suddenly the new nectar season burst into bloom with an immediate need for queen excluders.

Rushed, as I usually am in autumn, I had put off cleaning the excluders for a winter project. I should have known better. Winter and spring each brought a new bundle of work, and the excluders remained royally decorated with last year's bridgework. Scraping queen excluders, with wax chips flying all over the place, is time consuming and one of the less-pleasant aspects of beekeeping. But there was no way back to the future.

I headed for the kitchen to get a drink of water and an energy pickup – a spoonful of honey. When I detoured around the ironing board, the household clothes iron winked warmly, even smiled at me. I walked on. As I finished my drink, a little light went on.

I returned to the ironing board, gave Rheta a kiss, picked up the iron, studied it a moment and let out a jubilant cry. The light dazzled; this was probably too good to be true!

But it is true, and this faster, neater method of cleaning queen excluders lets you work indoors on a rainy day – there's virtually no smoke, only the sweet aroma of beeswax with a touch of honey.

An old clothes iron which heats but is no longer considered serviceable, perhaps because it has lost its steam, is your best bet. You can, of course, borrow the household iron, with the attendant danger of raising the ire of the person who routinely uses it. If you don't have an old iron, get and use a guard, a finely perforated, flat steel or teflon plate that spring – fastens over the working surface of the household iron. A layer or two of heavy-duty aluminum foil sandwiched between the guard and the iron with the edges folded up around the sides will protect the iron. Melted beeswax can be wiped off while the iron is still hot, but propolis is another matter. Some people just don't appreciate the preservative qualities of beeswax, nor the moth-proofing attributes of propolis on their clothes. It's better to use an old iron.

Lay a sheet of aluminum foil on your work surface and set a hive body or super on top. Plug the iron in and turn it on. You'll probably want to run the iron on high because even with only a few excluders, you can work faster and more effectively.

Lay an excluder atop the hive body or super, long wires on top, and

You can use a common clothes iron and several layers of paper toweling or cloth to clean wax (*not* propolis) from most places it shouldn't be.

start ironing. As the wax melts, pieces of burr and bridge comb drop to the foil below. Turn the excluder over and iron the other side. This is usually sufficient.

The number of times you iron on each side is determined by how fussy you are. Be realistic. Midseason isn't the time to be overly fastidious. Save your time and energy for a good cleaning late this fall.

Right now, if your apiary isn't far from the house – my bees are within 250 feet – you can have everything set up, remove an excluder, clean it and return it in minutes.

Cleaning the excluder, scraping the top bars below and the bottom bars above, a few days before harvesting, eliminates much of the messiness when the supers are removed. The bees will have cleaned up the stickiness but will not have had time to rebuild the bridgework. While this step is perhaps not commercially practicable, it could be a help to the part-timer or hobbyist trying to minimize the drips when working in the kitchen.

Faster, easier, neater and safer than scraping, this method poses little danger of bending the wires and separating them enough to let the queen squeak through into the supers.

Looks nice, doesn't it?

Cleaning the Microwave Oven

The explosion came from within the microwave oven. Even before I opened the door, I had visions of a nightmare. Inside I beheld what I didn't want to behold– a reality worse than my nightmare.

I had previously melted batches of beeswax in half-gallon paper milk cartons, with an inch or two of water to allow gunk and sediment to settle to the bottom. Then, I poured the molten mixture through a piece of nylon stocking into a clean container. When this had cooled, I punctured the container at the bottom (or, cut off a corner to drain the water) and peeled away the carton, leaving a block of nearly clean wax. For final cleaning, if further refining is needed, you can scrape the adhering debris from the bottom of the block and remelt the wax in a clean container. The wax is then ready for pouring into molds or left to cool as a block for future use.

Well, one container with water still in it had made its way into the batch containing wax only. Remelting containers of solidified wax with water still in them is normally not a problem, and I have done this on occasions when time ran short. But one must remember to bore a half-inch hole through the wax with a knife or a drill to relieve pressure, because the water heats up faster than the wax melts, and steam builds up. I set the container, which I believed to contain only wax, into the microwave oven and turned the heat on.

A few minutes later came the geyser and the explosion. Fortunately, the pan-type turntable caught much of the spill, but you can imagine a pound or more of beeswax, with nearly a pint of water, sprayed and spattered over the interior of a microwave oven. Something had to be done quickly.

I learned some important don'ts.

Don't try to scrape the wax off with a knife or other metallic object, you'll gouge the finish. A piece of wood or plastic, no matter how smooth, isn't much better, as it, too, mars the finish. You can, however, sponge and wipe out a goodly portion

Continued on Next Page

TROUBLES ... Cont. From Pg. 455

of the wax with soft cloths while the wax is still soft. Don't use paper towels. Even the softest are too harsh when rubbed against the mirror smooth surface of many brands of microwaves.

You can, after each normal use of the microwave oven, while the inside is still warm, wipe and buff out some of the wax using a soft cloth or towel. Or you can repeatedly heat the oven up and buff. Use very light pressure as you wipe and buff. Then buff and buff and buff. But go easy, you want to avoid dulling the oven's shiny interior. Over a period of weeks or months, you'll get rid of most of the remaining deposits.

Then one day, I remembered how I'd cleaned the queen excluders, using the iron, and returned to the oven. Now that you're properly informed and equipped, you won't have to live with a guilty conscience as I did.

You'll need a supply of soft, absorbent paper towels. I like Bounty® towels for these reasons.

First, remove the turntable, if there is one, and any other loose hardware. Lay one or two thicknesses of paper towel on the bottom of the oven cavity. Run the hot iron over the towels as you anchor them in place with your fingers so they don't slide and scratch the mirror finish. Don't rush, and do be careful not to let the point or edges of the iron dig through the towels and mar the oven's interior.

The amount of wax at any spot determines the number of layers of paper towel to use. Don't use more than three layers at a time because the paper diminishes the amount of heat getting to the wax and slows the procedure. If there's a heavy deposit of wax, it's better to use two layers of towels, soak up all you can and repeat as many times as needed.

Microwave ovens have a fiberglass or teflon plate through which the microwave energy is injected into the oven cavity, and perforated areas for ventilation.

To clean the perforated areas, turn the microwave oven so the perforated section or screen is up. Drape two layers of paper towels over the inverted iron and go to work. As the wax melts, it will flow down and wick into the paper towels. Do this to each perforated surface, after turning it to the top.

You'll find it easiest to work with the surface being cleaned on the bottom, the iron in a normal use position. Next best is with the iron upside down – inverted. Most difficult is to iron a vertical surface in a limited space because it is hardest to keep the iron solidly flat against the surface being "ironed."

After you've removed all you can of the wax from the perforations while they're at the top, turn the oven so the surface being cleaned is at the bottom and apply the finishing touches.

You can, of course, use an old cloth towel or squares of cloth torn from an old bedsheet or pillowcase, instead of paper towels to absorb the wax. But whatever material you use, keep in mind it cannot be cleaned and reclaimed.

Use the same procedure to clean the turntable tray and other interior hardware you removed in the beginning.

While you're at it, iron away those drips and dribbles of wax still stuck to the floor from previous sessions. If you have linoleum, do the job quickly, as you don't want to melt any grooves into the flooring.

You've done your job well. There are no telltale clues to give you away, and if you say nothing, nobody will probably ever know that Mount St. Helens erupted in the kitchen.

