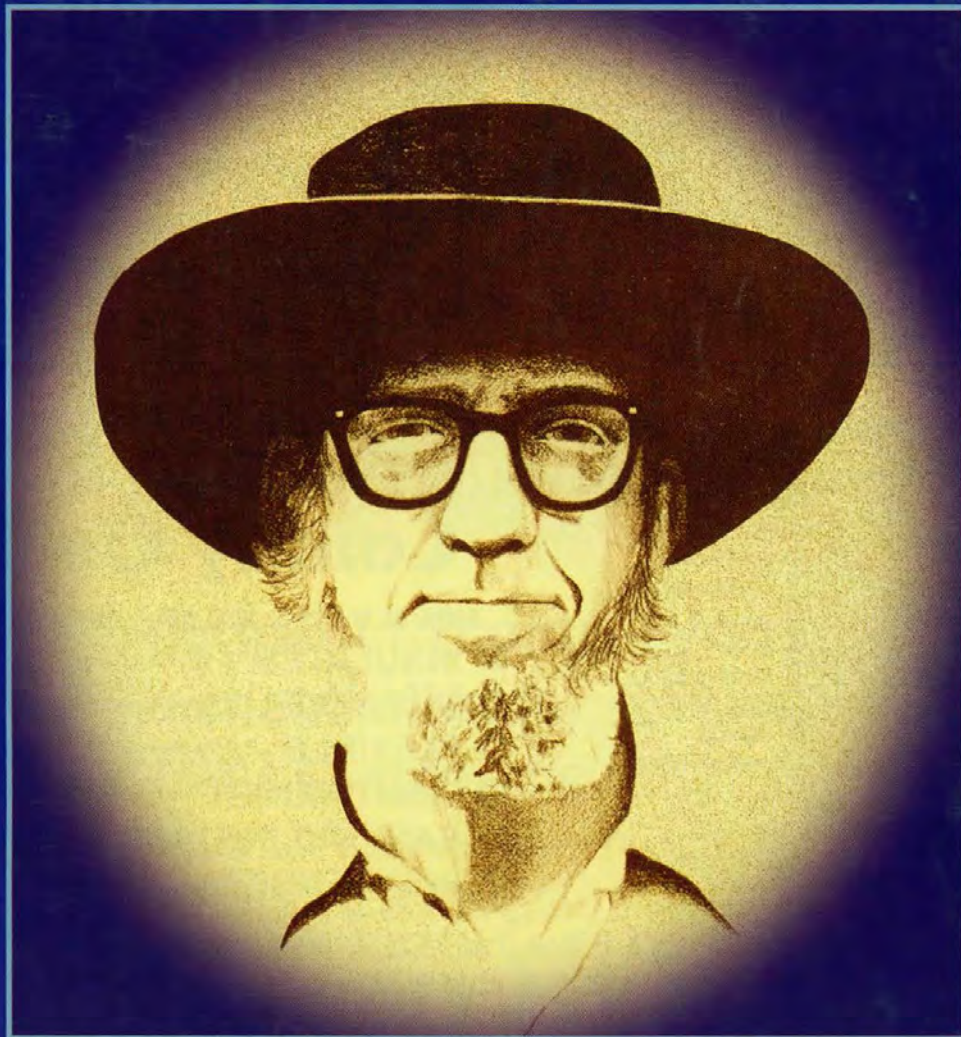


The Story of Flight . . . 32
Sucking Swarms . . . 43
Wild Blueberry Lawsuit . . . 58
Richard Taylor . . . 64

JAN 2004

Bee Culture



Richard Taylor
1919-2003

ROOT™

PUBLICATIONS

Catch The Buzz

www.beeculture.com



Richard Taylor, 1919-2003
A joyful voice is silent.

Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

JANUARY 2004 VOLUME 132 NUMBER 1

FEATURES

STIMULATING DRONE DEVELOPMENT DURING WINTER IN FLORIDA 27

Making days longer may make the difference.

