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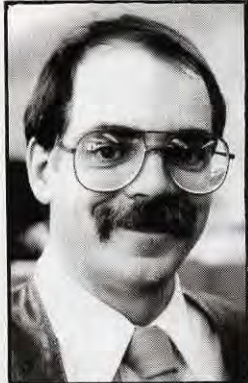
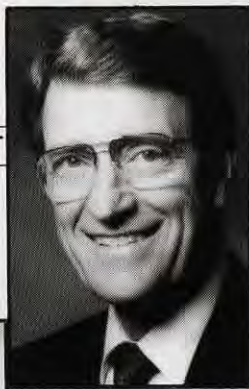
BEE CULTURE

Richard
Adee . . .

KING OF THE HILL



JOHN ROOT



KIM FLOTTUM

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John Root Publisher
Robert Stanners Assoc. Publisher
Kim Flottum Editor

Kathy Summers Production Coordinator
Moonlight Graphics Photo Production
Buzz Phillips Circulation Director

Contributors

- Roger Morse • Richard Taylor •
- Michael Burgett • Dewey Caron •
- Richard Bonney • Sue Cobey •
- Clarence Collison • Tom Sanford •
- B. A. Stringer •

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Columns

- **Research Review** Roger Morse **658**
450 pages of Brazilian research, finally.
- **Do You Know?** Clarence Collison **660**
Spotting problems.
- **Nectar On My Boots** Tom Sanford **661**
What about pollen?
- **Up Close** Lynn Royce & B.A. Stringer **663**
A close look at mouth parts.
- **Home Harmony** Ann Harman **681**
Christmastime cooking with honey.
- **Bee Talk** Richard Taylor **686**
Appeal to the best side of your customers.

Departments

- The Inner Cover** Kim Flottum **648**
Giving a talk? Be Prepared. Here's How.
- Mailbox** Reader's Forum **651**
- New Products** **655**
A Honey Bee Game For Kids
- December Honey Report** **656**
- Questions & Answers** Richard Taylor **687**
Winter feed: DCAs; Microwaved
- The Globe** News & Events **689**
Honey Producers in Houston; Scentry, Inc. sold; Mann Lake buys Menthol Label; Sugar News
- Classified Advertising** Bargain Pages **696**
- 1992 Title & Author Index** **698**
- Bottom Board** Richard Dalby **702**
A Seasonal 'Thank you'

COVER... Richard Adee, and Adee Honey Farms are the focus of our feature article this month – King of The Hill, on page 671. Don't miss this one.



King of the Hill, Pg. 671

DEC '92 CONTENTS

(ISSN 0017-114X)

Vol. 120, No. 12

119 Years Continuous Publication by the Same Organization



Up Close, Pg. 663

Features

- **ATTACK OF THE GIANT KILLER BEES** Benjamin Underwood **664**
The biggest bees on earth put African honey bees to shame. Maybe we should consider these for a change.
- **THE ULTIMATE POLLEN TRAP** O.B. Wiser **668**
There's a lot of junk out there, but here's one that's worth your money. Take a look and don't mess around with the rest.
- **KING OF THE HILL** Kim Flottum **671**
A casual and candid discussion with Richard Adee, who runs the biggest beekeeping operation in the world. The third of three parts.
- **ABOUT BOOKS** Dick Bonney **676**
Unknown and well known books on bees and beekeeping, and where to find them.
- **JARS** L. Edwin Rybak **679**
Are you using used jars to sell honey in? If so, don't be alarmed. Here's the best way we know to save money, and sell good and pure honey.
- **RATTLER!** Clay Tontz **684**
Bee yard experiences come in all shapes and sizes. Here's one you may never run into, but you never know.



ATTACK!, Pg. 668



The Ultimate Pollen Trap, Pg. 668

INNER·COVER

This is the season many beekeepers get involved in meetings. Not only attending, but actually participating – giving demonstrations, short (or long) talks about how-to, or why-should or the like, or actually running a meeting – like president, treasurer or whatever.

But a most unfortunate situation occurs when a brilliantly capable person *doesn't* participate because of a reluctance to speak before a group, which is more common than you might think. Each year a major opinion organization surveys people concerning their greatest fears. And once again the latest poll shows 'public speaking' is the 'terror of choice'. (I was surprised they had time for this poll during an election year.)

Sometimes, though, greatness is thrust upon us and if ducking isn't possible suddenly a hundred eager faces are awaiting the enlightened words of wisdom somebody actually thought you would come up with.

Coping with this is a skill you learn to live with, or you stay home a lot. But if home is less appealing than the greatness mentioned, there are a few hints and tricks to get you through what only seems like a long, long ordeal.

Although there are many categories of 'Public Speaking', they can generally be divided into informal (most often encountered), and formal 'talks'.

Informal talks range from the treasurer's report at your monthly meeting to a 45 minute how-to explaining a somewhat technical aspect of your craft. These are more similar than first apparent, but no matter what level the 'talk', to overcome the reluctance to stand and be heard some sort of preparation is absolutely required.

•Know Your Subject & Do Your Homework•

Even a treasurer's report requires homework. Money in, money out, money left – not fancy but necessary. Your report should be, too. Brief, definitely factual, to the point and complete. Have a copy ready-to-read, leave nothing out, and have extras ready to hand out. *Don't* prepare it on three half-sheets of paper, two notes from a scratch pad and on the back of a match book cover (I've actually seen that tried, once).

Forty-five minutes of explaining spring feeding and colony cleaning in front of 20 people you know or 50 you don't isn't much different really.

First, know your subject. Not only what you *already* know, but anticipate questions about what you don't know. Find answers before your time up front in books, magazines like this and from other beekeepers especially other beekeepers. Local authorities will know 'tricks', local practices and more. Ask, ask, ask.

Know your audience, too. Are they experienced old timers, or mostly new and fresh? It makes a difference. Basically, offer what your audience wants, and a little bit more. Be prepared.

•Formal Talks Are A Bit Different, (But Not Much)•

By formal I mean more structured, not necessarily different – in either topic or group – but in what's expected. A member of your county group discussing local honey plants is different than a USDA Scientist discussing nectar production and soil fertility.

If that's you – the Scientist – make sure you have a fresh approach. It may be the same topic you've covered many times

before, but add something new, or take out the oldest stuff. Be sure it's different every time.

Make sure your introduction is appropriate, so your audience is assured of your 'expertise'. You'll avoid wasting time explaining why you're there if they do. And never mix opinion and fact without making sure everybody knows the difference. Big, big trouble if you do.

Dress well, a bit better than the audience, to establish your legitimacy; try and upset at least one person, and totally captivate at least one – controversy is always a crowd pleaser; don't wander off the subject; and don't work at being funny – humor can kill you if you're not good at it.

•The Basics – Formal or Not•

Use visuals if possible. Slides, overheads, pieces of equipment. Use the sound system. Personally, I like to yell, but most people don't and the front row gets tired of it – fast. Speak clearly, slowly and carefully.

Your message won't be remembered if they can't hear you, or can't understand what you say.

Don't read your talk unless you are very, very good at it – otherwise – it sounds like you're reading your talk. Reading leads most people to believe

Continued on Page 682

Be Prepared

MAILBOX

U.S.
29¢
MAIL

The Editor
P.O. Box 706
Medina, OH 44256

■ Purely Awful!

I often wonder what this world is coming to. It is good that the world is progressing and developing in all directions, and the older generation is not running scared any more. But certain things occur that are very hard to understand no matter how willing and tolerant you are toward the perpetrators.

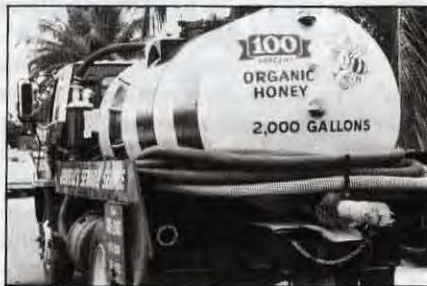
The picture shows what I am talking about. Hundreds of books were written through the ages, from Aristotle (380 BC) to the present day about beekeeping, about bees, their labor, and about honey, nature's most tasteful food. In mythology it was called ambrosia, the food of Gods. Even now, in our over health conscious world honey stays on the top of our delicacies. Adults, children enjoy it in liquid form, in comb, in candies, cookies, drinks, with fruit, etc.

I consider using bees and honey for the type of advertising as shown in the pictures offensive and extremely distasteful. It is hard to understand,

to find the logic in the minds of the perpetrators, and the miscarriage of their thoughts. I wonder what they would say if anybody would dare to compare their favored beer in the same revolting fashion. As a snowbird I have spent the winter in Key West for the last 15 years. We love the area, the climate is just tailor made for us, and for many others. Every day is an adventure down there, the abundant sunshine, the tropical flowers, the birds, the reef and the people. In our 15 years here the subject shown has been the only cloud on the ever blue Key West sky.

After 35 years we still enjoy *Bee Culture* every month.

J.N. Kovats
London, Ont. Canada



■ No Bees!

Beekeeping in St. John's, Newfoundland is almost extinct.

Arriving in St. John's, Newfoundland in the middle of September aroused my curiosity as to why there was so many Bumble Bees and an absence of honey bees. I was fortunate to find one beekeeper who had two colonies, one at a Summer Savory farm and another at his home.

According to Mr. Goulding the province had completed their research on bees and decided that wintering problems were too great.

With an abundance of wild flowers and winter temperatures rarely going below 30°F, lots of snow and temperatures warming to 40°F during the daytime hours, they still have problems even after insulating the hives. (Maybe insulating is their problem.)

The colony we looked into had stores of beautiful water white honey delicious to taste. The bees were extremely gentle during a nice honey flow, and their yellow color reminded me of my Starlines.

I was able to learn that half way across the province one man was trying to keep 50 colonies, but with some difficulty.

Goldenrod was plentiful along with a multitude of wild flowers that Bumblebees were working.

If I lived there, as the British would say "I'd have a go at it"

Robert T. Alten
Lancaster, OH

■ Cover to Cover

Your *Bee Culture* is tops. The articles are interesting and informative. Your latest article on the candy honey feeding board is good. I think that beats sugar syrup all to pieces. I think bees are smarter than some bee handlers. Otherwise they wouldn't have the problems they sometimes do. You have to give the honey bee a lot of

Continued on Next Page

MAILBOX

credit. We give them enough room to expand and observe the how, when and why they are doing things. Its fun to learn from them.

Well its a good feeling when your magazine comes to the door. Read it from cover to cover.

R.P. Johnson
Yankton, SD

■ Kenya Hives

For the purposes of sharing information and helping each other, I would like to find other beekeepers who are interested in Kenya hives, bumble hives, or the Poppleton long box hive. I would be grateful if you would print my address so they could contact me.

George Robertson
7109 Jeffrey Drive
Raleigh, NC 27603-5111

■ Family Affair

My name is John P. Kopecky. My father is Charles F. Kopecky, a beekeeper of some forty years and a long-time *Bee Culture* subscriber. This past summer I suggested to him that I start two colonies next spring. The matter was met with some enthusiasm, and after the harvest he brought me two of his strongest colonies for wintering. Enclosed is my description of the event of their arrival.

I am not particularly bent toward statistics nor entomological investigation. I am not a salesman nor marketer. I was about eight or nine when my dad, on numerous trips to his beeyard, opened my eyes and mind to the wonder of migrating waterfowl, the intensity of a cluster of bees on alsike and a hundred types of flowers, and mostly to the flow of the seasons through the rhythms of beekeeping.

I am a cabinetmaker by trade (also of his influence), a poet by avocation, and now it seems a beekeeper by destiny. Having watched and weighed the movements of this dedicated and gifted craftsman I see that our journeys have con-

verged.

My family is a "a-buzz" with anticipation for next year already, with one of my sons writing a report on the honey bee. Our chief resource was a 1954 copyright of *ABC & XYZ*. A well-worn copy with an embossed honey bee that I marveled at when I was young. To see the interest of my wife and kids over what I thought would be a personal and reclusive hobby is overwhelming. I look forward to the experiences to come ... yes, even the stings.

John P. Kopecky
Reedsville, WI

One big, happy family...

On October fifth, in a moonlit evening ceremony at the boxelder grove behind the old barn, the mantle of the Universal Order of the Bee was transferred. A van with two occupants came to a stop, slightly tilted on the side of a hill. The boxes containing two colonies of honey bees were unloaded and set on the concrete slabs placed and leveled a week earlier. Conversation was brisk but a little nervous. The hives being secured the elder man reached into the van, retrieving an odd collection of artifacts: a tangled bundled of twine, a small, flat metal bar with a curved end, (the hive tool), and a hand-held bellows with a funneled opening, (the smoker).

As he left he whispered, "Thank you" The older man smiled, "See ya later!" Forty odd years ago his oldest son had abandoned a 4-H project and left it to his father's devices. Now ironically, the feelings of the youngest son seem to say, "I'm all alone in this, and dad seems to relish it a little. But he's letting me find the mysteries for myself. After all, what's a few beestings compared to "the mantle", and sweet honey."

"Now you're in business", was his jovial remark to the younger man. A thousand questions hit as the van pulled away, with the moonlit field clearly seen. But the only words the younger man could choke were, "Thank you ... thank you."

Then on entering his home, the younger man is greeted by a nine year old son who says, "Remember Dad, buy me gloves and a "mask" too!" I would seem the mantle is secure here for a while longer.

John Kopecky 10-7-92

■ Cookin'

I have just tried a recipe from "A Honey Cook Book" published by A.I. Root and am delighted with the results.

I have purchased granola for years at high prices, and was never happy with it. After purchasing a quantity of oats, I went to my 20 pound jar of dark honey and your cookbook.

I was able to make my own granola, adding what I wanted, changing what I wanted (dark honey instead of light), and ended up with the best snack and breakfast food I have ever had.

Thank you for collecting these marvelous recipes for folks like me who buy in quantity and make from scratch. I look forward to trying some of the other recipes, especially the Medina Brown Bread, and will work my way through the book.

I highly recommend this book for a holiday gift, as even occasional cooks like myself will find it useful. I imagine it is a "honey" gold mine for serious kitchen folk.

Pamela M. Moore
Medina, OH

■ Bye Bye Bees

Being a reader of *Bee Culture*, I thought I would pass on something to you that I didn't think would happen to me in the Ohio Miami Valley.

Being a beekeeper for 14 years (now 41 years old), I never thought that it would happen to me - "Beehives stolen" Not just one or two; but 14 hives of bees.

Now, don't get me wrong. I read and heard of bees being stolen from beekeepers, but down in the southern states, where guys run 500 to 1000 or more beehives. (I have 50 hives - well I did have.) I never thought it would happen in Dayton, Ohio. Heck, there wasn't but a couple of beekeepers in Dayton and I know them!

Anyway, I found out that anybody will steal anything, even, a guy's honey bees. I will be getting insurance now on my apiaries, soon. Please, pass this on to other readers, that having honey bees doesn't keep the thieves away, just the people who don't like bees.

And, it sure hurts the heart and the wallet.

Dean Wiggans
Franklin, OH

NEW GAME

Kids get to color the game board and game pieces (worker bees). Then they choose a word from the honeycomb sheets – they can either start with a word that we provide in the honeycomb, or put in one of their own. There are enough spaces for over 130 words (the sheets can be easily duplicated to provide endless use of the game). Then, just like the honey bees fly from flower to flower collecting nectar and pollen, these bees will fly around the flowers on the board collecting the letters to build the words that they have back in their honeycomb. As they match their letters, they color in the letters in the honeycomb (for the younger players, this is the entire object of the game – it's non-competitive, everyone wins) then the older players also take a pollen and nectar card when they match a letter. This card contains a point value and also has an interesting fact about honey bees – how they make honey, how beekeepers manage them and generally how they live (there are 80 bee facts all together). The game ends when someone completes their word, then the one with the most points wins! It's simple, but lots of fun. It takes about 7 - 10 minutes to play one round of the game.



never played a game before (its a great matching and coloring game for them) and for older kids who like to keep score and who are fascinated by the honey bee facts.

- Its a great combination of letters and science.
- It teaches an appreciation of honey bees and of nature in general.
- Very durable construction insures long lasting life of the game.
- Its fun!

Marketing Info

Anyone who wants to order the game can send a check or money order to BZB Games, Inc. 33 W. Franklin St., Centerville, Ohio 45459. Cost – \$16.00 for the game, \$4.00 shipping, in Ohio add 6% sales tax (.96). We will send the game 2nd day priority mail and will get it to them within four business days of when we receive payment.

The game is on sale at various museum and zoo gift shops and fine bookstores around Southwest Ohio and will soon be available at the Smithsonian Museum of Natural History Gift Shop in Washington, DC.

The developers are anxious to make the game available to beekeeping associations that would like to use it as a fund raising item. They can buy the games at a greatly reduced price and resell them through schools, preschool, families, churches etc. to raise money for their groups. Anyone interested can call (513) 434-4321 for more details.

Jim Corbett – “Spelling BEES is the second game that I have worked on.

I created and developed another game called *Hail To The Chief* in 1987. It is an educational game in which players (ages 10 and up) attempt to become President of the United States. I sold the game to AristoPlay, Ltd., in Ann Arbor, MI. They have been marketing the game since then. It won the Parent's Choice Magazine Silver Honor Award in 1987 and the Media and Methods Excellence in Education Award in 1988. It was also endorsed by the U.S. Constitutional Bicentennial Commission.”

Jim Corbett has been a beekeeper since 1985, mostly out in the Seattle Washington area, but recently in Southwest Ohio. He has a Masters degree in Library & Information Science and works for a computer company that provides online information database service to attorneys and information Specialists. He has done marketing/sales and product development for them.