Aren't you proud of yourself? BC

L. Edwin Rybak is a hobby beekeeper with sparkling clean queen excluders, and other things, from Vermont.

OBSERVATION HIVES

maryann frazier

Part VIII

Things To Do

We usually think of using observation hives to teach people about beekeeping, but these windows into nature also offer an excellent opportunity to expose people of all ages to many fascinating aspects of insect biology. There are few, if any, teaching tools as effective as an observation hive to spark a young person's interest or renew an adults fascination in nature. From young child to advanced scientist, the observation hive provides endless opportunities for exploring nature in unique ways. A three-year-old can be fascinated by seeing a new worker emerge from her cell while many scientists still use the observation hive as the basic tool to answer complex questions, such as what are the advantages of being a social insect over a solitary one. School age children can benefit greatly from exposure to an observation hive. Biological phenomenon such as sociality, metamorphosis, insect communication, physical and behavioral adaptations and even pollination are not only clearly visible in an observation hive, they can be explored!

There are two basic ways that observation hives can be used, one is as a "permanent" display set up so that bees have access to the outside. This is ideal since it allows viewers to see all activities that take place in any normal hive. In addition, there are many simple and complex experiments that can be done with bees free to forage. The second way is to make up a temporary observation hive that is sealed so that the bees do not have access to the outside world. The advantage of this is that the colony can be taken on the road, anywhere, anytime. The disadvantage of keeping bees confined is that the colony will not act "normal" since the workers cannot forage and the hive cannot be maintained this way for longer than five or six days. I compromise by keeping an observation hive going on campus in one of our entomology classrooms. We conduct a wide variety of experiments using this hive during class. When I am asked to make a presentation at an elementary or high school or need the bees for a temporary display, I simply plug them up and carry them off. This saves a trip to the apiary and a search for an elusive queen.

Closed Hive

Have "students" identify how many different kinds of bees they see in the hive and list all of the different activities each kind of bee is doing. See if they can identify the bees by the activities they are performing. Ask them what kind of bee they would like to be and why. This can lead to a discussion of the advantages, as well as the disadvantages, of being a queen, worker or drone.

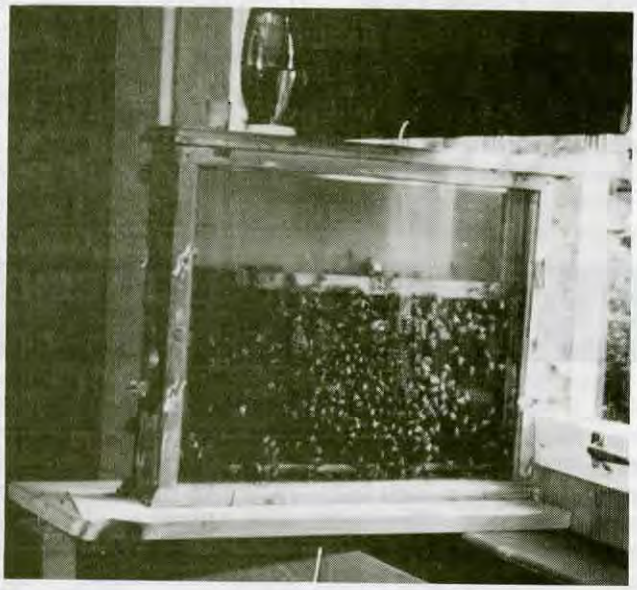
Using a flash light, challenge the students to see how many different life stages they can identify. This can lead to discussion of metamorphosis. Honey bees experience four stages, this is complete metamorphosis. Some insects skip a stage (incomplete metamorphosis) and others, like aphids, bare their young live!

If you make up the temporary observation hive without a queen but with young brood, within two days you will be able to see the workers enlarging cells of larvae that are being fed royal jelly. Without telling them, have the observers guess why the cells are larger. Once they know the answer you can go on to discuss how new queens are produced and how and why colonies requeen themselves.

Open Hive

Dance language

Without a doubt, dance communication is one of the most fascinating aspects of honey bee biology. Most people don't believe it until they actually "see" it work. In order to do the following experiment you must know how to read the dance language (see VII, July 1995). You will also need nail polish, a protractor, a wax pencil, a watch with a second hand, and a graph that displays the relationship between the dance tempo (number of full circuits/15 seconds) and the distance to a feeding station (this well established relationship was first worked out by Karl von Frisch). A map of the area with scale indicated is not necessary but may be helpful. First, be sure the students can differentiate between workers performing the round and waggle dances. Have them identify a bee that is doing the waggle-tail dance. Then use the protractor to determine the direction she is indicating (in order to determine the angle accurately, it may be helpful to use the wax pencil to trace the straight-run portion of the dance). Next, using the watch and graph, determine the distance to the food source indicated by the forager. Knowing the distance and direction to the food source, the students can pace off the correct distance in the right direction. If you are in an area where there are many obstacles you may want to mark off the distance (in the appropriate direction) on a map. If the calculations were done correctly, the students should arrive at a place where bees are foraging. Have them mark as many bees as possible with the nail polish and then return to the observation hive. In



Set up similar to this can be used closed, or open.

a short period of time they should see their marked bees in the hive. I have done this with different groups reading different dances and using different colors of nail polish. It makes a great contest.

Can bees see color?

In order to demonstrate the answer to this question, try the following experiment. Set up a card table just in front of the observation hive entrance. On the table place five squares of different colored construction paper (all the same size). Place four petri dishes (or other small, clear, dishes) half filled with water, on four of the five colored squares. On the fifth square, use sugar syrup in the dish rather than water. The ratio of sugar to water should be at least one part sugar to one part water. Be careful not to spill the water or the syrup on the construction paper. It might take a day or two but the bees will usually find the sugar syrup and begin feeding on it. Once they have been "trained" to the sugar syrup dish remove all the dishes. Then rearrange the colored pieces of construction paper and place fresh water in all of the petri dishes. Where do the bees look for the syrup first? Note: If you do this experiment during a major honey flow the bees may ignore the syrup no matter how sweet. Also, bees see red as black. You can use red or black paper but you may want to avoid using red and black paper in the experiment.

Pollination

Have the students watch the bees bringing pollen into the hive and note how many different colors they see. At the hive entrance, collect a few bees carrying pollen and put them in the freezer to kill them. Then allow the students to examine the bees under a dissecting microscope or using a hand lens. How many different structures can they identify associated with pollen collection? This can lead to a discussion of the many different external adaptations that honey bees have for collecting pollen. And of course, open the door to a conversation on the important role honey bees play as pollinators! BC

Maryann Frazier is Extension Apiculturist for Penn State, and uses observation hives extensively in teaching.

NOTES

OREGON HONEY BEER

marshall dunham

In June of 1989, *Bee Culture* readers learned of a microbrewery in Oregon that was experimenting with honey in making beer.

Whatever happened to Oregon Honey Beer?

"When we finally were able to bottle Oregon Honey Beer, sales took off," says Fred Bowman, president of Portland Brewing Company. "It really caught on last summer, maybe because it is a good summer beer – light, dry, crisp, refreshing – now it seems like we can't make it fast enough. Today, we have major distributors in Southern California, Northern California, Washington, Idaho, Montana, Colorado, Alaska, parts of Nevada and all over Oregon."

Back in 1989, the original brewpub on Flanders Street in Portland, Oregon, covered 4,000 square feet, employed five workers, made beer 387 gallons at a time and sold it by the keg. There wasn't enough space to handle bottling the product, but the small scale of production gave the operators the chance to experiment with different recipes.

"We experimented more on honey beer than on any of our other brews," says Fred. "We finally settled on a blend of 20 percent honey and 80 percent malt for the best flavor and body. Oregon Honey Beer is lighter, drier, crisper than the usual draft beer. It's turned out to be our best seller."

In 1992, Portland Brewery began an expansion program. They found a warehouse and restaurant at 31st Street and Industrial Avenue that could be transformed to a brew-house with some renovation, demolition and new construction. In 1993, they imported a complete German brewery – everything from the huge copper cookers and controls down to the bar, taps and glasses – and erected a new building to accommodate the machinery. The big cookers required a basement below and two floors above for grinders and mixers.