Larry Connor

THE STORY OF FLIGHT 32

A.I. Root, the Wright Brothers, and the story of flight – a footnote in history.

David Morris

LIVING LARGE 38

Life with a large observation hive. Warts and all.

James E Tew

FROM WAX TO BRONZE 41

The lost wax process casts statues, and history.

Les Sedy and Laszlo Boesze

SUCKING SWARMS 43

A water bottle, a funnel and a handvac. Easy as 1 2, 3.

Don Sperry

TRY BEFORE YOU BUY 45

How much shouldn't be the only question you ask.

Peter Sieling

MEETING PLANNING 47

A multi-part series. First, where and when. And lunch.

Ann Harman

RICHARD TAYLOR 64

1919-2003.

Kim Flottum

800.289.7668 • www.BeeCulture.com

Publisher – John Root

Editor – Kim Flottum, Ext. 3214, kim@BeeCulture.com

Production Coordinator – Kathy Summers, Ext. 3215, kathy@BeeCulture.com

Circulation & Advertising – Dawn Feagan, Ext. 3220, dawn@BeeCulture.com

Publications Sales – Jim Thompson, Ext. 3255, jim@BeeCulture.com

Contributors

Steve Sheppard Mark Winston Clarence Collison

Ann Harman • James E. Tew

Malcolm T. Sanford Wyatt Mangum

Subscription Information

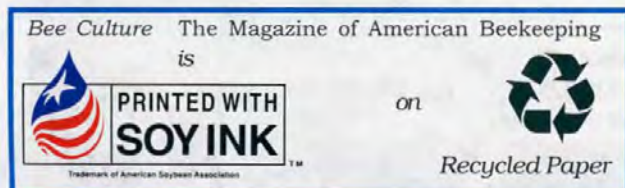
U.S., one year, \$21.50; two years, \$41. Newsstand price: \$3.50. All other countries, (U.S. Currency only), \$15.00 per year additional for postage. Send remittance by money order, bank draft, express money order, or check or credit card. Bee Culture (ISSN 1071-3190), January 2004, Volume 132, Issue 1, is published monthly by The A.I. Root Co., 623 W. Liberty Street, Medina, OH 44256. Periodicals Postage Paid at Medina, OH and additional mailing offices.

Advertising

For information on placing display advertisements, contact Dawn Feagan in our Advertising Dept. 800.289.7668. Ext. 3220

POSTMASTER: Send address changes to BEE CULTURE, The A.I. Root Co., 623 W. Liberty St., Medina, OH 44256

Published by The A.I. Root Co. Copyright© 2004 by The A.I. Root Co. All rights reserved.



DEPARTMENTS & COLUMNS

- MAILBOX** 5
- THE INNER COVER** 8
USDA, The National, Richard.
 Kim Flottum
- NEW FOR YOU** 9
Books – For Love of Insects; Following The Bloom; Pumpkin Production Guide. Also, Ventilated Beehive Cover
- HONEY MARKET REPORT** 10
Small Hive Beetle.
- RESEARCH REVIEWED** 13
Is there a fungus among us ?
 Steve Sheppard
- GORMANSTON** 15
The Irish beekeepers on their own have developed an elaborate system of training and education that rivals the best I have seen anywhere in the world.
 Mark Winston
- MINNESOTA BEE RESEARCH AND EXTENSION** 19
Good things keep coming from the land of 10,000 lakes.
 Malcolm T Sanford
- BEE CULTURE'S BEEYARD** 23
A desperate situation with a long shot for success.
 James E Tew
- PAST PIECES** 51
A new and improved Clark smoker – What will they think of next?
 Wyatt Mangum
- DO YOU KNOW?** 53
What do you know about pest management?
 Clarence Collison
- GLEANINGS** 57
All the news that fits.
- CLASSIFIED ADS** 61
Buying and selling.

From Our Authors . . .

