

DEC 1996 

Bee Culture

**PROTECTIVE
BEE WARE -
FROM THE BASIC...
TO THE COMPLEX.**



**GENERAL MILLS
LAUNCHES "HELP
SAVE THE HONEY
BEE" RESEARCH
SUPPORT PROGRAM.**



**COLLECTING
HONEY
BEE
STAMPS**

Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

DECEMBER 1996 VOLUME 124 NUMBER 12

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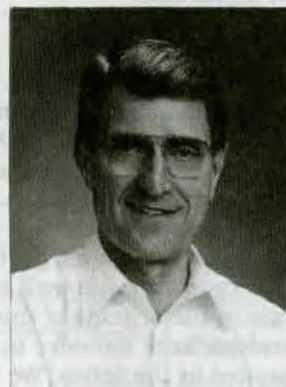
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The world contains many wonders. If you go through life with a preconceived notion of what you are going to find, then you will miss everything that is novel and wonderful.

by Richard Taylor



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JOHN ROOT
Publisher



KIM FLOTTUM
Editor



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INNER COVER

General Mills has opened a small, but enlightened door on corporate sponsorship of research for the beekeeping industry. Elsewhere in this issue is the nearly complete story on the "Help Save The Honey Bee" program they are sponsoring to generate funds to donate to three research programs dedicated to, yes, saving the honey bee.

And right off the bat, I urge you, your family, your kids, their school class, your Lions, Kiwanis, Rotary, Church, Boy and Girl Scout groups and bee clubs to engage, big time, in collecting those little bees and send them in ASAP.

General Mills has committed, at least initially to donating \$100,000 to the cause, which comes to 400,000 little bees, cut out and sent in. This comes to, perhaps, a weeks worth of sales – maybe a bit more or less – but so what. Keep those quarters coming.

General Mills, does, though, have a vested interested in keeping this industry alive and well. Honey Nut Cheerios is a very large cash cow for the company, and fewer bees means less honey, higher prices and reduced profits. And \$100,000 donated to bee research is a small price to pay for a steady source of reasonably priced honey. Plus a really great promotion.

Just so you know.

There has been a wholesale acceptance of the not-yet-proven theory that 'some' essential oils control mites in a beehive. Many, way, way too many people have purchased these oils, and used them in their hives. And claims of success are common. What's not common, of course, is any attempt to conduct anything approaching a comparison test. Plus a whole lot of other reasonable precautions aren't being taken.

For instance. Is this stuff getting into honey or wax? I'm not sure you want spearmint foundation, or do you? Does the lady next door want wintergreen flavored honey? Breath mints maybe, but honey? And didn't patchouli go out with the 60s?

Look. Some one of these chemicals may, or may not be that magic bullet everybody's been looking for. And, the work you do may prove to be the critical link in what works, and what doesn't. But. And this is a very big but. The work you do may be the case that goes to court on charges of honey contamination.

Don't screw it up for everybody trying something stupid. Do it right or don't do it at all. Please, be careful.

Do you deal with package bees? Either produce them, sell them (without producing them) or buy them for your own use? If so, you'll be interested in a whole series of articles we have planned for the "Package Season."

Starting in January we take a look at a package production operation in Georgia. How they make all those bees, get them ready, and get them delivered. And delivery is an issue we'll look at, too. The USPS plays an important role in the scheme of things.

But there's a huge queen and package industry in California, too, and they will be well represented in the series. We visited four operations there for an in-depth look at how they make queens and packages, and they don't do it the same, as each other, nor like the Georgia operations. You'll learn a lot with these articles.

Installation, too, is a vital component – proper installation that is, and we've got that covered. Whether you put in hundreds, or two, we'll cover the basics of commercial, side line and hobby how-to in packages.

Starting with the January issue, the package and queen business is a focus you don't want to miss. Not a single issue!

1997 marks the 125th year this magazine has been published. That's a lot of beekeeping information. We plan a year-long tribute to those 125 years, with a section each month on a particular decade of information 'Gleaned' from the issues of *Gleanings In Bee Culture*, and, yes, *Bee Culture*. If you're a history-of-bee-keeping die hard, you'll enjoy this. If not, you'll learn a few things along the way. Stay tuned, for more than a century of the business of bees!

Kim Flottum

A Word Of Caution, And Opportunity.

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Publisher John Root

Associate Publisher Robert Stanners

Editor Kim Flottum

Production Coordinator Kathy Summers

Photo Reproduction Moonlight Graphics

Circulation & Advertising Dawn Feagan

Publications Assistant Mary Weigley

Contributors Richard Bonney
 Roger Morse
 Richard Taylor
 Mark Winston
 Clarence Collison
 Ann Harman
 B.A. Stringer

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EMAIL: BCULTURE@AOL.COM

MAILBOX

Out Of Bees?

I refer to Michal Anosh's article, "Out of Bees," in your October 1996 edition.

Talk about 'coals to Newcastle'! *Apis mellifera adansonii* is the race of honey bees indigenous to that part of Africa in which is situated the Ivory Coast! So why did 'bee expert' Mondo Basmal of Israel import the same race into Ivory Coast from, of all places, Australia? (Indeed, since when were African bees, of any race, allowed into Australia?)

The taxonomists have always confused us ordinary beekeepers. Not so long ago, our Zimbabwean honey bees were called *anansonii* until someone decided that they should be renamed *scutellata*. It is under this name that they have been the subject of caumny and (we think) unjustified name-calling by a frenzied media, mainly in the United States, since their introduction to Brazil just over 40 years ago. To us, whatever their 'official' name, 'Killer-Bees' they are not. Certainly, they are wild creatures and must be handled with care. But, they are very productive: Indeed, the world-record production of honey from one hive, which still stands, was in 1948/49, when 958 kilograms (2,107.6 lbs.) was taken out of one hive of *scutellata* honey bees.

In every respect, like their temperate relatives, our bees are variable, of course. Most colonies are very hard-working and, if managed properly, will produce an average of between 65/70 (143-154 lbs.) kilos of honey per annum per hive for the beekeeper who knows his business. (I don't know the statistics for other parts of the world, but we regard this as satisfactory.)

As far as behavior is concerned, we have a 'rule of thumb' that suggests that about 1/3 of the feral colonies are 'docile, 1/3 are 'maybe, and the remainder may live down to the reputation some of the products of their hybridization

have earned in South and Central America. But, we're not talking about feral bees. Skillfully managed colonies - that don't go berserk at the drop of a hat - abound in Zimbabwe, and other countries to our north and south.

Michal Anosh says that 'African bees generally are not very good at their job.' Correction: the problem in Africa is that some *traditional* African beekeepers are not perhaps as good as they might be, particularly if one considers them in terms of first-world production standards and technologies. We have also, and often, observed that 'outsiders' are also not as proficient as they should be, or, more likely, they are not able to adjust to the different handling requirements of a race of bees with which they're unfamiliar.

As to shipping 'African' bees: Very large numbers - thousands of *scutellata* colonies - have frequently been moved by air from Zimbabwe. Some have been taken aboard regular flights, others have traveled by special charters. There have never been any problems (admittedly, apart from the bureaucratic variety) but I would suggest that anyone who wants to move bees by air from Australia should contact - of all people - the Australians themselves! They have been moving colonies to countries in the Middle East (where Israel is) and would have been able to advise Mr. Basmal of the most appropriate packaging and shipping techniques to use.

Defensive (aggressive, if you prefer) behaviors have evolved in the face of severe predation. If the '*adansonii*' bees 'from Australia' didn't have the requisite instincts they would be unlikely to survive in West Africa anyway.

A major pest of honey bees in Africa is the Argentine ant, *Iridomyrmex humilis*. (Now, wherever did they come from?) In Zimbabwe, and presumably in Ivory Coast, no attempt should ever be made to move bees from one place to another, even a couple of

kilometers, without pretreating the eventual site for ants.

Did Ivory Coast's imported experts address possible problems of 'critical mass' when assessing needs and prospects? Whatever their race, no 240 colonies of imported bees would be likely to survive in Africa in the face of opposition from the locals (*adansonii* v. *adansonii*?). It's been tried many times before by the ecologically ignorant - unsuccessfully, fortunately. Which poses an inevitable question: Why are we humans so intent on the deliberate translocation of wild creatures from one place to another? Isn't it enough that such little charmers as cockroaches and rats can manage without our intervention?

We, like the South Africans, Zambians, and many others, manage our 'killer bees' quite successfully, as perhaps the Ivorians - and their advisers - should do with their own true *adansonii* version of the African bee.

Athol Desmond, President
Zimbabwe Beekeepers' Council

From The Ozarks

The Ozarks are full of folk sayings and the one I have used for years and it is more appropriate now than ever, goes like this

If any one tells you he knows anything about bees, watch him, for he will lie about anything.

Lawrence Parker
Vienna, MO

Bees In Cyberspace



Thanks for the article on beekeeping on the internet. Our club has a "Bees in Cyberspace" item on the agenda each month, and this will be good input! Keep them coming!

I sent Ron Miksha an extensive list of my bookmarks of beekeeping sites, (many of which are in the U.S., contrary to his statement in the article.)

I would hope that this would

Continued on Next Page
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MAILBOX

become a regular department in BC. I would not mind helping to write it. An article on the BEE-List server would be nice. Many in our club are on the list.

BC has come a long way from the *Gleanings in Bee Culture* image! Keep it up!

Gerry Visel
Winnebago, IL

Web Index – Good Idea

I think a web index would be a good idea. I'm not that computer literate but learning.

I run 3,500 colonies in central California. I'm working on (with my son's help) a commercial beekeeping web page hopefully with lots of pics. We need to share ideas.

My address is <http://www.geocities.com/heartland/7305/>. Enjoy *Bee Culture*, keep up the good work.

David Bradshaw
Central California

Editor's Reply: By early January *Bee Culture's* web page will have made a significant expansion, including an electronic state-by-state *Who's Who*, a *Pest & Predator analysis site* plus the current and past issues. Stay tuned.

How Do We Know?

Mark Winston says (October, '96 *Bee Culture*, p. 560), "Queen rearing begins when colonies become crowded enough so that pheromone distribution is slowed and many workers do not come into contact with the queen's pheromones." I have a question. "How do we know that?"

An uncrowded colony in two deeps and two mediums (above a queen excluder) in Spring often makes a continuing succession of queen cells. (In 1995 I had a colony make 60 before they finally quit doing that. I cut them every 10 days.) That same sized colony in two deeps and no mediums in the Fall goes months without making any. An observation hive consisting of two deep frames I set up at the University of Guam in the early

Spring made queen cells and swarmed that summer when I was not there to manage it.

It seems self-evident to me that the impulse to raise queen cells is more complicated than that. Blaming it on the inability of pheromones to be moved through a crowded hive sounds a tad too glib. Tell us, please, how do we know that?

Dan Hendricks
Mercer Island, WA

Dance Language Controversy

I enjoy the long-running debate over bee dances (Wenner, *Bee Culture* 124: 551-552) and I'm reminded of Richard Dawkins' amusing and probably insightful "take" on this controversy between what I call the "dancers" and the "smellers."

Suppose a man tells me there is a bar three blocks down the street on the right. I set off thirsty, but on the way a strong smell of beer distracts me to another bar hidden up a side alley. Does this prove that human language does not communicate information?

MEGA BEE MEETING

IN BEAUTIFUL MEMPHIS, TENNESSEE!

"Four" national groups will come together in Memphis, Tennessee for the beekeeping event of the year! The American Honey Producers Association, the Apiary Inspectors of America, the American Association of Professional Apiculturists, and the American Bee Research Conference will hold a joint meeting January 7-11, 1997. The meetings will be held at the beautiful Memphis Marriott on Thousand Oaks Boulevard. This year we have a special convention hotel room rate of only \$74 per night plus tax. For hotel reservations call 1-800-627-3587.

There should be something of interest for everyone! Many topics will be visited for the "Profit Motivated Beekeeper." A "Bee Management and Queen Rearing Workshop" is just one of the many planned activities. The best research scientists and bee inspectors in the world will be available to share their knowledge with visitors. Vendors will be abundant! So, plan to come early and stay late for the MEGA BEE MEETING EVENT OF THIS YEAR!

For information call:

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Producers Association**

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MAILBOX

Dawkins (Science, 1969) concludes from the evidence that bees are similarly easily distracted. To date the champions of the dance language have presented strong, one might safely say overwhelming evidence that the bees use the information in the dance. The evidence by Gould is particularly convincing. For my continued enjoyment, I urge those that like the smell hypothesis to publish new data showing how bees use olfactory cues in their foraging behavior.

Frank Eichen
Weslaco, TX

More On Mite Solution

I have been asked by beekeepers here and in other states to send you some comments on Mite Solution, a product manufactured here in Washington alleged to control Honey Bee Tracheal (HBTM) and *Varroa* Mites. This product has not been granted an EPA accepted label and therefore should not be sold or used on bee colonies.

In my effort to facilitate getting a new mite control product into the hands of the industry I contacted Mr. Steven Tuttle for details of his product so that I could speed up the process of getting it registered if this was possible. After reviewing the laboratory and field data provided to me I had several discussions with Steve about my concerns that the procedures he used to test the solution do not conform with those used generally in the scientific community. In my opinion the data he provided me may equally result from other conditions of the colonies, colony management, weather, and the mite population drop known to occur in HBTM. It is my opinion that the product has not been tested according to scientific technique using test and control colonies and that the product cannot be shown to have had any effects on mites.

During conversations with Steve I suggested that he have his product tested by recognized scientists like Drs. Shimanuki,

Wilson or Burgett which would add visibility and authenticity to his product, and to utilize their expertise in getting the product registered. This has not been completed.

In an effort to consult with persons who have used the product in the U.S., I have talked with several whom Steve has mentioned as proponents of his product. Only one person properly tested the product and he told me that there was no statistical difference between the test and control colonies. The other five or six persons, including some large commercial operations, told me that they used the product but did not check their mite levels prior or subsequent to their use of the product. They admit that their visual evaluation of their colonies does not reliably indicate the efficacy of the product.

Several beekeepers here and some from out of state tell me that they used Mite Solution exclusively so that any results would not be confused by the use of other chemicals. Several have told me that they lost up to 50 percent of their colonies after use of the chemical in 1995, and one told me he has lost nearly 60 percent to date in 1996 (10/17). These persons described heavy damage to their bees from *Varroa* even after using several times the recommended dose. Another person just told me he has lost over 300 of his 600 plus colonies which showed heavy *Varroa* damage. He does not know what his HBTM levels are. And in fairness, there may be other reasons for these colony losses.

Unfortunately, many beekeepers have believed the advertisements for Mite Solution and the manufacturer's claims for the product, but have been unaware of the details I have provided above. I have a grave concern when beekeepers spend hard earned dollars to use unregistered products only to watch their colonies die in large numbers with mite damage. The industry would be dollars ahead to make contributions to individual researchers and ask them to test the products they are hearing about. We are also aware of beekeepers using a number of other products just because their neighbor beekeeper has tried them and

pronounced them beneficial. I will repeat what I have said in other publications: Visual observations do not accurately identify the effects of alternative chemicals on mites. It is imperative that test and control colonies be used and mite levels measured prior and subsequent to the studies.

I hope these comments will prove beneficial.

James C. Bach
Washington State Apiarist

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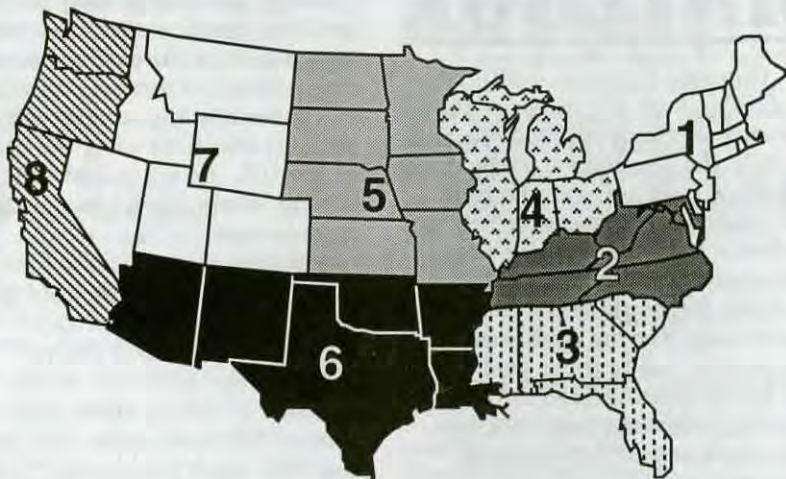
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DECEMBER Honey Report

DECEMBER 1, 1996

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	Range	Avg.	Last Month	Last Yr.
Extracted honey sold bulk to Packers or Processors												
Wholesale Bulk												
60# Light	70.53	69.10	70.00	73.60	81.25	55.00	62.00	58.33	50.00-92.00	68.44	64.59	47.98
60# Amber	69.56	62.10	63.00	75.49	80.33	53.50	60.00	58.33	47.00-91.00	67.07	59.40	45.61
55 gal. Light	0.92	1.01	0.91	0.99	1.00	0.75	0.90	0.89	0.60-1.23	0.96	0.97	0.67
55 gal. Amber	0.88	0.90	0.83	0.95	1.07	0.77	0.88	0.89	0.60-1.20	0.91	0.88	0.62
Wholesale - Case Lots												
1/2# 24's	29.18	34.02	25.40	27.31	31.00	29.00	27.50	26.00	22.00-54.00	29.67	27.48	22.50
1# 24's	39.80	40.76	32.33	40.78	46.98	46.50	37.30	36.80	21.00-60.00	40.90	39.81	32.57
2# 12's	37.49	38.42	36.00	38.56	41.17	36.00	35.20	31.50	29.40-57.00	38.43	38.58	30.89
12 oz. Plas. 24's	34.45	35.80	25.00	34.99	36.33	45.00	34.90	29.93	15.00-48.00	35.64	34.78	29.02
5# 6's	39.21	40.80	35.00	42.00	38.59	42.00	32.90	32.00	24.00-61.60	40.50	37.60	31.78
Retail Honey Prices												
1/2#	1.76	2.23	1.78	2.17	1.55	3.00	1.70	1.30	1.00-3.59	1.79	1.70	1.52
12 oz. Plastic	2.14	2.31	2.31	2.14	1.85	2.87	1.85	1.94	1.56-2.95	2.19	2.12	1.74
1 lb. Glass	2.54	2.69	2.73	2.32	2.39	3.36	2.55	2.29	1.75-4.00	2.58	2.53	2.00
2 lb. Glass	4.31	4.51	4.50	4.36	4.07	4.75	3.70	3.64	3.29-7.29	4.38	4.16	3.43
3 lb. Glass	5.58	6.10	5.83	5.59	5.39	6.25	4.65	5.18	3.99-7.15	5.77	5.50	4.59
4 lb. Glass	6.90	7.41	6.50	8.16	6.93	7.50	7.29	7.00	5.60-9.00	7.28	6.56	5.62
5 lb. Glass	9.12	8.91	10.76	9.34	8.13	8.57	7.85	7.49	6.25-17.29	9.27	8.49	7.08
1# Cream	3.00	3.09	3.50	2.51	2.87	4.13	3.35	2.68	2.19-5.25	3.06	3.05	2.57
1# Comb	3.92	3.70	4.00	3.74	2.90	6.00	4.75	3.50	1.95-7.00	4.05	3.96	3.35
Round Plastic	3.73	3.32	4.00	2.91	4.99	6.05	4.52	3.65	2.75-7.00	3.82	4.00	3.05
Wax (Light)	2.80	1.69	2.33	3.51	2.28	3.67	2.35	2.92	1.25-5.25	2.86	2.70	1.88
Wax (Dark)	2.59	1.46	1.92	3.63	2.00	3.40	2.25	2.67	1.10-5.00	2.67	2.39	1.54
Poll. Fee/Col.	32.86	32.50	31.25	32.50	35.00	15.00	35.00	32.00	15.00-55.00	33.96	32.95	30.25

MARKET SHARE

A new Honey Report next month. New (and more) reporters, a new map, and a different outlook. For January, send in the report we put in last month. Make it a GREAT first time effort. Hundreds already in, but need hundreds more. And, still looking for more reporters - especially west of the Mississippi. Call or write!