The new Portland Brewery Brew House covers 30,000 square feet, employs 61 full-time workers, produces about 70,000 barrels of beer a year and has a capacity for twice that with more tanks and a bigger bottling machine. The original 28 stockholders in Portland Brewing have become a company of 3,000 partners.

Each batch of Oregon Honey Beer uses about 15 five-gallon buckets of honey (900 pounds), and the brewery runs three or four batches a week. The major honey supplier is Foothills Honey, run by the George and Sue Hansen family of Colton, Oregon. White clover is the predominant nectar source.

Other brewers have also started using honey in their beers. A company called Red Hook produces a "Honey Stout Beer." Sam Adams makes a "Honey Porter," and Hales offers a "Honey Wheat Beer."

Visitors are always welcome at the Portland Brewery. The gleaming copper cookers at the heart of the brewery can be viewed comfortably from the tap room. Guided tours of the brewery are available. Meals are served in the tap room and live music is often featured. All the facilities are fully wheelchair-accessible.

Using the finest Northwest-grown honey barley, and hops, German technology and Oregon can-do spirit, Fred Bowman and his 3,000 partners at Portland Brewing have succeeded in putting "The taste of an Oregon summer" in a bottle. Now all they have to do is fill the bottles fast enough to keep up with the growing demand. BC

Marshall Dunham is a freelance writer, beekeeper, and beer taster from Blodgett, Oregon.

Fred Bowman, President of Portland Brewing, with copper cooker and buckets of honey.

Stainless steel fermentation tanks.

FALL SWARMS . . . And What To Do With Them

roger morse

Everywhere in the United States some colonies of honey bees will swarm in the fall. There is a great deal of mystery surrounding fall swarming. Most fall swarms cannot survive the winter because they have too little time to build a nest, store the food that is needed during cold weather, and to grow the young bees that are needed for winter. Even in South Florida some colonies will swarm in September and October and even there they probably will not survive without help from a beekeeper.

In the Ithaca, New York area we found that about 20 percent of a season's swarms occurred in the fall and they mostly happened between August 15 and September 15. These figures came from the collection of over 200 swarms over a six year period. However, in a study that involved the collection of 121 swarms within about 25 miles of Davis, California, Page (1981) found that less than 10 percent of swarming took place in the fall. Caron (1979) collected 192 swarms in the Washington-Baltimore area over a two-year period and found that only 4.2 percent occurred after July 1.

From this it's clear that the Ithaca area data are not typical of everywhere in the country. The biggest difference between these three areas is that we usually have a good honey flow from goldenrod in south central New York State at the same time we have this high rate of fall swarming. I am also aware from talking to beekeepers that there is also considerable swarming in the fall in the area around Fort Myers, Florida at the time the Brazilian pepper and melaleuca are in flower.

The Cause

It is generally agreed that congestion of the brood nest is the cause of swarming. Congestion of the brood nest can come about as a result of the sudden emergence of a large number of bees, a good pollen and/or nectar flow, a large number of drones, and/or no space to expand the brood nest. Proof of the fact that brood nest congestion is the cause of swarming is the fact that the way to prevent swarming is to give the bees more space to expand their brood nest. It is reasonable to believe from the information we have that the cause of fall swarming is the same as the cause of spring swarming – congestion. It follows, then, that relieving that congestion before a fall flow will decrease or eliminate fall swarming.

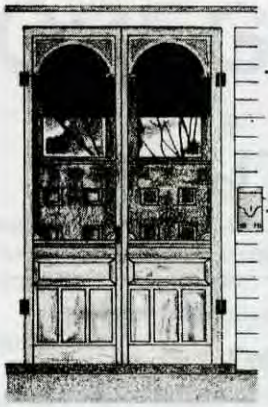
What To Do?

A fall swarm in the south might survive if it is given drawn comb and 10 or 20 pounds of sugar syrup. It is more difficult, and perhaps even impossible for a beekeeper to help a swarm to survive in the north. I have wintered small colonies of bees in central New York State in six frame nucleus boxes with as little as 25 pounds of honey. However, it is not just a question of food. A fall swarm must raise young bees that are capable of surviving the winter and it takes 21 days to rear a new bee. A swarm captured and hived in mid-August might have time to rear young bees but this is not true of a September swarm. My advice, based on experience and harsh as it may seem, is to forget about trying to winter fall swarms. Rather, I suggest you concentrate on preparing your active colonies for winter.

There is one advantage to a fall swarm, and that is an old queen and many older workers leave the nest. These are, generally, the most likely bees to have tracheal mites. This advantage when considering the servicability of those who remain is unknown, however.

Why?

A number of people have thought long and hard about this question without a perfect answer. We suspect it may be a way for a large colony to both get a new queen and to rid itself of bees that it does not need and may not be able to feed all winter. In studying biology I came to the conclusion a long while ago that the simplest answer to a biological question was probably the best. Nature does usually not waste time or effort.BC



HOME HARMONY

ann harman

Garden Bounty Time

August is the month of bumper harvests. The house has all available space filled with peaches, melons, tomatoes, more zucchini, green beans and whatever else you or your neighbors planted. Even successful gardeners have been known to mutter "Good! – some bug is attacking the melon vines."

This year's honey crop may well have been harvested by this time. Now you can do some quick, simple cooking using honey, fruits and vegetables. August heat is known to be wilting, so foods that can be prepared quickly are a big help. So are foods that can be prepared in the cool of the evening to eat.

If you are presenting non-gardeners with some of your bumper crop, give them an appropriate honey recipe Ð and while you are at it, give them some honey, too.

CABBAGE SALAD

This recipe for coleslaw is a bit different and will make a large quantity Ð very useful for a picnic with friends and family.

1 cup honey
1/4 cup white vinegar
1 teaspoon salt
1/2 teaspoon celery seed
10 cups (2-lb. head) cabbage, finely chopped
1 cup chopped celery
1/4 cup chopped green pepper (or use a red sweet pepper)
1/4 cup chopped onion

In a medium bowl, stir together honey, vinegar, salt and celery seed. Cover and refrigerate overnight. One hour before serving, toss together cabbage, celery, green pepper and onion in a large bowl. Stir dressing well and pour over vegetables. Refrigerate until served. Yield: 10 servings

Land O' Lakes Country Heritage Cookbook

CUCUMBERS IN SOUR CREAM

Everyone has a favorite cucumber recipe, but you might want to try this one for variety.

2 cups thinly sliced cucumbers (2 medium)
1 small onion, thinly sliced and separated into rings
1/3 cup reduced-fat sour cream
2 teaspoons honey
2 teaspoons vinegar
1/8 teaspoon pepper

In a salad bowl, mix together the sliced cucumbers and onion rings. In a small mixing bowl stir together the sour cream, honey, vinegar and pepper. Pour over cucumbers and onions. Toss lightly to coat. Cover and chill for 1 to 2 hours. Stir the salad before serving. Makes 4 servings.

Family Favorites Made Lighter
Better Homes & Gardens

CARROT-YOGURT SOUP

This next recipe is reminiscent of Indian dishes. You can make it as spicy as you wish. Serve with a simple salad and some homemade bread that you have had in the freezer for a while.

4 tablespoons butter
1 onion, chopped
1 to 2 cloves garlic, minced
1/2 teaspoon mustard seeds
1/2 teaspoon turmeric
1/2 teaspoon ginger
1/4 teaspoon cayenne pepper or more, to taste
1/2 teaspoon salt
1/2 teaspoon ground cumin
1/4 teaspoon cinnamon
1 lb carrots, sliced
1 tablespoon lemon juice
3-1/2 cups water
2 cups yogurt
1 tablespoon honey
black pepper to taste

Melt butter in a skillet and saut• the onions and garlic until golden. Add spices and cookfor several minutes, stirring constantly. Add carrots and lemon juice. Continue cooking for several more minutes, stirring often, then add 2 cups of water, cover tightly and simmer for at least 1/2 hour or until carrots are tender. Pur•e the spiced carrots in a blender with the remaining 1-1/2 cups water. Return the pur•e to the skillet and whisk in the yogurt and the honey. Heat the soup, but do not allow it to boil. Taste, correcting the seasoning with black pepper and more cayenne and salt as desired. Serve hot with chopped cilantro sprinkled on top. Serves 4 to 5.