Past & Present

Mark Winston

Biology Of The Honey Bee, \$23.49

281 pages, black & white, soft cover

From Where I Sit, \$20.45

171 pages, soft cover



Roger Morse

ABC & XYZ, \$32.50

516 pages, hard cover, black & white

New Complete Guide To Beekeeping, \$17.49

207 pages, soft cover, black & white

Making Mead, \$20.45

127 pages, soft cover, black & white

Rearing Queen Honey Bees, \$17.45

128 pages, soft cover, black & white

Honey Bee Pests, Predators & Diseases, \$43.00

718 pages, hard cover, black & white

Beeswax, \$12.50

192 pages, hard cover, black & white

Honey Shows, \$10.00

35 pages, soft cover, black & white



Dick Bonney

Beekeeping,

A Practical Guide, \$20.50

184 pages, soft cover, black & white

Hive Management, \$17.99

152 pages, soft cover, black & white

Richard Taylor

The How-To-Do-It, \$17.45

320 pages, soft cover, black & white

Joys of Beekeeping, \$7.50

160 pages, soft cover, black & white

Beekeeping For Gardeners, \$3.95

52 pages, soft cover, black & white

Best Of Bee Talk, \$9.99

147 pages, hard cover, black & white

Comb Honey Book, \$12.50

124 pages, soft cover, black & white



Jim Tew

Beekeeping Principles, \$19.00

245 pages, soft cover, black & white

Clarence Collison

What Do You Know, \$39.95

432 pages, soft cover, black & white



All Books Postpaid in U.S.

ROOT

The A.I. Root Company

ROOT

623 W. Liberty St., Medina, Ohio 44256

800.289.7668, Ext. 3255

KEEP IN TOUCH

Write: Editor, 623 W. Liberty St.,
Medina, OH 44256

FAX: 330-725-5624

EMAIL: KIM@BEECULTURE.COM

A Better Way?

There must be a better way to medicate bees in the Fall, than to tear a whole hive apart in order to get to the brood chamber to sprinkle Terramycin over the top bars in that chamber. Why not sprinkle the medicine at the entrance and let the bees carry it to where it might do some good. Does anyone have alternative suggestions that might be effective?

John J. McKelvey, Jr
Richfield, NY

Editor's Note: Those bees most likely to encounter the medication in the brood nest are house bees, those who routinely feed larvae, the only group susceptible to brood diseases in the colony. Field bees are at the entrance, not as likely to encounter larvae. Inconvenient, yes. Effective, yes. The label, definitely.

This & That

Walt Wright's article about double deeps was just a bunch of baloney, I think. Many good beekeepers use double deeps with good success. I know you have to fill the magazine but I also suppose you say, "well it takes all kinds" and let the article go.

Any beekeeper knows that bees will move up if they have a choice and very rarely move down. Now, they will move down if they have a continuous comb such as in the wild, a tree etc., but their natural movement is UP.

A different subject, Jim Tew is the best writer you have now that Richard Taylor and Roger Morse are gone. Don't lose him (Jim) or we will all be in trouble.

Also, on the article "Is Agritourism In Your Future?" I enjoyed it and can understand some people using that method and find nothing wrong with it. But the beekeeper who can't make money with price of honey out there now, needs to pursue another line of work. I

MAILBOX

like the price of today and I also made money when honey was 47 cents a pound.

Doug Branch

Sweeteners A Hit

Except for a few years when the mites first hit and I left beekeeping aside – the bees didn't care but pretty soon I did and was so happy to get involved with them again – I have been a steady subscriber to *Bee Culture* for about 20 years. And over the years I have found the magazine to be interesting, educational, and enjoyable.

With the article entitled *Sweeteners*, by James Fischer, in the September issue, you have certainly reached a new height. Mr Fischer writes with such clarity that very difficult and obscure things become clear and intelligible. I found myself reading on and on, enjoying what was the most informative article I've read in years. And then I was laughing out loud. He makes his points in a very convincing way with his understanding of science, but makes the points even stronger with his sense of humor. For example, his words on Table Sugar "Note the subtle use of the word 'table,' implying that it belongs on the dinner table, rather than locked up with the guns, cigarettes, booze, explosives, and other dangerous items. Does anyone label their honey 'table honey?'" I thought not. No wonder the sugar bowl never leaves the kitchen table, while the honey is hidden in a cabinet, behind several other bottles."