Region 1

Prices up across the board, both wholesale and retail. Demand strong and increasing. Mites and weather the two factors affecting production this year. Late Spring, but extended Fall helped production to its best in several years. Colonies in good shape, lots of honey and few mites this year, should bring banner Spring conditions.

Region 2

Prices rising at wholesale, bulk and retail and demand strong for all honey, but especially locally produced. Mites and weather detrimental to production, but colonies generally in good shape into Winter. Mite loads low, good Fall flows and treatments helped.

Region 3

Prices steady to decreasing a bit, retail fairly strong and demand getting stronger. Weather affected early flows more than expected, but mite played some role, too. Colonies stronger than in years now, and Spring conditions should be great for early flows next year.

Region 4

Prices steady to increasing a little, especially new crop bulk and wholesale. Retail steady. Good nectar flow and late season low mite pressures helped production. Colonies in good shape with heavy stores and few mites.

Region 5

Bulk prices rising sharply with new crop coming in fast, wholesale and retail steady. Weather and colony losses strong factors in reduced crop, but long honey flow and low mite pressure later in season helped even it out. Demand strong, and increasing.

Region 6

Bulk prices still steady, and not exceedingly high. Increases expected. Wholesale and retail rising. Dry weather the main feature this year, but reduced colony numbers slowed things, too. Demand steady to strong. Colonies in fair to good shape.

Region 7

Prices only steady, but new crop will rise. Dry weather a prime factor in production, but colonies in pretty good condition. Demand increasing with cold weather.

Region 8

Prices steady at bulk, wholesale and retail. Good weather, but poor (relatively) flows dominated the production scene, with an only average crop. That's still a lot of honey. Demand strong, especially bulk and wholesale. Colonies in good shape generally, with mite pressures reduced.

General Mills Launches HELP SAVE THE HONEY BEE



Americans may soon swap their swatters for scissors in order to help save the U.S. honey bee from extinction. The makers of Honey Nut Cheerios, along with the nation's foremost entomologists and representatives from the American Honey Producers Association, have launched a national campaign to raise funds to accelerate study of a crisis that threatens to eradicate America's honey bee population and devastate American agriculture.

According to one of the nation's leading entomologists, Dr. Eric Mussen, Professor of Entomology at the University of California, Davis, an invasion of parasitic mites that migrated to the United States from Latin America over the past few years "now represents the single greatest threat to ever confront the food chain and America's agricultural industries." Almost all of America's wild honey bees have been eradicated by the mites since they first arrived in the U.S. More than 60 percent of America's commercial honey bees have been killed by the tiny, spider-like creatures.

"Everyone in America depends on the honey bee. They pollinate our orchards, our fields and our gardens. Without their work, food prices will rise and our environment will suffer," said Eric Lucas, marketing manager for Honey Nut Cheerios, a low fat, whole-grain-oat breakfast cereal produced by General Mills, Inc.

Lucas said that the Honey Nut Cheerios "Save the Honey bee" campaign will raise funds to research threats posed by the "Varroa Mite," which sucks blood from honey bees by attaching itself to their bodies, and the "Tracheal Mite," which chokes honey bees to death by reproducing while lodged inside honey bees' tracheae.

As part of the Honey Nut Cheerios "Save the Honey Bee" campaign, between now and January 31, 1997, Honey Nut Cheerios will donate 25 cents for every honey bee clipped from the front of a Honey Nut Cheerios box and mailed to General Mills. The cartoon-like drawing of a honey bee has appeared on the front of Honey Nut Cheerios boxes since 1979, a year after its introduction in 1978.

According to Lucas, General Mills stands ready to donate up to \$100,000 for honey bee research. The funds will be evenly distributed to three of America's premiere honey bee research centers: the University of Minnesota, Michigan State University and the University of California, Davis. Each school has established

apiary research programs that have been in the forefront of the search for a way to destroy the deadly mites and repopulate America's honey bee hives.

The Honey Nut Cheerios "Save the Honey Bee" campaign has been endorsed by a broad range of organizations that are concerned with America's agricultural well-being, including:

Bee Culture Magazine
The National Association of State Departments of Agriculture
The National 4-H Council
The United Fresh Fruit & Vegetable Association
The North American Strawberry Growers Association
The American Alfalfa Processors Association
The American Honey Producers
The National Honey Board
The Washington Apple Commission
The American Beekeeping Federation
The Almond Board of California
The California Avocado Society
The Michigan Apple Committee
The U.S. Apple Association
The American Cranberry Growers Association
The Cranberry Institute
The Arizona-Sonora Desert Museum

Representatives from Honey Nut Cheerios reminded Americans that in addition to generating research funds by mailing in honey bees from Honey Nut Cheerios packages, additional contributions can be submitted and will be earmarked for honey bee research at the three university apiary research centers. "We hope everyone - kids, grown-ups, school-rooms and others - will do all they can to help save the honey bee," said Lucas.

Individuals who want to help save the honey bee should mail honey bees clipped from the front of Honey Nut Cheerios boxes to:

"Help Save the Honeybee"
P.O. Box 5450
Minneapolis, MN 55460-5450

Those who want to receive a honey bee information packet or hear more about how they can help are urged to call the "Help Save the Honeybee" Hotline at 800-362-2006.



Roger Morse

Research Review

"Substrate sound may be a significant factor in relaying information in a hive."

message. However, despite many suggestions, we have not learned how the information is transferred by the bees. These new observations put us one step closer.

The information reported here was obtained by recording (high-speed video) the dances at 200 frames per second as bees danced on combs in an observation hive. The dancing bees were trained to two feeding stations about 200 and 1,200 yards from the hive and each group studied separately. These two distances show marked differences in length and pace of the dance. Bees dancing for a food source about 200 yards away move forward for a distance of about 5 mm, which is about the length of a worker bee's abdomen. When the station is about 1,200 yards away the wag-tail portion of the dance takes place over a slightly greater distance, about 8 mm.

A question raised by these researchers is that scouts with a swarm have been observed to dance, but they do so on the bodies of other bees. The tail wagging portion of dances on swarms may also take place over a much longer distance. Obviously, there is no comb and therefore a different mechanism is operating, or the vibration of the dance floor surface in a hive has a different meaning.

Substrate-Borne History

We have known for a number of years that bees use sounds under a number of circumstances and respond to vibrations of their nest. An example is a process called drumming. If you smoke a colony gently and then beat in a rhythmic manner on the side of the hive with your hands, or an object such as a rubber hammer, the bees, including queen and drones, will march upward if provided with a covered super of combs or an empty hive body or box. This is an old-fashioned method of forcing bees out of a box hive where there are no frames and combs are fixed

into place by being attached to the sides of the box. Package bee producers sometimes drum worker bees out of their hives and up through a queen excluder and into an empty box from which the bees are shaken into packages. The queen excluder keeps the queen and drones in the hive and out of the packages.

Another hive behavior that involves vibration is the shaking signal, which has also been called a "jerking dance," "vibration dance," "dorso-ventral abdominal vibration" or just "shaking." This behavior is seen most frequently when there is abundant forage. The current thinking is that this is a method foragers use to stimulate bees that are apparently not busy to go to the dance floor to learn about new sources of food. Thus, it appears that this dance works in conjunction with the wag-tail dance. The shaking dance involves a bee walking up to another bee, grasping her with her legs and the dancer vibrating her whole body; at least this is what is seen in an observation hive. Shaking bees may perform this behavior on one to 20 bees per minute. The bees being shaken remain motionless until released by the shaker, but they do respond by going to the dance floor more frequently than do those bees that are not shaken. It seems obvious the shaking dance should be subjected to the same high-speed photography that has given us so much new information about the dance language.

There are more examples of vibrations that have an effect in the lives of bees. The information I report here on the dance language will no doubt stimulate research in many areas. ☐

Reference:

- Tautz, J., K. Rohrseitz and D. C. Sandeman. *One strided waggle dance in bees*. *Nature* 382: 32. 1996.
Tautz, J. *Honeybee waggle dance: recruitment success depends on the dance floor*. *Journal of Experimental Biology* 199: 1375-1381. 1996.

The fact that honey bees perform a dance to indicate the direction and distance of a food source (or a new home site) was discovered by Professor Karl von Frisch a little over 50 years ago. New data show the tail wagging portion of the wag-tail dance is actually one long, slow stride, though the wagging portion of the dance may be intense. During this part of the dance, four, five or all six of the dancer's feet hold onto the comb in a rigid fashion most of the time. This suggests the bees are trying to stabilize their movement during the dance, and in this manner, transmit vibrations into the comb.

These new data indicate that information about the direction and distance to the food source may be carried by the substrate on which the bees are dancing. The dance we see is probably an artifact, though its meaning is clear to us. The ordinary walking pattern of honey bees was studied in the same manner that the dance was observed and showed a very different gait.

The second paper cited below indicates recruits following dancing bees have a much easier time understanding the message when the dance is performed on open comb. In fact, the recruitment of new foragers to a food source is three times less effective when the dancing takes place over capped brood cells versus open cells. This suggests that open comb may resonate. It is known that honey bees polish and varnish cells in the comb with propolis and this in large part is responsible for comb strength and rigidity.

One problem from the beginning of the discovery of the dance language has been the fact that we can look at a dancing bee and understand her



Mark Winston

Beekeeping and Snake Oil

"We need to be hyper-cautious about our beekeeping practices in this age where we rely on miticidal chemicals to keep us in business."

I rarely "surf the web," and I am still old-fashioned enough to find myself going to the library to do research instead of connecting to the World Wide Web to do an information search. For me, there is something more substantial about a fact garnered from a dusty book on a library shelf, or more exciting about an article in the latest peer-reviewed, hard-copy scientific journal, than the ephemeral and unfiltered flood of information that confronts us on the computer highway.

I felt vindicated recently in my biblio-snobbery by an essay that did come to me through the Internet, in this case written by Tom Sanford for his excellent monthly newsletter that, yes, is distributed by electronic mail. He was writing about the use of essential oils such as wintergreen for mite control, and made the point that many beekeepers were trying this and other methods without waiting for scientific testing, let alone proper registration or carefully evaluated descriptions of application methods. He viewed this as a revolution in how we do research and deliver extension information, since beekeepers were testing mite control methods themselves, sending their observations out over the Internet for other beekeepers, and even describing in detail how to use these illegal controls. The normal filter of rigorous scientific analysis and carefully considered extension recommendations has been bypassed, replaced by a marketplace of ideas with only beekeeper experience to filter out good ideas from bad, and to determine in the end what works and what does not.

I am concerned about this trend toward increased information flow with no signposts to guide the unwary web surfer away from flawed information. It is not that I don't trust beekeepers to make their own management decisions. To the contrary, I have great faith in the beekeeping marketplace to determine what management methods work at economically acceptable levels. Rather, I am concerned that beekeepers may get burned by using methods that don't work, control techniques with excellent potential may be dismissed too easily because proper application timing and dose have not been determined, and residues may be left in honey and wax that could damage consumer confidence in our products.

The issue of beekeepers getting burned by relying on improperly tested products is a serious one, and I believe the reports of 50 to 80 percent colony wintering losses from the 1995-1996 Winter season may have been due in part to this problem. I know that many beekeepers are using untested products such as wintergreen oil and the insecticide neem without knowing whether they really work, or how to apply them properly even if they have potential for mite control. I continue to be amazed at the many calls I get from American beekeepers asking me for information about how to use these illegal products. Actually, their questions are not of the "How to use" variety, but rather of the "I used this product last season and lost most of my colonies. What did I do wrong, and how should I use it this year so that I don't lose colonies?" category.

What gets lost in the deluge of

Internet rumors is that control methods such as wintergreen or other essential oils, and neem, simply have not been proven to work as mite control chemicals. What we have in both cases are incomplete, unsubstantiated tests that suggest these products may be worth additional testing, but certainly are not sufficient for beekeepers to trust their livelihood to these reports. Essential oils, for example, have been tested by numerous scientists, and data to date suggest they may work in some situations but be utter failures in others. Until we determine how to use these oils with consistent success, a beekeeper using these products is playing beekeeping Russian roulette. The insecticide neem also has been tested with some success as a miticide, but only very preliminary data are available. Mode and timing of application, proper dosages, analysis of residue levels, effects on honey bees, and testing under diverse beekeeping conditions must still be done before any of us should be recommending neem to beekeepers.

I perhaps could understand panicking beekeepers reaching into the cornucopia of illegal snake-oil remedies if there were no mite control methods that worked. This is not so; products such as menthol, oil-based extender patties and formic acid (registered in Canada but not the United States) work just fine against tracheal mites, and Apistan and formic acid work against *Varroa* mites. I use these products as recommended with great success; if an "ivory-tower" university researcher like myself can control mites, certainly more experienced "real-world" beekeepers should be able to do it. I suspect that colony

Continued on Next Page

"I suspect that colony losses are due to improper applications of legal chemicals, cutting economic corners by skipping a Spring or Fall application, poor or no sampling to determine mite levels, or using unregistered products instead of the legal ones."

BEEKEEPING & SNAKE OIL ... Cont. From Pg. 669

losses are due to improper applications of legal chemicals, cutting economic corners by skipping a Spring or Fall application, poor or no sampling to determine mite levels, or using unregistered products instead of the legal ones.

Application methods, dose and timing of mite controls are crucial to their success, yet beekeepers trying unregistered products are gambling that they will hit the right combination for mite control. Neem is a good example. Many beekeepers are applying neem obtained from non-beekeeping formulations without realizing that it is not easy to get neem into beehives. Neem comes in many forms, including oils and various emulsifiable concentrates, and many of these formulations do not dissolve well in water. Another problem with neem is that its success against insects is due in part to its being a repellent, preventing pest insects from feeding on crop plants. Neem also repels bees, so that if you are successful at dissolving neem in your sugar syrup, it may deter bees from feeding. Your bees not only won't get their mite medicine, but they won't take down their sugar feed, either, and might starve to death over the Winter.

That's some of the information you won't get on the limited Internet reports about using neem. You also won't hear that some of the preliminary methods reported for neem did not work when other researchers attempted to replicate them, or that neem purchased from one source in Asia is not as effective as neem from a different source. No, what you read about neem or wintergreen oil is simply too preliminary, too vague, and too unreliable to base your livelihood

on, and the only reason for using these products at this time is if you want to get out of beekeeping in a hurry.


Residues are another issue that doesn't get fired around the world on the illegal miticide Internet grapevine. Honey today is rigorously tested by buyers, especially for export markets, and the technology for honey testing is so precise that even one part of illegal product to a billion parts of honey can be detected easily.

I wouldn't worry so much about residues if it wasn't for consumer confidence in honey. After all, if you want to get your own load of many tons of honey rejected because of illegal residues, that's your problem. However, it's only going to take one report of illegal miticide being found in honey to shake the confidence of consumers who believe honey to be a natural, pure product. All the good work of the National Honey Board to increase honey sales could disappear following one Internet amplified report of illegal pesticides in honey. Think about it; would you put honey on your toast after reading a media-distorted scandal article about how beekeepers were dumping illegal toxic pesticides into their hives? No! We need to be hyper-cautious about our beekeeping practices in this age where we rely on miticidal chemicals to keep us in business, and the information highway amplifies rumors until they become fact.

I remain supportive of the role played by a strong research community in testing and evaluating new products, and in protecting beekeepers from illegal and improperly tested products. Don't get me wrong; I'm not telling beekeepers to butt out of the

research world. Researchers and beekeepers need to work in tandem, and beekeepers have a vital role to play in directing research into areas useful for them, in working with researchers in large-scale commercial trials of potential products, and at some point in deciding through their decisions to buy or not buy a product.

However, I question whether beekeeping is being well-served by the vague reports of miticide success that whip around the world instantaneously with the press of a computer keyboard key. Until the Internet comes up with a way for recipients of information to evaluate its credibility, I would be very hesitant to base my mite control or other management on something that I assume is reliable only because it pops up on my computer screen. Next time you surf the web and find a report about miticides, ask yourself how many times it was replicated, what variables were tested, how rigorous were the statistics analyzing the data, or even whether any data at all are passed along with the claims of product efficacy. Ask yourself whether you're willing to risk your colonies on the quality of information you're looking at, and whether you are confident enough in the reputation of the sender to commit the health of your bees to their reports.

Finally, copy the report over to an extension agent or research scientist you know and trust and ask for an independent evaluation of the information. Any report you receive should be able to withstand the rigor of close and independent examination about its methods and findings. Remember Internet information remains unfiltered by questions, and unregulated by peer review. The best way to evaluate what you receive is to know and have confidence in the sender, and view information critically and rigorously before committing your business to its findings. 

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



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? DO YOU KNOW? ?

Basic Bee Biology
Clarence Collison

In order to manage bees properly, all colony manipulations must be based on an understanding of their basic biology and normal activities. Whenever a beekeeper breaks down a colony, it is important to be looking for any evidence that indicates that colony conditions are

not normal or suitable for colony reproduction, and survival.

Please take a few minutes and answer the following questions to find out how familiar you are with basic bee biology.

The first thirteen questions are true or 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. ___ Honey bee larvae lack legs, eyes, and antennae.
2. ___ Drones are reared in worker size cells when a colony is preparing to supersede their queen.
3. ___ Beeswax cappings that are placed over pupae and honey cells are similar in composition.
4. ___ Both queens and drones mate more than once while they are on a mating flight.
5. ___ Races of honey bees (workers) in the tropics live longer than races found in temperate climates.
6. ___ Mature queen larvae are heavier than mature drone larvae.
7. ___ Swarming propensities vary widely in different honey bee races and strains.
8. ___ A primary swarm does not leave a hive until a queen cell is capped.
9. ___ The primary dietary nutrient needed by adult honey bees to produce beeswax is honey.
10. ___ The warmest region in the hive is where wax is being secreted and comb being built.
11. ___ In all honey bee castes, the pupal stage lasts longer than the larval stage.
12. ___ House bees remove the cappings from capped brood cells when the adult honey bee is ready to emerge.
13. ___ The adult honey bee heart is located in the dorsal part of the abdomen.