The Vegetarian Epicure Book Two
Anna Thomas

LIMA BEANS IN TOMATO AND GARLIC SAUCE

This recipe will use up quite a few tomatoes and some of those lima beans. Another advantage to this recipe is that it can be served hot or cold. To serve cold, you will make it the night before.

1 lb. large, dried lima beans or 6 cups cooked lima beans
3 tablespoons olive oil
5 to 6 cloves garlic, crushed or minced
1/2 to 1 teaspoon rosemary, crushed
2 cups thick tomato pur•e
3 peeled tomatoes, coarsely chopped
1/3 cup dry red wine
1 teaspoon salt
1/4 cup lemon juice
1 teaspoon honey
fresh-ground black pepper to taste
3 tablespoons minced onion

Cook lima beans until tender but not mushy. Drain. Heat olive oil in a very large skillet and sauté the garlic and rosemary in it for a few minutes. Add the tomato pur•e, chopped tomatoes, red wine, salt, lemon juice, honey and a generous amount of black pepper. Simmer the sauce, stirring often, for about 15 minutes. Add the drained lima beans and continue simmering, stirring now and then with a wooden spoon, for another 5 to 10 minutes. The sauce should be quite thick. If you want to serve the lima beans hot, stir in the minced onions shortly before

serving. If you want to serve them cold, as a salad, allow them to cool before stirring in the minced onions. Chill for a few hours or overnight Ð the flavor improves. Serves 8 to 10

The Vegetarian Epicure Book Two
Anna Thomas

MARINATED ZUCCHINI

This recipe can be used with either eggplant or zucchini, or you could use a combination of zucchini and yellow summer squash.

2 cups chopped zucchini or eggplant
1 tablespoon chopped green onions
1 finely chopped garlic clove
1 large chopped tomato
1 tablespoon chopped herbs (oregano, basil, dill, parsley)
1/2 cup oil
1/4 cup vinegar
1 tablespoon honey

Combine vegetables and herbs. Mix rest of ingredients and pour over vegetables. Let stand in refrigerator at least 1 hour before serving. Yield: 4-6 servings.

Feasting On Raw Foods
ed. by Charles Gerras

MELON BALL RING

Cool and refreshing desserts are welcome in August. Here are a couple of recipes to use up that bumper crop of melons and peaches.

2 envelopes unflavored gelatin
2 cups cold water
1/2 to 2/3 cup honey, to taste
1 cup orange juice
1/4 cup lemon juice
1/3 cup port wine
2 cups cantaloupe balls
1 cup seedless green grapes
fresh mint leaves for garnish

In a small saucepan, sprinkle gelatin over cold water. Add honey, place over low heat and stir until gelatin is dissolved. Remove from heat. Add orange juice, lemon juice and wine. Chill until mixture starts to gel, then fold in melon and grapes. Pour into 6-cup ring mold and chill until firm. Unmold and decorate with fresh mint leaves. Yield: 6-8 servings.

Naturally Delicious Desserts & Snacks
by Faye Martin

PEACHES PIEMONTESE

A recipe from Italy at the foot of the Alps.

8 large, peeled peach halves (fresh or frozen)
1 peach half, mashed
1/2 cup cookie crumbs
1 tablespoon honey
1 tablespoon soft butter
1 egg yolk
2 tablespoons slivered almonds
1 tablespoon Marsala wine

Grease a shallow 8-inch round or square baking dish. Place the peach halves in the prepared dish. Mix the mashed peach half, cookie crumbs, honey, butter and egg yolk. Fill peach halves, using about 1 tablespoon of mixture per half. Dot with slivered almonds. Pour Marsala over the tops and bake in 375¡ oven for about 25 minutes. Serve warm or cold. Yield 8 servings.

Naturally Delicious Desserts and Snacks
by Faye Martin

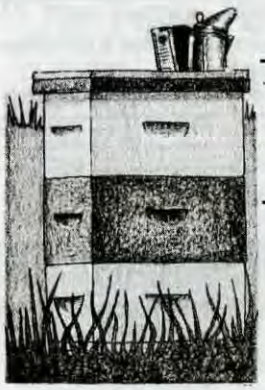
With this bumper crop of recipes, you should be able to cope with your bumper garden crop. Just be sure to keep that squeeze bottle of honey handy at the stove. Use your one-pound jars for larger measurements, such as for a wonderful peach pie.

?Do You Know? Answers

1. **True** Individual bees typically forage in a relatively small area for many consecutive trips or days as long as the floral rewards continue. A worker may return to locations only a few meters in diameter, a particular patch of plants or trees or even a single tree or bush. This phenomenon is sometimes referred to as "area fidelity"
2. **False** Foraging trips of pollen gatherers are considerably shorter than those of nectar gatherers. The time per pollen load is generally about 10 minutes as opposed to 30-80 minutes for a nectar trip. Weather conditions, location of floral sources and floral characteristics affect foraging rates.
3. **True** Several foraging distribution studies have shown that bees have a strong tendency to forage at the nearest source for each floral species in the area. While many factors affect forager distribution patterns, i.e. quantity and quality of floral rewards offered by each plant species as well as competition from other pollinators, this behavior is partly explained by the need to minimize energy expenditure and maximize resource returns.
4. **True** Foragers tend to prefer nectar collection over pollen collection. Workers tend to specialize on one type of foraging task at a time and often exhibit constancy for nectar or pollen collection during many consecutive trips. Two studies have shown that about 58% of the foragers collected only nectar, 25% only pollen and 17% both nectar and pollen.
5. **False** Even though bees in a given colony typically forage on many different species of flowers at any particular time, individual bees show a strong tendency to forage repeatedly on flowers of the same species for as long as they are available. Mixed loads of pollen from more than one species are not uncommon, ranging from 0.9 to 3% of the time.
6. **False** Workers return to the colony more heavily laden with nectar than with pollen relative to their body weight. Pollen loads are usually 10-30 mg in weight, whereas nectar loads tend to weigh 25-40 mg.
7. **False** Both nectar and pollen foragers make an average of 10 to 15 trips per day, although at times more trips may be made.
8. **True** Workers will travel further for a pollen load than for nectar, possibly because a full load of pollen is lighter in weight and takes less time per flower than a nectar load. Also, colonies do not store large reserves of pollen compared to honey and the necessity to replenish pollen more regularly than honey may stimulate workers to travel further for pollen collection.
9. **True** Many workers return from foraging trips with their honey stomachs only partially loaded which may be related to the quality/quantity of nectar available and environmental conditions at the time the trip is made.
10. D) odor and physical configuration of the pollen grains
11. E) 54-58° F
12. C) 25
13. B) 21
14. Water, Propolis
15. **Visual** (location of the sun, polarization of light waves, and landmarks)
    Olfactory (odors associated with food sources)
    Magnetic (orientation to the earth's magnetic field)
16. **Round dance**- informs the workers that there is a food resource in close proximity (100 meters or less) to the hive.
    Wag-tail dance- distance and direction of the food source.
17. Nectar is exchanged between the dancer and recruits.
    More concentrated nectar sources elicit more vigorous and long lasting dances.
18. 3- Shape or floral pattern
    1- Odor or fragrance
    2- Color markings

There were a possible 25 points in the test this month. Check the table below to determine how well you did. If you scored less than 12 points, do not be discouraged. Keep reading and studying- you will do better in the future.