Gary Wagoner has a Master's degree in Educational Psychology. He began working on a spelling game with his daughter, Miriam; they developed a couple hundred copies of it, one at a time and gave or sold them to friends, schools, acquaintances, etc. ☺



Strengths of Spelling BEES

- Kids love the fact that they get to color the game board and their own worker bees. It really involves the kids and they feel like it's really their own game.
- The two levels of play make the game appropriate for kids who have

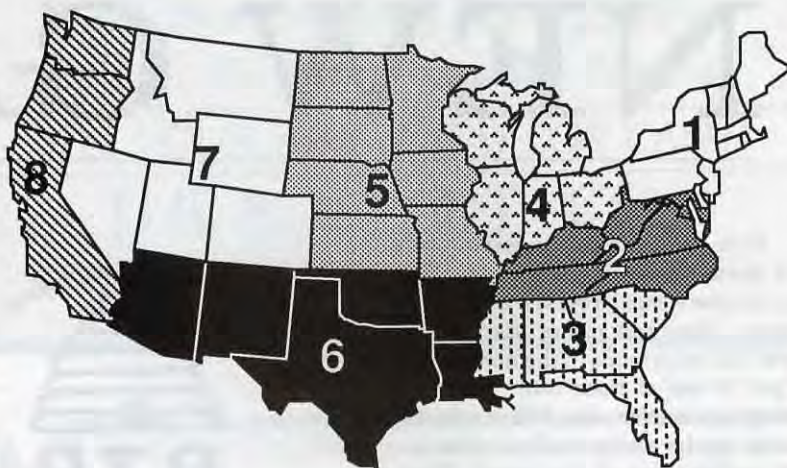


DECEMBER Honey Report

December 1, 1992

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 #Wh.	43.92	49.63	46.20	39.07	38.08	42.63	43.09	40.15	31.80-72.00	43.16	43.03	41.87
60 # Am.	40.76	43.82	33.40	38.00	41.12	37.75	40.95	38.20	28.20-64.00	40.02	40.06	39.48
55 gal. Wh.	.653	.584	.565	.607	.550	.543	.528	.578	.48-.79	.575	.608	.568
55 gal. Am.	.563	.533	5.13	.512	.537	.503	.525	.515	.42-.68	.524	.551	.526
Wholesale - Case Lots												
1/2 # 24's	20.30	22.80	20.23	20.22	18.75	23.35	21.84	22.00	16.50-26.88	21.18	20.59	21.50
1 # 24's	28.81	33.19	32.99	29.02	27.22	28.50	30.10	28.00	25.00-42.00	30.44	29.34	28.96
2 # 12's	25.95	29.83	30.96	26.63	25.08	26.48	28.40	28.33	21.00-40.80	28.05	27.47	27.44
12 oz. Bears 24's	25.72	29.45	33.12	28.76	27.00	24.77	27.21	22.50	21.00-42.00	26.92	25.13	26.68
5 # 6's	29.51	31.78	35.66	33.37	29.08	24.48	28.96	26.02	21.95-48.00	30.16	29.90	29.77
Retail Honey Prices												
1/2 #	1.23	1.33	1.19	1.31	.94	1.18	1.15	1.09	.82-1.79	1.17	1.16	1.16
12 oz. Plas.	1.51	1.71	1.90	1.57	1.32	1.43	1.51	1.38	1.19-1.98	1.54	1.51	1.52
1 #	1.64	1.86	1.80	2.31	1.67	1.67	1.79	1.51	1.25-2.25	1.73	1.70	1.76
2 #	2.98	3.11	3.25	3.15	2.79	2.72	2.97	2.74	2.19-4.29	2.98	3.05	2.96
3 #	4.52	4.64	5.35	4.71	3.97	4.15	4.39	4.37	3.50-6.19	4.44	4.30	4.00
4 #	5.27	5.26	5.33	5.13	5.33	4.90	5.06	5.08	4.75-5.49	5.16	5.25	5.19
5 #	7.15	7.01	7.46	6.49	6.55	6.17	6.32	5.88	5.25-9.99	6.69	6.47	6.51
1 # Cream	2.17	2.50	2.21	2.03	1.77	2.22	2.13	1.89	1.49-2.95	2.16	2.17	2.25
1 # Comb	2.97	2.34	1.98	3.22	3.24	2.62	3.16	3.60	2.35-4.50	2.82	3.19	2.85
Round Plas.	2.32	2.72	2.44	2.01	2.48	2.35	2.44	2.50	1.99-3.00	2.46	2.41	2.38
Wax (Light)	2.57	1.51	1.47	1.29	1.23	1.68	1.15	1.20	1.00-3.50	1.63	1.74	1.18
Wax (Dark)	1.98	1.26	1.36	1.22	1.13	1.40	1.07	1.10	1.00-2.15	1.37	1.32	1.10
Poll./Col.	30.67	23.13	30.00	35.00		33.33	30.00	31.00	20.00-40.00	28.46	29.27	28.79

MARKET SHARE

The prices and comments this month do not reflect the three cent change in the federal buy back program. (Beekeepers using it will pay less to buy their honey back from the government after putting under loan, thus increasing their net return.)

Nor do they reflect the surge of imports reportedly showing up. The C.W. (conventional wisdom) says the buy back change was in response to cheap imports, but some think the administration was trying to buy votes. It didn't work. Stay tuned!

Region 1

Prices and sales steady to increasing a bit. Although demand increasing, imports keeping prices down. Cool weather will help sales, and crop shortage will help beekeepers keep stores low. Colonies in good shape generally, but both mites taking their toll.

Region 2

Regional sales strong, better than ins several years. Prices higher than last year, but not much. Short crops generally means imports will do well. Colonies in pretty good condition, but many are feeding. Mites still causing problems in untreated colonies.

Region 3

Sales, prices and demand steady to increasing a bit. Colonies in good shape but some feeding being done. Specialty crops doing well (citrus), and others (excluding south FL) average to way above average.

Region 4

Sales brisk in region and prices steady to increasing at or above average. The problem is no honey was produced and it's all being brought in. Colonies being fed due to no fall crops, mites getting worse and winter looks tough. Be prepared.

Region 5

Prices steady, even declining a bit, which is curious since seasonal demand is increasing. Light to no crops generally across region, but some did well. Feeding required due to light fall crop. Mites present everywhere, so beware.

Region 6

Sales increasing seasonally, prices holding steady, but some areas show real increases. Mites a big, big problem in operations not treating. AHB seems to be having little affect so far, but it's moving west faster than expected.

Region 7

Sales strong and prices doing well - typical for the region. Crop reported average to good to excellent with light to white the color. Wintering conditions seem healthy.

Region 8

Sales seem better than average, with prices doing O.K., too. Bulk sales increasing, but prices still not reflecting increase. Retail moving up a bit. Mites causing problems - so much so that spring demand for bees may fall short? Maybe locally, but more beekeepers trying to take advantage of spring cash flow and moving west.



RESEARCH REVIEW

DR. ROGER A. MORSE

Cornell University • Ithaca, NY 14853

"Decades Of Brazilian Research"

As I write this I have before me a remarkable new book that summarizes decades of Brazilian research on honey bees and their relatives. It lists the 17 principal bee research centers in Brazil, then devotes over 450 pages to titles and reprints of M.S. and Ph.D. thesis abstracts. The remaining pages list papers written by Brazilians and foreigners. An index of authors is included.

Many of the theses are of immediate interest: *A Study of Variables Which Effect the Acceptance of Queens (Italian and Africanized) by Africanized Honey Bee Workers*; *The Effect of Environmental Conditions on Hygienic Behavior in Africanized Honey Bees*; *A Study of Varroa Infestations in Africanized and Italian/Africanized Honey Bees in Three Climate Regions of Brazil*; *Insect Pollination in Three Varieties of Orange*; *The Effect of Africanized Bees on the Hybridization and Productivity of Soybeans*; *Pollination of Passion Fruit Flowers*; *The Development of Hybrid Colonies and Their Behavior in Accepting and Manipulating Wax (Africanized, Caucasian, Italian, and Carniolan bees were studied)*; and *Analysis of the Number of Ovarioles in Africanized and Italian Bees and Their Descendants*. These are only a few of the papers and thesis on honey bees. There are an equal number on the stingless and other bees of Brazil that will interest a wider audience.

Of special interest are the abstracts from two theses by Antonio Stort: *Genetic Study of Aggressiveness in Honey Bees* and *Genetic Study of Morphological Characters and Their Relationship with Defensive Behavior in Bees*. Stort

was the first person to devise techniques for studying aggressiveness in Africanized honey bees. These were widely used by several North American bee researchers who later studied aggressiveness in these bees.

Varroa mites were found in Brazil in the late 1970's and the Brazilians have studied them extensively, contributing much to our knowledge of mite biology. For example, there were papers published in 1984 and 1992 on the reproduction of varroa in Africanized honey bees. Since these bees are now in the U.S., along with varroa, it is important to learn what the Brazilians discovered about the relationships between the two.

Brazil suffers from two problems in research. The national language is Portuguese while the other Central and South American countries speak Spanish. This makes it difficult for Brazilians to communicate with the rest of the world. The second problem is that Brazil had a military government from 1964 through the early 1980's which limited travel by Brazilians outside of the country and did little to encourage outsiders from visiting. As a result the country was locked away from the rest of the world. Only recently have we learned much about the bee research that has been done there.

This book is a major contribution to beekeeping literature. The editors are to be congratulated. The thesis abstracts are printed in Portuguese and are followed by an English translation. In some cases this is the first time an English summary has been available. It has taken four years to bring this book to completion, and it stands as an example of research summarization and

presentation. *Brazilian Bee Research* may be ordered from the Genetics Department, Faculty de Medicina, USP, 14.049 Ribeirao Preto, SP, Brazil for \$40 postpaid.

The book is dedicated to Professor Warwick E. Kerr on the occasion of his 70th birthday, which was celebrated with a symposium in Brazil this past September. Many of the theses cited were done under his direction. □

References:

Soares, A. E. E. and D. De Jong. *Brazilian Bee Research*. Sociedade Brasileira de Genetica, Ribeirao Preto. 680 pages. 1992.

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? DO YOU KNOW ?

Spotting Problems

CLARENCE H. COLLISON

In recent years the beekeeper has had to spend a lot of time and money in dealing with several bee diseases and pests. These additional efforts were necessary because of the devastating losses associated with varroa and tracheal mites, along with a reduction of bee inspection programs in several states. Being able to recognize early disease symptoms and take appropriate action is extremely critical to the success of the beekeeper. Several drugs and chemicals are typically used in honey bee colonies in the fall and spring to control these diseases and pests. Treatments are normally made when honey supers are not on the colonies to avoid the possibility of getting residues in honey intended for human consumption. Please take a few minutes and answer the following questions to determine how well you understand the primary characteristics and recommended treatments for the various diseases and pests.

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

1. ___ It is a violation of Federal law to use drugs and pesticides in a manner inconsistent with their labels.
2. ___ Adult bee diseases are generally much easier to recognize than brood diseases during colony examination.
3. ___ Africanized honey bees are considered to be more resistant to American and European foulbrood than the European strains.
4. ___ Menthol is approved for use against tracheal mites in hives when there is not a surplus honey flow and daytime temperatures are expected to reach at least 60° F.
5. ___ Terramycin is effective in destroying both the spores and vegetative stage of *Bacillus larvae*, the causative agent for American foulbrood.
6. ___ Weak colonies are more susceptible to wax moth attack than strong colonies.
7. ___ The vegetative stage of *Bacillus larvae* is the infective stage of American foulbrood.
8. ___ European foulbrood scales adhere tightly to the cell wall.
9. ___ Bee diseases have no physiological effect on people from handling bees and equipment or eating honey or comb from an infected colony.

Multiple Choice Questions (1 point each)

10. ___ Menthol packets should be removed from colonies ___ to ___ weeks after the initial treatment.
A) 1 to 2
B) 2 to 4
C) 10 to 12
D) 14 to 16
E) 6 to 8
11. ___ Remove all menthol packets from the hives at least ___ weeks before the beginning of surplus honey flow to prevent contamination of marketable honey.
A) 6
B) 4
C) 2
D) 5
E) 3

12. Why is fall an ideal time to treat for both tracheal and varroa mites? (2 points)

13. The eastern honey bee, *Apis cerana* is the original host of the parasitic mite, *Varroa jacobsoni* and does not suffer seriously from it. Studies have shown that *Apis cerana* exhibits at least two resistance (tolerance) mechanisms that help to keep mite populations in balance. Please describe these two mechanisms. (Question is worth 2 points).

Please match the following disease symptoms with the correct disease.

A. Chalkbrood B. Sacbrood C. European Foulbrood
D. American Foulbrood E. Nosema Disease F. Acarine Disease G. Septicemia H. Amoeba Disease I. Varroatosis (Varroa Mites)

14. ___ Common adult symptoms are disjointed wings, distended abdomens, and swollen whitish appearance of the midgut.

15. ___ Larvae die at about four days of age while still in the coiled stage in uncapped cells.

16. ___ Dead brood undergoes gradual, uneven color changes.

17. ___ Death occurs during the prepupal/pupal stage after the cell is capped.

18. ___ After death the consistency of the body gradually thickens as it dries to the scale condition. When using a toothpick to remove a dead larva, the skin ruptures easily and the gluey matter sticks to the toothpick. When the toothpick is pulled out from the decaying larva, the sticky matter is drawn out like a thread.

19. ___ The larva dies with the head end in an upright position.

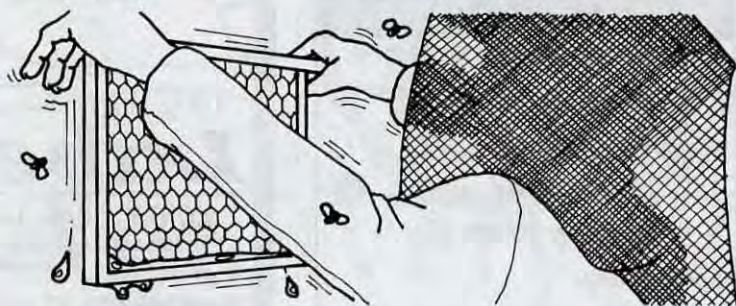
20. ___ Dead larvae dry up to form a solid mummified mass.

21. ___ Can result in deformed adult bees.

22. Name two bee diseases other than American foulbrood that produce spores. (2 points).

Answers on Page 683

N · E · C · T · A · R



ence of micro organisms like molds, yeasts and bacteria which cannot be seen except under a microscope? Finally there continue to be questions about pollen storage and loss of nutrients. These and other concerns must be realistically addressed before producing pollen becomes the panacea many purport it to be.

The boom in pollen is also responsible for increased interest in collection technology. All pollen traps work similarly. They force the honey bee to enter the colony making it pass through a grid or hole that scrapes off the insect's pollen load. ◊

The pollen-producing business it seems has never been so full of promise. Whether this is a boon or bane to beekeepers is not clear. There are many questions being asked about pollen and few answers.

Perhaps the most prominent pollen promoter over the last few years is former President Ronald Reagan. His occasional praise, plus the reputations of pollen-powered athletes like Lasse Viren, Olympic winner of both five and ten thousand meter races, have helped fuel the boom. Practically every health

Questions remain about mammalian digestibility of pollen which is primarily an insect food. Whether ingesting bee-collected pollen confers immunity from or incites allergic reactions depends on a great many variables, and anecdotal evidence exists for both scenarios. The consumption of a tablespoon of pollen each day cannot hope to provide any nutrients in bulk. Finally, studies indicate that some pollens are nutritionally more adequate than others when fed to honey bees. A balanced diet of mixed pollen is always recommended

POLLEN

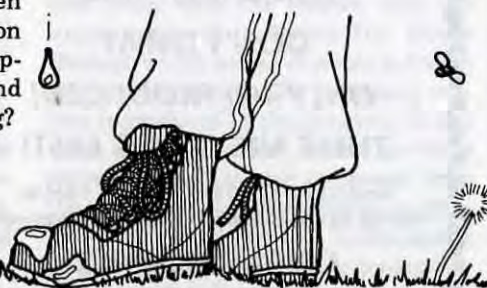
DR. TOM SANFORD

food store has an astonishing array of pollen for sale, from plastic bags full of gold, red and purple bee-collected pellets to that manufactured into tablets and capsules. Much of this is from Europe which has a tradition of pollen marketing, fueled by the population's consumption of the product in a long list of folk remedies.

Increased consumer interest in pollen has excited many beekeepers about this "new" cash crop. Enthusiasm, however, must be tempered with facts, however, to develop realistic goals. Given the scientific information that exists on the value of pollen for human consumption, can the beekeeper objectively and ethically promote it as a food or drug?

for bees. This is probably also true for humans. The plant source of pollen being marketed is usually not provided on the label of most products sold and may vary greatly over time.

Perhaps the biggest problem with bee-collected pollen is lack of standards. Can the would-be pollen marketer promise a quality product free from extraneous materials which themselves might be allergenic, such as bee hairs and small flower parts? What about the pres-



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by
Lynn Royce
and
B.A. Stringer

UP Close And (very) Personal

Honey bee mouthparts consist of a complex array of individual pieces. Food intake involves the use of "jaws" for chewing of solid material (the mandibles) and the proboscis (made up of the maxillae and the labium) for fluid uptake. Other manipulating structures called lobes and palps are also used in food uptake. Using the combined actions of the many mouthparts, solids may be chewed, liquids may be sipped, and food particles may be transferred from one part of the mouth to another.

Some important glands of the head secrete to the mouthparts. The salivary gland, a large, lumpy, lubricating gland, has an opening at the base of the tongue. The hypopharyngeal gland, source of royal jelly, opens on a plate below the pharynx (hypopharyngeal = "below the pharynx") where secretions accumulate at the base of the labium. The mandibular glands, source of queen substance in queens, vary in size from very small in drones up to very large in queens. These glands function in digestion as well as pheromone production and open at the base of the mandible, where the secretion runs into the mandibular grooves.

The paired mandibles are shaped like dog bones, with a spoonlike distal end. Inside the "bowl" of each "spoon" are ridges lined with hairs. The mandibular glands secrete into one of the grooves on the surface of the bowl. The powerful mandibles are used for manipulation of building materials, chewing pollen for food, grooming, removal of material from the hive, and for grasping an opponent while fighting. In addition, they are used as funnels when workers feed the queen and brood.

Propolis is gathered from plants and is used as a building material and sanitizing substance. Bees manipulate this sticky "gum" in their mandibles, and carry the droplets in their pollen baskets, or corbiculae. Because propolis must be pliable before bees can collect it, more is gathered on warm days than cooler days.

Use of the mandibles in grooming has a specific purpose in *Apis cerana* which are infested with *Varroa* mites. Dr. Christine Peng observed that this race of bee has a natural defense behavior of picking off and biting the mite. Other honey bee stocks do not appear to have developed this behavior, possibly because they have not been exposed to *Varroa* for as long as has *A. cerana*.

Mandibles are important in preparing wax for building comb. Wax scales, originally secreted from abdominal glands of young bees, are speared by spines on legs or feet and brought to the bee's mouth. There, the powerful mandibles "work" the wax, kneading it into pliability. The wax is then deposited on the comb where building is taking place.

The honey bee maxillae are paired and fused with the labium into one appendage. This forms the straw through which nectar or water is drawn up into the mouth. The necessary suction is produced by the pharynx. In the same way, the "straw" is used as a tube through which nectar is passed from the honey stomach reservoir to another hive bee or a holding cell. In the center of the "straw" is the hairy tongue, or glossa, with a mop-like structure, the flabellum, at its very tip. The tongue, somewhat similar in motility to an

elephant's trunk, is the main organ in fluid uptake. Pollen grains are also commonly caught on its hairy surface, then groomed off by the bee's forelegs.

All bees are not created equal where tongue length is considered. Honey bees make up 10-11 families which belong to the more advanced, long-tongued groups of bees. Shorter-tongued bees are considered to be more primitive than long-tongued bees. The ability to extract nectar from flowers is directly related to the length of the tongue, and it is thought that as flowers evolved into more complex forms, some bees developed the ability to utilize these flowers. The different races of honey bee also characteristically have different tongue lengths, ranging from 5.7 - 6.4 mm in *Apis mellifera mellifera* (the German dark bees) to 6.3 - 6.6 mm in *Apis mellifera ligustica* (Italian bees). ◻



Note the hairy eyes and the delineated facial plate (clypeus). The labrum hangs below the clypeus and the mandibles are crossed at the top of the proboscis.

ATTACK!

Of The Giant Killer Bees

BENJAMIN A. UNDERWOOD

Nothing takes the mind off a problem quite as well as a bigger problem, unless it be a solution. African(ized) honey bees (AHB), and public and media reactions to them, have been a problem in the Americas for 35 years, with no solution in sight. With the leading edge of the AHB invasion force now in the southern U.S., beekeepers in this country are faced with the imminent possibility of the passage of zoning ordinances and other legislation designed to alienate the only people who might possess the skills and inclination to deal with local "killer bee" problems. As I have no solution to offer, I hope to make my contribution to the public peace of mind about killer bees by inventing an even bigger problem.