Multiple Choice Questions (1 point each).

14. ___ Developing honey bees undergo ___ molts during which the outer skeleton is shed.
 - A. Seven
 - B. Three
 - C. Six
 - D. Four
 - E. Five
15. ___ The last in-hive duty that may be assumed by a young worker before foraging in the field is:
 - A. Comb Builder
 - B. Receiving Nectar
 - C. Cleaning Cells
 - D. Nurse Bee
 - E. Guard Bee

16. Name three activities associated with the cleaning of brood cells by worker honey bees. (3 points).
17. Typically we say that the time to complete development from egg to adult takes the queen 16 days, worker 21 days and drone 24 days. However, these developmental times are quite variable. Name two factors that can be attributed to this variability. (2 points).
18. Name two factors that determine the division of labor in a honey bee colony. (2 points)
19. Name three nutrients supplied by pollen in the honey bee diet. (3 points)

ANSWERS ON PAGE 706



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Honey Bees & Bacteria

A Primer On The Honey Bee Immune System

Sharon Moalem & Gard Otis

At one time or another almost everyone has had to endure the symptoms associated with a bacterial infection. Thankfully, our bodies have the ability to ward off unwelcome bacterial infections by utilizing various protective mechanisms. We only become aware of the presence of such infections by the uncomfortable signs and symptoms they cause within.

On the other hand, the immune system of the honey bee is still a relatively new and unexplored area of study. How does the honey bee, *Apis mellifera*, cope with the many pathogenic bacteria it encounters everyday? The answer, as it turns out, is very interesting, but before proceeding, a little background in basic immunology would be helpful.

The symptoms we associate with being "sick" are actually a result of a complex chain of internal defensive reactions and events which comprise the immune response. The immune response protects the body by providing both *non-specific* and *specific* defenses. *Non-specific* defenses prevent infection by stopping the foreign invaders from physically entering the body. Examples of non-specific defenses in humans would be the skin and the intestines, which are comparable to the chitinous exoskeleton and the mid-gut of the honey bee.

Specific defenses come into play if foreign invaders (in this case bacteria) get through this first line of physical defense and enter the body, at which time the *inflammatory* response takes over. In essence, the inflammatory response is actually responsible for what we consider to be

the symptoms of being "sick." This response is initiated by the body when the invaders are detected and *antibodies* are produced. These *antibodies* selectively attach themselves to the invaders, marking them for destruction. This is considered to be the *humoral* component of the immune response, a scarlet letter if you will. For the sake of survival, the outcome is hoped to be deadly to the microscopic intruders. In humans, the T cell system is charged with the destruction of such invaders. These cells are referred to as the cellular component of the immune system.

The corresponding immune response within the bee also has a cellular and humoral component to it. The cellular component consists of a group of cell types collectively known as *hemocytes*. These cells engulf and digest any foreign substances or organisms within the bees' "blood." Unlike humans, the bees' cellular response is not as highly specialized, but rather it is simplistic in comparison.

Simple may in fact work better in certain situations. For example, humans require immunological matching for successful transplantations of organs. Bees, due to their more simplistic system of recognition, do not require such highly specific matching, so if a bee so desired, he/she would not need to be "matched" for a transplant to be successful. Actually, there have been experiments conducted where insect parts such as wings and legs have been successfully grafted onto other unrelated in-

sect species without rejection. So if a queen really wanted an extra set of wings, in immunological terms, she would not have a problem finding a match. She may not be as successful in finding a willing donor, however.

When considering the biological measure of competence of any immune system, it is always necessary to consider whether or not the organism can distinguish between itself and an invading bacterium or other organism. The cellular response of bees accomplishes this task by having the ability to recognize certain structures found on the surface of every one of its cells. These cell surface structures are called *antigens*, and the bees' hemocytes will only try to engulf and digest cells with *foreign antigens*. If it turns out that the foreign intruder is too large to be engulfed by a single hemocyte, then hemocytes gather en masse around the intruder, forming a very tight, constrictive seal. This seal usually results in the death of the intruder since the tight constricting encapsulation prevents the foreign body from completing essential life functions.

This process is called *encapsulation*, and it begins immediately following the appearance of foreign intruding bacteria. When these hemocytes begin to encapsulate a large intruder, the cells closest to the intruder secrete a substance called *melanin* which acts as a filler, thereby creating an even tighter seal. This is the same *melanin* produced by cells in our skin in response to the sun,

giving us that "healthy" looking tan.

The humoral component of the immune response is where the bees have evolved a very novel approach.

Instead of producing antibodies like the human immune system, bees rely heavily on six self-produced *antibiotic compounds* that are dissolved within their blood. These substances are produced in response to the presence of pathogenic bacteria, whose presence is required for the continued production of these antibiotics, with production usually ceasing when the bacteria have been eradicated. This in essence prevents the bacteria from developing resistance to these antibiotics, and is the same reason why your doctor would advise you to finish all prescribed antibiotics even after the symptoms have subsided.

Another great benefit of this system is that the antibiotics would clean up any lingering bacteria surviving within the bee by mimicking the bees own antigens, or body. This benefit is due to the complex mode of antibiotic production that requires the physical presence of bacteria as a signal for antibiotic manufacturing.

The understanding of this response has come through experiments in which bees were immunologically challenged by injections of live bacteria. Six different compounds were isolated and identified, with many more suspected compounds yet to be identified. After being chemically isolated, these compounds were named *apidaecin* (three compounds: 1a, 1b, 2); the other three being *abaecin*, *hymenoptaecin*, and bee *defensin* (also called *royalsin*). Of these six compounds, the apidaecins were found to be produced in the greatest quantities, and as a result are considered to be the major component of the bee's humoral immune response.

When the compounds were tested for their specific antibacterial properties, it was found that each compound was most lethal against different types of bacteria. However, most compounds were found to have overlapping characteristics in relation to the types of bacteria which they affected. In contrast to the apidaecin group, the other compounds seem to be more selective in

"The antibiotic compounds found within bees have been gaining considerable attention for their possible application in human medicine."

action and were found to be bactericidal against only a few species.

An example of why such bactericidal selectivity may be necessary involves the bacterium *Xanthomonas campestris*.

X. campestris is pathogenic to bees and is almost completely unaffected by the *apidaecins*, but it is very sensitive to *hymenoptaecin* and *abaecin*. Using this approach, the bee is able to efficiently counter the many species of invading bacteria and remain alive. For the life of the honey bee, the presence of these chemical agents is very fortunate. While the bees gather nectar and pollen, they get seriously exposed to, and infected by, the many species of bacteria that reside on and within plants.

These specific antibiotic compounds have not been discovered in insects other than those belonging to the order Hymenoptera to which bees belong. They differ from compounds found in other insects since they seem to be very specialized in action. The exact specifics of how these antibiotics work have yet to be properly tested and verified.

The antibiotic compounds found within bees have been gaining considerable attention for their possible application in human medicine. In fact, royal jelly, which has been found to contain the antibiotic *royalsin*, has been used by Chinese doctors to treat respiratory infections for well over a thousand years.

The relatively recent discovery of these compounds could not have come at a better time due to the re-

surgence of many diseases once thought to be largely under control. Many of these bacterial diseases are consequently of extreme concern since they no longer respond well to drug therapies. Some strains of pneumonia and tuberculosis, for example, are completely resistant to all known drug therapies.

Also, as the numbers of HIV-infected individuals increase worldwide, so will the need for new antibiotics to help these immuno-compromised individuals. Another sensitive group on the rise is the elderly, who due to their age and other illnesses are often more in need of antibiotic drugs.

With all of these issues in mind, it is important to note that there are an estimated 10 million species of insects that until recently have remained relatively untapped for antibiotic compounds. In any of those 10 million species may lie a yet undiscovered drug like penicillin or quinine, a drug or even many drugs to be used to combat the emergence of resistant bacterial strains. We may one day look back with gratitude and an even greater reverence for the honey bee. **BC**

Sharon Moalem is an undergraduate student at the University of Guelph who has a keen interest in both bees and medicine. Sharon can be contacted through email at: smoalem@uoguelph.ca.

Gard Otis is a professor and researcher also at the University of Guelph, Guelph, Ontario, Canada, N1G 2W1.

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Early Spring Management

Walter Wright

Southern row-crop farmers use an expression that has some applicability in beekeeping. When the farmer has done all he can do to assure a crop, and the plants are too large or thick for further cultivation, the field is referred to as "laid-by." The farmer can make periodic inspections of the field after this, but the success of the crop is pretty much beyond his control.

When you have done all you can do in the Fall to insure successful wintering, the colonies are *laid-by*. You have to wait out the Winter to determine the degree of success of your Fall management efforts. Unlike the farmer, however, your periodic inspections in late Winter/early Spring *can* influence the ultimate degree of success, if you are prepared to act on inspection findings.

It is difficult in the Southeast to specify the exact date that specific actions are appropriate. Some years, pollen and nectar is available in late January. Other seasons, it might be February or as late as March. The timing of required actions are more controlled by weather and bee activity than by the calendar.

A TENNESSEE WALK-BY

After mid-January, any time the midday temperature is forecast to break into the 50s, do a walk-by. If the forecast temperature is middle to upper 50s, take time off from work, if necessary, to see what is happening on the landing boards of your hives. This is important for several reasons.

You want to know about a Winter die-out before the cousins find out about it. If neighboring colonies find a dead-out, or a very weak hive, before you do, robbing sets in promptly. Our first introduction to the effects of the tracheal mite came on in January, 1989, when our orchard colonies were alive with robbers. For those of you who have not seen robbers in action, perhaps a brief description is worth your while.

What you want to see on a pre-season walk-by is a few bees milling around on the landing board close to the entrance reducer opening and some bees coming and going that obviously know where the entrance is. Robbers, though, are very cautious or tentative on their approach to the hive. They fly in little sorties from well back away from the colony, expecting to be met by defenders. If they meet no resistance, they get closer and closer until they land. The dead giveaway on robbers is

that they appear not to know where the entrance is. They can be seen checking the cracks where supers come together and the edges of the cover. They may be looking for a poorly defended opening or they smell open honey at these cracks. Either way, they are distributed all over the hive. Resident bees are normally entry-oriented and do not land on other areas unless they are disturbed. A cloud of tentative flyers and bees seeking access all around a colony means serious robbing is underway.

Allowing a colony to be robbed out is not in your best interest. The combs of honey and pollen can be used for other purposes if they are protected. Store them safely away from wax moths and you will be surprised how fast you use them up. Even the robbers would do better without the booty of plunder. At this time of year, the spoils must be stored in the brood nest, and anything that reduces brood nest space reduces future brood rearing – not good for early Spring buildup. If possible, shut down active robbing immediately by salvaging the comb.

Other things you can look for on a pre-season walk-by are relative number of bees that are active from colony to colony, and bottomboard debris. Keeping in mind that the activity threshold temperature may vary from colony to colony, note colonies with very little activity. They should all be stirring at 55° outside temperature on a sunny day. Those with little or no activity need to be opened for inspection at the earliest opportunity.

Bottomboard debris can provide clues to the condition of the colony. During periods of confinement in cold weather, the bees do not have an opportunity to clean

"We should have identified what is meant by "pre-season." In late Winter, mild weather encourages some activity in the colony. Some bees come out to bask in the sunshine, and others take the opportunity for a cleansing flight."



Bees with heavy pollen loads is what you want to see.

TENNESSEE ... *Cont. From Pg. 675*

the bottomboard and some of the debris is tracked outside the entry. Normal debris of some clean cappings removed from reserve honey is what you would like to find. This shows the cluster is in physical contact with reserves. A shrinking cluster often loses contact with surrounding stores, and a sustained cold spell and tight cluster cause them to starve only inches from plenty of food. However, finding no cappings is not necessarily a bad sign. Bees in my area will normally form their Winter cluster over liquid honey in open cells. Miserly use of this underfoot reservoir will often sustain the cluster into early Spring's second brood cycle. But seeing too many cappings is another story. It may indicate the colony has crashed and has already been robbed out. If you are suspicious of this condition, you can pop the top and confirm capped honey at the top without unduly disturbing the cluster (if there is one).

What you do not want to see on your pre-season walk-by is black or darkened debris on the bottomboard. This almost always is bad news of one type or another. Wax moth larvae droppings are dark-colored, and their damage may be a result of a variety of problems. Wax moth larvae are not normally active at this time of year, but the damage may have occurred in the Fall and is just now coming to your attention. Again, pop the top to see what you find.

I should have identified what is meant by "pre-season." In late Winter, mild weather encourages some activity in the colony. Some bees come out to bask in the sunshine, and others take the opportunity for a cleansing flight. The cluster remains basically intact for this activity. The bees do not "break cluster," and it is not

advisable to disturb the cluster during these periods.

When mild weather is accompanied by forage availability, the bees go after it on a grand scale. They "break cluster" to the extent that capped brood is sometimes sparsely covered. Comb inspection is not a problem during these periods because the bees are geared to reorganize the cluster as the temperature cools down later. Put the comb back where you found it, and no harm is done.

When pollen is being gathered in the late Winter/early Spring, the season is on. Pre-season is over, and Spring buildup is in progress. It's time for you to become active also - passive observation from the outside is over!

Don't waste an inspection of brood chambers by not being prepared to do all you can do on one opening of the colony. The primary mission of the first inspection is to determine overwintered condition. Equally important, though, is maintaining good condition for the impending season. That is why a mite treatment is recommended on your first hive opening. The cluster is at the season's minimum size. Whatever your mite treatment program, it will reach more bees when the cluster size is at its smallest volume of the year.

FIRST LOOK INSIDE

Early season flying weather normally occurs only for a short time each day. The bees may only work a few hours in midday. Do your in-hive work early in this period (like noon to 1:00 p.m.) so as not to interfere with the re-clustering toward the end of the period. If the temperature is cooling down toward 50° quit for the day. Have a good thermometer in your bee truck.

Because of the limited time of access, the first inspection should be only a general observation of condition. You can tell at a glance the relative size of the cluster. Verify that small clusters have a laying queen by lifting one frame in the cluster an inch or two to see brood. If you find brood, apply your mite treatment and close up promptly. If you do not find brood on that frame or any other, make a note to check again in a week. Good records are mandatory!

This cursory inspection should include being alert for evidence of dysentery or nosema disease. If you see dark discoloration on the top bars in the cluster area, you might want to feed some Fumidil-B® to that colony. It may clear up naturally with incoming forage, or it may not. Nosema is not dysentery, and it is debilitating.

I discontinued preventive application of medication for nosema when I concluded that Spring "stimulative feeding" is a myth. Pollen availability is all the stimulation needed, and any feed provided must be temporarily stored, which takes brood cells out of production. We have seen some rare spotting of top bars since we discontinued Fumidil-B® application, but the problem cleared up without corrective action. However, we would probably take action on a severe case or widespread outbreak of symptoms. You make the call. And, our area may be different than places farther north, or south.

Note the smallest and largest clusters. Sometime downstream we may want to add bees to the weakest colony, and those supplemental bees should come from the strongest. If a cluster is smaller than a volleyball the bees are in danger of freeze-out in subsequent cold snaps. A cluster this small may be in decline from mite infestation. If you find empty cells to the side of the cluster, either outside of the cluster on a frame, or on adjacent

frames, you can be sure the cluster is diminishing in size. Add healthy bees at the earliest opportunity.

It's best to add bees from a distant location so that they do not "go home" the next time they fly. If your only source of bees is at the same location, add a visual change in front of the exit. Lean a board or box against the hive to encourage departing bees to reorient to their new home. A whole book could be written about techniques for moving a hat full of bees from one hive to another, but limited space keeps me from going into detail here. One technique that is fairly reliable is to add a super of wet comb or drawn comb sprayed with honey/sugar water to the top of a *strong* colony. When a sufficient number of bees have come up into the super to take advantage of your charity, quickly sandwich the super between two covers, and transport to the needy hive. It is best to have an inner cover already inside the bottom cover to provide bee space below the super bottom bars. At the speed of light, or thereabouts, lift the super of captive bees, with the top transport cover still on, and place it on the open, needy colony. Do this as the temperature is falling toward the clustering range on the day the next cold front is pushing toward you. If necessary, do it again the next warm spell to stabilize a declining cluster. It is too early in the season to add brood. They are raising all the brood they can keep warm. If you can stabilize the decline, you can add brood as the weather moderates.

Before we leave tracheal mite effects behind, let me throw out an item for your consideration. We read (past tense) a report that tracheal mite infestation did not affect the nectar load of foraging bees - infested bees brought back as much nectar per trip as uninfested bees. We think we have observed that the same thing is not true of pollen loads. When most of the bees are coming in with their socks full, the colony is healthy. When a large percentage of bees are coming in with partial loads, beware of tracheal mites. Keep in mind that early-season foraging is primarily for pollen. They must have pollen for brood rearing, and they do not have storage space for nectar. Some bees will split loads of both pollen and nectar, of course, which accounts for a low percentage of apparent light pollen loads.

MITE TREATMENT

If you have not yet invested in tracheal-mite-resistant bees, you will have to treat for both mites this season. If you consider that "resistant" is not the same as immune, and that some low level of infestation persists, you might find treatment of resistant bees would be cost-effective. I treated my Yugos like my bees of unknown ancestry (mostly locally generated swarms), and the Yugos out-performed my feral bee stock by nearly two to one. Whether any part of that can be attributed to mite treatment is unknown.

Early in the season is the best time to treat for both mites. Treatment is less expensive and most effective when the cluster is small and the active ingredient has to be dispersed over fewer bees. Whatever your preference for method of treatment, do it as soon in the late Winter/early Spring as you can gain access to the brood area.

We tried to treat the bees with menthol one Fall, but when we saw what it was doing to brood volume, we couldn't get it out of the hives fast enough. The bees can't stand the stuff. They survived the Winter with

"If your only source of bees is at the same location, add a visual change in front of the exit. Lean a board or box against the hive to encourage departing bees to reorient to their new home."

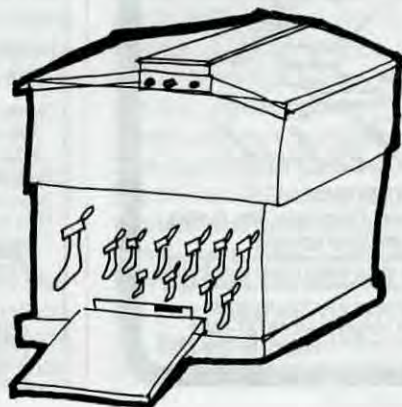
smaller clusters, but the first brood volume in Winter is important. So we use vegetable oil exclusively for tracheal mite control, but we don't use patties. We put a couple of ice-cream scoops of grease mix on the top bars in the cluster area, breaking up and spreading the clumps with the back of the scoop. This gets more bees in contact with the mix. The mix that falls between the frames is not wasted. A layer of mix is left on the bottomboard for them to walk through. Even the small amount of particles that they are able to roll through the entry and throw overboard serves a purpose. A grease film is generated at the entry for distribution.