Number Of Points Correct
25-18 Excellent
17-15 Good
14-12 Fair



BEE TALK

richard taylor

"Using this technique, you can control wax moths without chemicals."

Sometimes, when I'm out with my bees, I find myself wishing I could live a thousand years. It's not that I crave such a Methuselean existence really, for indeed, I think I shall be ready to go when I'm called. But I would love a thousand more Springtimes with my bees. I never tire of being in my bee yards, and Springtime is when it's like heaven there. Sometimes it seems like going back in time, for the bees, and their wonderful, mysterious ways, are the same as when I was a boy. But the seasons themselves are always different, and there are always surprises. This Spring held the greatest surprise of all. There was more honey on the hives by the first week of June than I usually have by the middle of July!

I have also learned, as each new season begins, to ask myself a rather painful question: What dumb thing am I going to do this year? Because, no matter how long I keep bees - and I've been at it about sixty years now - I always manage to do something quite stupid. This year what I did was start my swarm control measures too soon. I split out the nucs, replacing the combs with empty combs or foundation, and then the bees started getting honey like mad and those combs filled up with honey instead of brood, even though I had gotten my supers on in plenty of time. I should have waited until the bees were closer to swarm preparations. The result of this bungling was quite a few swarms. Even so, I am getting an awful lot of honey. Bees are not easy to predict.

But now I've got to change the subject and get down to a rather pressing problem. I want to talk about wax moths. The wax moth problem has been aggravated by the removal of paradichlorobenzene as a means of controlling them. Paradi, as it is called, is of course a pesticide, and it is my understanding that pesticides can be used only for the purposes stated on the label. Clothes moths are mentioned there, but not wax moths.

I do not regard this as much of a problem for beekeepers, for reasons I'll give shortly, but meanwhile, let's get a little background.

It is commonly believed, and sometimes even stated in bee literature, that wax worms eat beeswax. This is not quite right. What the wax worms are after is the protein found in honey combs, that is, the pollen and any remains of bees themselves. Foundation is not seriously damaged by the worms, even though they do chew it a little sometimes, doubtless to get the pollen grains embedded in it. They never attack a lump of beeswax.

And there are at least two entirely different species of wax moths; indeed, I suspect the larvae of several species of moth millers will get into combs if given the chance. Tiny moths, about the size of clothes moths or maybe smaller, get into comb honey supers where, if unchecked, the larvae chew holes in the cappings. The solution is to run the sections through a deep freezer which, at near 0°F, kills even the invisible eggs. These eggs are in the supers when you bring them in from the bee yards, so even a moth-proof honey house is no protection. The freezer treatment completely solves the problem so far as comb honey is concerned.

Wax moths are not really enemies of bees. They only attack, in significant numbers, colonies that are already in decline - typically, laying-worker colonies. A reasonably strong, queen-right colony takes care of wax worms very easily. This does not mean that wax worms are never found in such a colony. You sometimes see one or two, but they pose no threat.

Where wax worms are a serious problem is with combs that have been stored away, especially dark combs that have had brood in them. Beekeepers have customarily tried to control them by putting Paradi crystals on scraps of newspaper laid over the frames, then stacking the supers. But you cannot, legally, do that anymore.

Personally, I think it is just as well. I never thought much of this method anyway. It never worked very well for me. Sticky combs absorbed the odor, and the bees didn't like that. And once the crystals evaporated - or indeed, even before they had completely evaporated - the wax worms would get in and make a mess.

There is a very good way to protect combs against wax moths, requiring no pesticide at all, and I shall now describe it.

Wax moths cannot stand fresh air. They thrive in dark, enclosed spaces. So when you stack supers for the Paradi treatment, you are partly working against yourself.

Sometimes a hive will go queenless without your knowing it. It starts to dwindle, and gets laying workers, but it is easy, when you've got lots on your mind, not to notice this. Then one day you find that there

is only a handful of totally demoralized bees there and the wax worms have begun their work.

What I do with such a hive, provided the wax worms haven't already made a horrible mess of it, is remove the worst of the wax worm mess with my fingers, then stand the hive and supers on end right there in the apiary in such a way that air can circulate freely between and around the combs. Not much rain will get in since the hive body and supers are on end, and vermin are not much of a problem if these are all up off the ground a foot or so. This pretty much solves the problem. I have even left hives and supers that way, open to the fresh air, all Winter, but that's not really a good idea.

The fresh air treatment can be used on a commercial scale too. I knew a very successful commercial beekeeper who protected all his hundreds and hundreds of extracting supers by this method. He had no wax moth problem with his supers and used no fumigants at all. Here is how it is done.

You build a frame of two-by-fours, on the north side of your honey house, barn or other building. This is the coolest side, where the sun shines least. The two-by-fours are spaced so that supers can be stacked on them with maximum open space underneath; that is, the distance between them will be a little bit less than the length of a super. Then you tack hardware cloth between these to keep mice from crawling up into the supers. The supers are stacked on this frame with the hardware cloth underneath and staggered, so that air can circulate freely through every super. The whole business is well up off the ground, of course, so as not to encourage dampness or vermin. Over the whole thing you'll need a roof to keep rain out, but there must be space between the tops of the supers and this roof, for you want maximum circulation of fresh air.

From that description you can see the principle involved, which is simply to store the supers where it is reasonably cool - that is, shaded, and on the north or least sun-lit side of a building - and provide, in whatever way, maximum circulation of fresh air with protection from mice and vermin.

That system works in this latitude. And it is certainly a lot easier once you get set up for it than using fumigants. I do not know whether it would work in the warmer climate of the deep south.

The method just described, it should be noted, is for the prevention of wax worm damage. It is useless for any supers in which the worms have gotten a good start. The first thing wax worms do, once they get into combs, is stuff up the spaces between the combs so as to keep the light and fresh air out. So if they get a chance to do that then you've lost the battle and the fresh air treatment cannot be applied. BC

Richard Taylor raises bees, and comb honey, and writes beekeeping books from his home near Interlaken, NY.

Questions?

Clear, Or Not?

Q **Which is better for packing comb honey in circular sections - using two transparent covers or one transparent and one opaque?**

Lloyd Spear
Guilderland, New York

A I know beekeepers who insist on using two transparent covers so that the consumer can see the condition of both sides. Certainly it would be wrong to use an opaque cover in order to conceal something, such as a pollen plug, uncapped honey or whatever. I much prefer using one opaque cover so I can affix an explanatory label. Most of the population still do not know what comb honey is and these labels have greatly enhanced sales for me. In addition, when circular sections are stacked, a drop or two of honey almost always drizzles onto the bottom cover. This is no problem if the cover is opaque, but it looks very bad on the inside of a transparent cover.

Wants Label

Q **I want to produce circular section comb honey. Where can I get the descriptive labels you have referred to, to stick on the bottom covers?**

John Custer
Buffalo Mills, PA

A There is one printed elsewhere in this article I designed which you can copy and reproduce, twenty or so at a time, on a photo copier. Peel-off labels with a similar message can be purchased from R. M. Farms, Box 684, Dearborn, Heights, MI 48127

Chalkbrood & Stress

Q **Is chalkbrood a condition that is aggravated by stress?**

Adam Fuller
Chaplin, CT

A Not especially, although I think stress on a colony makes it more vulnerable to every bee disease by reducing the colony's capacity to resist. Chalkbrood may be encouraged by a damp hive environment, though I believe this is not known for sure.

Fall Together

Q **If you want to unite a weak colony to a strong one in the Fall, how can this be done without ending up with a hive that is too tall?**

Alex Nishball
Storrs, CT

A First of all, notice that any uniting of colonies in the Fall must be done fairly early, while the bees are still active. Otherwise the two colonies will simply remain in their respective hives without mingling and you will have achieved nothing. As for ending up with a hive that is too tall, this should not make any difference. Come Spring you can take it apart, divide it back into two or more colonies, requeening the queenless parts.