I will relate my experiences with the Giant Killer Bees of the Himalayas and, in playing up their vicious nature, simultaneously reduce by comparison the antics of their smaller cousins, the AHB. Indeed, if the term Giant Killer Bees catches on, the initials GKB may soon strike fear in the hearts of people here just as another permutation of those same letters does elsewhere. Furthermore, we may by comparison refer to AHB as miniature killer bees (mkb), thus lessening the psychological impact and publicity value of the name. Those who doubt the worth of the name "Giant Killer Bees" might consider whether they would be reading this had it not been employed in the title.

A few astute readers may recall that in 1984 I went "in search of the world's largest honey bee" in Nepal and related my adventures in the pages of *Bee Culture* (April, 1987). The Himalayan honey bee, *Apis laboriosa*, builds its nests high on cliffs in remote mountainous regions of southern Asia. Each colony's single huge comb, which may be five feet across, is suspended beneath a protective overhang and completely enclosed by several layers of



A local honey hunter harvesting three *A. laboriosa* colonies on a cliff. Smoke has been used to move the bees off their comb.

bees. Cliffs favored as nest sites often attract multiple colonies; I have seen as many as 76 on a single cliff and have heard reports of up to several hundred. The bees themselves are twice the size of AHB; that is, the workers are about the size of *mellifera* queens.

Because of the inaccessible nature of the colonies, my experiences in 1984 were limited to long-range observations and peripheral participation in several harvests performed by local honey hunters. I did not actually meet the bees on their own turf, but I learned enough to make me want to do so.

Funded by a research grant from the National Geographic Society, I returned to Nepal in late November, 1987. With me was Dan Tillemans, Director of Cornell University's Outdoor Program and an experienced climber. I met Dan while taking two rock-climbing

courses through Cornell's Athletic Department. His assistance had been instrumental in planning and ordering the equipment for my latest enterprise.

After a week of waiting for lost luggage and buying supplies in Katmandu, we were ready for the trip to the Modi Khola river valley in western Nepal. During my 1984 study, I had learned of nearly 20 cliff sites habitually occupied by bees within the valley. I learned which of these sites were harvested by local honey hunters and which, because they could not be approached from above (honey hunters lack the technical equipment necessary to scale a cliff from below), were not. Of the latter, I was particularly interested in a large cliff known as "Dovan" In early December, Dan, five porters and I, each carrying 40-60 pounds of equipment, made the four-day trip (one day by bus and three days walking) from Katmandu to Dovan. A major trekking route into what is known as the Annapurna Sanctuary follows the west bank of the Modi Khola and is dotted with rustic hotels. One of these, about 30 minutes' hike from the Dovan cliff, served as our base of operations.

Our route to the cliff took us through dense bamboo undergrowth, across a small stream near the base of a waterfall, and up a steep slope of loose landslide rubble. From the base of the cliff, at an altitude of 8700 feet, we could see the remains of old combs some 100 feet above us. That part of the cliff normally occupied by bees consisted of three successively smaller overhangs one above the other in a triangular arrangement. The bottom tier, by far the largest, was 50 feet across and angled upwards about 20° from right to left as we faced the cliff. Since it was winter, there were no bees at that altitude, a fact we had counted on to make our job easier.

Our goal was to establish a route to the nest sites and set up a rope system

■ GLEANINGS IN BEE CULTURE

that I could use to scale the rock alone the following summer, after the bees had returned from lower altitudes. With Dan leading the way, approaching the nest sites proved relatively easy. About half way up from the base of the cliff we found a large (3' x 6') ledge, which served as a staging area for the second portion of our climb. The second climb took us to a smaller ledge, about half the dimensions of the first, at the very edge of the bottom overhang.

Dan began his traverse of what we thought was undefended cliff face, but we were soon to discover how diabolical our adversary was. Dan's job as lead climber was to move across the cliff face just beneath the overhang, placing anchors as he went. The anchors consisted of hangers on bolts driven into holes drilled in the vertical rock. Each anchor required three bolts and we would need six anchors at six to eight feet intervals across the width of the cliff. Placement of the first four anchors went well, but as Dan made a move onto what should have been a good foothold, he slipped from the rock. Had I not held the safety line, he would have landed in a heap a hundred feet below. As it was, he suffered only a few skinned knuckles and made his way back to the ledge, where he explained the bees had cleverly coated the rock with wax, making the handholds and footholds treacherous. Thus, even in the bees' absence, the cliff was defended against climbing predators such as ourselves. Not only that, but they had been fiendish enough to lay their trap near the highest point on the cliff, where a fall would leave the climber no hope of survival.

Mindful of the added danger, Dan went on to complete the anchors and to string parachute cord from each to the ledge below. I planned to use the cord to haul a climbing rope into place so I might reach any given anchor. Dan had constructed a 2' x 3' wooden observation platform that could be attached to an anchor by means of nylon webbing and carabiners. We decided to test the system by setting up the platform; everything worked to perfection.

His work completed, Dan returned to the States, while I spent the winter and spring observing the bees at lower altitudes. During the first week in June, the first colonies moved to Dovan and by the end of the month, there were eight on the cliff we had rigged. Summer in Nepal is the season of monsoon rains, which begin in mid-June and last until late September or early October.



Apis laboriosa workers on the surface of a colony on a cliff. Those with heads downward are guards and would be the first to detect and respond to any disturbance.

Truly sunny days are great rarities. The day I chose to make my first summer ascent of the Dovan cliff was typically overcast, but at least it was not raining. Najarmen Gurung, one of the proprietors of the hotel, accompanied me to the cliff.

From a distance we could see four colonies on the lower tier of the cliff; none was blocking any of the anchors. For protective equipment, we had white cotton coveralls with zip-on veils and helmets. We also had gloves, but I reasoned they would interfere with our use of carabiners, rope ascenders, etc. Having a good deal of other equipment to carry and thinking that the gloves would be useless, I decided to leave them at the hotel; that was a major mistake.

In climbing from the base of the cliff to the first ledge, I wore my coveralls, but kept the veil in my backpack, which I would haul up after me with the rope. Even before reaching the first ledge, I was attacked and stung on the head by several bees. After making my way to the ledge, I quickly brought the pack up and donned my veil. I warned Najarmen, who was to follow, to protect himself before ascending. The two largest colonies on the bottom tier were about equidistant on either side of one

anchor; I decided to use that anchor for the attachment of the observation platform. I pulled the climbing rope into place, making sure it was secure before beginning my slow ascent.

The bees quickly found my unprotected hands and began to sting me mercilessly. By the time I had gotten to within 10 or 12 feet of the anchor, I had received well over 50 stings in my hands and the attack was increasing in ferocity. The air was so thick with angry bees I was unable to tell how many colonies had joined the battle, but I could see I was being attacked by representatives of at least the two colonies on either side of the rope. Think of it! Not only are GKB of huge size, but colonies cooperate in their attacks on humans. Such a level of almost military sophistication is not even approached by the mkb, which, by nesting (in most cases) singly, can muster only a few thousand workers to an attack. By contrast, an aggregation of 50 colonies of GKB has the potential to send out hundreds of thousands of attackers.

Because of the fury of the attack and a fear my hands would swell to the point of uselessness, thus preventing my escape, I aborted that first attempt to ascend the cliff. A second attempt a

Continued on Next Page
665

few days later was more successful. Again the weather was overcast and Najarman and I were the objects of a furious assault from representatives of multiple colonies, but this time we wore our gloves and withstood the attack.

Later in the summer, when weather conditions were improved, I made a number of ascents, both alone and in the company of Najarman's brother, Shankarman. During these later excursions, the bees were more docile and I naively concluded their dispositions were merely reflections of the prevailing weather pattern. I was amazed to learn (from several local informants) the real reason for the bees' improved behavior was the absence of Najarman. It seems that Najarman's wife was pregnant and that GKB are particularly enraged by pregnant women and members of their immediate families. Neither Shankarman nor I were personally involved in any impending births; thus, we were not natural targets for the bees' wrath. From a long-term strategic standpoint, this makes perfectly good sense; what better way to overcome an adversary than by attacking reproductive members of the population?

Amazing as it is, even that strategy does not exhaust the arsenal of the GKB. If all else fails and predators (such as honey hunters) manage to drive the colony from its comb, still another trap remains. Many a honey hunter, rejoicing over his success and eager to taste his prize, has fallen victim to that trap. Nectar collected from some high-altitude plants is processed by the bees

into a honey poisonous to humans. Consumption of such honey may cause headaches, nausea, loss of muscle coordination, tunnel vision, or even temporary blindness. For someone scaling a cliff or negotiating a narrow mountain trail, such effects could easily prove fatal.

One of my objectives was to collect a sample of toxic honey, have it analyzed, and perhaps determine the flowers responsible. Toward that end, I decided to become a honey hunter by harvesting one of the Dovan colonies. The obligatory pre-harvest ceremony called for the sacrifice of a rooster. I learned that in the nearby (five-hour walk) village of Chhomrong there were two roosters available: a small one at a modest price and a large one at a somewhat inflated price. Neither the proprietors of the hotel nor had I had any meat for three weeks, we agreed the blood of the larger bird would probably protect us from the wrath of GKB somewhat better than that of the smaller one. In retrospect, there can be no doubt this was so. The harvest was completed in unprecedented fashion; not one of us was stung during the entire two-hour operation. Lest the reader consider this an indication that the GKB are really docile creatures, I must emphasize the success of our mission was entirely attributable to the care with which we performed the pre-harvest ceremony, which in any case works on Tuesdays and Saturdays only. Even if average citizens could ward off GKB attacks by carrying around live roosters to be sacrificed at the critical moment, it is doubtful that many would do so.

Having secured our prize of several

pounds of honey, my companions and I returned. I asked how much toxic honey one would have to consume in order to feel the effects and was told a single spoonful might put me on my back for an entire day. Not wishing to send honey back to the U.S. for analysis if it was non-toxic, I decided to perform a taste test. The next morning I put five spoonfuls of the honey on my morning pancakes and ate them as my friends stood by with questioning looks. To my dismay, the honey proved to be entirely harmless; the bees had been too clever. Knowing I might probe their secrets, they had collected only non-toxic nectars. But it was too late for me to attempt to obtain another sample; we were fresh out of roosters.

The above descriptions of the habits of the GKB might be termed "anecdotal observations". While perhaps sufficient to arouse the interests of the press and general populace and to get the GKB publicity campaign rolling, there will always be a large contingent of the scientific community insistent upon seeing quantitative data to support allegations about the stinging propensity of the bees. Without such data, some members of that community will contend the GKB are not as aggressive as they are made out to be. This might slow the campaign to replace the mkb with the GKB in the minds of the public.

What we really need is a carefully constructed quantitative test designed to measure the aggressiveness of the GKB. Such a test, involving swinging a small leather ball in front of a colony, has been used to quantify the defensive behavior of both European honey bees and AHB. For the GKB, however, the test must be modified somewhat. After all, swinging a tiny ball in front of a 20-colony aggregation of the largest honey bees on earth might not elicit a response; the bees might consider the ball to be no threat at all and not even bother with it. For the GKB test I propose attaching a tourist (preferably one of those Californians who insists on traveling with several porters carrying his coffee and bottles of wine) dressed in black felt to a climbing rope and swinging him in front of the colonies. Observers could record the behavior of the bees and each test would be terminated after a predetermined length of time or when the rope went slack, whichever came first. Each replicate of the test would require a new tourist, but that should not be a problem; California has a large and deserving population. ☺



Part of an aggregation of *A. laboriosa* colonies on a cliff (viewed from below).

The ULTIMATE POLLEN TRAP

Twenty four years ago, during the winter I had built a pollen trap and I was excited to try it. It would be my first attempt and my first mistake at pollen collection. I put traps on that June – traps that made a mess of my bees, ruined my honey production, and collected very little pollen. But I made that mistake on only a few hives.

Much interest has been generated these past years about pollen collection and pollen traps. Unfortunately, there are many, many, horrible pollen traps out there that cost a bunch, do very little, and hurt your bees and production.

In 1967 I started research on pollen traps. I wrote all over the world for suggestions and pollen trap plans. I got plans from Germany and England. I even tried to get plans out of Commu-

nist Romania and Poland. The traps from the U.S. were some of the most bizarre looking things. However, it was not until the OAC trap was developed by the Canadian Ministry of Agriculture that I saw a glimmer of hope.

Although the OAC trap from Canada was too small and weak its method of collecting pollen was right on the money. I could tell from all my past mistakes.

The biggest fiasco was the plan sent from the USDA. It was this trap that gave pollen collection a bad reputation. It seems a researcher with only two years of research published his findings and made broad statements about pollen collection drawing on his limited experience with this Horrible Trap. This poor piece of research has been quoted one way or another over and over again since.

Statements heard about the Horrible Trap were that it adversely affected honey production, which it did. My research on the use of that trap also indicated it badly upset the balance of the hive, caused the death of queens because, as always, the queen is blamed when poor brood production takes place. It did not allow for drones to get out, nor queens to get out and mate. It collected 100% of the pollen and did not give space for the bees to enter and leave the hive. In short, it was a disaster. Of all the traps tried it was the worst, even though it was the one that was being handed out to poor, trusting beekeepers. Unfortunately, the broad use of this trap, which only would last one

season, gave pollen collection a black eye that it has not yet recovered from.

So it was that after years of trials I developed a trap that worked and did not harm the hive. My initial research even showed that it actually helped stimulate more collecting activity. But no one believed me back in 1975.

I contacted a woven products company and made my first 100 traps. The wire back then cost \$300 a roll with a minimum of two rolls to be ordered. I tried to share this information through writing but no one was listening.

The use of this pollen trap on 100 hives, then 200 hives, and finally 600 hives seemed to come in direct conflict with the findings of university research people using the Horrible Trap, with its stainless steel round holes the poor bees have to force their bodies through to get in their hive. Often it would rip off legs along with the pollen.

My trap did not slow bee traffic at all. It allowed pollen into the hive and it let the drones escape at will. Queens could even fly and return to the hives with traps in use. It did not reduce honey production, as I was actually making more honey because I was a better beekeeper. I was also convinced that the trap was stimulating more workers to make more collection trips. I was making 10-15 lbs. of pollen per hive per year. My bees were never stronger in the spring. All that I experienced flew in the face of the university research of the Horrible Trap.

My simple theory was this: the trap did not collect 100% of the pollen. It did

O.B. WISER





Free Flight Model. Notch in back is all that's needed.

not demoralize the colony. Instead, it stimulated them to send more collectors to the field. Why?

Bee behavior is the answer once again. Brood production stimulates pollen collection. A "message" goes out that 5,000 loads of pollen are needed, so 5,000 bees are dispatched to the nectar and pollen sources. Honey and pollen go hand in hand – the brood needs both.

With a pollen trap, 5,000 go out just fine; but only 2,000 loads make it to the nurseries. The bees simply dispatch more collectors until the 5,000 loads are delivered to the brood nest, effectively putting more bees in the field. Because all the pollen is not collected, the hive does not give up. It just WORKS Harder to meet the needs of the brood.

That is what years of pollen collecting using my pollen traps has taught me. I took 191 lbs. of honey off hives in 1992 that have been sitting on pollen traps for over 10 years. I never take them off – winter or summer.

As is my nature, I wanted to share my many years of research and development. But bad news in the bee industry dies hard. The desire I had to share my pollen trap was simply cost prohibitive because one has to buy such a large amount of very expensive hardware cloth.

In my research, my path crossed that of the owner of CC Pollen. Because of his dynamic desire to tell people about pollen and its wonderful qualities, he shared with me a book by Marjorie McCormic, *The Golden Pollen* and several others, mostly from European sources. I could see that CC Pollen was effectively trying to get the message out about pollen. Their company was sound and would be around for years to come.

I decided to share my research on pollen traps with this company in the hopes that they would follow the basic concept of my design and make it affordable to the average beekeeper. I believe CC Pollen has continued to follow my basic design and offers traps that work for reasonable prices. Changes have been made, but the basic design has remained.

Since that time companies have sprung up all over, offering some of the most horrible trap monstrosities at unrealistic prices that do not work. Needless to say, pollen collecting has gotten a black eye from all of this.

CC Pollen has bought all of my pollen for over a decade and has been fair and paid promptly. They have high standards and I have produced a quality product. They bought my pollen even when the Spanish and other foreign

suppliers smashed the prices in the U.S. and flooded the market. They are involved in product development and research so they continue to put pollen-containing products on the shelves for the customer to buy. All this is required to maintain a viable, economic footing for pollen production in this country.

My experience has shown the bottom trap, with a small 3/8" x 1/2" opening that's open all the time, to go around the trap, is the best. I only plug this entrance once or twice to train the bees to the trap. Then it allows bees to enter and exit at will. The double, large pollen collection screen is most important. The strong, sturdy 3/4 depth sized pollen trap is durable. It has only one moving part – the pollen drawer. It is made simply and it works. My pollen collection each year equals or far surpasses my income from honey. On that bad year when little honey is produced, I still make a good crop of pollen. It does not harm honey production when used properly, but that is the topic of another article.

I believe I have been collecting large amounts of pollen longer than most other beekeepers and I have made tons of mistakes in the process. I learned from them and have built the Ultimate Pollen Trap. ☺

The Ultimate Pollen Trap



KING OF THE HILL

A Candid Conversation With Richard Adee

KIM FLOTTUM

Richard Adee rules a beekeeping empire that covers the best parts of six states, operates over 45,000 colonies, produces four million pounds of honey each year and keeps 35 people full time busy. And though few colonies sit in the shadow of anything resembling a hill, this kingdom is no doubt the biggest there is.

A beekeeping background and strong family support built the operation's foundation, but early ambition, hard work and luck, both good and bad built the rest.

The final portion of this trilogy considers the history, philosophy and even a hint of the future – of Richard Adee, and Adee Honey Farms.

In 1957 Richard Adee was 21 and attending college in Northpark, IL, a suburb of Chicago. He saw a magazine advertisement for a beekeeping operation in Bruce, South Dakota, with an overwintering spot in Woodville, Mississippi. Sixteen hundred colonies came with the outfit, and with the 300 he already owned back home, he felt com-

bined they would make a business. So he made his move.

Back home was Nebraska where he had grown up and father Vernon and four uncles had started keeping bees years earlier. Teachers for the most part, this first generation started with bees to supplement the meager salaries of the time. As a group they solved many problems and perfected techniques still used. Richard came from a family that respected education, hard work and a good sense of business.

Shortly after taking over the business and moving to Bruce, he married Alice, his high school sweetheart. And he continued to acquire more colonies. About then he and a brother jointly purchased another 1,000 colonies, but tragedy struck – a truck accident took his brother's life, and left Richard with serious injuries.

He spent that entire summer doing exercises to gain back the use of his badly injured leg. During work days he stayed in the shade under a truck giving directions to anyone who would help at each beeyard. But the added load of a 1,000 colonies was too much, and his

father took over 500 to make it work until Richard was back at full throttle.

In 1963 Adee Honey Farms bought an existing operation in Nebraska near Cedar Rapids. Three years later they started another "branch office" in Kansas, and 10 years later another in the western part of the state. Most recently they took on another operation in Minnesota, with colonies in North Dakota.

Steady growth has given the business two advantages – the ability to expand rapidly to accommodate boom markets, and enough depth to cushion industry slow-downs.

Growth and success (no matter how measured) seldom occur at random. Certainly luck plays a role, but skills, experience and common sense are important, too. "To make honey, you have to know bees", Richard says, "and everything we do, we do to make honey." It follows that something of bees is known, and managed, for profit.