The following grease mix formula has resulted in less than six percent winter die-out over a five-year period: Layer 10 pounds of granulated table sugar with a three-pound can of vegetable shortening in a five-gallon bucket. If preventive treatment for foulbrood is desired, include a seven-ounce packet of TM-25 (we do) in the grease/sugar layers. Tilt the bucket and rotate while smearing the ingredients together with the flat of the hand. Clean up with dish detergent.

For *Varroa* control, one or two strips of Apistan (depending on population) during the first or second brood cycle work wonders. We had trouble finding even one mite in mid-Summer when we put in strips in January/February '96. It is very easy to underestimate the cluster size this early. When you open the hive and the bees are foraging, the odds are good that more than half of them are in the field, since almost all the adult bees above brood tending age are foragers during the early season.

At the end of the exposure period for mite treatment, the hive will need to be reopened for removal of any medication applied. But we've already run on and on, so we'll treat swarm prevention and other buildup considerations later. ☐

Walter Wright is a southern beekeeper from Elkton, TN.



ALABAMA SPRING

James E. Tew

In Alabama, if it's hard Winter, then Spring is just a couple of supers away. Though the Winter season anywhere is a matter of your perspective, Alabama winters are mild. January temperatures average 52°F in the Southern part of the state, and 46°F in Northern Alabama. It does occasionally snow in North Alabama, but snow is rare in South Alabama. That means beekeepers in such a mild climate as this can actually "do" things to their colonies while the rest of us in cold climates stay inside and wait for better bee times. However, weather does not necessarily mean that keeping bees is any easier, but it does mean that some management recommendations are different.

Winter Manipulations

While many beekeepers in much of the United States cannot perform any serious beehive manipulations for several months during the cold season, Alabama beekeepers can, if necessary, open hives many times during their Winter season. You could ask, "Why would beekeepers need to open hives at all during cold

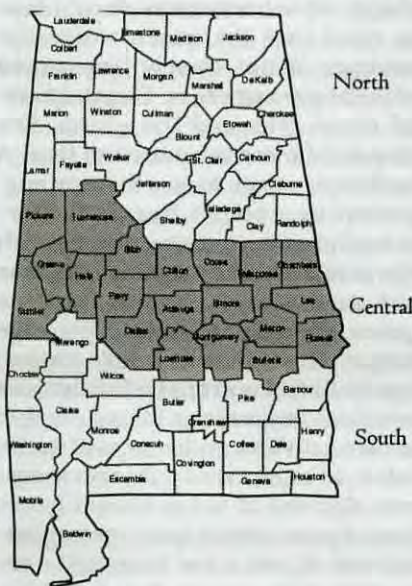
Beekeeping Basics In Alabama Are Similar To Most Of The South. But Not Quite.

months?" Repositioning Winter stores or providing Winter stores to light colonies are common reasons. Though the weather is warmer, colonies still use similar amounts of stores as bees spending the Winter covered in snow. In warm climates, bees can take frequent flights during every month of the year. But what's the use? Even in a warm climate, there is obviously nothing to collect, so wintering bees use valuable honey stores flying about checking for the first signs of Spring. But, alternatively, bees that take frequent flights - even though they are using honey to fuel flights in search for non-existent food - can relieve themselves frequently (i.e. leaning flights). Consequently, bees wintering in Alabama seemed to be stressed less by dysentery-type diseases.

out penalty. Just like wintering bees in cold climates, warm weather bees generate heat that results in water condensation within the hive. If colonies need feeding, give them thick sugar syrup (see September 1996 *Bee Culture* article "Fall Feeding"). If colonies are being fed for Spring stimulation, that mixture should only be sweetened water or a light syrup. If bees are fed high-moisture feed during cold months, there could still be problems with moisture inside the colony. During one of those cold weather inspections, beekeepers should check for signs of excessive moisture within the colony. Make changes if necessary, but don't ventilate too much. The very fact that Winter feeding is necessary reflects poorly on the previous Fall's Winter preparation. Find out what went wrong last Fall. Don't make the same mistakes twice. If attempting to feed bees in winter, use in-hive feeders (e.g., top feeders, feeder pails on the inner cover division frame feeders) or feed dry sugar candy on the inner cover. Even bees in warm Winter climates have problems using entrance feeders during cool months. Note again that feeding bees in the Winter should be a management act of desperation - certainly not a routine one.

Though this is nearly inconceivable to much of the United States, Alabama beekeepers should put pollen substitutes on as early as Christmas and keep them on through January. Many pollen-producing plants are cranking up during February. Once natural pollen is available, bees shun supplemental pollen cakes. I have read where old beekeeping masters report that early Spring pollen is the limiting factor in brood initiation - not weather nor a nectar stimulus. Most likely, deep South beekeepers could leave pollen substitutes on much of the late Fall and Winter months with no harmful results - other than swarming.

Area Designations For Alabama



Spring Preparation Begins in November and December

Winter Feeding - Good or Bad?

Feeding lightweight colonies during the Winter is much more practical - even easier - in a warm climate, but it does not necessarily come with-



Winter and early Spring are perfect for preparing equipment.

ALABAMA ... Cont. From Pg. 679

Swarming

After especially mild winters, honey bees may begin swarming as early as March in South Alabama and will swarm, to some extent, throughout the Summer. Swarming is a natural (though undesirable) byproduct of colonies that have wintered strongly and have been fed both carbohydrate and protein supplements. Is there anything that will help reduce swarming? No, nothing, short of a heavy *Varroa* infestation, will stop swarming completely. You should begin to reverse brood chambers in mid-February. By doing this, you will encourage the queen to use both chambers and will decrease the development of brood nest crowding. However, if the queen is already using both deeps, don't reverse them. You'll split the cluster. Requeening every two years is a good suggestion for reducing swarming if the you are comfortable (and competent) doing it. Young queens swarm less often than queens that are more than a year old. Picking up swarms is a good way to start in beekeeping or to make colony increase ... so long as they are not your swarms. A swarm lost represents a honey crop lost from that colony - or at least most of it. Even if the swarm is captured, it and the original colony, now probably about 50 percent of the size it was before the swarm, won't produce as much honey as the original "unswarmed" colony. The division of labor is more

efficient in one strong hive compared to two smaller colonies having populations totaling that of the large hive.

An Alabama beekeeper supply dealer recently told me that one of the most exasperating things with which he had to deal was beekeepers who procrastinated. Swarming season would arrive, and these untimely beekeepers would not have hive bodies assembled. They would be caught unprepared by the surprise arrival of a swarm. In many instances, the same beekeepers would be caught unawares by a similar surprise arrival of the Spring flow. Suddenly, supers would be in short supply. Winter months are clearly the time to prepare for the ensuing Spring. Paint and repair old equipment. Assemble new equipment at this time, too. These are excellent Winter tasks for beekeepers everywhere.

Be prepared to super in late February to March in South Alabama, while beekeepers in Central and North Alabama should super about two to four weeks later. If it helps, just begin with one super. Supering will provide space for the occasional early flow and will help reduce brood nest crowding, which in turn, will help reduce swarming. Remember, there is no harm done in supering too early, but part of the honey crop can be lost by supering too late. In my opinion, the top super should always have unfilled space. If the top super is ever full, then the colony's owner has lost part of the crop due to crowding.

Read and Go to Meetings - Get Involved

Thanks to mites, our beekeeping lives have changed - possibly forever. We will never be able to keep bees exactly as we did as recently as five years ago. As a national industry, we are experiencing significant, unprecedented changes. Beekeepers need, more than ever, to keep current with good information - not hearsay from the popular press. Go to meetings. If there are no groups in your area, explore the possibility of starting one. Your local county agent could be helpful in setting one up. Communication with fellow beekeepers is invaluable. The Alabama State Beekeepers' Association meets in the Fall, and Auburn University offers a Spring workshop in February. Sev-

eral county groups are active. However, if all that fails, read. Subscribe to bee journals and read current books. When considering how many honey bees and honey beekeepers have vanished within the past few years, you should see how important it is to be current and informed.

Order Bees Early

Beekeepers in parts of Alabama have an interesting problem - package bees are being produced at the same time that the Southern beekeeper needs the bees to start new colonies. In other words, if you live in South Alabama, there is no "South" where one can go to buy package bees and queens. Commercial queen and package producers can do a lot with corn syrup to stimulate early buildup, but by climatic design, package bees come to many Alabama beekeepers just a little bit late - at best. The best months to get bee packages - or to buy used hives or to make splits - is mid-March through early April. That time frame is just a little before fruit bloom, but after other early plants have already produced pollen. Just as with any other state, packages should be ordered as early as possible in order to assure the best arrival date.

In many cases, the package producer is not a great distance from the beekeeper. That's good. Go pick up your packages. Though you won't save a lot in shipping due to offsetting fuel costs, the bees will not be required to take the "Mail truck" ride. Your bees will arrive in great shape. New beekeepers should bear in mind that the queen within the package is not closely acquainted with the package bees. Be extra careful when releasing the queen. She may need more introduction time. A beekeeper wrote to say that my suggestion in a recent *Bee Culture* article of pushing a frame nail through the candy plug in a queen cage was not good advice. He felt that the queen should stay within the cage longer. Though the nail-hole suggestion is firmly entrenched within the practical beekeeping literature, due to mite activities and increased queen value, I suspect the beekeeper is correct. Queens of today should be released more slowly than recommendations of just a few years ago - especially if the queen has only been

with the package bees for a few days.

The Flow

Worldwide, the Spring season is commonly represented poetically by scenes of flowers and greenery pasted all over a world that's awakening from Winter's dull sleep – all covered by blue skies and puffy white clouds. Though that mystical perception may be more colorful, I disagree with the reality of it. I reluctantly suggest that Spring is a rather sneaky event. It comes in quietly on cool, cloudy days with very little fanfare. In fact, some of the first plants to provide pollen produce flowers so early that they are frequently completely missed by most beekeepers, yet these early blossoms are clearly harbingers of the approaching season.

Alabama is two-thirds covered by a pine climax forest, which means Alabama beekeepers never have a shortage of smoker fuel. Unfortunately, other than smoker fuel, pines are trees having minimal value to bees. Alder (*Alnus serrulata*) and red maple (*Acer rubrum*), flowering in late January through March, are two of the first pollen producers to bloom and are pollen sources over the entire state. Cottonwood (*Populus deltoides*) and poplar (*Populus* spp.) are two pollen producing plants that begin flowering in March. Blackberry (*Rubus* spp.), wild plum (*Prunus* spp.), and redbud (*Cercis canadensis*), beginning to flower in March, are the earliest nectar-producing plants in the state, though none of the three are major surplus honey producing plants. Titi (*Cliftonia* spp.) is the earliest surplus honey-producing plant in Alabama, but it is only found in the southern section of the state. This plant blooms in March and April.

Titi is something of a mysterious plant. It has been accused of occasionally causing a strange bee malady called Purple Brood. Tupelo (*Nyssa* spp.) is a tall, imposing tree having flowers that produce high-quality honey that is becoming more difficult to get. Tupelo groves, again growing only in the southern part of Alabama, are typically found in low-growing areas, swamps and river bottoms, many of which have been logged out. Tupelo, flowering in April, is considered to be the second earliest blooming nectar source of signifi-

cance in South Alabama. The third surplus honey-producing plant of South Alabama is gallberry. A member of the holly family, gallberry is normally a tall shrub that begins to bloom in late spring (May - June). Nectar from gallberry produces an amber honey with a distinctive flavor that is unique to the area.

Alabama is essentially three beekeeping and honey-producing states in one – North, Central, and South Alabama. The southern section of Alabama is the area having the most nectar and pollen plants that are not very well-known outside of that area of the United States. The remainder of the state has more common nectar and pollen producing plants such as: yellow poplar, basswood, black locust, fruit trees, sourwood and clovers. Though many plants continue to provide minor nectar sources throughout the Summer and into Autumn, in much of Alabama, the nectar flow is typically over by the end of June.

Alabama honey is typically amber to dark amber and is strongly flavored. A typical Alabama honey consumer, having acquired a taste for local honey, is frequently surprised at the bland flavor of the more popular clover and orange blossom honeys. The average crop per colony is somewhat low averaging about 35 to 40 pounds per colony. Historically, Alabama is well-known in the beekeeping world as a package and queen-producing state rather than a honey-producing state. Consequently, Alabama bees are all over the United States.

Varroa and Tracheal Mites

Though the climate is much warmer, the recommendations concerning *Varroa* mites are the same as for the remainder of the United States. Knowing the blooming dates of surplus honey-producing plants and installing Apistan strips in advance of blooming dates is imperative. Beekeepers in South Alabama should have strips in place sometime during late December in order to have them out (six to eight weeks later) in late February to early March. Current recommendations require that strips be in the colony for six to eight weeks and should not be in the

colony during a nectar flow.

For tracheal mites, vegetable shortening patties offer the best control. However, there have been complaints from some beekeepers that the patties will become exceedingly soft during hot Alabama days. In general, many beekeepers don't consider the tracheal mite to be a major problem for them.

Commercial Pollination Requirements in Alabama

During recent years, a small pollination industry has begun to develop in Alabama – specifically in South Alabama. Farmers growing watermelons, cantaloupes and other vine crops are requiring an increasing number of honey bee colonies to provide pollination services for these crops, but presently the demand for pollination services is spotty across the state. Though Chilton County, in the center of the state, has a significant fruit-producing industry, wild populations of honey bees and native bees are the most common pollinators. I was not able to find many reports of growers requiring colony rentals in that area. Due to the predaceous activities of mites, that wild population of bees may or may not be in harm's way.

Though many things are different between warm and cold beekeeping climates, many are the same. Swarms issue in the Spring, nectar flows come and go, and crops must be extracted. However, in Alabama, wax moths are always at the ready, and fire ant mounds are frequent sentinels around the hive. Cockroaches and earwigs will readily move into the hive with the bees and with the mice. They're hard to keep out.

Problems and all, beekeeping in Alabama is rewarding (and also warm). ☐

James E. Tew is State Specialist in Apiculture, The Ohio State University at Wooster, Ohio.

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EARLY SEASON IN FLORIDA

Is It Winter, Or Is It Spring?

Ed Mabesoone

"What do Southern bees and beekeepers do?" you ask. The same thing that Northern bees and beekeepers do: The bees collect nectar and pollen, make honey (hopefully), raise more bees, pollinate crops, etc., and the beekeepers manage the colonies and harvest the hive products. The biggest difference between northern and southern bees and beekeepers is when they do it, and when is a question that every beekeeper has to be able to answer; not just the commercial beekeepers with thousands of colonies, but also the hobby beekeeper with one or two colonies. Knowing what your bees are doing and when they're doing it may be all it takes to change you from a bee-haver to a beekeeper as long as you know how to interpret and use the information once you get it.

Most people who have never been to Florida might think of the Sunshine State as the Land of Golden Opportunity as far as honey production and bees go. After all, it's always warm in Florida, and the plants are always in bloom. Right? Guess again. Florida is definitely good bee country, but honey doesn't grow on all trees. The truth is there are only about 10 major nectar-producing plants in the state, and the only one cultivated is citrus. The rest, if you will, are wildflowers which don't bloom year-round and are scattered throughout the state. We have Spring and Fall flows much like most areas, but one flow may be 50 or even 100 miles from the other, which creates a problem for the hobby beekeepers who don't usually move their hives.

Good management practices are a must for all beekeepers, and most are basically the same whether you keep bees up North or down South. However, there are some differences that would keep our Northern beekeeping brothers and sisters from be-



Cabbage Palmetto in bloom.

coming productive Southern beekeepers when and if they ever decided to retire to or move to Florida. I don't know of any cure for Bee Fever, and it doesn't usually go away by itself, so you can bet it wouldn't be long before they'd have a hive in the backyard somewhere near an orange tree.

Up North, April showers may bring May flowers, but in West Central Florida where I live, if you wait until April to build up your colonies, you blew it because citrus, which is the first major flow, bloomed in March, and the bloom lasted only three weeks. Spring buildup usually starts right after Christmas here in West Central Florida, so after I've lifted my glass of champagne to bring in the new year, it's out to the backyard to start my Spring inspections, rotate my brood chambers, give medications and feed. Inspections and medications are pretty much the same as they are up North because we have the same pests and diseases with the exception of tracheal mites, which haven't really been too much of a problem here. Feeding, on the other hand, can be quite different.