Good, and Not So Good

Q **What features of comb honey make it of high quality and what should be avoided?**

Paul Lehmann
Toledo, OH

A Assuming the honey is from a desirable nectar source, it is important (1) that the cappings be light in color, and (2) the section should be well filled, right to the edges. You should, by all means, avoid (1) leaving the honey in the hive after it has been capped, as this soon causes the cappings to become darkened with "travel stain", (2) trying to get a crop late in the season when cool weather results in comb honey that is excessively waxy, and (3) allowing damage from tiny wax worms. The most important factors in getting good comb honey are strong colonies and strong honey flows. Wax worm damage is prevented by putting the honey, well packed, into a freezer and reducing the temperature to near zero.

Upper Entrances

Q **Is it a good idea to have holes in extracting supers to serve as upper entrances?**

Donald Cox
Lima, OH

A I think not. Beekeepers sometimes imagine that such entrances will spare the returning forager bees the extra time and labor of carrying the incoming nectar all the way from the bottom entrance up to the supers, but this is not, in fact, how they work. Returning foragers unload nectar to bees down below and these eventually transport it, somewhat evaporated, up to the supers a day or two later. Even when there are entrance holes in the supers, the bees hardly use them, preferring the entrances they have become accustomed to.

Bee Venom

Q **What is the active ingredient of bee venom that produces the responses claimed by apitherapy?**

Name withheld
Bath, ME

A I think no one knows. Many, perhaps over one hundred, ingredients of bee venom have been isolated. The manner in which one or more of these acts upon the human body is not known for sure. It is widely believed that bee stings activate the autoimmune system such that this, and not the venom itself, is what produces the beneficial responses sometimes seen.

Candle Market?

Q **Is there a market for beeswax candles? Do churches and religious groups buy them?**

Robert McFarland Lacy
Shade Gap, PA

A The Roman Catholic Church has certain requirements for beeswax in candles, but a more promising market for sideline beekeepers is found in gift shops, farmer's markets, fairs and so on. I have beekeeper friends who considerably augment their income by making candles. They are very easy to sell if they are well made.

Bees All Over

Q **My bees are clustered all over the front of the hives. Does this mean they might swarm, even in August? Or is there something wrong in the hive?**

Pat Morris
Newfield, New York

A Bees clustering on the front of the hive does not portend a swarm. Usually, in late Summer, it means only that the bees are not finding much nectar and, the hive being at this time very populous, and the weather sometimes hot, the natural response of the bees is to cluster outside. If you look closely, you will probably find that many of them are standing head down doing the "washerwoman" dance, a behavior they exhibit only at this time of year. No one knows the significance of this.

Two Way, or No Way?

Q **You and other beekeepers recommend two-way bee escapes for clearing the bees out of supers, but I often find way too many bees still in the supers, even after the escapes have been there for several days. How come?**

Pat Morris
Newfield, New York

A It took me many years to discover this, but the most common explanation for bees not clearing out of the supers is that the hive below is already overcrowded with bees. Bees spread themselves out in the hive, especially during hot weather, most of the population being concentrated, however, in the brood nest. Hence, if the super you want to clear of bees is close to the brood nest, then the bees tend to stay in it. This happens often with single-story hives. But there is an easy and, in my experience, fool-proof solution. Just insert a second escape board right on top of the first one. You will then find not a single bee in that super the next day. Of course if there is brood in the super, then the bees are not going to abandon it no matter what you do

What Is Comb Honey?

It is the only sweet in the world that is neither made nor processed by man. The bees build their delicate comb, and fill it with honey, in the very container you purchase.

Honey that has been extracted from the honey comb and strained is not the same. Usually it has been heated, to retard granulation. It is commercially packed, then it has been heated and filtered as well. It is good, but not as good as comb honey – the most exquisite delicacy to be found any place in nature.

Put comb honey on anything you wish to sweeten, or eat it as is. The wax won't hurt you; in fact, though it has little nutritional value, it is good for you in other ways. It is your guarantee that the honey mingled with it is the perfection of what honey should be.

–Richard Taylor

To use: Remove covers – top and bottom – run a knife around inner edge of container to let honey comb drop out onto a dish.

Answers!

Richard Taylor

WEAVER APIARIES SPLITS

B. WEAVER & R. WEAVER

The owners of Weaver Apiaries, Inc., at Navasota, Texas have announced that the organization is being divided into two separate companies: B. Weaver Apiaries, Inc., and R. Weaver Apiaries, Inc. They emphasize that the dissolution is friendly and that the two businesses will continue to operate at the same location.

The Weaver family has kept bees on this site since Z.S. and Florence Weaver received 10 hives of bees for a wedding present in 1888. Roy S. Weaver, Sr. built the business into a full-time occupation, and in 1926, he started producing queens. He took his brother, Howard, into the business at that time. After World War II Roy's sons, Roy Stanley, Jr. and Binford, joined the business. Soon after that, the business was divided along family lines, and Howard Weaver & Sons was formed. Over the years, Roy's son, Richard, and Binford's son, Danny, have come into the business. Now the company is again dividing along family lines. It is a completely friendly division, and the owners will continue to cooperate closely to see that their many valued customers are well served. They have, in fact, been operating as separate companies all spring except for sharing the office and the queen shipping.

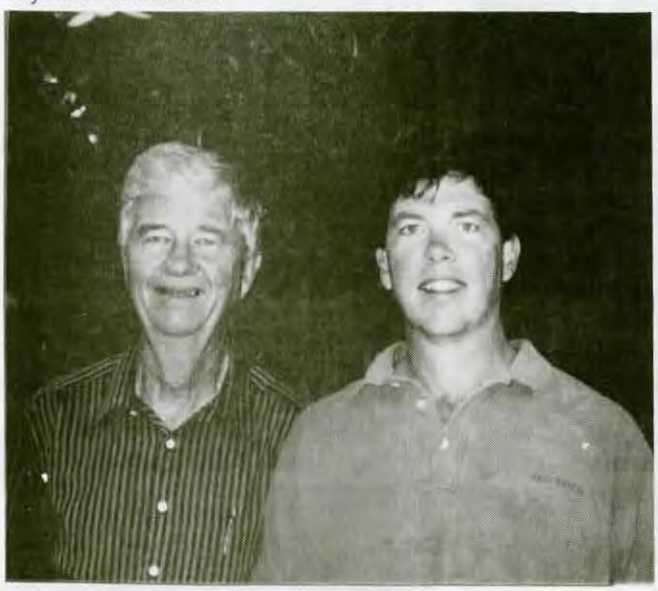
The Weavers ask that their many customers be patient during the transition of changing telephone numbers and addresses. They will make sure that inquiries and orders are routed to the proper company.

B. Weaver Apiaries, Inc. will be operated by Binford and Danny. They will produce honey, package bees and high-quality queens. R. Weaver Apiaries, Inc. will be operated by Roy and Richard. They will specialize in producing high-quality queens and will market honey.

Binford and Daniel Weaver are the owners of B. Weaver Apiaries, Inc. Their experience, plus that of their able staff adds up to well over 100 years in beekeeping. Binford Weaver began working in queen production while he was still in elementary school. He graduated from high school at 16 during World War II and, since most able-bodied men were in the armed services, he immediately became the main queen man, postponing college until the men were home from the war. After college, he took over the honey and package bee production. Binford has given freely of his time to industry affairs. He has served as president of the American Beekeeping Federation, the American Bee Breeders Association and the Texas Beekeepers Association. He was the first chairman of the Honey Nominations Committee, which selects the members of the National Honey Board. Binford has also served two years as chairman of the National Honey Board and is on the executive committee of the Honey Board at this time.