Mr. Fischer is a winner, I hope there will be more opportunities for him to write.

Jeffrey Hamelman
Hartland, VT

Fire Ants

This is a real problem here in

East Texas. Occasionally they will completely destroy a hive.

It has been possible to discourage the ants, to some extent, with insecticide, but this method can prove fatal to the bees.

No doubt there are many beekeepers in this part of the state who would appreciate any helpful information on this problem.

Weldon Grimsley
Longview, TX

Editor's Note: Texas Department of Ag has several excellent publications on fire ant control, at least one specifically for beeyards. A multitude of resources are available on the web from several states.

History Lesson

History is replete with commodity prices rising and falling. Honey is no exception. The price of honey is a function of demand and supply. Over the past 60 years, disruptions in the supply of honey occurred either by Nature or artifice. Examples of artifice include government programs during WWII, storage programs in the 80's, or the Anti-Dumping Suits [AIDS] of the 90s.

Present high prices are the result of a supply disruption due to two artifices. AIDS, and purity allegations. Prices are near all-time highs. Observers are now familiar with AIDS. The problem with AIDS is, it is expensive, and it is temporary. Markets either contract, growth opportunities are lost, or by other means, supply is restored. Observers see this repeat.

Purity allegations are less predictable disruptors of supply, because they can also impact demand. No standards of purity exist for honey. Any fool can say any thing. Honey enjoys the unique ability to go from 'Healthy, Good For You Honey' to 'Honey,

Continued on Next Page

MAILBOX

Maybe It Won't Kill You'- in one day. Any fool can say anything about honey. Lack of standards has been an issue in this industry for over a century.

Another related threat is not new. We have not seen it for some time, but it has returned. Honey Blends consist of sucrose, or fructose, or maltodextrin, or an amalgam of sweeteners. These products compete directly against the pure product. Honey Blends will be better than ever this time around. Sweetener Technology among all sweeteners, save honey, has advanced rapidly over the past ten years. Honey blends are merely a phenomena of price opportunity. Higher prices invite competition in all endeavors. Examples are everywhere. Lactose cuts cocaine. Hamburger undercuts steak. Margarine undercuts butter. Paraffin undercuts beeswax. Sweetener amalgams undercut honey. Why not? Prices are high. No defensible standards exist.

The industry has dithered for six years since 1998 purity proposals failed. The whisper campaign of 'honey house police' was a lie. Bill Clinton would have been impressed with the disingenuousness.

One industry group flagellates itself over AIDS and endless legal challenges. One industry group flagellates itself over USDA laboratories circling the drain. One industry group seeks standards, then recoils at the prospect of actually achieving them. The honey industry is in pathetic dysfunction.

This creates the perfect opportunity for Honey Blends. Honey's latest hundred-year history is full of chest thumping for purity standards. The industry has thus far, a perfect record on purity issues.

There is no question the price of honey will fall from present levels. The question is: What change will occur to make it happen? In a market free of artifice, the supply rises to meet rising demand. Production agricul-

ture has demonstrated, repeatedly, the ability to respond. Some industries more quickly than others. The U.S. honey production industry has taken a pass, twice failing to increase supply, domestically, while artifice blocks supply. This condition cannot endure.

The honey industry endures prosperity poorly. A small group will drive change. An equally small group will thwart change. Progress will be achingly slow.

John Miller
Gackle, ND

PIB & NHB

I have just returned home after a very enjoyable California State Beekeepers Convention at Lake Tahoe. Many excellent topics were presented by interesting speakers. Of considerable interest was the topic of the proposed Packer-Importer Board, (PIB), and the future of the National Honey Board, (NHB), and the Anti-Dumping issue.