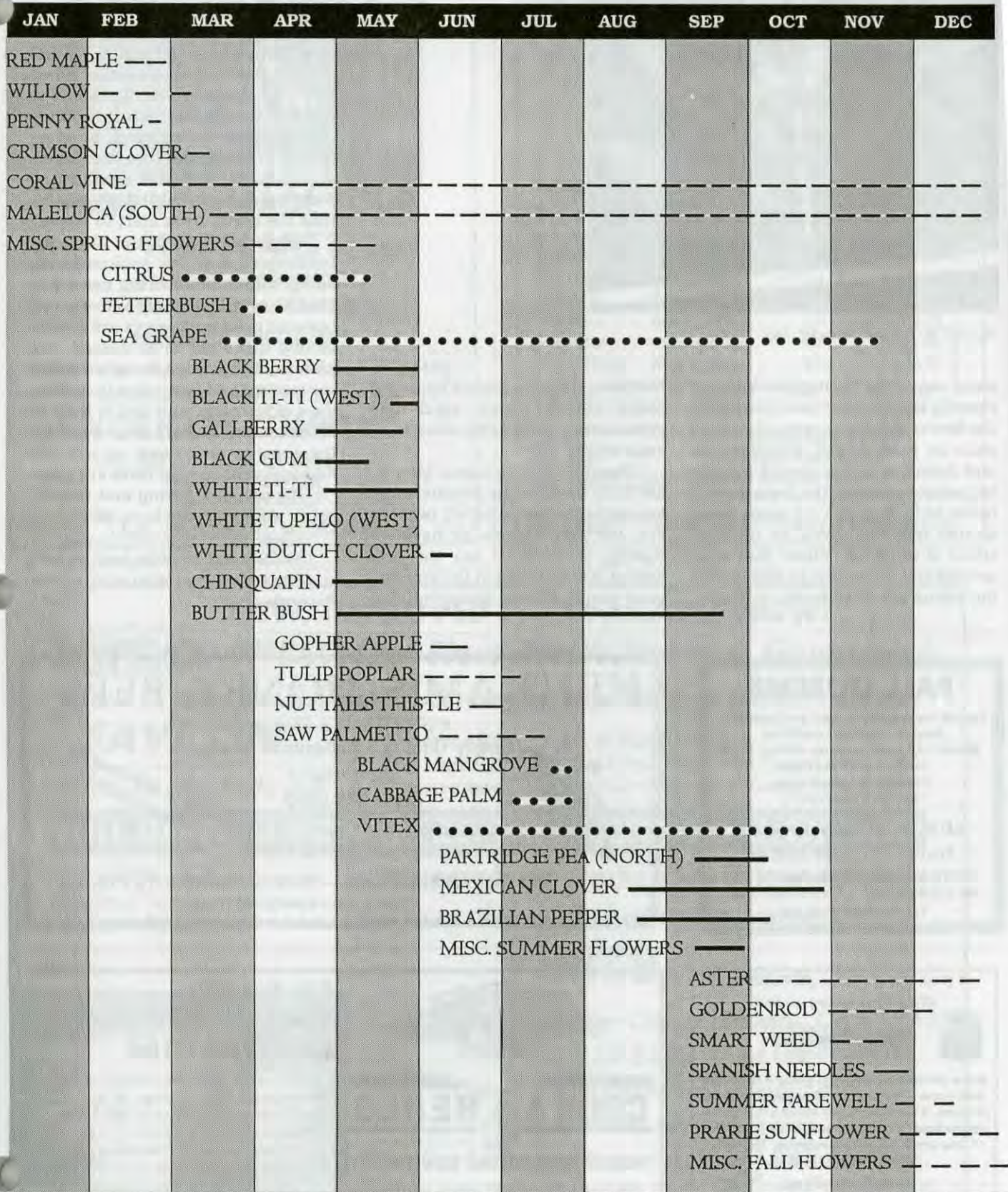
The winters in most of Florida are considered mild, with the average coldest temperature ranging from about 42°F in the North to about 64°F in the South, which means that bees can fly most any time of the year. That sounds great except for one thing: There are no major sources of nectar available between August and January in Central and Northern Florida and only a couple of unique flows down South such as the punk tree and Brazilian pepper tree; consequently, the food consumption within colonies increases drastically when compared to colonies in the North that may cluster for several months. If colonies can't be moved to an area that has some type of flow, or if there are not sufficient stores left on the colony, it's time to feed or lose the colony to starvation. Sufficient stores can mean up to 50 or 60 pounds of honey left on a colony.

Red maple, a minor nectar- and pollen-producing plant, starts to bloom in January and is the first out-



Red Maple is an early pollen producer.

PLANT BLOOM DATES IN FLORIDA



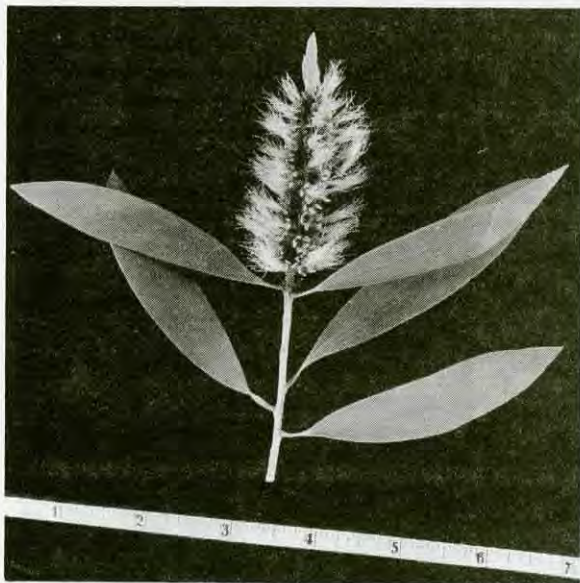
Inspect for disease, laying queen and stores

Add supers as needed to prevent swarming. Requeen.

Remove supers; Extract pack honey. Requeen.

Add supers for fall flow. Requeen.

Inspect and arrange nest for winter.



Melaleuca
produces a
strong nectar.

FLORIDA ... Cont. From Pg. 683

ward sign that Spring has sprung. Feeding should have been started by the first of the year, and medications such as Fumidil-B®, Terramycin® and Apistan® strips should already be in the colonies. The bees should be forced by feeding a 1:1 sugar syrup so that they are strong by the time citrus is in bloom. Flows that start around the same time or just following citrus are fetterbush, gallberry,

blackberry, tupelo, gopher apple, palmetto, nuttail's thistle, black mangrove and cabbage palm which is our state tree.

December 15 to about March 1 are busy days for the Southern beekeeper as Spring is for all beekeepers. We just happen to have our Spring, or should I say the bees' Spring, a little earlier in the year than most people. During Spring build-up

I usually try to inspect my colonies at least once a week, and they get an exterior check every day. One can tell a considerable amount about what's going on inside the colony just by watching the outside. I also may rotate my brood chambers several times throughout the buildup until I reach the optimum amount of brood and still avoid swarming. Once I've reached that point, the medications come out, the feeding stops, hives get moved to the groves, the first honey supers go on, and with a little bit of luck this all happens about the same time the citrus trees start to bloom.

If you are one of the Northern beekeepers that I've spoken to recently who is considering moving to Florida, we will certainly welcome you because good beekeepers are a commodity that's not to be wasted, but plan to change your thoughts about the seasons and remember that those days of warming your feet in front of a fireplace in January as you wait for the snow to melt down so you can find and unwrap your hives are gone.

It's actually Spring and time to get to work with the bees. **BC**

Ed Mabeoone is a sideline beekeeper, active in 4-H, and beekeeping video producer from Brooksville, Florida.

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Keeping Bees OUT OF YOUR BONNET

An Overview of Protective Beeware

Kim Flottum

Is honey worth the sting? A moot question perhaps, since people and animals have been braving the honey bee's revenge for centuries. To provide a more even playing field, people who harvest honey – beekeepers – have developed an entire wardrobe to choose from to reduce their vulnerability to this tiny insect.



An 1873 patented mask for protecting beekeepers. The pipe was used to blow smoke on the colony.

But beekeeping is much more than stealing honey. It can be a full time business, a part-time occupation, science and research or an enjoyable hobby and recreation. Each of these requires a different type of interaction with a colony, and, to further complicate matters, each individual is unique in their attitude towards bees, and beekeeping.

For instance. A commercial bee-



One style tried glass in the veil, to make visibility easier.

keeper tends to work bees hard, using heavy machinery, manipulating colonies in a fast and efficient manner and in all types of weather. Sideliners tend to be a bit less hard, but still need efficiency and speed. They're also a bit more cognitive of current weather, but only when other activities (job, family) allow. Honey bee researchers, too, tend toward the gentler side, but when a program or experiment dictate, colonies get worked, regardless.

Hobby beekeepers are generally the easiest going of the lot, taking care to work colonies in as ideal weather as possible, and efficiency and speed aren't usually important. Into this group fall most beginners, and while some brand new beekeepers tend to be unintimidated by their tiny charges, others are at least cautious, and outright fear isn't uncommon. For all these reasons – work, weather, attitude and experience – a wide variety of protective apparel has

been developed to accommodate beekeepers.

Some of the earliest beekeepers were reluctant to use veils because material available was either too heavy, too hot, or too visually obstructive to be practical. Veils with glass or mica shields were tried, window screen and wire mesh, too, were used.

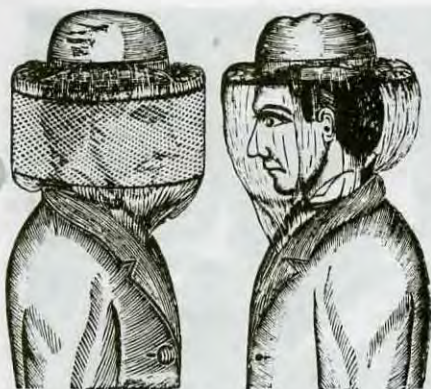
Over the years a great variety of styles, materials and techniques were tested, tried, adopted or discarded.



Styles for women have been in the works for years. These were made from wire screen and pasteboard.

Certainly beekeepers made veils at home, usually based on styles available commercially, with materials obtained locally. The most common style was a mesh-like material fastened to a hat with a brim and tucked into a shirt collar. That mesh-like material evolved from wire mesh which was heavy and difficult to see through, to fine and delicate silks (tulle is a type of silk, hence the Tulle veil).

Gradually, two styles came to dominate the scene, but each has



Early style protection. On the left, a screened type, similar to today's round veil. Fastened on top to a hat, and tucked into the collar. On the right, a sheer materials was lighter weight and easier to see through.

endless variations for different functions.

The most common style veil in use today is the two-piece veil/hat combination, which is probably the most diverse style. The standard image of a beekeeper includes the white pith helmet, square (or perhaps round) veil snugged down around collar and shirt front, and white coveralls. These tend to be rather heavy duty work styles, rugged and nearly



A simple style, used by many workers in the A.I. Root Company's apiary.

indestructible. The helmets were first hard pith-type helmets, but soon changed to a cellulose mesh material that provided some level of ventilation, and finally to plastic.

Square veils consist of four pieces of wire or stiff nylon mesh fastened together with flexible materials so the veil forms a square when worn. The largest section is in the front, with nearly-as-large sections on each side. The back, too is a mesh section. They attach to a helmet with an elastic top, and are snugged down around the



The two most popular helmets. The mesh is made from cellulose, with an adjustable band inside. It breathes fairly well, usually comes in white or tan. The plastic model has ventilation built in, and an adjustable strap inside. Both are lightweight.

shoulders and neck with either a tie-down string, elastic collar or zipper. The zipper connection is by far the most secure.

The drawbacks of this style (and the round veil, next) are the fact that a helmet must be worn. The typical helmet has an adjustable band inside to make it stable on your head but some heads just don't fit those bands, and a helmet sliding off every time you bend over is, at best, inconvenient. Like the round veil, or any style that uses strings for that matter, you simply cannot make them beeproof. The elastic collar version is not meant for dicey work.

The round veil, by contrast, is a single piece of screened mesh running completely around the head. The advantage is increased visibility. The disadvantage is that it doesn't fold, at all. Strings, elastic and zippers are the same.

The Alexander veil is similar to a round veil, but it has a cloth top, rather than fitting on a helmet. Most have an elaborate strap setup inside to help keep the top from resting directly on your head. They work, kind of. This is a good veil for a quick check or light work. A baseball cap underneath doesn't hurt. They don't come with zippers.

An even lighter weight model is the sheer nylon veil. Worn with nearly any kind of hat with an all-around brim they tie down. They definitely aren't meant for heavy duty, but are recommended for an emergency, or a very quick check. Some beekeepers, however, wear nothing else, and are happy about the light weight, good visibility, quick on/off and no helmet. Be patient, you'll get there one day.

Coveralls or beesuits are available in cotton (light weight, cool, but

wear out fast), cotton/poly blends (heavier, wear well) and nylon (old style - hot; new - not quite as hot).

Cotton is fine for everyday hobby or sideliners. They don't take a lot of abuse. The cotton/poly blends are true work horses, and will last for years. The weight of the material does play a role, though. Heavier = tougher, and more sting resistant.



Square veils have mesh all the way around for cool work, and fold on the seams. Children's sizes are available.

Other old style nylon suits didn't wick perspiration away and were uncomfortable. Newer materials, however, are cooler, lighter weight and tougher. Makers of the very slick material just recently introduced to beedom, claim that bees can't get traction on the material, reducing stings. And, some workers simply douse themselves with water on hot days and the evaporation keeps them cool for hours. These may be the newest idea in beesuits in years. Watch for it.

Continued on Next Page
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In The Beginning . . .

One popular image of a beekeeper is of someone using minimal protective equipment – a hat and veil, short-sleeve shirt and jeans. From a beginner's perspective, this can be rather intimidating. After all, right in front of that beekeeper is a box full of hundreds, perhaps thousands of stinging insects.

There are people who, on their first-ever encounter with honey bees, dive in headfirst, so to speak, but most of us are a bit more conservative – our reactions ranging from timid to near panic. Moreover, experienced beekeepers often make light of beginners who favor the use of heavy armor, stressing an already uncomfortable colony visit.

But there is absolutely no substitute for experience when working bees. And if you are uncomfortable, reluctant or even fearful when you open a colony, you will not gain the experience needed to become a confident and knowledgeable beekeeper.

You need to watch, look at, smell, feel and work with your bees. And even in the best weather and under ideal conditions, a pinched or irritated bee may sting. If that sting, or the fear of that sting, keeps you away from your colony, you and certainly your bees will suffer.

To avoid that hesitation, we urge you to wear all the protective gear necessary to give you the confidence needed to open your hives and examine and learn from your bees.

A good, snug veil is of paramount importance. One with no gaps or tears or secret ways in. One that is foolproof. A beesuit closed at the cuffs (jeans work, but they need to be closed, too), zipped tight,

Veil combinations are readily available that solve some of the earlier mentioned problems. A model from South Africa comes with a cotton hat, attached veil and either strings or a zipper. This solves the sliding problem.

The next step up are the vest or jackets with attached hood-type veils. A model from New Zealand, and three from England have these features. No

is snug and the right color. And gloves. They are important. An errant sting on the back of the hand can cause a frame to be dropped, a super to slip out of control or a smoker to go astray.

You will, over time, become accustomed to all, or at least most of the activities in your colony, and you will learn to handle your bees in such a way that you provide minimal disturbance.

But in the beginning, wear gloves if you want. There are heavy leather gloves, lighter-weight plastic or canvas styles, kitchen rubber gloves and various other types. Gloves reduce your sense of feel and can cause you to be a bit more clumsy than if you didn't wear gloves. Don't, however, become cavalier and cause undo damage, be rougher than needed, or commit other foolish acts. Care, patience and understanding are always needed to work best with your bees – gloves or not.

A snug veil with no leaks and no chance for leaks is also a requirement. The styles that use a string to snug down the netting around your collar are OK, if you can figure out how to keep it from riding up about your collar when you lean over to pick up your hive tool. A veil that's attached with a zipper to your suit is better, but a self-contained, zippered hood that doesn't need a hat is best.

After a couple of seasons you'll know the best times to work your bees, and you'll have a better feel for their demeanor and your skills. Until then, err on the side of caution so you spend your time learning, not worrying about a bee in your bonnet.

helmet, no strings, only half a suit – all great for light to medium work.

The full line of suits from B.J. Sherriff cannot go without mention. With five adult models, in two different materials, plus two child suits, Sherriff easily is the most innovative suiter in the world. Initially inspired to improve on what they thought were poor designs, Brian and Pat Sherriff began what could be called a dynasty



The Alexander veil needs no hat, has mesh all the way around and is good for light work.

in beware fashion. The line features a supported hood (no hat required, but a baseball hat helps) a snug zipper/velcro closing and zipper front (or pullover) with elastic cuffs and lots of pockets.

They are made of a medium weight cotton/poly blend that is light weight and still cool. The trade off is that in heavy work they will let some stings through. The veil material, too, is medium weight and prone to snags in heavy use. Replacements are easy to get. They also have the new, slick nylon material and vest/hood arrangements.



Round veils have mesh all the way around, but are stiff and don't fold. They have optimum visibility.

Similar models have appeared to capitalize on the convenience of a full suit with attached hood. One from South America is available but the design is meant for people with shorter than average-American arms and legs.

Mann Lake Supply has recently come out with one also, but it is designed for heavier duty work. Similar to the Sherriff models it is virtually bee proof, eliminating one prominent annoyance when concentrating on the job at hand. The suit, however, was designed for a more commercial application - cut, material and size - than others on the market.



Nylon or sheer veils are the lightest weight of all veils. Worn with variety of hats, they are cool, comfortable and offer enough protection for light work. They fold up and fit in a back pocket if need be.

Mid-Con sells a unique product called the Bug Baffler. Made completely of mesh, it was originally designed for sportsmen's activities. It makes an ideal emergency veil and jacket, however.

Probably the most futuristic bee suit on the market is the one made by Golden Bee products. The concept is completely different. Basically, they made a suit, and hood, out of a foam material, which is about a quarter inch thick. It is covered on the outside with a tough nylon mesh that allows the suit to breathe. Heavy worn areas (thighs, chest) are covered in cloth for wear. The hood is the same, with a fairly wide-view veil. Bulkier, but cooler than regular suits, the only downside is that it is totally alien in appearance. It's popularity, however, should overcome that. Because of the foam's thickness, and the secure closures, they, too, are sting proof.



Two styles of gloves. Plastic coated cloth, (L), and heavy duty leather. All bee gloves come with gauntlets to prevent bees entering your sleeves.

HANDS ON

Gloves tend to be a non-issue in bee ware, unless, that is, they are your hands they are covering. Basically three types are available commercially - plastic coated (least protection, most dexterity), canvas (more protection, less dexterity), and leather (most protection, least dexterity). Rubber kitchen gloves work (little protection, maximum dexterity) as do many home made styles.

The less glove the better, and none is best, but sometimes that doesn't work. Handling frames with a delicate touch keeps the bees calm. Harvesting honey, on the other hand (pun intended) requires a bit of protection (sometimes). Wear what works for what you are doing. And try it without gloves, at least once in awhile.



A full Sherriff suit. Visibility is pretty good, but the back panel, meant to provide sun protection also reduces ventilation.



A child's suit made by Sherriff. 2 piece, it has all the attributes of the line.



This pullover from Better Bee has lots of room, a large viewing area and is bee proof. The hood's back panel reduces ventilation, but provides shade.

The variety (I counted nearly 25 styles or variations of veils and suits) available from manufacturers covers security from barely none to almost

FASHION STATEMENT

- Wear the least amount of beewear you are comfortable with.
- Coveralls not only protect from stings, they keep your clothes clean.
- Wear shoes, and socks. Boots are better.
- The thinner the veil mesh, the more likely it is to snag, up to a point.
- White is standard, but any light color is acceptable.
- Smooth material is better than rough, or fuzzy.
- Use smoke to reduce activity.
- Watch the weather.
- Wash your suit and gloves frequently (you'll look and smell better).
- Always wear a veil, no matter what.
- Beekeeping is your hobby, or business – wear what works for you.

armor. If you haven't yet purchased a veil or veil/suit combination I suggest you err on the safety side. You can get another, less substantial out-

SOURCES

Every bee supply outfit carries several types of veils, and can probably get several more if requested. Study the available catalogs for prices (don't forget freight) materials and selection. Contact suppliers listed in the Display Index in the back of this issue for their catalogs. Some types are only available from one or only limited outlets while others are everywhere. And price matters. Inexpensive veils, especially, are made to offer minimum protection.

fit down the road. Cost, too, is a factor. Full suits with attached veils are expensive. Light weight veils with your own hat aren't. Peruse the catalogs for styles, prices and variety. Ask other beekeepers what they wear, and why. When it comes to bee proofing your activities, you get what you pay for, it seems, no matter where you shop. No matter which selection you make, keeping bees out of your bonnet is a never ending chore. **BC**

Kim Flottum is Editor of Bee Culture, and hates veils with strings.