Continued on Next Page

Good management decisions draw on the combination of past experiences applied to present information. In no order of importance or seasonal schedule we've gathered pieces of the business picked up, by chance and design, while spending time walking, riding and talking with Richard

- Keeping weeds down in front of colonies is a problem because colonies are moved in and out of a yard each year. But the weeds are almost exclusively grasses, not broadleaves. A handful of herbicide called Ureabor, spread in front and sides of a colony in the spring keeps weeds at bay for the season. It's cheap, legal and easy.
- Consistency and predictability are important when scheduling colony management. One way to 'standardize' the operation is to make sure every colony has a queen from the same source. To do this, every colony brought north has a new queen installed when just split. Queens are purchased each year from Hybri-Bee, Inc., from Florida. Richard, along with a dozen or so others co-own the operation, but they pay a royalty fee for every queen produced. The consistency and predictability gained far outweigh the cost.
- When making splits, the strongest part of the split is moved to another yard, while the weaker of the two stays behind to collect the field bees. Splits are made during the day specifically for this purpose. When these are again split, the same procedure is used – remaining field bees are used to reinforce the weakest half. Field bees are used three times thus, earning their keep and helping the process.
- Colonies overwintered in Kansas and Nebraska are wrapped in twos in black cardboard covers. They use a special cedar shake cover with a half inch rim complete with notch used for an upper entrance. Adees anticipate and plan for a 15% or less loss each winter. More, and something is wrong and needs to be corrected.
- On buying equipment: When plan-

“To make honey you have to know bees, and everything we do, we do to make honey.”

Richard Adees

ning to expand there are several factors to remember – Don't buy equipment until the very last minute, but that moment must be carefully measured. In an area with a strong honey flow in progress, supers will be in demand, and expensive.

Conventional wisdom says don't buy used supers until there's honey in the field, but if you wait too long any available equipment may already be gone. During good years the difference between too soon and too late may be as little as a half day. The advantage of having an experienced crew making daily crop potential assessments in several areas is obvious.

- There is a 'home grown' philosophy when it comes to employees which works to the advantage of the company at several levels.

Generally, but certainly not always, Adees seek employees that live in the area. This practice is successful because people who live there tend to stay in the area, and stay working for the company.

Most employees start without a strong background in beekeeping, meaning they learn techniques specific to the

operation. This avoids retraining – they 'start right' as Richard puts it.

High school students usually start by working summers, often repairing equipment or helping around the warehouse. After a time they 'graduate' to yard work, paired with a more experienced staff member. Several have started that way, and stayed on after high school. Others have worked part time summers and vacations during college and become full time afterwards.

High school students start at minimum wage, but longer term employees must be compensated to meet outside competition. But the comparatively low cost of living of the areas Adees work in means wages certainly don't compete with Wall Street bankers, though they do reflect surrounding standards in other agricultural businesses. Like most agricultural jobs those who work in the field are salaried while most who work at headquarters are hourly.

The operation is designed to keep the number of colonies each yard person works at about 1500. But adding support staff the number drops to about 1250 per employee. When adding or dropping colonies the formula is easy to follow.



Richard Adees today

From an agricultural business standpoint, the company is about average in benefits offered. They pay half the group health insurance premium, allow five personal leave days and two weeks paid vacation, plus major holidays off each year. This totals roughly a month paid leave per year.

Bruce, South Dakota is Richard Adee's home, and although there are several other "branch offices", it is a deceptively simple looking headquarters.

The town itself has only about 350 people, a couple gas stations, bank, grocery store and a couple watering holes. The feed mill sits on the edge of town along with the only restaurant. It is a small town.

The greatest activity of the day occurs at 7:00 a.m., when the already



Richard Adee in 1973

ASCS contacts, honey sales, American Honey Producer info (Richard is President, but more later), the phone and the rest.

But it's on Richard's desk the line between running a beekeeping busi-

It's on Richard's desk the line between running a beekeeping business and steering the political machine of the AHPA becomes blurred.

loaded crew trucks pull up in front of the main office to get instructions for the day.

The Bruce office is only one of four buildings the Adees use, which include the two Quonset hut storage buildings and the honey house facility. They also own a couple of older stores used for storage.

The office includes a workshop area where vehicles are maintained, equipment assembled, repaired and painted, a break room and business office.

- The nerve center of this operation is a practical, simply furnished office. Awards and photos, honey, and a copper smoker are the only decorations. Karola Bortnam, the secretary (and so much more) shares the space with Richard, and keeps it all together - yard data, payroll, mail,

ness and steering the political machine of the American Honey Producers blurs to the untrained eye. However, getting to this point requires some explanation.

After starting business Richard joined the American Beekeeping Fed-

eration and was a member for about 10 years. He was on the group's Executive board when the American Honey Producers was formed and the two organizations divided. Since that time he has served on the AHPA Executive board, as Vice President and now President.

Although the Federation and the AHPA often have the same goals, just as often they try to attain them separately. But there are also basic differences in philosophy. The distinction between beekeeper and politician becomes even more blurred when Richard says that 'what's good for Adees Honey Farms is good for the industry' To that end the AHPA has lobbied extensively in D.C. for what they believe is best for American honey producers.

In conjunction with industry organizations, by themselves, or even in direct opposition to other groups the AHPA has worked in several areas of beekeeping research and politics, including -

- Maintaining the funding for USDA ARS Bee Labs, which includes the new Weslaco lab, using Washington contacts; targeting for a new winter lab in Minnesota and changing the focus of the lab in Baton Rouge.
- The disaster relief beekeepers received from the recent drought was also a project pursued by the AHPA, with the help of others in the industry and the USDA.

Nevertheless, there remain real concerns. Specifically, the amount of applied research being turned out by the USDA scientists. "There's some helping honey producers", Adees says, "but there sure could be a lot more, considering the resources they have, even with



Vernon Adees,
Richard's father
in 1985.

Continued on Next Page

the recent budget cuts.

- Reducing or eliminating tariffs in all countries is another AHPA (among others) goal. If the European Community lowers their tariffs on honey they would absorb much of the imports coming into the U.S.
- Richard has spent a good deal of time in Washington, D.C. lobbying for support of the programs he, and the AHPA feel are important. Between 1987 and this year Adee spent 26 weeks walking the halls.

"We have good support in D.C.," he said, "evidenced by the nearly 60% vote defeating the recent Brown Amendment to kill the honey program. Congressional support is strong to keep the bill as it is," he said.

But the 1995 Farm Bill looms, and that will be different.

"Keeping the buy back in the mid-forties, (while getting the price up to near sixty cents) is our goal," Adee said, "but keeping it 'status quo' will be difficult, if not impossible for producers," he added.

"Producers absolutely *MUST* increase profits or there won't be many producers left. We can't compete with low foreign labor costs without some type of program in place."

The beekeeping skills, the political maneuvers and the tightly operated business all focus on one end product – honey in the barrel. But the next step, of course is to sell the honey – generating

"We're good at what we do, and we'd like to keep doing it. But we also know that may not be possible."

Richard Adee

the income needed to fuel the machine.

The Adees will sell two barrels or two truck loads to a customer – no amount is too small, or too large.

Richard does most of the work of contacting potential customers (packers), but packers also make many initial contacts.

Although about 90% of their honey is sold without contract, there are some guidelines they follow. If they already know, or know of the packer's reputation, sales are usually made with payment due in 30 days (or less) after delivery.

For packers unknown, cash up front (even before delivery) is required. But generally the feeling is that if a packer isn't reputable enough to wait 30 days for payment – why bother with them at all! These basic rules have been learned the hard way over the years.

But selling bulk seems to have limits, and thoughts of packing their own products have surfaced recently. Adees do some now in their Kansas operation, but only small amounts and only in five pound jars.

"We've considered expanding that operation," Richard said, "or moving to

a different location – one with a higher population density – like out east somewhere," he said.

For now these plans are on hold, but they sit on the edge of possibility. With their production capacity and knowledge of the industry they could be a contender.

"The National Honey Board has done much to increase the demand for honey in this country," Adee says, "but producers still haven't seen any advantage to paying for the program. By eliminating the middle man we could take advantage of the increased prices on store shelves instead of somebody else. It's something we're thinking about," he mused.

Another thought that surfaced was that belonging to Sioux Honey Association would be to the advantage of the company. They've not pursued the idea with rigor, yet, but that is an option they feel worth investigating.

What's in the future for Richard Adee, and Adee Honey Farms?

"We'd prefer staying in the production business," Richard says, "We're good at what we do, and we'd like to keep doing it. But we also know that may not be possible, so our options have been explored. At least most of them.

"Personally, I'd like to step down as President of the AHPA and let somebody else take over. But I still want to stay involved.

"But with this new administration, new congress and the upcoming farm bill, well, we'll just wait and see," Richard added, with only the hint of his usually large and friendly smile. ◻

*"Producers absolutely **MUST** increase profits, or there won't be many producers left!"*

Richard Adee

ABOUT BOOKS

RICHARD E. BONNEY

There's much to read about bees, in books.

A lot of information gets thrown at you when you first take up beekeeping. Some has meaning, some doesn't. One bit that caught my ear way back then was the statement that there have been more books written about bees (and beekeeping?) than about any other animal. It didn't seem important at the time. I was too busy reading and learning. Actually, I probably did think about it. I probably thought that there weren't more than three or four books that really mattered and once I had read them I would have beekeeping pretty well covered. You remember that feeling, don't you?

Over the years, though, as the number of bee books I owned began adding up, I kept hearing or reading that same statement. Intriguing. What about some of the other animals — dogs and cats, for instance — and the volumes that have been written about each of them. Assuming the statement to be true, I guess that at least part of the reason for the profusion of bee books is that bees have been kept for so long and were an object of speculation and study almost from the beginning. They were mysterious and hard to know. Cats and dogs were a bit more obvious and understandable. They were right out there in the open and could be observed intimately. Further, in earlier times they were not kept as pets to the same degree they are today so there was not the same type of interest in them as there is now.

Anyhow, I didn't know the validity of the statement about numbers of bee books when I first heard it and I don't know now. I keep hearing it and reading it, though. But even if it's not true, there are still a lot of bee books out there. They number at least in the hundreds, perhaps in the thousands. I have no idea. One catalog I have shows ap-

proximately two hundred titles currently or very recently in print and still available, and another sixty or so in the old, rare, and used category. We know there are lots more. Among my own bee books are at least 28 titles not found on either list and I don't have an exceptionally large collection. That's almost three hundred right there.

Okay, so there are a lot of bee books kicking around. What startled me recently, though, was to suddenly realize how many non-bee books have found their way into my beekeeping library. Most of them have to do with other insects or flowers. Books about other kinds of bees and related species, books about plant materials, about agriculture in general. It is perhaps understandable why a book (actually several books) about bumble bees would be on my bee book shelves, but what about some of the others? They are there because I find myself needing the information in them as part of my beekeeping activities, or because they answer questions that are not covered directly in bee books. One way or another, they are books that contribute to better beekeeping. And that brings us to what I started to talk about here — other books for beekeepers. Some times it takes me a while to come to grips with things.

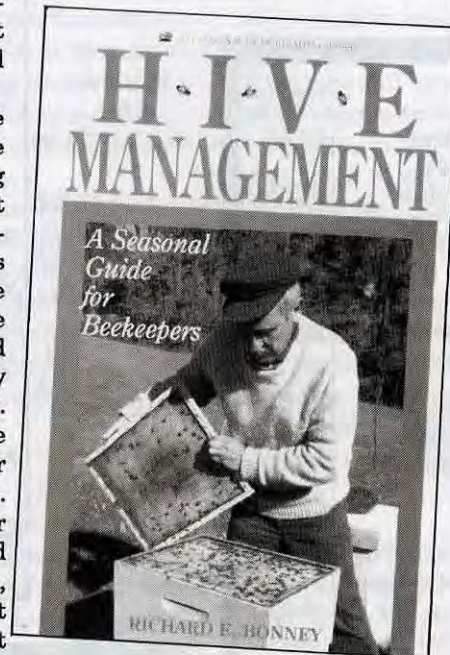
Actually, I need to diverge again. I

have a favorite complaint. It's about the school of beekeeping that believes everything can be done by rote. On this date you do this, on that date you do that, when this happens, you do this. We could get into a long discussion about this but, basically, I think that

effective beekeeping is what I will call intuitive. This intuition, however, derives from an understanding of bees. Before you can understand beekeeping, you must understand the bees. To understand bees, it is helpful to realize that they are insects. A facetious statement in a way, but, some beekeepers don't seem to realize this.

Accepting that bees are insects, then how are they different from other insects? In one sense, they aren't.

Anything a bee can do, some other insect can do, too. Not better, necessarily, but sometimes as well. Consider some of the things that distinguish bees — nectar gathering, pollen collection, stinging, wax secretion, colonial life. Other insects do or have all of these things. The difference is the way that honey bees bring the particular set of activities or capabilities together. The bumblebee also forages for nectar and pollen, secretes wax and builds comb of a sort, stings, and has a colonial life. What's the difference then? A simple answer (admittedly incomplete) is that their colonial life is different. Bumble-



bees don't over winter. Whether they don't over winter because their colonial life is different, or their colonial life is different because they don't over winter is something to ponder. Not here though. That's something for you to work on.

Which gets us closer to where I was headed when I started out — some specific books for your consideration. First, I will assume you have read *The World of the Honeybee* by Colin G. Butler, *The Biology of the Honey Bee* by Mark Winston, and *Honeybee Ecology* by Thomas D. Seeley. If you haven't, they are a logical starting place. Butler is out-of-print, but copies are to be found, either in the library or through used book sources. Some of the information is dated but the book is still worth reading. All three books are by bee scientists, well presented, and highly informative.

Going beyond honey bees, have you read *Bumblebee Economics* by Bernd Heinrich? Heinrich is not a beekeeper, per se, but did keep bees for observation. He is a physiological ecologist. The book's jacket refers to it as "a brilliant introduction to insect and plant ecology... a coherent biological model that goes beyond any particular species or level of biological organization." I concur. I think it's great. Without question, this book is not going to tell you how to keep honey bees, but it does have the potential to widen your horizons, to help make you a better beekeeper. For instance, it is one thing to know that occasionally honey bees collect pollen from different plant species on the same foraging trip. This is seen differently when Heinrich points out that honey bees do this with no more than 2% of their pollen loads, but bumblebees do it with 50% or more of their loads. This little bit of information, while perhaps not fascinating, is certainly interesting and can lead you in several directions.

Using a different approach, Heinrich has written another book, *In a Patch of Fireweed*. This one is somewhat autobiographical, and in it he discusses the natural links between his life and a life in science. In doing this he brings in specifics of a number of insects, including honey bees, bumblebees, yellow jackets and other wasps. It is very enjoyable reading, aside from the information it imparts.

Before we get away from the bees, let's explore them a little more comprehensively. *The Social Behavior of the Bees* by Charles D. Michener acknowledges the entire family of bees, all 20,000

WHERE THE BOOKS ARE

An often asked question when beekeeping books are discussed is - where can I get them? An obvious answer is - the public library. I have discussed this with a number of beekeepers and there seems to be a prevalent belief that libraries don't have books about bees. This often stems from an assumption that bees aren't of interest to many people so the libraries don't bother. Sometimes it comes from looking in the wrong place. My own experience is that most libraries have something, and further, you sometimes must search a little. Although there are guidelines for cataloging books, there is room for interpretation, and in the past some librarians have interpreted liberally.

The size of the library is a factor, too. In any category of books you can reasonably expect that the smaller the library, the smaller the number of titles in a given subject. So, if you don't find what you want, you could go to a larger library. That is not always easy. But an alternative, if you know the title and author of a specific book, is to ask the librarian to borrow a copy from another library. Inter-library loans are routine and usually quick.

If you are in a library of reasonable size though, do be aware that there is a difference between bee books and beekeeping books. They are cataloged differently under the Dewey decimal system (and the Library of Congress system) and they are kept in different places on the shelves. By bee book I mean something like *The Biology of the Honey Bee*, or, *Honeybee*

Ecology. These books tell you about bees as animals. There is nothing in them to tell you how to keep bees. Beekeeping books, on the other hand, do tell you how — titles like *Hive Management* or *The ABC and XYZ of Bee Culture*.

Of course, if you are looking in the card catalog, you will normally discover this distinction as you work your way through the individual book cards. Bee books will have Dewey decimal numbers starting with 595. Beekeeping books start with 638.

Given this information, and a library, one way to explore that library's holdings is to bypass the catalog and go directly to the shelves. Try the 595's and see what you come up with, then try the 638's. But don't stop there. Move up and down the numbers a little. There's no telling what you may find. Nearby books may be related creatures, related topics, or related activities. Books on wasps for instance will normally be right next to those on bees. They are both insects and the base number 595 includes insects.

If you are in a library that uses the Library of Congress cataloging system instead of Dewey decimal, the same principle holds. Only the numbers are different. Bee books usually start with QL568, beekeeping books at SF523 but again, look to either side of these numbers on the shelves. There is no telling what you may find. ◊

species found worldwide, and then concentrates on the social bees. Comparisons of the social development and lives of the many different species help to put honey bees into context. Among other things, we can see how much like other bees the honey bee is, while at the same time, we gain an appreciation for the differences.

Wasps, of course, are very closely related to bees, so closely that the general public makes little or no distinction between them. You probably receive many questions — from friends, acquaintances, relatives — about "bees" that turn out to be wasps, hornets, yel-

low jackets and who knows what else. You almost certainly have been asked to identify, sight unseen, some insect that was "you know, black or brown, kind of big, and it was buzzing around the back door", or some similar vague description. Considering that there are hundreds of different kinds of wasps and hornets in any part of the country in addition to similar numbers of bees, you are unlikely to be able to give a good answer. But you can home in on groups of them — the mud daubers, the spider wasps, the potter wasps, the yellow jackets, for instance — and as you be-

Continued on Next Page

come more familiar with them perhaps you will want to know more. A book that is a likely starting place is *The Wasps* by Howard E. Evans and Mary Jane West Eberhard. It covers the nesting behavior of some of the solitary wasps, and the colony life of several of the social wasps. It is a good introduction. If you are interested in more detail, consider *The Social Biology of Wasps* by Kenneth G. Ross and Robert W. Matthews. This book is scientifically presented and can be slow going at times, but it has a wealth of information and can expand your knowledge of wasps immensely.

Sofar, we have been looking at insects as insects. Now let's look in a different direction with *Insects and Flowers* by Friedrich G. Barth. First the author discusses flowers and their purpose in the plant's scheme of things, and then he brings in the insects. Barth is a sensory physiologist, and his emphasis is on the insect's sensory world

as it relates to flowers and foraging. Bees are well represented in this book, but it is the diversity of insects discussed and the many ways they interact with flowers that make the book so interesting. It also helps show us that though our honey bees are unique in certain ways, or perhaps combinations of ways, at the same time they are like other insects. For instance, the color vision of bees that we marvel over is typical of many insects, not just bees.



While we are thinking of flowers and pollination, are you aware of *Plants for Beekeeping in Canada and the northern USA* by Jane Ramsay? It is a relatively new book, published in 1987, but it has not received a lot of advertising since it first appeared and it already seems to be disappearing from the scene. This is unfortunate,

since to my knowledge there is no other honey plants book currently in print. This book is different from the older books — *American Honey Plants* by Frank C. Pellett, for instance. The latter book is more chatty, more subjective,

while Ramsay is more concise and factual in its handling of specific plants. Actually, the two books are complementary. I frequently refer to both when I have a question about a particular plant. Ramsay also includes some lists to guide you if you are interested in planting. For instance, early pollen sources, attractive nectar sources, plants with potential for roadsides and banks, and a calendar of bloom.