Danny Weaver also began beekeeping at an early age. He bought his first vehicle while he was still in high school with money he had made working bees after school and during summer vacations. He majored in biology at Rice University and attended graduate school in molecular biology at the University of California at Berkeley. He then got his law degree and was with the firm of Rubenstein and Perry in Austin, Texas, for several years. In 1989, Danny decided to re-

Binford & Daniel Weaver



Richard & Roy Weaver preparing queens for shipment.

turn to his first love, beekeeping. He and Laura, his wife of almost a year, live in his grandfather's old home right by the honey house and shop. Danny has taken over the package bee and honey production, allowing Binford to spend more of his time in queen production.

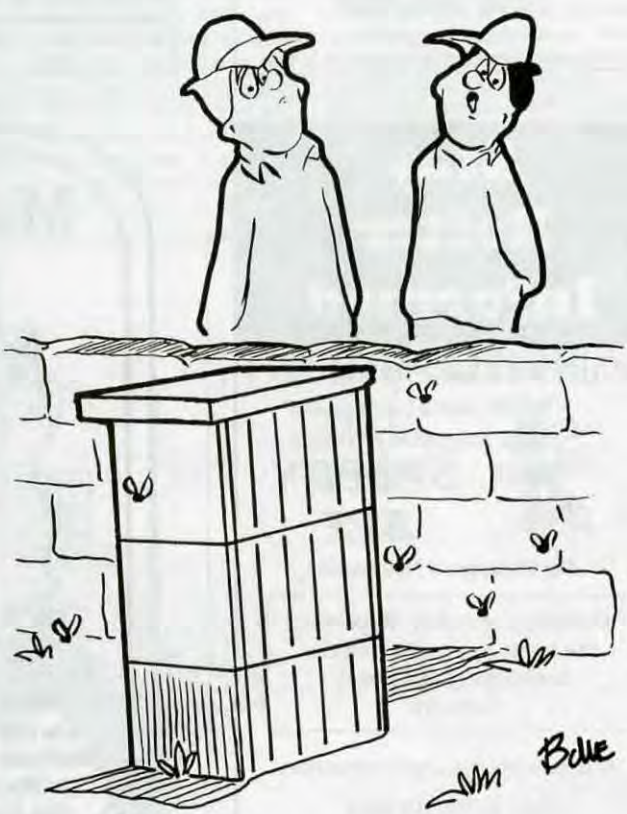
B. Weaver Apiaries will continue to produce Buckfast and the Weaver all-American queens, along with package bees and honey. They will continue to operate at the Lynn Grove community south of Navasota, Texas – about 65 miles northwest of Houston. The land is a mixture of various hardwood trees and cattle pastures, with an average rainfall of about 40 inches. There are many trees, shrubs and flowers to produce an abundance of pollen for much of the year, which makes the area ideal for queen production. For honey production, most of the colonies are moved to other locations after the package season is over. Some are moved to the coastal plains near Houston, and others are moved to North Dakota (a 1,400 mile trip) for the summer. Still other colonies are kept the year around southwest of San Antonio for the production of Huajilla honey (one of the premier honeys of Texas).

Binford has been selecting breeders for many years. Producing honey in three completely different environments gives a good base for selecting stock. All of the company's breeders have been through at least one honey production season except for some artificially inseminated Buckfast breeders. High honey production and gentleness top the selection list. Nonswarming and good housekeeping are also high on the list of characteristics selected for. Of course, since the introduction of tracheal mites into this country, resistance to tracheal mites has been of paramount importance. The owners are constantly searching for *Varroa* mite resistance and are putting Danny's scientific training to good use in trying to breed a *Varroa* mite-resistant bee.

After college, a three-year stint as an oil tool engineer and four years of service in the Southwest Pacific as an engineer officer during World War II, Roy S. Weaver, Jr. joined Weaver Apiaries. After a lengthy apprenticeship in all phases of the business, he took charge of queen production. It was the goal of Weaver Apiaries to breed and produce the best queens possible, and Roy, Jr., along with all the other personnel, enjoyed the challenge.

In addition to the continuing development of the Weaver Italian, the Weavers experimented with other breeds. They finally decided that the Buckfast would be desirable in the United States, so they made an exclusive arrangement with Brother Adam of Buckfast Abbey to produce and sell his breed beginning in 1968. That proved to be a good thing for the beekeepers of the United States when tracheal mites were discovered here in 1984 because the Buckfast bees are almost totally immune to the ravages of that dreadful pest.

Also in 1968 Roy Jr.'s son, Richard Weaver, joined Weaver Apiaries and served five years as a jack-of-all-trades. Then he took charge of queen production where he used his organizational ability to increase efficiency. Richard is looking forward to shedding most of his other responsibilities in the business so he can concentrate on what he likes most – production of the best queens possible. Richard's father refuses to retire because he enjoys trying to give customers the best service they can get.



"When we divorced she got half of everything."

Gleanings

AUGUST 1995 • ALL THE NEWS THAT FITS

CHINESE HONEY DECISION

On July 3, the Dept. of Commerce and the Chinese reached a tentative agreement for suspension of the antidumping action in return for certain concessions by the Chinese. The main elements of the agreement call for the Chinese to limit their honey exports to the U.S. to 43.925 million lbs. per year with a minimum price of at least 92% of the price of third country imports. Other points include anti-circumvention language and "anti-bunching" (1/2 of the exports during each six months of the year).

For the next 20 days, DOC will accept comments on the proposed agreement, which must be signed in final form by Aug. 2. In the past, such agreements have rarely been substantially changed after being proposed. Signing of the agreement will end the antidumping action and will rescind all preliminary duties imposed since the tentative dumping duties were announced, including the retroactive duties.

Honey Packers & Dealers

OFFICERS ELECTED

The following officers and board members were elected at the annual meeting on January 21, 1995. President – Buddy Ashurst; Vice-President – Steve Smith; Secretary/Treasurer – David McLure. Directors – Charles Kocot; Robert Olney; Don Olson; N.J. Sargeantson & Roland Vorn Dorp. The following alternate directors were also elected – Chris Dunham; Ernie Groeb; Mike Ingalls; Shirley Miller and Ron Phipps.