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BEEES, BOOKS AND BES

A Profile of Dr. Larry Connor

James Tipton

Larry Connor is well known to American beekeepers for his BES (Beekeeping Education Service) and his Wicwas Press (his ever-expanding line of bee-related books). He is a popular speaker on virtually any subject related to bees. Larry, like many beekeepers, began young. Born in 1945 near the little rural community of Galesburg, Michigan, Larry became fascinated with "bugs" early in life. One of five brothers, he remembers, from the age of five, the bees kept on his family farm by a local commercial beekeeper. Later, some Latvian immigrants moved in across the road, and they also kept bees. Each Spring, at swarming time, clusters of bees hung heavy in the apple trees at the Connor farm, providing still more "field study" for Larry and his brothers. Ultimately Larry (and two of his brothers) succumbed, ordered Sears equipment – and captured their first swarms.

Active in 4-H, Larry worked on a wide range of projects – from birds to photography – but he concentrated on insect projects. After he graduated from high school in 1963, he entered the entomology program at Michigan State University. There his undergraduate advisor was Dr. Roger Hoopingarner. He spent summers working on fruit entomology projects, receiving his bachelor of science degree in entomology in 1967. That same Summer, Larry became a graduate assistant under E.C. "Bert" Martin, MSU's apiculture specialist, and began work on a cucumber-pollination study, which ultimately provided the material for his thesis for a master's of science. Continuing at Michigan State in the Ph.D. program, he studied strawberry pollination, in part because a plant breeder had told him "strawberries do not need bee pollination," a notion he demonstrated – with pounds of evidence including many photographs – to be very incorrect.

The same day he defended his dissertation, May 2, 1972, beginning at 7:00 a.m., no less, his wife Cathy went into labor, and at 4:00 the next morning, his daughter Beth, who is now 24, was born. A busy time! Three years later his son Andy, who is now 21, was born.

That Summer of 1972, the Connor family moved to Columbus, Ohio, and Larry began his professional education career in earnest as assistant professor of entomology at The Ohio State University, where he also served as extension specialist in agriculture. In this latter capacity, he wrote extensive publications on beekeeping and conducted county and regional beekeeping classes. Among his many projects were two one-week-long commercial beekeeping programs, held in January of 1975

and January of 1976, which were attended by beekeepers from around the country. While at OSU he helped to organize the two-year beekeeping program at The Ohio State University Agricultural Technical Institute in Wooster, Ohio.

Contacted in Spring of 1976 by Charles Dadant, Larry flew to Hamilton, Illinois, to talk with the Dadant & Sons staff about a new project which involved Larry moving to Florida to set up a breeding program to mass-produce instrumentally inseminated hybrid queen bees. In 1977 this became the stock for the popular Starline and Midnite bees (Starline for the commercial producer, Midnite for the hobbyist). Spending that Summer in Hamilton working with Bud Cale and Bill Carlisle, Larry mastered queen rearing, drone rearing and advanced insemination techniques, and in September the Connor family moved to Florida.

Larry set up Genetic Systems, and from 1977 to 1980, Genetic Systems produced instrumentally inseminated queens, ultimately 200 inseminated queens per day, shipping 100 or more per day. While the queens were intended for production colonies, queen breeders during those years had available to them a high-quality, instrumentally inseminated breeder queen at low cost – under \$10! GSI also produced breeder queens for the Starline and Midnite breeder-cooperators.

Always absorbed in educating people in the ways of bees and beekeeping, Larry had, at Ohio State Univer-



Larry Connor

sity, accumulated slides and organized them into useful groupings, writing scripts to accompany them. He also began accumulating a very extensive library of books related to bees and beekeeping, owning some of them in quantity, because over the years, when he spoke at regional meetings and national conventions, people regularly asked him, "Where can I buy that book?" In 1975, he started Beekeeping Education Service, a small mail-order business, selling beekeeping slide sets from a spare bedroom.

And so, when Genetic Systems was reorganized in 1980, Larry and his family moved north to Cheshire, Connecticut, where Larry expanded BES - Beekeeping Education Service - to a full-time business. His extensive library of education slides still includes some produced during those early days at Ohio State University. He also began conducting workshops on queen rearing and artificial insemination and began to travel extensively, as a popular speaker at bee meetings and conventions, where he is to this day perceived as a master-of-all-beekeeping information, whether he is speaking on mites, Asian beekeeping, important figures in American and world beekeeping, queen rearing or the history of beekeeping.

Settled now in Connecticut, Larry also prepared, in 1980, his first price list - six books he regarded as very important to beekeepers and the industry, and over the years this list became longer and longer. In 1987 (teaching from time to time, reading avidly, and in touch with beekeepers and researchers all over the country), Larry was on a Southern States Beekeeping Federation "tour" to London, England. One morning during breakfast with Roger and Marylou Morse, he agreed to purchase their Wicwas Press, including both name and book inventory.

Since then, Wicwas Press and that list of titles have continued to grow and grow until the company now indisputably has the largest stock of books on bees and beekeeping in North America. Appropriately, his number-one seller is a book by the founder of Wicwas Press, Roger A. Morse, *Making Mead*. Number two is by Roger A. Morse and William L. Coggshall, *Beeswax Production, Harvesting and Products*. And number three, yes, that is also Roger A. Morse, *Rearing Queen Honey Bees*, in a new edition recently published by Wicwas Press.


Wicwas Press also stocks hundreds of authors and titles published by other firms, including Keith S. Delaplane, Extension Specialist from Georgia and author of *Beekeeping: The First Year* and its companion video and Richard Taylor, whose books include *The Joys of Beekeeping: The How-To-Do-It Book of Beekeeping* and *The Comb Honey Book*.

As in the case of his new edition of Roger A. Morse, *Producing Queen Honey Bees*, Larry is willing to publish (or in some cases reprint) when he sees the need, books on bees and beekeeping that are important to have in print. Books recently published by Wicwas include Robert Berthold's, *Beeswax Crafting*, and a book Larry co-edited with Thomas Rinderer, Allen Sylvester and Siriwat Wongsiri, *Asian Apiculture*. Larry is currently co-editing, with Anita Collins and John Thomas, a collection of essays titled *Realities of the Africanized Bee*, and he has

another half-dozen books in the works including a revised edition of *Queen Rearing*, by Harry Laidlaw and Roger Page, and a collection of research papers on the *Varroa* and tracheal mites, *Mites of the Honey Bee*.

In addition to these various projects, Larry also finds time to formally serve the beekeeping industry. He just completed a four-year term as executive secretary-treasurer of the American Honey Producers Association, and since 1988 he has edited *Honey Producer*, the "Magazine of the American Honey Producers Association." He also edits the *EAS Journal* and has organized the EAS Short Course since 1982.

In the midst of all these activities related to bees and beekeeping, Larry actually finds time to be a husband and a father and to serve and be active in his local community, Cheshire, Connecticut. In addition to being chairman of the Cheshire Arts Committee, he and his wife, Cathy, are active in community theatre. Larry labels himself a "frustrated actor and director." Not completely frustrated, because Larry has acted in several plays and directed three: "Lend Me a Tenor, Run for Your Wife," and "My Three Angels." He claims that the true talent in the family is his wife Cathy, who is also active in community theatre, playing lead roles in the past year in "Arsenic and Old Lace," "Nunsense" and "The Cemetery Club."

Well, that little boy watching bees swarm into the apple trees on his family farm in Michigan has turned into a big man in beekeeping, providing a much-needed service in beekeeping - accumulating, digesting, organizing and disseminating valuable information through his lectures, workshops, Beekeeping Education Service and Wicwas Press. 

If you do not have his BES-Wicwas Press catalog, contact Larry Connor at BES-Wicwas Press, P.O. Box 817, Cheshire, CT 06410-0817 (Phone or FAX 203-250-7575; e-mail: ljconnor@aol.com).

James Tipton is a hobby beekeeper and freelance writer from Glade Park, CO.

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COLLECTING BEE STAMPS

Richard Bonney

Many of us collected postage stamps when we were kids. For that matter, many of us still are kids, and many of us still collect stamps. Some of us who used to collect stamps think back fondly and say, "That was fun; I'd like to do it again" - but we're not sure about it anymore. The whole picture of stamp collecting has changed over the years. Many, many more stamps exist, and where would we start? I was in that situation a few years ago, and happened to read an article about topical stamp collecting. You know, collecting stamps according to a topic or theme instead of by country. I didn't do anything immediately, but then I saw another article, in *Bee Culture*, and a third article, in *Bee World*, about bee stamps. Wow!

As it turns out, over the years several hundred postage stamps have been issued around the world with bees or beekeeping as their theme. On some of these, bees are the dominant feature. On others, bees are a secondary or even a tertiary feature. Some stamps have realistic bees doing realistic things. Others are more stylized or symbolic. All of them are interesting.

During this period when I was beginning to become aware of bee stamps, I picked up several of them from different sources. It wasn't a deliberate thing. They just happened to come along. Then *Bee World* came out with another article. I decided I was interested and started looking for bee stamps. I now have over one hundred of them, and I'm still looking. The search has been interesting. Let me tell you how I went about it in case you would like to do it, too.

It has been decades since I last collected stamps, so I had no current knowledge of the scene. I observed that most of the little stamp stores that were so common back then did not seem to exist any more. Fortunately, I had my son to call upon. He, too, collected stamps as a kid, and more recently became inter-

ested again. He is an ornithologist and started collecting bird stamps several years ago. He became my source of current information about the stamp scene and topical collecting.

One of the first things that I learned was that although those little stamp shops may no longer be as common, there is no shortage of places to buy stamps via mail order. Furthermore, organizations exist which promote both general and topical collecting. However, the general collecting scene has become overwhelming in its sheer numbers of stamps, with hundreds if not thousands of new ones issued each year.



I will concentrate on the topical scene.

A starting place is a catalog of stamp-collecting paraphernalia - albums, binders, stock books, display media, stamp tongs and the like. Although such catalogs can be large and list hundreds of dollars worth of materials to support your habit, your actual needs to get started are modest, and may never be great. For instance, no album exists specifically for bee stamps. A few stock sheets and a simple binder will suffice to start. (Stock sheets are pages with transparent pockets made to hold stamps in rows. They keep the stamps visible but protected while temporarily or semi-permanently stored.) Later you may want to acquire some blank album pages and a cover so you can arrange and dis-

play your stamps attractively. Although you may buy a few things from these catalogs, look at them primarily as a frame of reference and a source of definitions. Of course, you may be one of the fortunate ones who has a local stamp shop, and you can buy your basics there.

The stamps themselves can be a little more of a challenge. Tens of thousands of stamps have been issued by the various world postal services over the years. Although these stamps all continue to be of interest to collectors, relatively few of them continue to be available from their original source. Instead, we are dependent on stamp dealers, either the local shops I mentioned or the mail-order houses. So the next step is to find an appropriate source for your bee stamps. Actually, you will almost certainly want more than one source for reasons I will explain.

As mentioned, the volume of stamps in existence is huge. For a dealer to have all of them in stock would be an overwhelming task. Instead, dealers specialize - in countries, in geographical regions, in topics - whatever appeals to the particular dealer. You must find a selection of sources that have bees as one of their specialties. Actually, few if any dealers specialize in bees, per se. They specialize in insects. An interest in bee stamps can easily lead into collecting bumblebees, wasps and other hymenopterans, as there are also some beautiful stamps in these specialties. This has happened to me. I have acquired some bumblebees and wasps, and I have been eyeing the butterfly stamps as well. Keep in mind, though, that where honey bee stamps are numbered in the hundreds, the other insects and butterflies are numbered in the thousands. It is easy to get carried away with it all.

In addition to catalogs and dealers, I have found a particular organization and its publications to be useful. This is the American Topical Association (ATA), which publishes

Continued on Next Page



COLLECTING BEE STAMPS ... Cont. From Pg. 695

Topical Time a monthly journal of thematic philately. Articles cover the general subject of topical collecting as well as specific topics, of which there are hundreds – architecture, baseball, botany, comics, flowers, horses, just to name a few. In addition to the articles, the classified and display advertisements are important. They are a good place to find dealers in the different specialties. The ATA also publishes a membership directory, and new members are listed monthly in *Topical Time*. Each member's name, address and interests are included so that members with like interests can contact each other to swap information and stamps.

In order to collect stamps, you must have a way to know of the existence of stamps in your chosen interest area, and then be able to recognize specific stamps either from written descriptions or when in hand. Many stamps from different countries are similar in appearance, or very similar when unseen but described. It is important to have as much information as is obtainable about each stamp.

An ATA publication that has been especially helpful to me in this respect is *Insects on Stamps of the World*. In this small book are listed by country and Scott catalog number all of the known insect stamps of the world, including the year of issue, the denomination, the species name of the insect when known and an indicator telling whether the insect is a primary, secondary or tertiary feature of the stamp

Note: When dealing commercially with a large volume of items such as stamps, cataloging and numbers become inevitable. With stamps, several numbering systems are recog-

nized worldwide. In the United States, the Scott system is the most commonly known, and each stamp issued worldwide receives a number. The numbers are unique by country. When communicating with anyone about specific stamps, it is necessary to use these numbers.

Another set of ATA publications are the checklists. Checklists do not exist for every specialty, but one does exist for bees, including bumblebees. The content is excerpted from the *Insects* book mentioned above, but with just a little more descriptive informa-

Mail Order

As stated, there are many mail-order stamp dealers. Three with whom I have dealt are listed here. Ask them for their lists of insect stamps.

Eastern Shore Stamp Co.
P O Box 298
Fruitland, MD 21826

Modlow-Arvai
RR 1 Box 138G
Mount Vision, NY 13810

Henry Gitner Philatelists, Inc.
P O Box 3077
Middletown, NY 10940

Membership in the American Topical Association is worthwhile, at least for a year or two. Ask them for a membership application.

American Topical Association
P O Box 65749
Tucson, AZ 85728

tion added. Every known bee stamp is included, and these lists are updated periodically. The bee checklist does not mention denomination though, as does *Insects*, so it is helpful to use both sources together. For instance, in describing a series of Russian stamps, numbers 5771-5774, *Insects* lists them as a group, stating only that they are *Apis mellifera* and that the denominations range from 5k to 35k. The bee checklist shows them individually and tells the pictorial content of each stamp – for instance, 5771 shows a drone, 5772 a worker and a box hive, and so on.

When I decided to collect bee stamps seriously, I had only three or four of them. I did not expect to acquire the whole collection at once – that would take some of the fun out of it – but I did want to get started with more than just a few. I discovered a particular mail-order dealer who catered to topical collectors and who offered large numbers of stamps inexpensively. One of this dealer's offerings was 200 insect stamps, all different, for \$11. I ordered these and found about 20 honey bee stamps in the lot, along with a few bumblebees – a good start. Another 20 or so stamps were various wasps, a secondary interest of mine. The remaining stamps can be passed on to grandchildren, or used for trading with other collectors, or even traded to a dealer.

I then listed my stamps so I could keep track, and developed a want list. I knew that, to start at least, I did not want every bee stamp in existence. Primarily I wanted those with bees as the dominant feature of the stamp. I also decided to set aside any political feelings and collect from any country in the world. My initial want list showed about 40 stamps by Scott number. I sent the list to several different dealers who advertise in *Topical Times*. Three dealers responded, sending me a selection of stamps "on approval," meaning that I could keep the stamps for a week or two, select any I wanted, and return the others with payment for those I kept. No dealer had all the stamps I wanted, and each sent me stamps not on my list. This was partly because they were just trying hard to sell things, and partly because some stamps are available from some dealers only in sets. One such set was mentioned

above - numbers 5771-5774 from Russia. This set has all bees, but some sets are "mixed" and include insects other than bees. A couple of times I have bought such a set because I particularly wanted the included bee stamp. Most of the time, though, I wait, since sets do get broken up and individual stamps become available eventually.

When undertaking a new enterprise, cost is always a factor. As hobbies go, I have found that collecting bee stamps is surprisingly inexpensive. The price of most individual stamps ranges from 20 cents to less than \$2. Even sets are reasonably priced. The Russian set mentioned above cost \$1.40. A recent purchase of 19 stamps cost me \$10.50. A one-year membership in the ATA, including the monthly journal, is \$20.

My want list is smaller now, but

it still includes 54 stamps, mostly bees, but with a few wasps and bumblebees. As I get closer to completing my bee set, I probably will start looking more closely at flowers. More specifically, I am interested in flowers upon which bees forage. A difficulty here, though, is that I have not yet found a list that tells which flowers are represented on many of the flower stamps. Where bee stamps number in the hundreds, flower stamps number in the thousands, and the ATA checklist for flowers does not identify the specific flowers on too many of the stamps. Instead, the description says simply "flower" or "various flowers." Perhaps some reader knows of a better list. **EC**

Richard Bonney is an Extension Educator for the state of Massachusetts. He is a regular contributor to these pages.

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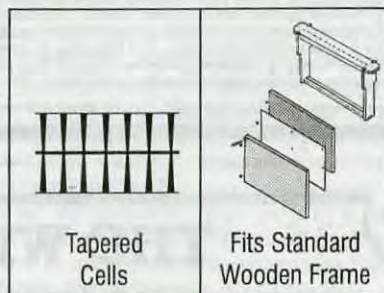


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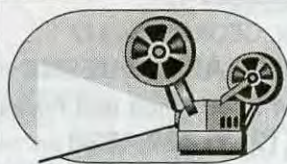
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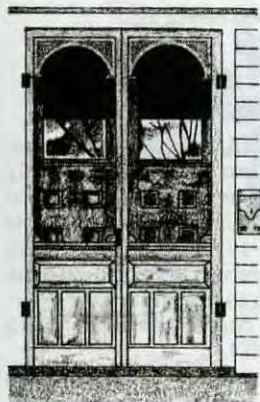


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Christmas Treats For Rover

As I am writing this month's cooking article, I find one cat sleeping on top of the computer, one cat asleep in my lap, horses snuffling through their pile of hay just outside the window, one dog blocking my way out of my chair and the other dog asleep in the doorway. Their meows, barks and whinnies liven up my day. The presence of these animals also reminds me that Christmas can be a special time for them as well as for humans.

Some of you undoubtedly have heard the story of the magical hour of midnight on Christmas Eve when all animals can talk. How many children have fallen asleep in the hay while awaiting this magical event! Maybe the animals *can* speak – but perhaps only to each other and not to us.

Soon our kitchens will be full of the wonderful aroma of Christmas cookies and fruitcakes baking. Let's also take time to bake some treats for our animal companions. These recipes use honey, of course. For some of the treats, you may want to visit your favorite kitchen supply store and see if they have a bone-shaped cookie cutter. I have seen them in two or three sizes, to match the dog's size, naturally. If you can't find a bone-shaped one, I am certain that the dog will be just as happy with some appropriate Christmas cookie cutter.

You probably will have trouble wrapping dog treats and putting them under the Christmas tree. One sniff and your treats will be discovered, even if you packed them in a cookie tin. I'll let you cope with that situation. Since horses don't usually come in the house, there should be no problem with them invading their treats.