Of course, sometimes you want to know even more about a particular plant. Then I turn to *Shrubs and Vines for American Gardens* by Donald Wyman, or *Taylor's Encyclopedia of Gardening*. For instance, Ramsay discusses the box huckleberry as a very attractive nectar source, seldom cultivated, but with ornamental value. Taylor's expands on this to say that while the fruit is worthless, the plant itself is valuable as a ground cover in shaded, peaty places.

We could go on. There are so many categories of books. Historical, for instance — Langstroth, Miller, Quinby, Alexander — knowing more about where we came from can be so helpful in understanding where we are. How about hive products? We all know a little something about pollen and propolis, but often our knowledge comes incidentally, from reading about bees. Specific books do exist, though. I have four books or booklets on propolis, five on pollen, and six on honey. We could go on and on. Let's not. Instead, you do it. Start looking at those book lists and catalogs. ☺

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J . A . R . S

L. EDWIN RYBAK

There's an odorous controversy brewing over the use of recycled containers for honey – jars once used for other food products, especially pickles, relishes or other contents with a strong odor. The argument leaves a bad taste in the mouth.

There was a time when milk came in bottles that were reused thousands of times. Literally. So should we recycle containers for honey?

Some experts say yes, others are aghast at the thought.

One thing is certain: you'll win no prizes if you put your nice, clear, sweet, pure honey into a crummy, smelly jar. Whatever jar you use must be thoroughly washed and sparkling clean.

For sale I use new honey jars, because they are standard sizes and available in quantity. But for gifts or storage of my own honey I recycle jars, including the covers.

Most of the ones I recycle are from apple sauce or – horrors! – pickles. But I defy anyone, short of a supersensitive laboratory capable of detecting one part anything in a million, to detect an unwanted odor. Or taste. We're talking about practical considerations.

Let's examine the facts.

What is glass? My dictionary gives a rather technical explanation of the composition of glass, a nearly 50-word exposition without a single comma for clarity. And this definition says nothing about the process of production.

For a simple – take my word for it – explanation, glass is made from a mixture of sands that are blended, melted and cooled to a rigid condition without crystallization. This substance, glass, can be heated or melted to mold or shape it into the form desired.

Glass is impervious. Although some substances cling to the glass they cannot penetrate it. Not even its surface. I'm not talking about executing bottles using a bullet. Even if I was, from a scientific point of view the bullet shatters the glass, destroys its brittle structure; it does not penetrate it.

Glass is so impervious that it would take a single molecule of air upward of 10,000 years to ooze its way through the wall of a common glass jar. And you think that spice or pickle odors sink into the glass and pollute it? Surprise! I'll admit, however, that some odors do cling more tenaciously than others, but I've found very few jars that can't be cleaned.

I can take nearly any jar, wash it thoroughly using a good detergent, follow with a hot rinse and it will smell as fresh and sweet as all outdoors.

If anything, it is the seal, a pliable plastic or rubber which is usually bonded to the inner surface of the cover, that is permeated by the contents' volatile odors.

But don't despair even though new replacement seals are not readily available. All is not lost.

There are, technically speaking, two ways to rid that permeable seal of the odor. Three actually. First, depending on the seal's porosity and the jar's contents, is a simple but thorough wash using clean water, detergent and a synthetic soft sponge. Some foods don't have any objectionable or significantly detectable odor, or the odor just doesn't have the volatility to penetrate the seal material. The second is an easy procedure which requires neutralizing the odor. The third combines the first two.

No! Don't grab the scouring pad and try to scrub the odor away. Some of those coatings are so thin the scouring pad will scrape the coating off and expose the metal cover to contact with the contents. Just what you don't want.

Continued on Next Page

Let me explain the basic of my system and from that point on you can apply it to your own particular situation.

Some understanding of the jar's previous contents helps determine what to use as an odor neutralizer. The chemicals among us could help.

Let's take the apple sauce jar. Apple sauce is slightly acidic but it doesn't usually penetrate the seal unless the company used a very cheap material. Not too likely for a food container that must meet rigid standards. Usually only the first step is required.

Wash the cover, let it air out thoroughly, and you've got a nice clean cover. If necessary, or if the apple sauce is one of those spicy ones, you might want to use one cycle of the second step which is explained next.

The pickle jar cover presents a slightly pungent problem, but one that is not insurmountable.

The cover should be washed with a good detergent and the aforementioned soft sponge to brush away any clinging particles or surface odors.

One of the ingredients in a jar of pickles is vinegar. Vinegar is acidic. Acid is neutralized by baking soda.

Therefore, set the cover downside up and fill it with a strong solution of a half-teaspoon of soda to a coverful of water. Let it sit for a few days, making sure the contents are kept wet, or at least moist, so chemical action can take place. Stir lightly once or twice each day. A clean fingertip will do the job.

In three or four days, rinse thoroughly and repeat. Seldom do the covers need a third treatment.

After the final treatment air them out for a few more days. An essentially new cover for just a wee bit of effort.

This process cannot be used with covers having a glazed paper seal. They are not readily recyclable.

There are other substances that can be used and a little common sense will help. A long time ago I read about using mustard powder rather than baking soda. You're on your own on this one, though, as I've been unable to trace the source or verify the right ingredient, and my memory is not infallible.

Don't be afraid to think and experiment, but remember, you are dealing with a food product.

A New Honey Jar Cover - Perhaps

Walk through the aisles of any grocery store and notice how many food jars and bottles have a tamper-revealing cover, the ones with a pop-up button in the center.

Food processors design containers to attract customers. They've also rede-

signed the covers to assure their customers of a wholesome product in safe container.

I've mentioned the two food jars I'm most likely to recycle - apple sauce and pickles. Both come in a variety of sizes, with a pop-up button in the cover. But there are others: jam, jelly, relish, baby foods - almost anything vacuum packed - even fruit juice and juice drinks.

One of the things that has puzzled me for a long time, several years in fact, is why we continue with the old type of honey jar cover.

It's time for some new thinking.

When producers bottle extracted honey they flash heat it to prevent crystallization and to kill the yeasts that might cause fermentation.

If the honey is bottled at 120 130°F and covered immediately the safety button snaps in as the honey cools. My recycled apple sauce and pickle jar covers do, assuring me of a however-slightly vacuum-packed product.

Afterthoughts

There is one humorous if puzzling aspect to this whole situation. According to my lexicon: 1. Bottle: a rigid or semi-rigid container typically of glass or plastic having a comparatively narrow neck or mouth and no handle. 2. Jar: a wide-mouthed container made typically of earthenware or glass.

Can anyone explain how, or why, we bottle honey in jars? ☺

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CHRISTMASTIME

Christmas is a time of giving, of remembering old friends and of honoring family. Adults love preparing surprises as much as children enjoy receiving them. Office parties and holiday "open house" invitations give us a chance to relax and catch up on the year's activities.

Beekeepers' homes should be well-stocked with honey for gift-giving. This is a time of year to be creative with containers for your honey. While the traditional queenline jars and squeeze bears are always useful and practical, gourmet cook kitchen shops and larger department stores offer a variety of decorative wide-mouthed jars, an assortment of glass canisters with tight-fitting lids and the occasional honey pot. True, your own honey label may not fit on an odd-sized container. An easy solution is to create your own with a gift tag or a piece of paper decorated with Christmas stickers or stars. You could say: "Honey First, Leftovers Last" or "After You Have Used Up The Honey, Fill With Beans or Rice"

Gift baskets are gaining popularity and are a perfect way to package honey and honey goodies. You can create a gift basket for any age and interest and they are particularly good for answering the question, "What shall we give Uncle Bill - he has everything!" Children can make a gift basket for a friend or an adult relative.

Candy or cookies are wonderful choices when shipping a basket some distance. When refrigeration is not a problem jars of honey mustards, dessert toppings and pancake syrups are unique and welcome treats; be sure to explain to the recipient what is necessary.

Mild Honey Mustard

This first recipe can be safely sent through the mail at Christmas since the weather is usually chilly. It is delicious with ham, a traditional holiday meat.

1/2 cup dry mustard, preferably Dijon
1/3 cup mustard seeds
2/3 cup water
3/4 cup white wine vinegar
3 Tbs honey
2 tsp salt
2 tsp leaf tarragon, crumbled

Combine mustard, seeds and water in a blender; whirl until mixture is coarsely pureed. Transfer to a bowl; cover; let stand 8 hours. Stir in vinegar, honey and salt; mix well. For a creamier consistency, whirl again in blender. Stir in tarragon. Store in tightly covered jars in refrigerator up to several months.

Cooking With Honey
Judy Powers

Country Apple Walnut Syrup

The flavors of maple syrup and a mild wildflower honey combine well. I would not recommend a strongly-flavored honey for this recipe since the blend of flavors is absolutely delicious. This sauce is so versatile that it would make an excellent gift by itself or an addition to a basket.

1 cup maple or maple-flavored syrup
1/2 cup honey
1 large apple, peeled and thinly sliced
(about 2-1/2 cups)
3 Tbs butter or margarine
1/2 tsp cinnamon
dash salt
1 cup chopped walnuts
squeeze of lemon juice

In saucepan combine syrup, honey, apple, butter, cinnamon and salt. Bring slowly to boil, stirring. Reduce heat; simmer 8 minutes. Stir in nuts and lemon juice. Serve hot over pancakes, waffles, French toast or ice cream. Makes about 2 cups.

California Walnuts Talk Of The Town
Marion Cunningham

Honey of a Fudge Sauce

Chocolate is probably one of the most popular of all flavors. Even those who prefer vanilla ice cream like a bit of fudge sauce as a topping. Use this easily-made fudge sauce as a holiday gift.

1/2 cup butter
1/2 cup cocoa
2 Tbs cornstarch
1 cup honey
1 cup water
1 cup miniature marshmallows or 12 regular
1 tsp vanilla

Melt butter; add cornstarch and cocoa. Blend well. Add honey and water. Cook over low heat, stirring constantly until mixture thickens and comes to a boil. Remove from heat. Add marshmallows. Stir until melted. Stir in vanilla. Serve over ice cream. Can be served warm or cold. Makes 2-1/2 cups.

Honey Recipes
1992 American Honey Queen Kari Kester

Bird Mix

This next recipe may surprise you. However, a great number of people feed birds during the winter. The colorful winter visitors to a bird feeder give us a fascinating glimpse of birds that summer in more northern parts of our country. Do you know bird-feeding enthusiasts? Give them a jar or can of a honey bird mix.

Continued on Next Page

HOME ... Cont. From Pg. 681

- 1 cup shortening
- 1/2 to 1 cup chunky style peanut butter
- 1 cup honey
- cornmeal to thicken

Let shortening come to room temperature. Add honey and peanut butter; mix well. Work in cornmeal gradually. Finished mix should not be quite as thick as desired, as cornmeal will swell. Store in covered jar to prevent drying. Will stay soft and not freeze in coldest weather. Can be pressed into a jar lid, cup or any kind of feeder.

Honey Recipes

1991 American Honey Queen Robyn DeBoard

Chocolate Fruit Nibbles

These candies can be easily made and gobbled up by children who are suspicious of fruit cakes, "What's that lump" They can be individually wrapped in a twist of plastic wrap which is secured with a bit of Christmas ribbon or a clever Christmas sticker.

- 1-1/2 cups assorted, uncooked, dried fruits (dates, raisins, prunes, figs)
- 1/2 cup dried apricots
- 1/3 cup honey
- 1 tsp vanilla
- 1 12-ounce package semi-sweet chocolate pieces

Cut dried fruits into small pieces. Mix all ingredients in saucepan. Stir gently over low heat only until chocolate is melted. Remove from heat. Allow to stand 10 minutes before dropping in clusters on waxed paper. Makes about 3 dozen.

Treasured Honey Recipes

California Honey Advisory Board

Mixed Nut Crunchies

A snack with nuts is always popular at holiday time. Here again individual pieces can be wrapped as an addition to gift baskets or pieces can be put into a colorful Christmas cookie tin to present to friends and neighbors. These are easily made and, with a little help, children can take over the task of mixing and baking.

- 1 cup unsalted roasted peanuts
- 1 cup unsalted roasted cashews
- 2 cups unsalted roasted sunflower seeds
- 1/2 teaspoon salt
- 4 Tbs melted butter
- 1 tsp apple cider vinegar
- 1/2 cup honey AND 1/2 cup molasses, OR 1 cup honey
- 4 Tbs whole wheat pastry flour

Preheat oven to 375°F. In a bowl, mix together all the nuts and seeds. Melt the butter in a small pan, then pour it into a large bowl, and add the remaining ingredients. Pour in the nut mixture, and stir well. Smooth the mixture evenly into an 8" x 8" oiled baking pan. Bake for 25 to

30 minutes in the center of the oven. (Make sure the bottom of the pan is not too close to the heat element.) Cool for 30 minutes, loosen from sides of the pan, and cut into squares. **COMPLETELY COOL BEFORE REMOVING FROM PAN.** Be careful not to overcook. Let them set in the pan as directed or they will crumble when cut. Makes 16 squares.

Honey and Spice
Lorena Laforest Bass

Honey Yum-Yum Balls

Finally, here is a recipe for the youngest children. It does not need any cooking and is guaranteed to be glorious, sticky fun.

- 2 cups Rice Krispies
- 1/2 cup creamy peanut butter
- 1/2 cup raisins
- 1/2 cup honey
- 1/2 cup confectioners sugar, for rolling

Mix together all ingredients except the confectioners sugar. Form tablespoon-size balls. Roll in the sugar. Refrigerate until firm. These can be wrapped individually if desired. Yield 24 balls.

Honey Recipes

NC State Beekeepers Association

Give the recipes when you give a honey treat. Kitchen shops and mail order catalogs offer attractive recipe cards that will also be a decorative item for a gift basket. Wooden or plastic honey servers are available from bee supply dealers and will be an appreciated addition to your jar of honey. Squeeze bears will be happy to cooperate in dressing up like Santa Claus for the holiday season.

Make honey and honey treats a main feature of this holiday season!

INNER ...Cont. From Pg. 648

you're *NOT* prepared – a major mistake. Like real estate, the three main points to remember – Be Prepared, Be Prepared, Be Prepared.

Practice – with friends, spouses, kids, the mirror or anyone willing to listen. Be Prepared. (Even a treasurer's report should be read through a few times at home to get a feel for sentence structure, words that may be mispronounced or the like – avoid the silly mistakes – that way you'll only make really big ones.)

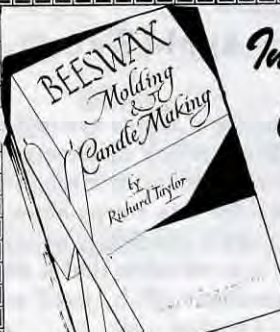
Finally, be flexible. Be able to shorten your talk by half, and still make the points you want. It happens, and you've seen it happen. Be Prepared.

Expect the unexpected – slide projector breaks, microphone goes out, props didn't get off the plane with you (or put in the car), too much time, not enough time, no lights, can't turn the lights off expect the unexpected. Be Prepared.

A last bit of wisdom, given to me over a decade ago was to remember two things: 1) They can't shoot you, and they won't eat you, no matter how bad you were (or think you were, which is probably the case); and 2) Everybody has a bad day once in awhile, if you do learn from the mistakes, repeat the successes, and next time – Be Prepared.

Anybody can give a talk, and yes, even you know something somebody else wants to know. You don't need to be brave, or funny or even well known – just know your subject, your audience and Be prepared.


Kim Flottum




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?Do You Know? Answers

1. **True** Pesticide and drug labels are legal documents providing directions on how to mix, apply, store and dispose of the product. Manufacturers are required by law to put certain information on the label. Failure to follow directions can result in injury, damage, illegal residues and legal action against the violator.

2. **False** Brood diseases are generally much easier to recognize than adult bee diseases. Brood combs from diseased colonies usually have a scattered brood pattern and the appearance of brood cell cappings is also useful in diagnosing brood diseases. Cappings of healthy brood are uniform in color and convex while cappings of diseased brood tend to be darker and sunken and are frequently punctured. Another useful diagnostic feature of diseased brood is the presence of the dried remains of the larva or pupae within the brood cells. Diagnosis of most adult diseases requires the dissection of bees, since no external symptoms are visible.

3. **True** Africanized bees have been shown to be better at removing dead and diseased brood from the cells than are European bees. This hygienic behavior is considered to be an indicator of resistance to American and European foulbrood.

4. **True** The menthol label indicates that colonies should be treated when there is no surplus honey flow and daytime temperatures are expected to reach at least 60° F., so adequate volatilization is achieved.

5. **False** Terramycin is effective in destroying the vegetative cells of *Bacillus larvae* within the gut of the honey bee larva, may also inhibit the germination of spores incorporated in the larval food source, but does not kill the viability of the spores. Spores of *Bacillus larvae* are extremely resistant to high and low temperatures, to chemical disinfectants and to the dehydrating action of honey that normally kills bacteria. The spores can remain alive and infectious for decades in honey, in combs and on used equipment.

6. **True** Honey bees are capable of locating and removing wax moth larvae before they do much damage, as long as the colony is strong and is not given too much space to patrol. Active colonies that suddenly lose part of their adult population are vulnerable to attack.

7. **False** Only the spore stage of *Bacillus larvae* is ca-

pable of initiating the disease.

8. **False** The dried remains of dead larvae killed by European foulbrood do not adhere tightly to the cell wall, thus are easily removed by adult honey bees.

9. **True** The pathogens that cause the various bee diseases are highly host specific, thus affecting only honey bees. Therefore, there is no danger to man coming in contact with equipment or consuming honey/wax from a diseased colony.

10. C) 10 to 12 weeks

11. B) 4 weeks

12. Colonies are most affected by tracheal mites during winter confinement. Fall treatments help to suppress mite population development, thus reducing winter mortality. Female varroa mites survive the winter by living on adult bees. Reproduction of varroa mites is limited by the availability of brood. Treating in the fall when mite populations are high and when there is a limited amount of brood or none at all increases the likelihood that the mites will contact the acaricide.

13. The eastern honey bee, *Apis cerana*, exhibits both a behavioral and physiological resistance mechanism toward varroa mites. Worker bees perform a series of cleaning behaviors that effectively remove the mites from the bodies of adult host bees. The grooming behavior consists of self-cleaning, grooming dance, nestmate cleaning and group cleaning. Worker bees can also rapidly and effectively remove the mites from the bee brood.

14. E). Nosema Disease

15. C). European Foulbrood

16. B). Sacbrood or C). European Foulbrood

17. D) American Foulbrood or B) Sacbrood

18. D). American Foulbrood

19. B). Sacbrood

20. A). Chalkbrood

21. I). Varroatosis (Varroa mites)

22. Nosema disease

Chalkbrood

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

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RATTLER!

CLAY TONTZ

The big diamond back rattler, looking like a grayish-brown rope in the wet grass, had Jeanette trapped. The whirring beat of his tail buttons clearly told us what he had in mind.

We had left our home a mile behind that early June morning when I pulled the truck over to the shoulder.

"Forgot the rifle," I said.

Jeanette looked at me, fear in her eyes.

"Oh, dear, it's so scary to go to that beeyard without the rifle."

"But we're behind time now," I grumbled.

She said nothing, leaving it up to me. Then something (a premonition?) caused me to turn around.