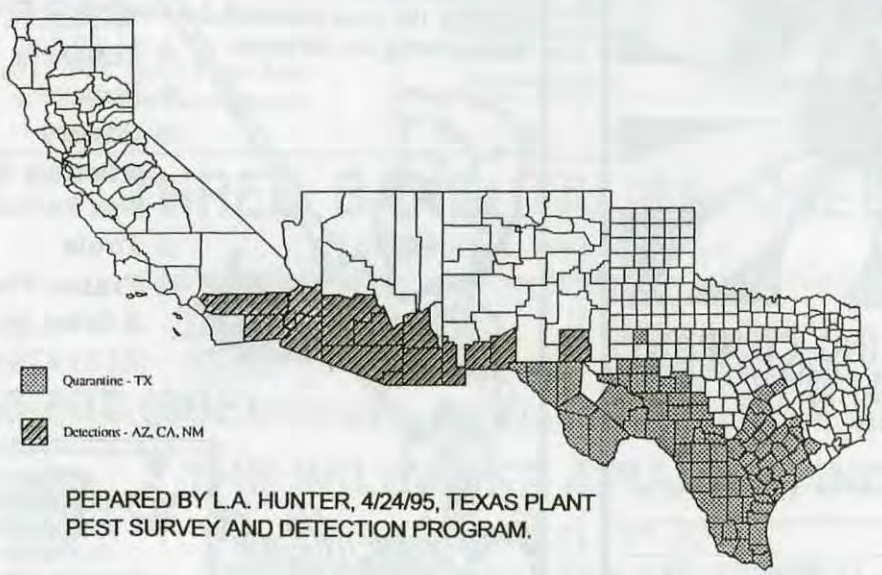
SMALL TOWN LIFE BEST

Ah, the genius of Norman Rockwell. Decades after that period of time in small-town America which he glorified in his paintings, people still yearn for the small-town life. In a nationwide survey *Adweek*, about half of all Americans between the ages of 18 and 55 would prefer small-town life to living in a city or in the suburbs. Even the most obtuse readers of tea leaves would have to understand the results of last November's elections as a repudiation not only of the Democratic party but of things urban. After all, big cities in general and New York City in particular seem to embody all that is perceived to be wrong with America today: crime, drugs, moral erosion, condom distribution in schools, corrupt politics, anti-smoking ordinances, gansta rap, jello-shots and traffic jams. Thus, it's no surprise that only 14% of those aged 35-44 and an even smaller number, 7% of people 45-55, admitted to a preference for city life. On the other hand, a near or clear majority of other age groups said they preferred small-town life. 51% of young people 18-24 said they preferred the Rockwellian lifestyle, although a full 27% in that group liked the idea of city life, while only 19% professed an interest in suburban life. In the 25-34 group, the split was less extreme, with 20% saying they preferred city life and 40% each expressing a desire for either suburban or small-town life. It's in the latter two age groups, 35-44 and 45-55, that this clear aversion to city life manifests itself. Interestingly, only 27% of the 35-44 group prefers suburban life, while a whopping 58% of that group like the idea of small-town life, probably an indication that rural schools would at least be safer and more pleasant for children, if not better, than schools in the suburbs. In the gender breakdown, women outnumbered men in their preference for cities and small towns, while men clearly felt better disposed towards life in the suburbs.

From Adweek Magazine

AFRICANIZED HONEY BEE DISTRIBUTION

Includes Texas, New Mexico, Arizona and California.



PEPARED BY L.A. HUNTER, 4/24/95, TEXAS PLANT PEST SURVEY AND DETECTION PROGRAM.

CALENDAR

♦BEEKEEPING TOURS♦

Australia: Trevor Bryant, beekeeping host and lecturer, will lead a comprehensive beekeeping tour of Australia January 25 February 7 1996. The tour will focus on beekeeping in New South Wales, the region surrounding Sydney.

England: The National Honey Show in London extends a warm invitation to North American beekeepers to attend what has been described as one of the best honey shows in the world. Come to England, meet British beekeepers, show your wax and honey, hear the lectures and see the best in bee books and products. The hosts for this trip will be Eric Ward, Orpington Beekeeping Association, and Mary Fisher, publicity chairperson of the 64th national Honey Show.

Apitherapy: Dr. Robert Brooks, a research pharmacologist, beekeeper and owner of Perkioman Valley Apiaries, will lead an apitherapy study tour to Bulgaria and Poland following the Apimondia meeting in Lausanne, Switzerland. The tour departs from Geneva on August 20th and runs until August 30th.

For more information on these tours contact: Global Nature Tours, P.O. Box 555, Upper Marlboro, MD 20773-0555, Ph. (301) 627-4777 FAX. (301) 627-9754.

♦CALIFORNIA♦

The Western Apicultural Society (WAS) is holding its 17th Annual Conference in the Capitol Plaza Holiday Inn, 300 "J" Street, Sacramento, within minutes (walking) of "Old Sacramento" from Tuesday, August 15th through Friday, August 18th, 1995. The society is composed of beekeepers and people with honey bee related interests, who meet in a western state or Canadian province to learn more about bees.

Speakers include Dr. H. Shimanuki, Dr. Eric Mussen, Dr. Eric Erickson, Dr. Robert Page, Dr. Norm Gary, Dr. Robin Thorp, Charles Duncan and more. Vendors, tours and a visit to the UC Davis Bee Lab are planned.

The hotel is handling room reservations separate, and they can be contacted at: Capitol Plaza Holiday Inn, 300 "J" Street, Sacramento, CA 95814, (916) 446-0100. The hotel will take reservations up to July 28th.

For more information contact Eric C. Mussen at University of CA, Davis, CA 95616 (916) 752-0472.

♦ILLINOIS♦

The 15th Annual Honey Bee Festival will be held in Paris, IL September 22 - 24.

Activities include an Antique Market, Antique Farm Machinery, Handmade crafts, Classic Car Cruise-in, Festival Parade and much more.

For information please contact (217) 465-4179.

♦MASSACHUSETTS♦

The August 1995 Meeting of the the Middlesex County Beekeepers' Association (MCBA) is Saturday, August 26, 1995 at 1:00 p.m. at the Home of Guy McKay, 181 Grant Street, Lexington, MA.

Contact Ted Shylovsky, 192 Boston Post Road, Sudbury, MA 01776-3102, phone (617) 860-3341 work or (508) 443-7195.

♦WEST VIRGINIA♦

West Virginia Honey Festival City Park, Parkersburg. Sept. 9-10.

Honey Car Show • Live Bee Beards by Steve Conlon & family • Honey & Wax Show • Honey Bake Contest • Honey princess pagent • Honey Extraction & Live Beehive Demonstrations • Candle Making & Cooking Demos.

Admission is $1.00 (6 yrs. & older). For information write to WV Honey Festival, P.O. 2149, Parkersburg, WV 26102.

Display Index

Only For Amusement...

ed hughes

In June last year, I married a beekeeper. In September, my bride volunteered me to help harvest the honey from her hives. Her son, James, had been the previous volunteer harvester, but he had kindly abdicated when my candidacy was announced.

"Your job," my wife said to me, "is to carry the supers back to the truck. You can probably lift a full super, but I can't. I'll reassemble them frame by frame on the other side of the fence. On my signal, you come down and get them."

I was flattered to be thought so strong.

Bobbalee then put on her white bee-proof coveralls, bulletproof helmet, fine-mesh veil and thick pigskin gloves.

Meanwhile, I tightened the strap on my baseball cap.

She fired up a container of smoking tinder used to calm the bees and readied the Bee-Go which smells so bad bees go someplace else.

Not to be outdone, I relaced my boots and jettisoned any excess baggage – keys, wallet and some lint. "Zoom," I said to myself, "faster than a speeding honey bee."

Under the weight of her siege equipment, Bobbalee lumbered slowly down toward the hives.

"Zoom?" I said to myself again.

"James," I said to the boy, who was standing there vaguely smiling at me, "what about me?"

"What about you?" he asked, but he went digging in the box anyway and dragged out two plastic grocery bags for hands and an old disposable paper beekeeper's outfit with a half-dozen holes in it. Some holes had been patched with duct tape, some holes hadn't. It was mostly white, like Bobbalee's outfit, but with plenty of old honey on it to help draw the bees away from the hive. White clothing, I learned later, is mandated for all beekeepers, under the rules of the Geneva Convention, to help bees identify the monsters who are raiding their home. I put the suit on.

My responsibility was to pick up the supers full of honey, each weighing in at 70-plus pounds, and transport them the 50 yards to the truck. My job description included: Gently shoo away bees before grabbing honey; deftly hoist super waist-high; scamper peacefully up four-foot embankment strewn with barbed wire; sprint sedately down dirt road with honey; without losing speed, calmly stack honey chest-high in back of truck; continue trotting down dirt road 100 yards; increase speed while turning north into sugar beet field, jump over large beets and run 200 yards; stop and swat at bees, wave arms at swirling swarm and kick dirt tactfully into bees' eyes, shouting, "Get off me, you dirty devils."

On my last trip, I somehow ended up on a dirt road I had never seen before, hiding in some oak scrub as the occasional bee shot by. Luckily, James had kept track of my movements across the countryside, and I soon smelled the truck coming up the road.

The truck and everybody in it smelled strongly of Bee-Go. Lunch tasted like Bee-Go and, that evening, my wife apparently showered with Bee-Go soap.

I will probably do the honey harvest this year, too, but only for amusement and to pass the time of day.