ROVER'S REWARDS

The ingredients for many of the recipes in this article are simple ones, generally already in your pantry. Also the ingredients are safe for your dogs and horses unless the animal has a specific allergy. The recipes have varied ingredients, so you are sure to find one that your pet will enjoy. If he turns his nose up at your choice, just wrap the treats up and present them to another dog.

3/4 cup hot water or meat juices
1/3 cup margarine
1/2 cup powdered milk
1/2 teaspoon salt
2 teaspoons honey
1 egg, beaten
3 cups whole wheat flour

In large bowl, pour hot water over margarine. Stir in powdered milk, salt, honey and egg. Add flour, 1/2 cup at a time, mixing well after each addition. Knead 3 or 4 minutes, adding more flour if necessary to make a very stiff dough. Pat or roll to 1/2 inch thickness and cut out shapes with a cookie cutter. Place on a greased baking sheet and bake at 325° for 50 minutes. Allow to cool and dry out until hard.

Chef Fido Recipes

GOLDEN BLOSSOM DOG BISCUITS

This next recipe is great for dogs who like peanut butter.

1-3/4 cups flour
1/4 cup quick cooking oats
1/4 cup wheat germ
1/4 cup creamy peanut butter
1/4 cup vegetable oil
1/4 cup honey
1 teaspoon baking powder
3/4 cup water

Combine 1 cup of flour with remaining ingredients in a mixer at low speed. Knead in additional 3/4 cup flour until dough forms a ball. Lightly flour surface and roll out dough until thin (approximately 1/4 inch). Cut dough, using dog-bone-shaped

or any other cookie cutter. Bake at 350° for 20 minutes on ungreased cookie sheets. Turn off oven and leave biscuits in oven for 1 hour. Store in airtight container. Can be frozen.

Golden Blossom Honey Beeline

WESTERN RANCH BISCUITS

This next recipe has lots of delicious and nutritious ingredients. These really are special biscuits.

1 package dry yeast
1/2 cup warm water
2 cups warm chicken or beef broth
1/2 cup powdered milk
1/4 cup margarine
1/4 cup honey
1 egg, beaten
1/4 teaspoon salt
2 cups all-purpose flour
1 cup cornmeal
1 cup wheat germ
2 cups cracked wheat
4 to 5 cups whole wheat flour



In small bowl, dissolve yeast in warm water. In large bowl, combine broth, powdered milk, margarine, honey, egg and salt. Add yeast/water and mix well. Stir in flour, cornmeal, wheat germ and cracked wheat. Mix well. Add whole wheat flour, 1/2 cup at a time, mixing well after each addition. Knead in the final amounts of flour by hand and continue kneading for 4 or 5 minutes until dough is not sticky. Pat or roll dough to 1/2-inch thickness and cut into shapes. Place on a greased baking sheet, cover lightly and let sit for 20 minutes. Then bake in a 350° oven for 45 minutes. Turn off heat and leave in oven several hours or over night. Makes approximately 3-1/2 pounds.

Chef Fido Recipes

MISS KOKO'S BISCUITS

Now for some recipes for our horses. First we'll make them some biscuits, which are a nice treat. The recipe is in two parts so that you can mix up a batch whenever you run out. The horse biscuits were named

Continued on Next Page

for an elderly pony who expected one every day. If your horse likes them, you can change the name of the recipe.

Biscuit Mix:

- 10 cups flour
- 1-2/3 cups instant nonfat dry milk
- 1/3 cup baking powder
- 2-1/2 teaspoons salt
- 1-2/3 cups shortening

Combine dry ingredients in a large container (6 to 8 quarts) that can be covered tightly and refrigerated. Add shortening and mix until shortening is well-dispersed and mixture looks like fine crumbs. Store tightly covered in the refrigerator. It will last about 3 months. Makes about 15 cups of biscuit mix.

Biscuits:

- 3 cups Biscuit Mix
- 1 or 2 carrots, coarsely grated
- 2/3 cup water
- 1/4 cup honey

Combine Biscuit Mix, carrots and honey in a large bowl. Gradually add water to make a soft but not sticky dough. Knead dough on a lightly floured board about 15 times. Divide dough in half and roll each piece out flat, about 1/4-inch thick.

Cut with a 2-inch round cookie cutter or any other shape desired. Bake at 425° until lightly browned, about 10 minutes. Makes about 40 biscuits.

Horse Treats
June V. Evers

CHRISTMAS SALAD

Your horse can welcome Christmas morning with this salad. If your horse is not used to honey and says he doesn't like it, you can substitute molasses.

- 6 apples, quartered
- 8 carrots, cut in 3-inch pieces
- 2 to 3 cups horse's usual grain
- honey

Combine all ingredients, adding just enough honey to make the mixture slightly sticky.

Horse Treats
June V. Evers

HORSE COOKIES

This next recipe is quick and simple and makes a huge quantity of cookies, which is good since some people have more than one horse. You can cut the recipe in half if you wish to give the cookies a trial.


- 16 cups oat-based sweet feed
- 5 cups flour
- 1 quart honey
- 12 ounces beer

Mix all ingredients well. Divide the mixture evenly between 3 heavily oiled 15-1/2-inch by 17-1/2-inch baking pans. Bake at 375° for 35 minutes. Remove pans from oven; cut into 1-1/2-inch squares while still warm. Then return to turned-off oven, leaving door ajar, to dry and harden overnight. Makes 30 dozen cookies (or "half a shopping-bag full").

Practical Horseman

These recipes take care of our Christmas gifts to our dogs and horses. Actually, the treats can be used all year long. What about the cats? Well, I tried very hard to find some cat treat recipes with honey, but I couldn't find any. If someone has one, I really would like to have it. In the meantime, plant a flower pot with some catnip for a Winter-time treat.

So here's a Merry Christmas to all - to the animals and their people.



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& Happy New Year

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Kim O'Brien

Kathy Summers

Dawn Seagan

Mary Weigley





Richard Taylor

Bee Talk

"You have to be careful when ascribing sagacity to bees, but don't go overboard the other way, either."

I was recently surprised to find in the *New York Times* magazine a piece by someone who had, with great joy and enthusiasm, taken up beekeeping and then, when his colonies got hit with parasitic mites, abandoned it completely. He wrote wistfully of how he would miss the hum of his bees, but he saw no point in continuing in the face of this problem. We all know that feeling. I've certainly had it, more than once. But then the bees always come back to rebuke my pessimism, with enormous honey crops. I don't think this is the time to be discouraged. All the beekeepers I know are getting record honey crops, and the commercial ones are wholesaling their honey at close to a dollar a pound, in drums. Predictions about bees are always hazardous, but my feeling is that the future holds some big surprises, and that they will be pleasant ones.

What I really want to talk about this time, however, is honey bee psychology. How smart are bees? Roger Morse wrote recently that they "can measure, interpret, learn and make decisions on a much higher level than is generally thought possible," (*Bee Culture*, October 1996). And in support of this, he described how they learn to forage for nectar on alfalfa without getting caught. The alfalfa blossom is constructed in such a way that if a bee sips nectar from it in the normal way, then the blossom "trips," that is, certain of its parts snap shut on her tongue, and she has a hard time getting loose. But after awhile, the bee learns to approach the blossom from the side, sipping the nectar without tripping the blossom.

That is pretty impressive, and conclusive. But of course there are

many other ways that bees clearly learn from experience. I once designed a screen for the window of my honey house which was such that the bees inside could fly out, but those outside could not fly in. It was a double screen. The inside one was open at the bottom, and the outside one open at the top. Bees, when they encounter a screen, move upward on it, so the indoor bees, flying to the window, soon found their way out, by their natural upward movement, but the outdoor bees, by the same natural movement, did not get in. However, after a few days, the outside bees learned the trick. Arriving at the screen, they would hesitate, and then crawl downward, between the two screens, and into the honey house. At this point, I closed the window. The bees had caught on.

And, of course, there are lots of other examples of learning, things that a beekeeper sees all the time. The orientation flights of young bees are a perfect example. These bees are quite literally learning the location of their hive. They learn, bit by bit, what the countryside looks like for a couple of miles around and how to navigate their way home.

If you split a colony, in such a way that you get one hive on top of another, with its entrance to the rear, and then, after a couple of weeks, move the top hive to another spot, then the returning bees are confused for awhile. They arrive at where the top hive should be, to find nothing there. But after a few days, the confusion is over, and the returning bees go straight to the bottom hive, with its entrance in the opposite direction. They have learned just what to do.

A clear and striking example of

learning is provided by swarming behavior. Here you have thousands of bees, who have become perfectly oriented to their hive, bees which have for weeks flown unerringly to its entrance. And they suddenly, having found a new nest site – a hollow tree perhaps, maybe miles away – learn the location of this new site, and begin returning faithfully to it. It is as if they had effaced all they knew about the original nest site, replacing it with all the new knowledge they need to find their way regularly to the new one.

Bees also learn to pick out individual things of interest to them, and to make significant discriminations. For example, you can put a dish of sugar syrup on a sheet of bright yellow paper, and the bees, once one of them discovers it, will begin a procession, back and forth to their hive. Now move the dish with its yellow paper a few feet, and the bees quickly find it, having made the association with the yellow color. And if you now set out sheets of paper of different colors, interchanging the locations of these with the yellow, the bees go first to the yellow, even if the dish of syrup is no longer on it. Clearly, they are not just following scent clues but are acting on what they have learned.

Of course you have to be careful not to go overboard here, ascribing too much sagacity to the bees. It was once a quaint belief that if a beekeeper died, then it was someone's duty to go *tell* the bees. And I am still asked fairly often if my bees recognize their owner. One might think so, from the fact that I can move about my bee yards at certain times of the year with no veil, while if some stranger suddenly appears there, he

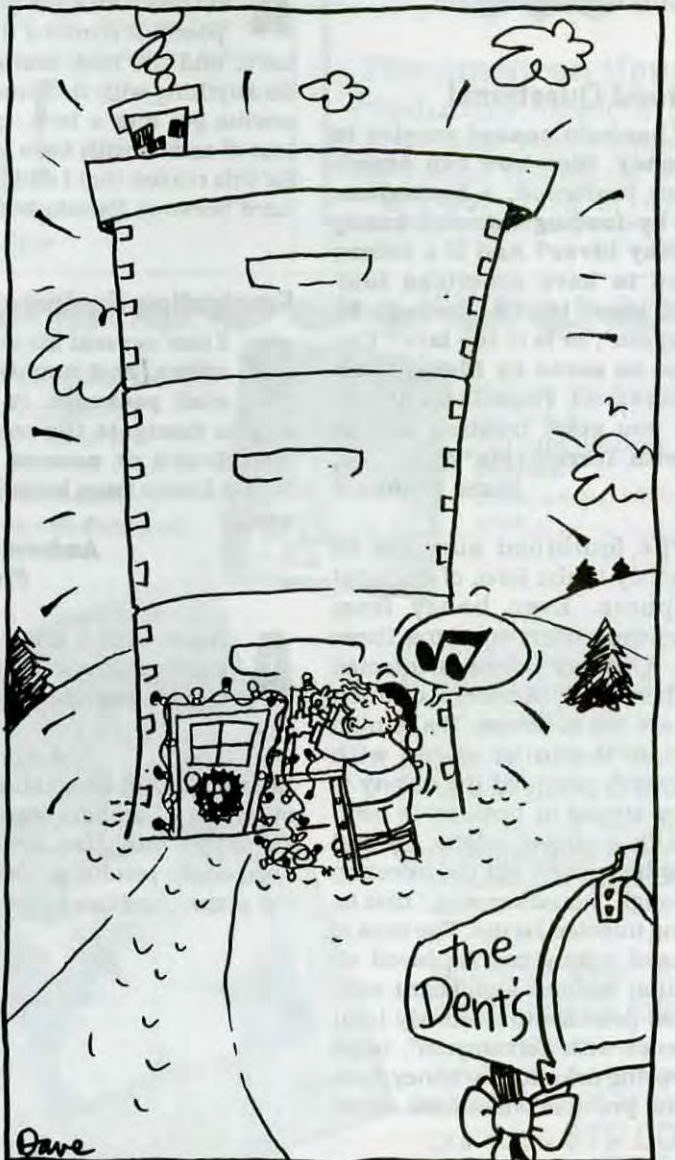
is likely to get a sting. But no, the bees have no idea at all who I am. It is only that I have learned how to move about in a bee yard without rousing their defenses.

Someone once thought that he could prove that a housefly is smarter than a bee by the following experiment. He put a housefly in one open bottle laid on its side and a bee in another. The fly just buzzed around in a random, aimless fashion and was soon out of the bottle and away. The bee, on the other hand, persisted in flying toward the source of light, which was not in the direction of the bottle neck, and thus remained trapped. But does that prove a superior sagacity of the fly? Hardly. There was no rhyme or reason to the fly's behavior. The bee, on the other hand, was using a method which its experience had taught it was reliable; namely, if you want out, fly toward the light.

The world contains many wonders. If you go through life with a preconceived notion of what you are going to find, then you will miss everything that is novel and wonderful. You will see only what you want and expect to see, and totally fail to appreciate, or even be aware of, everything that proves the narrowness of your vision. There are, for example, still people who want to insist, even in the face of totally probative evidence to the contrary, that all the extraordinary communication behavior of honey bees, involving "dances" on the combs and so on, are without significance, and that everything can be explained in terms of following scents! There is such a thing as scientific evidence, and sometimes such evidence is totally conclusive. If what it proves turns out to be remarkable, or even, sometimes, amazing, then that is no reason for closing your eyes to it and loudly proclaiming some crude and silly hypothesis that happens to be more like what you think the world should resemble. **BC**

Richard Taylor is a philosopher & lifelong beekeeper who lives in the Finger Lakes region of New York. You can reach him at Box 352, Interlaken, NY 14847.

Smokey Dents



Merry Christmas & Happy New Year to all!

Questions?

Readers please note: Questions not accompanied by a stamped envelope do not receive a direct response.

Right Wick?

Q What is the proper wicking for beeswax candles?

Harold Reuer
Moose Lake, MN

A It depends on the diameter of the candle, but size 2/0 is good for most regular candles. Wicking can be purchased from most bee supply companies.

Foulbrood Questions!

Q If bacteria cannot survive in honey, then how can American foulbrood, a bacterium, spread by feeding infected honey to healthy hives? And if a colony is found to have American foulbrood, can it be saved by Terramycin®, or is it too late? Can the bees be saved by hiving them on frames of foundation? Or should you start treating all the hives with Terramycin®?

Name Withheld

A The foulbrood survives in honey in the form of dormant spores. Even honey from healthy hives often contains these spores. A colony becomes infected only when vast numbers of such spores are fed to larvae. Yes, a mild case of AFB can be cured with Terramycin®, provided the colony is still very strong in bees, or is combined with a strong colony, so that the bees help clean out the infection by thorough "housekeeping," that is, removing infected larvae. The bees of a diseased colony can be hived on foundation without significant risk. It is good practice to routinely treat all colonies with Terramycin®, twice in the Spring prior to any honey flow. Then, the problem will almost never arise.

Plastic Foundation

Q I picked up several almost-new hives and supers at an auction. Some of the frames had drawn combs, but others had only foundation, and in some of these, part of the wax was missing, exposing bare plastic. Is there any way of restoring those with bare plastic?

Adin Ramer
Wakarusa, IN

A I have never found any way to do this. Once the plastic is exposed, it remains that way, all bare, and the bees seem unable to do anything with it. Sometimes wax worms get into a hive, resulting in lots of combs with bare plastic. It is for this reason that I still prefer standard beeswax foundation.

Fumigating Equipment

Q I lost several hives to Varroa mites, and now want to install packages. Is there any way to fumigate the combs to kill chalkbrood or nosema in them? Would fumes from burning sulphur work?

Andrew K. Watson
Freeport, MI

A None that I know of. If any readers know better, then I would appreciate hearing from you.

Editor's Note: Some states have fumigation chambers especially designed for this. Also, irradiation has spectacular results, if a company with the proper facilities is near you.

Strips In Time

Q If, as experts say, Apistan strips lose their effectiveness fairly rapidly, then what can be the harm in leaving them in the hives all Winter?

Hal Niemeyer
Leavenworth, WA

A This is a good question, which has come up before. Apistan strips are not like moth balls; that is, the miticide does not evaporate from them, nor does it migrate from within the strip to the surface. My understanding is that it is a surface miticide and it follows that the strips are effective only to the extent that the bees come in actual contact with them. Hence, it is useless to lay them on the top bars. They must be right down in the brood nest and where the bees cluster. The law with respect to all pesticides is that they be used in strict conformity with the instructions. I believe it is not now known whether there is any adverse effect in leaving them in the hives all Winter and many beekeepers in fact do this. Some say that this will encourage the development of mites that are resistant to the strips, whereas others claim that this would be the best way to discourage the emergence of a resistant strain. I believe it is not really known which view is correct. No matter how they are used, these strips never kill off 100 percent of the mites, so the likelihood of getting resistant mites seems fairly high in any case.

Winter Feeding

Q We have had a lot of snow, and even though I have bales of straw behind my hives, I am still worried about them. Would it help to feed them this Winter when the snow thaws, or is it too late?

Jerry and Debra Hamilton
Atwater, OH

A It certainly does no harm to feed bees, if they are short on stores, but they will not take much if it is so cold that they are clustered. Some beekeepers put granulated sugar on the inner covers, with the holes open, as an emergency measure, and this usually works, although the bees have to dissolve the sugar in order to use it. Your best bet is probably to wait until you get a few days of warm weather, then feed them. My own view is that it is best always to leave them plenty of honey in the Fall so that you never have to feed them.

Mite Mess

Q My bees were devastated by mites, and I plan to start up again with package bees. Will I need to treat or fumigate the hives before installing the packages? And will I need to replace the frames filled with honey, using foundation?

**A. Richard Boerner
Madison, OH**

A These two questions keep coming up. No, you can install the packages in the equipment without any treatment or fumigation, and you should leave the honey there for the new bees. Mites do not contaminate equipment. Once the bees are gone, so are the mites.

Questions are welcomed. Address them to: Dr. Richard Taylor, Box 352, Interlaken, New York 14847, enclosing a stamped, addressed envelope.

Answers!