"Now I'll enjoy our day more," Jeanette said. She treasured the occasional trip with me to a beeyard, to escape the confinement of the shop and home. The day was a special outing for us – she had packed a special picnic lunch with honey-baked ham sandwiches, some of Guiseppe's special green-ripe olives and a thermos of herb tea.

Almost as important as the shovel to dig the truck out of a mudhole, my 22 caliber Winchester, like Mary's little lamb, went where the truck went. I carried it – taken down and unloaded – in a special case. It was my equalizer when confronting a rattlesnake or, possibly, a rabid coyote or skunk. In our wilderness beeyards the snakes were an ever-present menace caused, to some extent, by the bees themselves.

The honey bee is fussily clean – the original neat freak. When a worker bee dies an undertaker bee picks it up and flies off with the carcass, dropping it well away from the hive. Field mice love the dead bees and quickly learn that the beeyard is a going fast-food operation. It soon follows that the snakes, too, become aware of the handy eatery. However, their chief pleasure on the menu is

a bee-fattened mouse.

It is a cozy arrangement and when a beekeeper shows up, the rattlesnakes seem to resent the intrusion. Some of them, especially the big, diamondbacks, can be downright unsociable. And, as I was soon to find out, a rattlesnake does not relish having smoke blown in his face. It upsets him to no end.

Warily, we began our work that morning in the primitive mountain location. I was busy examining the hives for general condition while Jeanette walked to the north end of the beeyard to check out a swarm – a large cluster of bees hanging quietly like some dark, furry animal on a large sumac limb.

She started back through the aisle of bees to get an empty hive from the truck. I looked up at the sound of her faint gasp and saw her standing rigidly, eyes wide with fear, staring at the ground.

"A snake," she said a little above a whisper, "a big one."

At first I could not see him. Then he began to move, coming out into the aisle from between two hives and blocking her path.

"Just go out in the weeds," I tried to speak calmly, "to get around him while I close up this hive."

She could barely speak. "No, I can't; I'm afraid there might be more of them in the weeds."

Closing the hive, I walked the fifty feet to look at the snake – a western diamondback. Due to its great size and potency, it is the tough kid of the rattler world. I was alarmed that he had brazenly crawled out of the weeds into the open as though disputing us for this particular territory. Few rattlers come looking for trouble. However, some –

probably from some prior unpleasant encounter – are plain ornery and extremely dangerous.

I hesitated, undecided what best to do. The rifle in the truck was 500 feet away. I was afraid to leave Jeanette alone with the snake who seemed arrogantly in control. He now lay coiled – a thick, grayish-brown rope with his diamond-shaped blotches glistening from the wet grass. His flat head moved warily, watching me from one side, then Jeanette on the other. At the end of his tail, a rattler – feather-light, loosely-fitting horny shells – whirred an ominous threat.

Perhaps a stone, I thought, to drive him away so Jeanette could fetch the rifle while I kept an eye on him – no stones nearby. The big snake began to slowly uncoil, pointing toward Jeanette. She started backing up, looking fearfully at the rattler, then at the dense weeds behind her. Instinctively, I moved around in front of her and shot a blast of hot smoke from my bee smoker into the snake's face.

For a while the dense smoke obscured him completely, then I saw him crawling purposely toward me. On he came, unwavering, his tongue flicking in and out. The blurring, dry beat of his buttons clearly told us what he had in mind. I gave ground slowly, shooting out more smoke. Now in a near frenzy, his head darted about with little short jabs – striking at the curling, black smoke itself. His long fangs, normally folded flat against the roof of his mouth were out and rigid.

Hastily I climbed atop a three-story hive. I no longer poured smoke at him. As he stretched his length, I could see a cut, open and ugly, on his back. Perhaps

an unintentional hoof cut from a half-ton steer; or a close brush with a great horned owl; or even a bullet slash. He came to the hive I was perched on. While I was wondering if a rattler could climb up a beehive, he found an opening and slithered into the wooden hive stand beneath me; he had me treed and could probably wait forever.

Bracing myself, I leaped out into space (probably establishing some kind of a broad jump record) and assembled the rifle which Jeanette had retrieved. Nervously I fed cartridges into the brass loading tube. I couldn't see the snake beneath the hive but his rattle told me he was still in business. Then he began pouring himself out into the thick grass, turning his head this way and that to get a fix on me. From atop another hive I fired one shot into his neck, then another head shot for good measure. That ended the duel in the beeyard.

I took the magnificent, five-foot specimen to a tanning specialist. The cured, split-open skin, six inches wide, was striking in its pattern and coloring. Along with a collection of pioneer relics, the awesome hide proved to be a great tourist attraction. ◊



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BEE TALK

RICHARD TAYLOR

Box 352, Interlaken, NY 14847

"Thou Shalt Not Steal"

It is time to put the bees to bed for the winter. The first snow flurries have appeared a bit early, it being still October, the honey is off the hives, and my interest in bees has gone into steep decline until spring. But I've still got to put them to bed. All this means is that I'll stuff a wedge of hardware cloth in the entrances to keep mice out, slap a scrap of tarpaper over each entrance with a couple of staples to keep the wind out, and tilt each hive forward a bit so entrances will not become obstructed by dead bees. I don't do any wrapping or feeding or anything like that, haven't for years, so it is a pretty simple job. The best way to get bees through the winter is to make sure each hive is good and heavy with honey. I know I have said that over and over, but I also know there are beekeepers who have not yet learned this lesson. I see them overharvesting, then thinking they can make up for that with sugar syrup and wrapping the hives. They are wasting their time.

Now I've learned something else, which has only a tangential connection with beekeeping, but it is important enough to pass along. It is a law of human nature that has profound consequences. Bearing it in mind can make the difference between success and failure, no matter what you are doing. The law is this: What every human being prizes above everything else in the world is his or her own sense of self worth. It is for this and this alone that virtually every other goal is pursued, whether it be wealth, fame, honor, whatever. These things are treasured only as they bear upon one's sense of self worth. That is what colors and gives meaning to everything we do. Affront a man's sense of self worth, even if only slightly, and it will be the one thing about you that he will never forget. If he doesn't see you

again for 20 years, upon encountering you again, it will be the first thing that will leap to his mind. And you will probably never be able to heal that wound, even with the most sincere effort of friendship.

It is my honey stand that has driven this lesson home to me, most unmistakably. It is run on the honor system. People come by, most of them strangers, many of them tourists and they patronize my honey stand without my ever seeing them. The bushes have grown so high that I can no longer even see my customers out there. When I do meet them it is by accident, when I go down to replenish the supply and check the cash box. People sometimes find large amounts of money, maybe \$30 or more, in the box, and they do not take it. They make their own change, coming to the door only when the money in the box is insufficient to change a large bill.

Last summer there was one thief. I happened to see her. I went down to check things out and saw her walking to her car with a jar of honey. I greeted her, as she walked away, but she did not turn around. Then I saw why. She had not left payment.

That was the only theft that summer, and this summer, as best I can tell, there has been no discrepancy at all. I check to see what is missing from the shelves, figure up what should be in the cash box, and every time, find every penny there. Sometimes it is quite a lot.

I have a pad and pencil there, for people to do their arithmetic, but mostly they use it to leave their names, their addresses, an indication of what was taken and what was put in the cash box, even though none of this is requested. I get kind notes, and not a few expressing astonishment at my honor system, especially from visitors from the cities.

Now how come that works so well?

How come they don't steal me blind?

Well, it has to do with that law of human nature I just formulated. The cash box lid is held down only with a screen door hook, but that lid is labeled, clearly, "HONOR BOX". My customers are assumed to be honorable. Above it, to one side, is a sign reading "THOU SHALT NOT STEAL", and it is in a script suggestive of its biblical source. But what really does it is a little note, typed on an index card, at eye level, which reads: "Last summer, of the many people who visited my honey stand only one was a thief, who took advantage of my trust to steal from me, my wife, and my children. REJOICE that you are not that kind of human being."

Now imagine this. Suppose you approached my honey stand, noticed it was unattended, and the thought crossed your mind you might pick up a jar or two of honey, free. Not that you would, of course, but still, the thought might enter your mind. Then you see that "HONOR BOX" Then the holy commandment. And then, that note! Could you bring yourself to be the second, of those many good people, to steal from me, my wife and my children? To be, *and see yourself*, as a contemptible thief? You could not. Your sense of self worth would stop you as surely as if your hands were bound.

I don't believe everything in human nature is beautiful to behold. As Mark Twain once wrote, "Men are like the moon - we all have a dark side that we never show to anybody." And he might have added we do not like to see it in ourselves, either. But there is this other side of us, this sense of honor and decency, the precious sense of self worth which is, along with all the rest, what is beautiful in human nature. ◻

(Comments and questions are welcomed. Use Interlaken address, and enclose a stamped envelope, please.)

QUESTIONS?

Winter Feed

Q. What's the best way to feed bees in winter in an emergency?
Leroy S. Yoder
Flemingsburg, KY

A. Put a pound or so of granulated sugar on the inner cover, leaving the hole open. This will sometimes prevent utter starvation, but even that will be useless to the bees unless it gets warm enough — about 65° — for them to break winter cluster. Bees, properly managed, should never need feeding at all.

Is White Right?

Q. I have difficulty getting bees that cap comb honey sections properly. The bees fill the supers well, but the cappings are sometimes uneven and often have a wet appearance instead of being white. Is this a result of genetic differences between different colonies? If so, where can I get queens to improve the appearance of my comb honey?

Ron Clobes
Fairfax, MN

A. The differences in the way different colonies cap over comb honey is at least in part of genetic origin, and Mr. Eugene Killion used to have considerable success breeding bees that made snow-white cappings. I know of no source for such queens; I wish I did. Meanwhile, I have noticed that, while beekeepers much prefer nice white cappings, consumers do not, necessarily. What is more important is that sections be well filled, free of travel stain and of good flavor.

Let's Get Together

Q. Are there such things as drone assembly areas? If so, does a virgin queen fly to such an area, or does she mate in the vicinity of her own hive with a drone from the same hive?

Maurice J. Walsh
Limerick City, Ireland

A. The existence of special drone assembly areas is well established. I have seen researchers at Cornell University loft a virgin queen into the air, tethered to a helium balloon, and soon afterwards she was surrounded by several swift drones darting about trying to mate with her. But this works only in certain areas, not others. These areas are selected, recent research shows, by some aspect of the local topography, and are, to some extent predictable. They are visited by drones from various colonies.

Slatted Rack, or Not?

Q. How important are slatted racks? Are they useful in raising the bees above the cold opening? Do they hamper the bees in their coming and going?

Verne M. Marshall
Geneva, NY

A. The idea behind slatted racks on the bottom boards was to relieve congestion at the entrance and thus, perhaps, reduce swarming. I made up a lot of these one winter and put them in many of my hives, but decided in time that they are unnecessary. They appear not to inhibit swarming, at least for me, so I do not use them.

Mixed Origins

Q. I have noticed that in my colony of Midnites some of the bees are solid black while others have light bands. Is that normal?
Bruch L. Hrach
Smithton, PA

A. Yes. A virgin queen mates with more than one drone and thus her offspring are a genetic mixture. Some ancestor of your queen mated with a lighter drone. Queen breeders are fairly successful in controlling mating, but nothing is ever perfect.

Microwaved!

Q. Can you reliquefy granulated honey in a microwave oven?

A. This question came to me some time ago, and I responded that I did not think it would work. I thought the honey would boil right over. But as so often happens, I did not know what I was talking about. Yes, you can put *open* jars in the microwave, turn it on for just a minute or so, depending on the number of jars, and it works beautifully. Be sure to remove metal caps first.

(Questions are welcomed. Address: Dr. Richard Taylor, Box 352, Interlaken, NY 14847, and enclose stamped envelope for reply.)

— ANSWERS!

Richard Taylor

SEASON'S
GREETINGS

FROM ALL OF US
AT
BEE CULTURE

Jim Hottum

Dawn Seagar

A. W. Munn

Kathy Summers

GLEANNINGS GLOBE

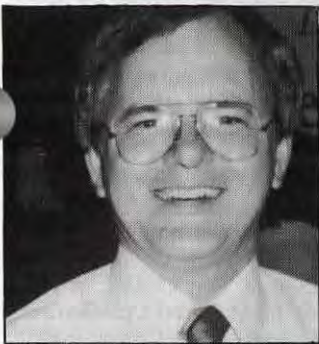
NOVEMBER, 1992

ALL THE NEWS THAT FITS

24th Annual Convention in Houston

AMERICAN HONEY PRODUCERS ASSOCIATION

The 24th Annual Convention of the American Honey Producers Association will be held from Tuesday, January 5 through Saturday January 9, 1993 at the



Jim Tew

Sheraton Crown Hotel & Conference Center, Houston Texas.

Highlights of the Convention will include a tour of the new Space Center Houston (which includes the Johnson Space Center) and an apiary visit and Texas barbecue at Howard Weaver &



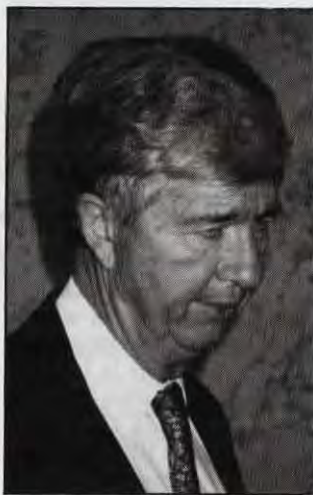
Bob Smith



Fred Hoff

Sons Apiaries in Navasota, Texas. Also, on Saturday, January 9, AHPA invites all beekeepers to participate in a special Beekeeping Seminar, which features some of the top bee researchers, beekeepers and industry representatives in a jam-packed program of information and education.

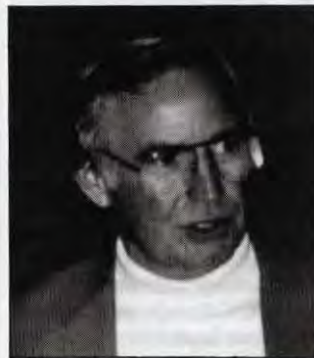
Speakers include Richard



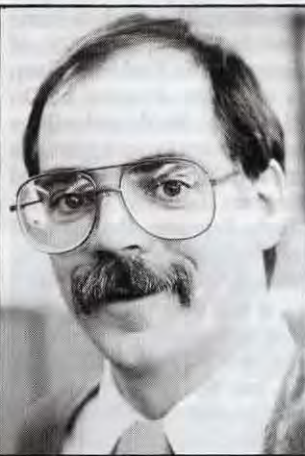
Binford Weaver

Adee, President, AHPA; Glenn Gibson; Fred Hoff; Bob Smith, Director, NHB; Binford Weaver, Chairman NHB; Keith Delaplaine, Mel Greenleaf and Jim Tew plus many more.

Before December 24th, the cost of registration is \$40 for the first person, and \$20 for spouse, child



Richard Adee



Kim Flottum

or accompanying person. Registrations postmarked after December 24th will be considered late, and will be subject to a \$20 late fee. The cost of tours to NASA, Weavers, and the Texas Night On the Town are additional and MUST be ordered by December 24th or may not be available. Payment must accompany your reservation, payable to AHPA.

A registration form may be requested by phoning (203) 250-7575 and leaving your name and address. Or write AHPA National Office, Convention Desk, P.O. Box 584, Cheshire, CT 06410.

Hotel reservations may be made by phoning the Sheraton



Mel Greenleaf

Crown Hotel at 800-444-2217. Identify yourself as an AHPA participant to qualify for the special room rate of \$55 per night (one to four people). This rate includes breakfast. The hotel is located close to Houston's Intercontinental Airport, and provides a shuttle bus directly to the hotel.

Products Will Continue

SCENTRY, INC. SOLD

Ecogen Inc. has announced it has completed its acquisition of the pheromone business of Scentry, Inc., a wholly owned subsidiary of United Agri Products (UAP), Inc., which is owned by ConAgra, Inc. The acquisition included a three-year non-exclusive distribution agreement with UAP to purchase and distribute Scentry's pheromone-based products from Ecogen.

"We are very pleased to complete this acquisition", said John E. Davies, chairman and chief executive officer. "The Scentry products based on pheromone technology are a valuable addition to our current product line, and we believe significant opportunities exist for market growth worldwide."

Scentry's products are used to control pests of significant agricultural importance such as the pink bollworm on cotton and the tomato pinworm on tomatoes. Other products include an array of pheromone lures and traps to

monitor the presence of various pests on vegetables, cotton and fruit trees to permit timely application of pesticides. Another product, BeeScent™, is used to attract honey bees to crops, thereby increasing pollination. A new product, Compel®, a feeding stimulant, allows for dramatically reduced rates of insecticide to be used for the control of corn rootworm. This is in the final stages of development. The corn rootworm market, which generates more than \$140 million annually, is the single largest insecticide market in the U. S. Corn rootworms destroy an estimated \$1 billion in crops each year.

Scentry sold \$2.4 million in pheromone products last year. The current market for pheromone-based insect products is approximately \$60 million worldwide. Ecogen paid \$5.0 million for Scentry's assets, comprised of \$3 million in cash plus 293,907 shares of Ecogen common stock valued at market.

A Sweeter Sweet Clover

NEW HONEY PLANT

Peterson Seed Company of Savage, Minnesota announces a cooperative effort with the University of Minnesota, Department of Agronomy and Plant Genetics to improve Evergreen White Blossom Sweet Clover for use by beekeepers.

Evergreen Sweet Clover was originally released by Ohio State University, Department of Agronomy, Agricultural Experiment Station in the mid 30's. Evergreen was long considered one of the finest quality and highest producers of honey for use by beekeepers, but fell into disuse because collecting a seed crop was difficult. The variety is extremely tall, and matures over a long period of time. The long maturity provided a long flowering period, but the tall plant height and seed shattering made seed harvest difficult.

Peterson Seed Company has made exclusive arrangements

with OSU to secure seeds of the original variety from the National Seed Storage Laboratory in Fort Collins, Colorado and to make selections for shorter plant height, better seed retention and plant uniformity. These selections will allow for better seed production, while providing the benefits of the variety. The work is being done at the University of Minnesota's St. Paul Farm Campus under the direction of Dr. L.H. (Larry) Smith, and will be released in two to three years as a protected Certified Variety called Evergreen II.

Jerry Peterson, President of Peterson Seed Company, says that "the new variety will be called Evergreen II which will give credit to the original breeder at Ohio State University, Dr. J.B. Park, and will carry forward the well deserved reputation this cultivar has among professional beekeepers.

Senior Research Scientist of the Year

WILSON WINS AWARD

Dr. Bill T. Wilson, a USDA entomologist at the Subtropical Agricultural Research Laboratory in Weslaco, TX was one of 16 top scientists honored Oct. 21 in ceremonies in Washington, DC.

"Dr. Wilson's research has been vital to the health of the U.S. beekeeping industry," said R. Dean Plowman, administrator for USDA's Agricultural Research Service. "His work has led to effective controls for serious diseases and parasites that plague honey bees."

A 24-year veteran of ARS, Wilson was named "Senior Research Scientist of the Year" for the agency's Southern Plains Areas, which consists of 46 labs in Texas, Oklahoma, Arkansas and New Mexico.

He will receive a plaque, a cash award and additional funds to use in his studies at the Weslaco laboratory's Honey Bee Research Unit.

In the mid-1980's, Wilson initiated programs to trap bee swarms in the U.S. and Mexico so scientists could track the spread of parasitic mites that infest honey bees. Similar trap lines, set up later by his colleagues, helped scientists predict the arrival and impact of Africanized honey bees.