Richard Taylor

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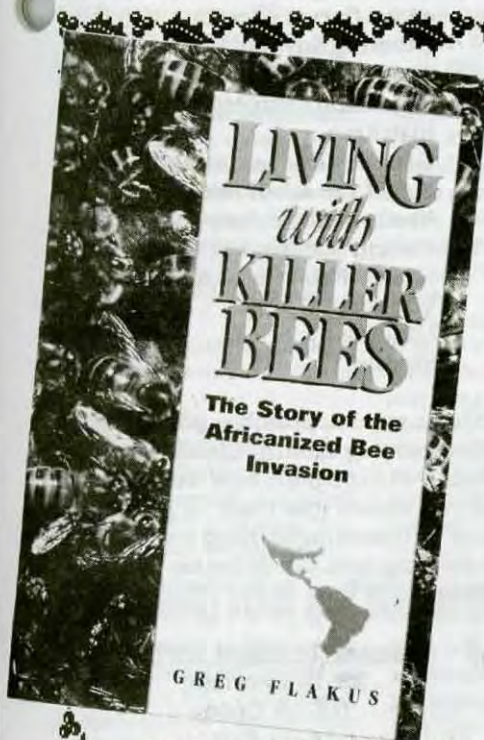


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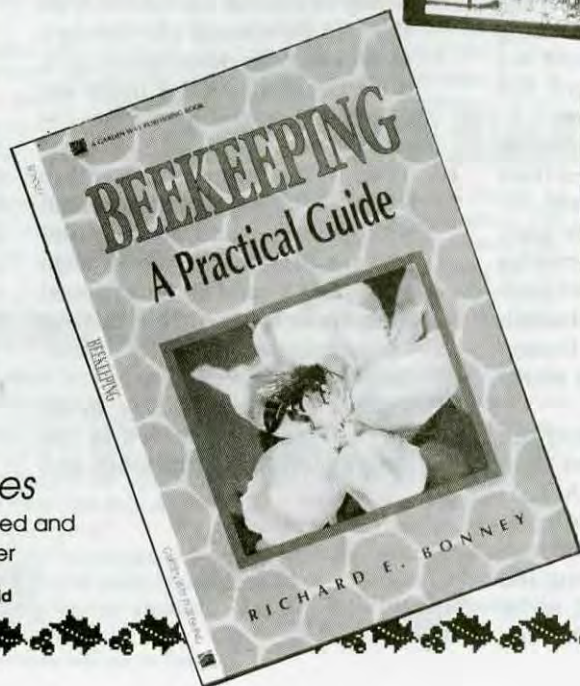
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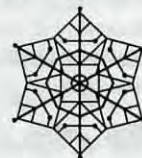
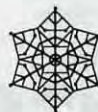
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?Do You Know? Answers

1. **True** The honey bee larva is a whitish wormlike grub that is essentially an eating machine designed for rapid growth with a huge digestive system. It has no eyes, legs, or antennae, possessing a simple mouth which needs only to lap up the copious amounts of food placed in the cell by the nurse bees.
2. **False** Drones are raised in worker size cells when a colony is hopelessly queenless and the colony has laying workers. Occasionally a queen will lay an unfertilized egg in a worker-sized cell, when she has a shortage of sperm stored in her spermatheca. Drones produced in worker-sized cells is not an indication that they are in the process of superseding their queen.
3. **False** Beeswax is removed, re-shaped, molded and used over and over again within the broodnest. Cappings over honey cells are generally 100% wax, while those over brood are only partly wax. Brood cappings contain, in addition to wax, bits of cocoon, and traces of propolis and pollen. Brood cappings also contain higher levels of recycled wax than honey cappings.
4. **False** A queen normally mates with 7 to 15 drones on one or more mating flights, whereas drones mate only once. During the mating process, drones are instantly paralyzed and die within a matter of minutes.
5. **False** Races of tropical honey bees are much shorter lived than those found in temperate regions. Their shortened life span is undoubtedly due to genetics and the massive amount of work which must be done to establish a nest, rear brood and forage, with much smaller colony populations.
6. **False** Mature drone honey bee larvae are normally heavier than mature queen larvae. Actual weights are highly variable in relation to genetics, care and nutrition. Weight gains during the larval stage are reported to be 1700 and 2300 times the egg weights for queens and drones, respectively. The queen larval weight at capping is approximately 250 mg and drone larval weight is 346 mg. Similar weight differences are also observed in the adult stage.
7. **True** The swarming instinct varies widely in different honey bee races and strains. The carniolan race has a strong disposition to swarming because of its great vitality and fast development of colonies in the spring. Africanized honey bees in comparison to European honey bees also exhibit excessive swarming tendencies which is a survival tactic in relation to a harsh environment.
8. **True** The presence of queen cells in the brood area is the first indication that a colony is preparing to swarm or supersede its queen. Swarm cells are commonly found on or near the bottom bars of the combs in the upper brood chambers(s). In addition to raising several queens, colony preparations for swarming include placing the queen on a diet, rearing more drones, and reducing foraging activity by the field force. A primary swarm does not leave a colony until they have succeeded in capping a queen cell.
9. **True** Beeswax is obtained as a secretion from the wax glands of honey bees and results from the digestion of carbohydrates. It is produced by metabolizing honey in fat cells associated with the wax glands and converting it to beeswax. Workers cannot produce beeswax unless there are adequate honey stores within the colony.
10. **True** The temperature within a comb building cluster in which wax secretion and comb building are carried out varies from 95° to 97° F. and is the warmest area in the hive. The central broodnest is normally maintained at 93° to 95° F.
11. **True** The pupal stage in all three honey bee castes is the longest developmental stage and is longer than the time spent in the larval stage. Worker pupal stage is 12 days, larval 6 days; drone pupal stage is 14.5 days, larval 6.5 days; and queen pupal stage is 7.5 days and larval 5.5 days.
12. **False** After the pupal molt, the adult bee in the cell begins to remove the cell cap. Usually this process is completed in 12 to 24 hours. The young bee crawls from the cell and takes her place among the other adult bees. The house bees are not involved in assisting the young bee in chewing her way out.
13. **True** The adult honey bee's five-chambered heart is found in the dorsal part of the abdomen. Each chamber of the heart possesses a pair of slits which permit blood to enter the chambers. The blood is pumped anteriorly from one chamber to another by the rhythmic contraction of the heart.
14. C) Six
15. E) Guard Bee
16. Licking the cell walls
Removing cappings
Smoothing cell edges
Removing the remains of cocoons/larval excreta
Covering any remaining material with a thin layer of wax
17. Broodnest temperatures
Nutrition
Genetics (race or strain)
18. Age of the adult bee
Needs of the colony
19. Protein (Amino Acids)
Lipids (Fats, Fatty Acids)
Vitamins
Minerals
Sterols

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



Gleanings

DECEMBER, 1996 • ALL THE NEWS THAT FITS

More People = Better Service? POST OFFICE ADDS ANOTHER LEVEL

Legislation creating the first independent inspector general with full oversight over the U.S. Postal Service was signed into law recently by President Clinton.

The measure, sponsored by Rep. John McHugh (R-NY), chairman of the House postal subcommittee, was part of the omnibus budget bill.

It directs the USPS Board of Governors to fill the post by the end of the year, and gives the individual, whose salary has yet to be determined, 30 days to develop a five-year plan of operation and a budget to be financed by the USPS.

The inspector general, who must be appointed "without regard for political affiliation solely on the basis of integrity and demonstrated ability in accounting, auditing, financial analysis, law, management analysis, public administration or investigations," also will have "oversight responsibility for all activities of the [U.S.] Postal Inspection Service, including any internal investigation it conducts."

Postal officials weren't commenting on their new so-called "postal czar."

Besides having complete oversight over the USPS and its law-enforcement arm, the Postal Inspection Service, the inspector general will have the authority to subpoena "sensitive information concerning ongoing

civil or criminal investigations or proceedings, the identities of confidential sources and government protected witnesses, and have access to "intelligence or counterintelligence matters and other matters which, if disclosed, would constitute a serious threat to national security."

The inspector general also would have to file yearly reports with postal governors and members of Congress.

McHugh, noting that the USPS is a \$60 billion agency with nearly 870,000 employees, said it has to "be overseen by a strong watchdog" to help it "operate in an effective and efficient manner."

He said the need for an independent inspector general was highlighted earlier in the summer by the General Accounting office, the investigative arm of Congress, when it issued a report claiming the USPS was losing as much as \$8 billion a year through inadequate controls over postage discounts granted to mass mailers.

That caused McHugh to lash out at both the USPS and the inspection service for having "weak controls over such a significant amount of revenue," he alleged that both have no way of really knowing just how much money is being lost because the paperwork that must accompany large bulk mailings is not being properly reviewed.

POLLINATION & THE ALMOND CROP

There are roughly 10,000 acres of almonds in CA that will use bees for the first time in 1997, with a similar increase in store for 1998 and 1999. All this points to a possible shortage of bees in coming years, if not 1997.

It's too early to get a handle on the bee supply for 1997 almonds. Some TX and AZ beekeepers won't be back due to the price of honey but most beekeepers from the northern tier of

states will return because they look at CA as a wintering site as well as a pollination job. Some beekeepers will bring bees to CA for the first time.

Most beekeepers are increasing pollination prices, but there are still some that "don't get it."

Over 800,000 colonies are rented each year for almond pollination. It is the largest beekeeping/agriculture joint venture in the world.

From Beekeeping Newsletter, Joe Trayner

Honey Adulterers Rocked by Sentence PILGRIMS LANDED ON

Two Mississippi brothers have been banned from the syrup and honey business for life after pleading guilty to adulterating and misbranding foods, including honey.

As part of their sentences, U.S. District Court Judge William Barbour levied the bans against J.H. "Jay" Pilgrim and Paul Pilgrim, both of DeKalb, MS. They are prohibited from direct and indirect dealings with the honey and syrup industry.

J.H. Pilgrim, who was doing business as J.H. Pilgrim Syrup Co., had pleaded guilty may 14 to four counts of a 10-count indictment. The indictment alleged three crimes involving honey, four sorghum, two maple syrup, and one on ribbon cane syrup. The court accepted one guilty plea for each product.

In addition to the ban, his sentence included a 19 month prison sentence and a fine of \$20,000, and, once released from prison, he is to be under supervised probation for one year.

Paul Pilgrim, doing business as Paul Pilgrim Syrup Farm, had pleaded guilty at the same time to

three counts of his separate 10-count indictment, one guilty plea for each type of syrup involved. He was not charged with a crime involving honey. His sentencing had been delayed until Oct. 22, due to his health problems.

The pleas culminated a lengthy investigation led by the U.S. Food and Drug Administration's Office of Criminal Investigations out of Miami and the FDA's New Orleans district office. The cases were prosecuted by the U.S. Attorney's Office in Jackson, MS.

At both sentencing hearings, Judge Barbour read into each case record a letter sent to him by American Beekeeping Federation, American Honey Producers Association, National Honey Packers and Dealers Association, and Sioux Honey Association. The letter, which was instigated by the Federation and endorsed by 20 state beekeepers associations, cited the damage done to the honey industry by adulterators and called on the judge to make an example of the Pilgrim brothers in his sentencing.

EAS AWARDS \$\$\$

The Eastern Apiculture Society of North America awarded two \$1,500 grants to honey bee researchers at the 1996 Annual Conference in VA. Research proposals submitted by Dr. Scott Camazine, Dept. of Ent., Penn State Univ. and Dr. Gard W. Otis, Dept. of Environmental Biology, Univ. of Guelph were selected from a number of highly competitive requests for funding submitted in 1996. Scott Camazine's research concerns "A new Method of Menthol Application for the Treatment of Tracheal Mites" while Gard Otis' research focuses on "Selection for *Varroa* Resistance Based on Short Postcapping Duration of all Bee Castes."

The EAS Foundation for Honey Bee Research is a competitive grant program developed from donations from beekeepers and others interested in funding the opportunity to collect preliminary data or to combine with other funding sources to continue ongoing research. Students working on degrees find these funds especially appealing since grants may be used for supplies, equipment, salaries, travel or other appropriate uses.

For information regarding proposal submission criteria or to make a tax deductible contribution contact: Loretta Suprenant, Secretary, Box 300A County Home Rd., Essex, NY 12936.

ABF CONVENTION IN NORFOLK



A dizzying array of workshops is being planned for the American Beekeeping Federation's Norfolk, VA, convention on Saturday, Jan. 18, 1997. The Federation is joining forces with the Eastern Apicultural Society to present a wide range of educational opportunities – there's even a session on how to teach beekeeping courses.

Other the tentative Saturday workshops topics include identifying and managing mites; putting research findings to work; recycling beekeeping equipment; making and using nucs; creamed honey; and making honey beer and mead.

In addition to the Saturday workshops, there is a refresher course on basic beekeeping scheduled for Wednesday afternoon, Jan. 15. Scheduled to run concurrent with the ABF Special Interest Group, the refresher session serves to bring persons who have some beekeeping experience up to date on subjects such as bee diseases and pests, use of queens and packages, winter survival, and handling honey.

The Special Interest Groups provide the convention attendees opportunities to "home in" on the subject areas in which they are most interested – commercial honey production and pollination, package bees and queen production, small-scale honey

packing, and research and technical activities.

Then, Thursday, Jan. 16, the Federation has scheduled a special symposium, entitled "Pollination Today." Growers, beekeepers, and scientists will cover the topic with talks on the pollination requirements of the newest crops, how to get along with growers, what growers need from beekeepers, what's happening in pollination around the country, and more.

On Friday, a wide range of topics will be covered: honey marketing and promotion, mites, pesticides, and Africanized bees. And, all week, the largest trade show in U.S. beekeeping will be open with vendors from every major company offering goods and services to beekeepers.

All beekeepers are welcome and encouraged to attend the Norfolk convention. An advance registration mailing has been sent to all ABF members. Others may request a convention packet by contacting the ABF Office, P.O. Box 1038, Jesup, GA 31598, ph. 912-427-4233, fax 912-427-8447, e-mail: tf@beta.jesupnet.com.

The convention will be held at the Omni Waterside Hotel in downtown Norfolk. For reservations, call 804-622-6664 before Dec. 30, 1996, to secure the ABF rate of \$76.00 per room.

Send Us Your Meeting Notices At Least Two Months In Advance & We Will Publish Them.

IRISH GOV'T ENCOURAGES BEEKEEPING

The Irish government has begun a campaign to encourage the country's farmers to take up beekeeping.

As part of the program it has issued a booklet entitled "Profitable Honey production."

Government researcher Dr. Finnain MacNaeithe said honey production can be developed as a viable alternative enterprise in rural areas.

"Honey production, even on a relatively small scale, represents an ideal opportunity for farmers and other rural dwellers to supplement their income," he said.

"Heretofore, honey production has not been considered to be a significant enterprise, but research has identified honey production as a viable alternative in many situations."

MacNaeithe said it has several advantages – very little land is required, it is not labor intensive and much of the work involved is done in the evening time.

"In addition, as the peak labor demand is from mid-May to mid-July, it is compatible with most farming systems, especially tillage farming," he said.

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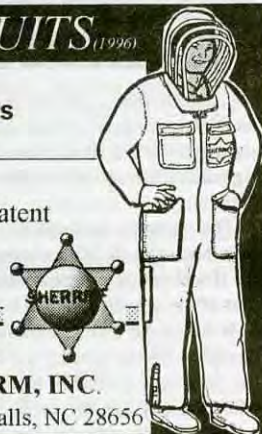
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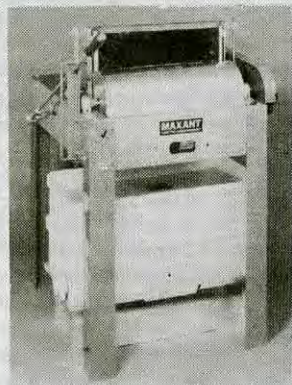
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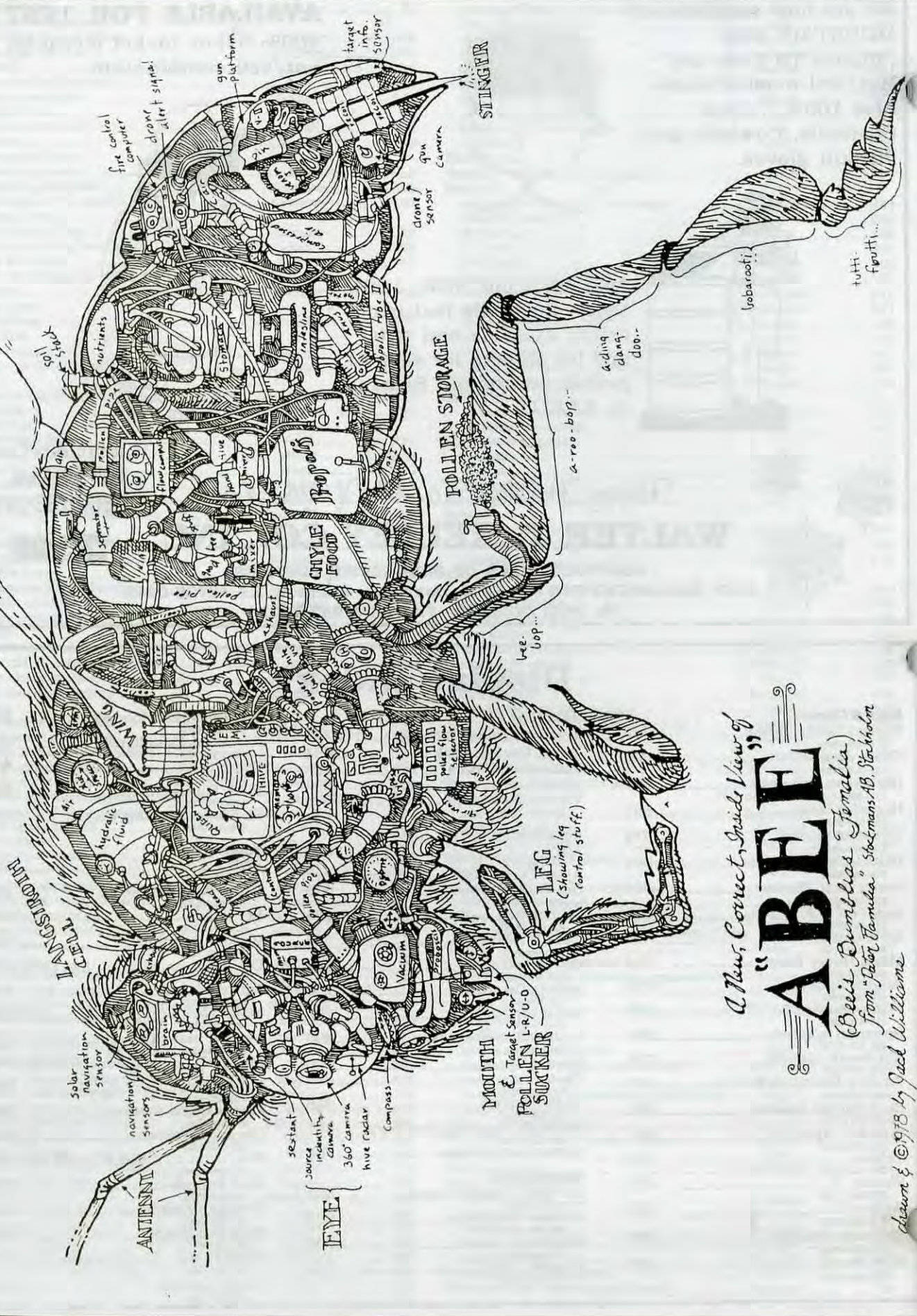
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