Wilson pioneered other work in the control of parasitic mites in honey bees. Blood-sucking Varroa mites attack and kill adult bees and larvae, while tracheal mites infest bees' breathing tubes.

Today, U.S. beekeepers use nearly 100 tons of menthol crystals each year to kill tracheal mites, Plowman noted. Other chemicals under review for registration could provide less expensive treatments effective against both



mites.

Early in his career, Wilson developed a unique formula still used by the beekeeping industry to treat a variety of bacterial diseases, known as foulbrood. The formula combines sugar and vegetable shortening with terramycin, an antibiotic, to keep the antibiotic effective up to two months. While at Colorado State University, Wilson and a colleague discovered that certain antibiotics could control foulbrood diseases, which wiped out tens of thousands of bee colonies in North America as recently as the 1950's.

He received his B.S. in entomology from Colorado A&M College, Fort Collins, in 1955, and his M.S. from Colorado State University, Fort Collins, in 1956. He earned a Ph.D. in entomology from Ohio State University, Columbus in 1967.

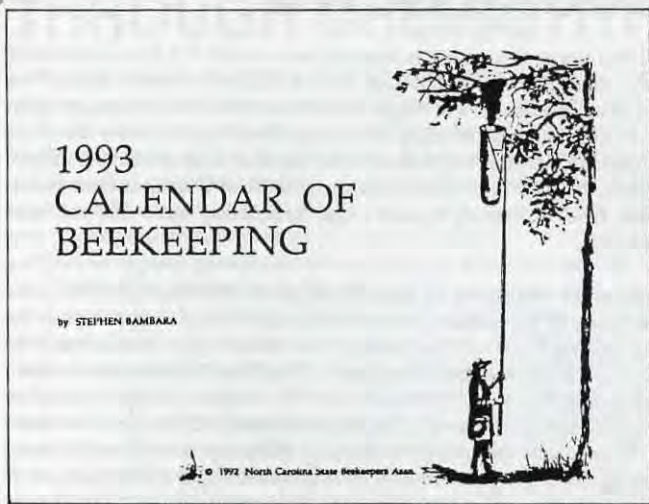
Wilson is a member of the International Bee Research Association, American Association of Professional Apiculturists and American Bee Research Conference. He also is a former president of the American Bee Research Conference.

RESERVE LAND UP

USDA's Deputy Secretary Ann M. Veneman announced that more than \$1.7 billion will be issued to nearly 386,000 producers who participate in USDA's Conservation Reserve Program (CRP). Under the CRP, producers retire land for 10-15 years that is highly erodible or contributing to a serious water quality prob-

lem while USDA makes the annual rental payments to the producers. USDA's Commodity Credit Corporation will be making the annual CRP rental payments beginning immediately. To date, 36.5 million acres have been enrolled in the CRP, many of which produce excellent bee forage.

CALENDAR READY!



The North Carolina State Beekeepers' Association is continuing its 14 year tradition of publishing an annual beekeeping calendar and the 1993 edition is now available to interested beekeepers.

The calendar serves two valuable purposes. It functions as a very useable wall calendar measuring 11" by 17" when opened with ample space for writing information on the various dates, plus it provides a wealth of information for beekeepers. The beekeeping information is especially applicable to the middle Atlantic states, but it is also of use to beekeepers throughout the continent.

The calendar contains the dates of the various national and regional bee meetings for 1993, blooming dates on a wide variety of honey and pollen producing plants, and several in-depth articles such as a biography of J.E. Hetherington of NY, who may have had the world's largest beekeeping operation in the latter half of the 1800's, the use of

herbs in honey, classic bee patents, pollination, and more. Also included are the newest entries in the continuing series on honey recipes.

The NCSBA provides the annual beekeeping calendar as a service to its members and each current member receives a free calendar. A small supply of calendars are also produced for sale with the receipts going to support the Apiculture Science Fund at NC State Univ. The cost of a calendar is \$6.00 which includes shipping and handling. However, by joining the NCSBA and paying dues of \$10.00 you will receive a free 1993 calendar plus a 1994 calendar when produced next year, plus all other benefits of the NCSBA membership.

Calendar orders should be mailed to: NCSBA, 1403 Varsity Drive, Raleigh, NC 27606. Please make checks payable to NCSBA and note on the check the number of calendars being ordered or if payment is for 1993 NCSBA dues which includes the free calendar mentioned above.

FEWER AG WORKERS

There were 558,000 hired workers on farms and ranches in eleven surveyed states during the week of August 9-14, 1992. This compares with 658,000 workers during the August 1991 survey week. Average August

wage rates received by hired workers ranged from \$4.95 per hour in Texas, to \$6.97 per hour in Washington state. Wages were higher when compared to last year except in the states of Michigan and Texas.

Registers In All 48 States

MANN LAKE BUYS MENTHOL PERMIT

Several years ago the AHPA obtained the E.P.A. registration for menthol, and obtained state permits to allow vendors to sell menthol in all states except Hawaii and Alaska.

Menthol is extremely effective as a tracheal mite control, but requires specific temperature levels necessary to generate the mite-killing fumes. This has not been easy for some beekeepers to do in cool weather.

Annual re-registration costs AHPA over \$10,000 per year, and royalty income was not always adequate to cover the costs of state registrations. Thus, the

executive committee of AHPA voted to sell the menthol registration to Mann Lake Supply of Hackensack, MN. This sale maintains the supply of menthol to beekeepers.

Mann Lake Supply sells menthol as Mit-A-Thol™, EPA registration #61671-1. The firm continues registration in all 48 states. Dealers (resellers) may sell the material under Mann Lake's EPA number and label. The price of menthol is holding the same.

For further information about the menthol registration, contact Mann Lake Supply at 800-233-6633.

NOVA SCOTIA RECEIVES FUNDING

The Nova Scotia Beekeepers' Association has received funding from the Canada/Nova Scotia Agri-Food Development Agreement for a second queen rearing project. The official title is "The Refinement, Distribution, Rearing, and Overwintering of Honey Bee Queens".

The original queen rearing project, funded by AFDA from 1989-92, investigated simple methods of queen rearing, as well as selectively breeding a local strain of bees developed by the late E.A. Karmo, former provincial apiarist. As a result of that project, several beekeepers are now producing queen bees.

Under the current project, further refinement of the Karmo stock will be carried out, with emphasis on disease and parasitic mite resistance. Breeding stock will be made available to queen producers. This genetic selection and refinement will make use of artificial insemination. This technology was acquired under the original project, and is used to control the mating

of queens which naturally mate at random with drones (males) while flying up to several miles from their hive.

This queen rearing project, as well as the previous one, was initiated to allow beekeepers to become more self-sufficient. Queens and packaged bees were traditionally imported from the southern United States, but with detection of parasitic mites in 1984 in the United States that quickly spread throughout the country, the Canadian border was closed in 1988. Since that time, New Zealand and Australia are the only countries from which bees can be imported, since they do not have the mites. In order to become self-sufficient, overwintering of extra queens, both indoors and outdoors, will be investigated. This is a new concept that has been attempted with some success in British Columbia and Ontario. There is a tremendous local demand for queen bees, as well as a potential for exporting queens to areas where the parasitic mites are now found.

Say You Saw It In
The Globe

Exports Up!

BIGGER APPLE CROP

Expect this year's apple harvest to be bigger than the 1991-92 crop. Richard Funt, fruit specialist at OH State Univ., expects 241 million bushels to be harvested, six million more than last year. Part of that expansion is likely in response to improved export demand - American producers exported nearly 27 million bushels worth \$317 million last year, up from 19 million bushels worth \$225 million in 1990-91. How-

ever, foreign demand will be down this winter thanks to a 75% production increase in Europe. There is some relief for U.S. growers. Mexican imports of U.S. apples were up 33,000 metric tons Oct. 1991 to April 1992. And more than 3.4 million boxes of fruit have been sent from WA to Mexico since Jan. 1, 1992. Funt expects this trend to continue regardless of the outcome of current free-trade discussions.

FIRST MO HONEY QUEEN



Julie Batton has been selected as the first Missouri Honey Queen. She will serve as the official ambassador of the Missouri State Beekeepers' Association for 1-1/2 years, appearing before civic groups, schools, festivals, fairs and parades. In January 1994 she will compete for the title of American Honey Queen. The Honey Queen program is sponsored by the Missouri State Beekeepers Association to promote beekeeping as a hobby and industry and to promote the use of honey.

Julie is a senior at Poplar Bluff High School, where she is a member of National Honor Society, a cheerleader, a member of the varsity tennis team, Claudia Girls, and several other school organizations.

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SUGAR NEWS

Global sugar production is forecast at a record 115.8 million metric tons, raw value, for 1992/93, up from a USDA forecast in June. Over the past 20 years, world sugar consumption has been rising steadily. U.S. cane sugar production is forecast down slightly from last year. Louisiana's production forecast was reduced from a record 1 million tons to 800,000 because of Hurricane Andrew. Damages from Hurricane Iniki to Hawaii's cane sugar production have not yet been assessed.

Before the beginning of each fiscal year (1992 through 1996), the Secretary of Agriculture is required to estimate U.S. sugar imports for the coming fiscal year, according to a formula provided in the 1990 farm act. If the estimate is less than 1.25 million short tons (raw value), marketing allotments (limits on sales by domestic sellers) would be imposed to ensure a level of imports of at least 1.25 million short tons.

If imposed, the overall marketing allotment would be allocated among domestic processors of beet and cane sugar on the basis of 1) past marketings, 2) processing and refining capacity, and 3) ability of the processors to market sugar.

Imports are reassessed quarterly, and if it becomes evident that any changes in the estimates of consumption, production, or stocks will result in less than 1.25 million tons of imports, marketing allotments for the fiscal year would be imposed at the next quarter. USDA estimates annual consumption, production, imports, exports, and stocks monthly throughout the year.

Marketing allotments guarantee certain foreign producers a minimum share of the lucrative U.S. sugar market. Exporters usually receive substantially higher prices for sugar sold in the U.S. than in most other world markets.

Sugar output estimate revised down by 3%, due to wind damage caused by Hurricane Andrew in Louisiana and anticipated below-average recovery in beet areas. Louisiana production for fiscal 1992 now estimated at 0.8 million tons, down from one million prior to the storm. In Florida, where sugarcane escaped the brunt of Andrew, production estimate is unchanged.

- There was damage to the sugarcane crop on Kauai, Hawaii, from Hurricane Iniki. Kauai accounts for about a quarter of Hawaii's sugar production, which is estimated at about 730,000 tons for 1992/93.
- U.S. sugar use expected to rise 1.4% during fiscal 1992/93, from stronger-than-expected domestic deliveries during the second half of 1991/92. Deliveries were sluggish during the first half of fiscal 1992 because of the weak economy and higher prices for some sugar-containing products.
- USDA announced a tariff-rate import quota for 1992/93 of 1.357 million short tons, raw value. In setting the 11%-lower import quota, USDA attempts to balance sugar supply with use at prices that assure sugar loan repayment under the program.
- The tariff-rate quota allows a fixed amount of sugar (1.357 million tons) into the country at a relatively low duty, with additional imports at a much higher duty. The quota is allocated among sugar exporting countries on the basis of historical shipping patterns.
- USDA also announced that marketing allotments for domestic sugar processors will not be imposed during the first quarter of fiscal 1993 (October-December). The announcement reflects that estimated imports for fiscal 1993 will not be below the trigger level of 1.25 million short tons for establishing marketing allotments under the current sugar program legislation. Allotments could be imposed in later quarters.

BETTER LIVING THROUGH CHEMISTRY

A natural insecticide that comes from neem, a tropical mahogany tree, can give growers and home gardeners alternatives to synthetic insecticides like diazinon, malathion and carbaryl. Agricultural Research Service scientists studied the neem seed extract in the late seventies and identified an active chemical as azadirachtin. Tests showed the extract could control over 80 major insect pests by disrupting hormonal changes in the insect larva, causing death during molting. Neem is effective against greenhouse insects such as whiteflies as well as other pests like beetles, grasshoppers, aphids, weevils, fruit flies, gypsy moths and mosquitoes. The ARS studies helped pave the way for development of commercial products based on neem extract. Three commercial formulations – Azatin, BioNeem and Margosan-O – are registered for use on ornamentals and other non-food plants. Registration for use on food crops is underway. The extract's complicated molecule makes it difficult for these insects to develop resistance to it, unlike synthetic sprays. However, it's not toxic to honey bees, other beneficial insects and earthworms and won't harm birds or humans. ARS scientists currently are looking at other neem-based products for use as a fungicide.

Cone-shaped pieces of plastic resembling badminton birdies are helping gardeners fight over 100 garden and shade tree pests. Inside the cone – marketed as Rescue – is a sex scent, or pheromone, that attracts spined soldier bugs into an area so they will devour gypsy moth caterpillars, Mexican bean beetles, cabbage loopers, corn earworms, and other pests. One cone can attract 50 or more spined soldier bugs in one day, if it is put out one week before the bud-burst of the red maple tree from early March to mid-April. It is the first commercial pheromone attracting beneficial insects. ARS replicated and patented the beneficial bug's natural pheromone, which attracts soldier bugs of both sexes as well as the immature bugs. Sterling International, Inc. of Liberty Lake, WA, obtained an exclusive license for the chemical blend and formulated it into a plastic cone. ARS scientists evaluated the various formulations to find the most effective one.

BIG, BIG APPLE

Dan Fitzkee, a hobbyist beekeeper from Manheim, Pennsylvania, has grown the largest apple ever recorded in the United States. The cantaloupe-sized Stark Jumbo apple weighed in at 2 pounds, 11.2 ounces. This is an ounce heavier than the current record holder in the Guinness Book of Records.

Fitzkee's apple is proof that good pollination, frequent summer rains and proper care do produce excellent crops. Surprised by all the publicity, Fitzkee's apple has been featured on television, in newspapers and on the Paul Harvey radio show. "I really had no idea what I was getting into," said Fitzkee. "My wife said the other day, this is an awful lot of fuss about an apple. But my

feeling is, people are hungry for some good news."

Another two-pound apple from the Jumbo tree was donated to a church group that baked it into an apple dumpling that sold for \$300 at a disaster relief auction.

A photo was taken of the record setting apple with a 1.5 pound teacup Chihuahua. The dog's ears barely clear the top of the apple. Stark Brothers, the nursery that sold the tree to Fitzkee, found the picture so amusing they have plans to use it in their next catalog.

The documentation has been mailed to the Guinness Book of Records office. Fitzkee hopes to get confirmation by mid-November that he has set a new U.S. apple record.

PRODUCTION NUMBERS

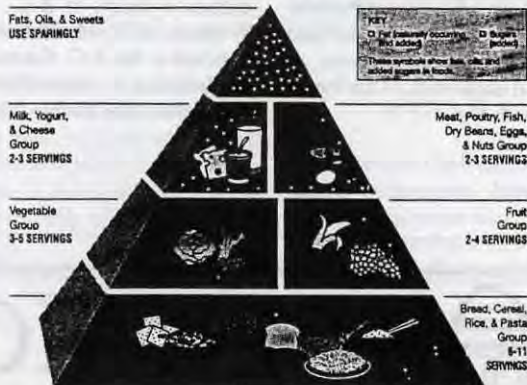
Cantaloupe: Acreage for harvest is estimated at 3,000 acres. Whitefly infestation and control measures have reduced the desert acreage in California. Acreage in central Arizona was down as producers moved their plantings to the northwest corner of the state to escape whitefly problems.

Cucumbers: During the fall season, harvested acreage is estimated at 14,500 acres. Except for the Rio Grande Valley, most growing areas needed moisture in Texas. Harvest was underway in the northern and central areas of Florida. Planting continued in the southern areas.

Honeydews: Fall acreage for harvest is estimated at 300 acres. Whitefly control measures have reduced fall acreage to zero in California. Pest problems in Arizona also reduced acreage for harvest. Plantings were not in good condition.

Bell Pepper: Harvested acreage for the fall crop is estimated at 8,100 acres. Harvest in Florida was underway in northern production areas. Central and east coast areas were expected to commence in early October. In Texas, adequate moisture was available in the Rio Grande Valley, but other areas need rain.

FOOD GUIDE GOOFS



Believe it or not, the new "Food Guide Pyramid: A Guide to Daily Food Choices" is in the news again.

It seems that after months of untold public and expert input, and a controversial one-year, \$800,000 delay in its introduction, the thing is still not right.

The Food Guide Pyramid was designed to replace the 1950's "Four Basic Food Groups" posters with 1990's recommendations.

Although the graphics are attractive, and research shows that both adults and kids understand the pyramid concept, it's wrong.

And you can thank the Washington & Idaho Pea & Lentil Commissions for finding the mistake.

It seems that the nutrition "experts" mistakenly put dry beans in the same category as meat, poultry, fish, eggs and nuts – foods which should be restricted because of their higher fat and/or dietary cholesterol content.

Dried peas and lentils are high in protein, but they contain very little fat and zero dietary cholesterol.

The Agriculture Department says it's too late to recall the erroneous posters because they're already on their way to the nation's classrooms.

It plans to replace all the posters next year, though, and is distributing a pamphlet that correctly ranks dry beans with the bread, rice, cereal, and pasta group.

NEW PHONE

The telephone area code for the USDA, ARS, Honey Bee Research Laboratory, Weslaco, TX, will be changing Nov. 1, 1992.

Our current number is: (512) 969-4870, FAX (512) 969-9523. The new numbers will be (210) 969-4870, FAX (210) 969-9523.

HONEY OF AN AWARD

Honey bees have many more responsibilities than buzzing around flowers and cavorting with birds. We rely on them to pollinate over \$10 billion worth of crops every year in North America. Their effectiveness in this role is essential to our agricultural success or failure.

Mark Winston and Keith Slessor of Simon Fraser University in British Columbia, Department of Biological Sciences and Chemistry, respectively, were named winners of a 1992 British Columbia Science and Engineering Gold Medal for Natural Sciences. Winston and Slessor have investigated a new method for increasing crop production through natural pollination where they have isolated, identified and synthesized the pheromones, or chemical attractants, of the honey bee queen.

Originally from Ohio and now residing in New Westminster, Mark Winston received his B.S. in Biology in 1971 from Boston University, his Master's in Marine Biology from the same institution in 1975 and his Ph.D. in Entomology in 1978 from the University of Kansas.

Keith Slessor was born in the Comox valley and grew up in Ladysmith, B.C. He obtained his B.S. in Chemistry/Physics in 1960 and his Ph.D. in Organic Chemistry in 1964 from the University of British Columbia. Maple Ridge, B.C. has been his home for more than a decade.

For their outstanding contributions to science and to the agriculture industry in B.C., Mark Winston and Keith Slessor were honored at the B.C. Science and Engineering Awards Dinner in Vancouver on October 20th.

EATING LESS

According to a study by USDA's Economic Research Service, Americans are consuming less than the USDA-recommended amounts of fruits and vegetables. A study by the Calif. Department of Health Services found that many consumers said that eating

fruit and vegetables was inconvenient, and preparing them took too much time. Produce industry officials are looking to increase fruit and vegetable consumption by combining nutritional information with tips on selection, preparation and menu planning.



SELL MORE HONEY



You'll sell more honey when the Label on your jar stands out from the crowd. Professionally printed and appealing, customers go for the best looking jar every

time. And, after they taste *YOUR* honey, they'll be back for more – be easy to spot on *ANY* shelf – Try one of these labels this season – and next, and next...



175G
Our Best Selling Label, Betty stands out in every crowd, and is easy to find. Red, Black and Yellow.



151G
Bright yellow and dark blue make any honey look even better. Try this label for increased sales.



166PS • 163PS • 165PS • 164PS

With imports increasing at every turn, it's more important than ever to let customers know *YOUR* product is home grown. These beautiful pressure sensitive labels make that perfectly clear. 250/Roll.

PURE HONEY

contains more sugar than water and in time will crystallize and become solid. To liquify, either place jar in hot, not boiling, water or remove cover and microwave at 2-3 minute intervals on medium/high until liquid. When using, keep all honey at room temperature but store it in a freezer.

124G

Education is the key, and one of these on the back of your jar shows you'll go the extra mile for *YOUR* customers!



101G

This intricate die-cut label! both shows and tells what you have to sell. No mistaking your products. Yellow and brown.



103G

Easy to spot, this traditional label fits perfectly on queenline jars from 8 oz. to 2 lb. Tan and blue.

To Order Labels

175G, 103G, 151G, 101G – Your name, address and weight of jar – \$39.95/500; \$54.95/1000
Unprinted – \$5.75/100. 163PS, 164PS, 165PS, 161PS – \$14.49/250 Roll.
124G – \$7.99/500

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1992 TITLE INDEX

TITLE	PAGE	MONTH
"I Just Love Bees"	372	Jun
1992 Calendar Ready	56	Jan
A Most Profitable Year	406	Jul
A Most Unusual Honey	352	Jun
A Real Nasty Job	452	Aug
A Tale From Costa Rica	338	Jun
A Wonderful Plant Alsike Clover	184	Mar
About Books	676	Dec
ABF Convention Readies	579	Oct
Africanized Bees Moving North	363	Jun
After The Party	626	Nov
Ag Employers & Taxes	636	Nov
AHB On The Move	523	Sep
Almond Production Up In '92	580	Oct
American Honey Producers	689	Dec
Annual Honey Report	260	May
Apimondia Cancelled, Again	467	Aug
April Honey Report	196	Apr
Arizona Newcomers	278	May
ASCS Service Charge	303	May
ATTACK of the Giant Killer Bees	664	Dec
August Honey Report	430	Aug
Avoid These 10 Common		
Business Mistakes	490	Sep
Backyard Collection, The	616	Nov
Bait Hives	270	May
BC Beekeepers Have HBTM	114	Feb
Beauty & The Bees	52,403	
Bee Bee Tree	564	Oct
Bee Breeders Concerned	239	Apr
Bee Talk	50, 110, 169, 233, 299, 358, 410, 464, 521, 575, 632, 686	
Bee Tree	24	Jan
Beekeeper's Transportation		
Threatened	524	Sep
Beekeepers Extraordinaire	364	Jun
Beekeepers I Have Known	64	Jan
Beekeeping Course 'Airs' From Ohio	579	Oct
Bees In Brazil	336	Jun
Better Living Through Chemistry	693	Dec
Big, Big Apple	693	Dec
Bigger Apple Crop	692	Dec
Blueberry Growers Lend Hand	173	Mar
Brandies & Cordials From Honey	573	Oct
Bro. Adam Ousted As Bee Leader	364	Jun
Brother Adam Awarded	114	Feb
Brushy Mountain	442	Aug
Bumblebees At Your Service	498	Sep
Buying Used Hives	455	Aug
Calendar Ready	691	Dec
Canola Gains New Market	364	Jun
Cappings	552	Oct
Care-Free Comb Honey	350	Jun
Caribbean Beekeeping Group Forms	469	Aug
Cherry Production	582	Oct
Computer Simulates		
Colony Development	365	Jun
Conducting A Honey Bee		
Emergency Demonstration	393	Jul
Contest!!	114	Feb
Cooperation	354	Jun
Did You Kill The Queen?	217	Apr
Disaster Aid Available	113	Feb
Do We Need A Stock Center	15	Jan
Do You Know?	136, 205 266, 332, 385, 434, 494, 545, 601, 660	
Dress For Success	386	Jul
Dutch Gold Award To Wilson	55	Jan
EAS To Guelph, Ontario	361	Jun
Eastern States Agree	173	Mar
Eating Less	694	Dec
Equipment Basics	294	May
Essay Winner Has Bees	469	Aug
European Foulbrood Found		
in New Zealand	56	Jan
Fall Feeding, A Primer	558	Oct
Farmland Percent	175	Mar
Fear & Loathing on Interstate 5	161	Mar
February Honey Report	72	Feb
Federation Defends Bill	414	Jul
Fed. Develops Logo For Jan. Meeting	467	Aug
Federation's Goals For Year	239	Apr
Federation's New Officers	239	Apr
Fellowship Awarded	173	Mar
Fermented Nectar Causing Problems	524	Sep
Fewer Ag Workers	691	Dec
FFA Gains Members	468	Aug
FFA Has New Officers	56	Jan
First Bees In Arizona	435	Aug
First MO Honey Queen	692	Dec
Florida - A Hostile Paradise	96	Feb
Food Guide Goofs	693	Dec
Food Profits Down	241	Apr
Food Triangle	414	Jul
From Way Out There All		
The Way Back Home	449	Aug
Gardens For All	239	Apr
Genetically Altered Canola Ready	116	Feb
Ghosts	465	Aug
Government Notes	241	Apr
Ground Breaking For New		
Bee Lab in Weslaco, TX	467	Aug
Guest Editorial	600	Nov
Hemp	502	Sep
Home Harmony	43, 90, 150, 226, 288, 390, 460, 508, 568, 681	
Homeowner From Hell, The	212	Apr
Honey Art	280	May
Honey Bee Stock To Breeders	581	Oct
Honey Board Has New Leader	523	Sep
Honey Board Highlights	580	Oct
Honey Board News	242, 305, 414, 635	
Honey Given Away	636	Nov
Honey Ice Cream	340	Jun
Honey Of An Award	694	Dec
Honey Packer Didn't Pay	115	Feb
In My Opinion!	100, 286	
Industrialization Inevitable	115	Feb
Infant Botulism	20	Jan
Inner Cover, The	4, 68, 124, 188, 252, 316, 376, 424, 480, 536, 592, 648	
Iowa Honey Queen	306	May
Is It Any Wonder?	588	Oct
January Honey Report	10	Jan
JAR Gets New Life	365	Jun
Jars	679	Dec
Jottings From A British Beekeeper	282	May

July Honey Report	382	.....	Jul
June Honey Report	324	.....	Jun
Kansas City, Here We Come	306	.....	May
Kiwifruit Pollination & Production	494	.....	Sep
Lane, The	30	.....	Jan
Last Ninja Beekeeper, The	312	.....	May
Legs	532	.....	Sep
Lift Ban On Bees	59	.....	Jan
Lofty Heights Of Queen Rearing, The ..	290	.....	May
Looking For Trouble	222	.....	Apr
Lyme Disease	264	.....	May
Madigan Names Melland New			
APHIS Admin.	55	.....	Jan
Maine Stays Clean	241	.....	Apr
Make A Homemade Cappings Tank	445	.....	Aug
Makin' Honey	606	.....	Nov
Making Molded Candles	570	.....	Oct
Manitoba Holds Out	470	.....	Aug
Mann Lake Buys Menthol Permit	691	.....	Dec
March Honey Report	132	.....	Mar
Marla Spivak To Minn.	305	.....	May
May Honey Report	258	.....	May
Mead, The Legend Continues	438	.....	Aug
Meet Bob Russell	348	.....	Jun
Meet John Miller	566	.....	Oct
Meet The Staff of The NHB	41	.....	Jan
Menthol Available for 1 More Year	113	.....	Feb
Metaphors	420	.....	Jul
Mexico Denied Privileges	468	.....	Aug
Michigan Honey Queen	364	.....	Jun
Mississippi Split	560	.....	Oct
Miticur Gets Section 18 Label	113	.....	Feb
More Food	175	.....	Mar
More Trees Mean More Bees	580	.....	Oct
Moving Experiences	510	.....	Sep
National Honey Month	523	.....	Sep
Nature Center Attracts Beekeepers	515	.....	Sep
Nectar On My Boots (Candy Boards)	556	.....	Oct
Nectar On My Boots (Privilege)	492	.....	Sep
New Editor	414	.....	Jul
New Honey Plant	690	.....	Dec
New Journal On Disk Available	581	.....	Oct
New Phone #	693	.....	Dec
New Standards For Honey	526	.....	Sep
New Zealand has Ulcer Treatment	57	.....	Jan
Nor-Am Sells Amitraz	303	.....	May
Northern Exposure	208	.....	Apr
Northern News	365	.....	Jun
November Honey Report	602	.....	Nov
October Honey Report	542	.....	Oct
Ohio's Cobey Wins Leadership	55	.....	Jan
Ontario Beekeepers Reject Program	524	.....	Sep
Organic Awards	177	.....	Mar
PA Calendars Ready	581	.....	Oct
Pesticides Causing Problems in B.C.	468	.....	Aug
Photinia	623	.....	Nov
Pieces of April	248	.....	Apr
Pollen	693	.....	Dec
Pretty Posters	468	.....	Aug
PRIDE Program	526	.....	Sep
Private Label	142	.....	Mar
Production Numbers	693	.....	Dec
Pseudoscorpions	389	.....	Jul
Queen & You, The	204	.....	Apr
Q & A	112, 171, 236, 296, 356,		
.....	412, 463, 519, 577, 633, 687		
Quick Nutrition Quiz	56	.....	Jan
Quintero Honored	363	.....	Jun
Raising Cane In The Sugar Industry	579	.....	Oct
Ranchers Get Break	58	.....	Jan
Rattler!	684	.....	Dec
Repair! Don't Replace	92	.....	Feb
Research Review	12, 74, 134, 200, 328,		
.....	384, 432, 488, 604, 658		
Reserve Land Up	690	.....	Dec
Resistant Bees	78	.....	Feb
Royal Jelly Update	470	.....	Aug
Scentry, Inc. Sold	690	.....	Dec
Section Honey - How To	146	.....	Mar
Selling Honey	88	.....	Feb
September Honey Report	486	.....	Sep
Shorts	115, 176	.....
Show & Tell Kit	303	.....	May
Simple Tricks With Your Computer	103	.....	Feb
Slow Vehicles Are Trouble	580	.....	Oct
Small Pleasures, Dumb Work	644	.....	Nov
So, How Are The Bees?	120	.....	Feb
Soil Conservation Service			
Gets Budget Boost	57	.....	Jan
Spring Tonic	206	.....	Apr
Spring - Yes, They Made It	157	.....	Mar
States Rights	506	.....	Sep
Stay Natural	513	.....	Sep
Stock Program Gets off the Ground	57	.....	Jan
Subduing Stinging Insects	394	.....	Jul
Sugar News	692	.....	Dec
Summertime & The Living Is Easy	346	.....	Jun
Sunflower Growers Want Parathion	305	.....	May
Survey Counts Bees & Keepers	580	.....	Oct
Swarm Story	275	.....	May
Sweet Spot	228	.....	Apr
Take PRIDE In Your Work	447	.....	Aug
Take The Bite Out Of Fire Ants	268	.....	May
Tax Tips Affect Beekeepers	114	.....	Feb
Teasel	107	.....	Feb
To Bee or Not To Bee	152	.....	Mar
Tops and Bottoms	629	.....	Nov
Trade Increasing	175	.....	Mar
Trees Safe	177	.....	Mar
Try Two Queens	137	.....	Mar
Turn About Is Fair Play	504	.....	Sep
Ultimate Pollen Trap, The	668	.....	Dec
Uncommonly Good	612	.....	Nov
Until We Mead Again	476	.....	Aug
Up Close & Personal 18, 203, 331, 436, 663			
USDA Big!	365	.....	Jun
USDA Info	304	.....	May
USDA Names New Board Members	364	.....	Jun
USDA Under Review	468	.....	Aug
Varroa In Canada	636	.....	Nov
Vitex	297	.....	May
Warm Bees Are Very Happy Bees	624	.....	Nov
Wasp Trap Can Be Trouble	303	.....	May
Wax Works	546	.....	Oct
Weather Watcher	334	.....	Jun
Western Group Meets In Oregon	413	.....	Jul
Wetlands Down	413	.....	Jul
Wetlands Problems	582	.....	Oct
What A Mess!	517	.....	Sep
Wilson Wins Award	690	.....	Dec
Winston Wins Hambleton	361	.....	Jun
Wooden World	80	.....	Feb

1992 AUTHOR INDEX

AUTHOR	PAGE
Bayes, Jim	372
Bedford, Faith Andrews	47
Bianchi, John	152
Bonney, Richard E. 120, 406, 570, 612, 676	
Bulling, Larry M.	498
Burt, Steve	103
Caron, Dewey	157, 348, 389, 506
Cobey, Sue	15, 204
Cole, Charles	268
Collison, Clarence	136, 205, 266, 332, 385, 434, 493, 545, 601, 660
Cox, Don, Sr.	532
Dalby, Richard	248
Damerow, Gail	340
Drapkin, Dr. Herbert	600
Drummond, Mike	312, 476
Duncan, Dave	280
Dunham, Marshall	161
Dutton, T.J.	517
Edmilson, Reire Dóred	336
Eisenmann, Gwen	588
Erickson, Eric	394
Estes, John	394
Flottum, Kim	4, 30, 68, 124, 146, 188, 252, 316, 376, 393, 424, 480, 536, 560, 592, 606, 648, 671
Fretz, J. Herbert	350
Goltz, Larry	352
Harman, Ann	43, 90, 150, 226, 288, 334, 390, 460, 504, 508, 568, 681
Holden, Bill	88
Krepela, Rick	490
Lawrence, Timothy	15
Loper, Gerald M.	338
Moore, Pamela	212, 393, 438
Morse, Roger	12, 74, 96, 134, 146, 200, 222, 270, 328, 384, 432, 465, 488, 552, 604, 658
Ott, Jeff	80, 228, 393, 546, 626
Patterson, Rich	515
Petersen, Stephen F.	624
Royce, Lynn	18, 203, 331, 436, 663
Rybak, L. Edwin	679
Sarling, A.J.	208, 290
Sames, Bill	24
Sammataro, Diana	393
Sanford, Dr. Tom	492, 556, 661
Scott, Howard	420, 644
Showler, Karl	282
Simon, Charles	275, 452
Smucker, Kendal	445
Snowdon, Dr. Jill	20
Spence-Allen, Pamela	438, 573
Stringer, B.A.	18, 52, 107, 203, 297, 331, 403, 436, 502, 564, 623, 663
Swartz, Walter	142, 616
Taber, Steve	78, 294, 354, 513
Taylor, Richard	50, 110, 168, 233, 298, 358, 410, 464, 521, 575, 632, 686
Tilton, Lynn	278
Tontz, Clay	684
Underwood, Benjamin	664
Van Eaton, Cliff	494
Waller, Gordon	435
Wiser, O.B.	64, 100, 137, 217, 286, 346, 386, 449, 510, 558, 629, 668

BOOK REVIEWS

A Compound of Excelsior	198
Ice Cream, The Whole Scoop	326
Killer Bees, The Africanized Honey Bee In The Americas	327

OBITUARIES

Hubbard, Leland M.	526
Richardson, Berthier W.	177
Root, Alan I.	1

NEW VIDEOS

Bear Fence Video	429
Extracting Honey For The Small Scale Beekeeper	198

NEW PRODUCTS

ANP Inserts	198
Barrel Harness	429
BeeWare	130
Nuc Box	130
Seeds of Change	130
Simon's Unfoundation Frame System	9
Sliceable Honey	581
Spelling Bees Game	655

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Display Index

Bees & Queens

Glenn Apiaries	658
Hardeman Apiaries	654
Hawaiian Queen Co.	654
Holder Homan	670
Koehnen, C. F. & Sons	678
Kona Queen Co.	680
Miksa Honey Farm	667
Mitchell & Munsen	653
Pendell Apiaries	692
Plantation Bee Co.	678
Rossman Apiaries	657
Shuman's Apiaries	667
Strachan Apiaries	667
Weaver Apiaries, Inc.	661
Weaver, How. & Sons	653
Wenner Honey Farms	670
Wilbanks Apiaries	667
York Bee Co.	650

Education

American Honey Producers	Bk Cov
Global Nature Tours	658
Hobby & Art Work	662
Linden Books	682
Tontz Publishing	696
WICWAS Press	653

Equipment

Better Way Wax Melter	683
B.J. Sherriff	680
CC Pollen	657
Clement's Apiaries	678

Cook & Beals	667
Cowen Mfg. Co.	657
Dakota Gunness	678
Glick's Custom Tarps	683
Miller Wood	680
Pierco Inc.	654
Pourette	670
Simon Super Frames	653
Southwestern OH Hive Parts	659
Stoller	670

Related Items

Beehive Botanicals	662
Bob Berthold Candle Molds	678
Candlewic	661
Cricket Science	662
Custom Labels	670
Decker Jewelers	685
Rich Fleming Beeswax	667
R. M. Farms Labels	662
St. Simons Trading Co.	661

Suppliers

B & B Honey Farm	670
Better Bee	657

Brushy Mtn. Supplies	653
Cedarbrook Lumber	667
Chrysler, W.A. & Son	662
Dadants	Inside Front Cover
Draper's Super Bees	662
Jones, F. W. & Son	667
Kelley, Walter	701
Mann Lake Supply	659
Maxant Industries	654
Mid-con	662,680
Perma-Comb Systems	697
Randall's Wax Works	678
Root Publications	650,703,704
Scentry	659
Zocon	Inside Back Cover



“T

is the season to give thanks as well as presents. So in the spirit of the season I'd like to give thanks for the following:

Thanks to the weather. Dry though it was, it could have been worse, and next year's bound to be better.

Thanks to the farmer who let twenty acres of alfalfa stand in full bloom for a week. Without that alfalfa my honey crop would have been less.

Thanks to the lady who wrote to tell me how much she liked my honey.

Thanks to the black locust trees for blooming in profusion. The sweet scent of those blossoms made several spring evenings memorable.

Thanks to the one hive of bees that managed, despite wind and cold, to gather a shallow super of black locust honey. Such thick, delicious, incredible stuff. All of it saved for special friends.

To all of my other hives, thanks, too. You all managed to gather a super of honey in a parsimonious season.

Thanks to all the authors of articles in *Bee Culture*. You might be surprised how often I refer back to them.

A special thanks to the little girl who praised my comb honey, telling her mother she loved that "real, wild honey"

Thanks to my father, for letting me turn the extractor (and sample the results) all those years ago.

To that little July swarm which took up residence in a bait hive, thanks to you, too. There weren't many of you when you moved in, but your queen is a beauty and I'm expecting great things from you next season.

Thank you to the boy on a bicycle who stopped for a time to watch me work a hive and ask me some questions. I hope your interest in bees continues.

Thanks to the fellow who took the time to look me up to buy a can of honey. I enjoyed chatting with you for a few minutes about bees.

To the seldom-praised rabbitbrush, thanks for blooming again this year, despite the drought. As always, you did much to help my bees stock their pollen pantries for winter.

Thanks to the elderly man who bought two quarts of my honey and thought I was charging too little for it. You made my day.

To the young man at the bee supply place in the big city, thanks for remembering my name (and address) though I hadn't been in for several years.

Thanks to my grandfather, for all the stories he used to tell me about his adventures in beekeeping.

And a special thanks to you, dear reader, each and every one of you.

'Tis The Season

RICHARD DALBY

BOTTOM BOARD