Lyle Johnston and Steve Park presented the view of the American Honey Producers Association. When all was said and done, AHPA said that they will no longer file for termination referenda, but they will not drop the current law suit against the NHB demanding refunds back to year 2000, nor will they drop the constitutional issue lawsuit. They also stated that they were unwilling to support the PIB, and that the only way they might support the NHB is for a refund provision to be included in the Act. They also made a pitch for more donations to support the Anti-dumping suits' continuing costs.

Pat Heitkam presented the actions taken by the American Beekeeping Federation Board of Directors supporting the PIB and the just completed continuation referendum, and explained that without the support of the packers and importers, the referendum most likely would have failed. An agreement was made that in exchange for the packers and importers support in this referendum, the ABF would work toward helping establish the PIB. George Hansen presented the work of the

PIB steering committee, pointing out the compromises that each side had made. AHPA was also a member of that committee.

At the annual business meeting a resolution was presented and passed to support the current NHB and to work for meaningful changes to enhance its ability to function, and to oppose the proposed PIB.

It seems to me that if AHPA really wants to help the American beekeeper, they would immediately drop all of their law suits and challenges to the NHB. They should then work to help make meaningful and constructive changes to the NHB, so that the NHB could devote more time and energy to Production Research, Honey Quality and Purity issues, and Promotional Activities.

Refunds of assessments are not a part of this picture. Our industry is in sad shape, and we need help! The NHB is, and will be a valuable asset in determining that help.

If this would happen, I believe that AHPA would see an immediate increase in donations to the Anti-dumping cases they are pursuing, maybe even an increase in their membership level. Many beekeepers, even some of their own members, at this convention had expressed that very same sentiment.

I also believe that the ABF Board of Directors need to reassess the decision to support the PIB in light of the outcome at this convention, especially since several other states have also voiced continued support for the NHB. The main reason that the packers and importers had supported the NHB in the last referendum was to keep the NHB in existence until they could get the PIB up and running. The fear of losing this invaluable resource, even for a few months, was not an option.

If AHPA would become a constructive partner in saving the NHB, the PIB would not be an issue, and probably would be withdrawn from the table. Maybe a producer only board would be the final outcome. This would eliminate the problem of total generic promotion, and could be the WIN-WIN solution we all seek. Forget

MAILBOX

about the 1 cent advantage imported honey would have. Currently that 1 cent is immaterial to the beekeeper price of honey, as honey prices always have been all over the board, with price negotiation being the biggest factor in setting the price.

I urge all beekeepers to let their state and national beekeeping organizations know that the NHB is one of the solutions to our problems, and encourage them to work towards that end. Constant

negativity produces no gain, and only encourages the lack of enthusiasm and vitality to accomplish great things.

I challenge AHPA to go forward and benefit the whole beekeeping industry, not just their own pocket book. Without strong, healthy, and uncontaminated colonies, our industry will collapse.

I challenge ABF to go forward without fear of losing the NHB, and support that institution to the fullest. Encourage APHA to get on board and do the right thing. California beekeepers have

spoken, and they want the NHB to continue, the PIB to be put to rest, and encourage all beekeepers to stand up and fight for one of our only bright lights of the future.

I believe that both national beekeeping organizations would benefit from increased membership and support. The constant fighting has hurt both organizations and has made enemies of good friends. Bite the bullet and help US Beekeeping to Flourish!

Bob Miller
Watsonville, CA

SAFE HIVE

patented -

Observation hive -

1 1/2 Frame \$75 - 1 Frame \$45
+ \$20 S&H (U.S.A.)

New

"Pack - Run and Show"

Pine Kit \$35 + \$10 S&H

Free Brochure

Safe Hive

P.O. Box 91046, Tucson, AZ 85752-1046

Email: Safehive@aol.com

CARNIOLAN, ITALIAN, RUSSIAN & SMR QUEENS

Excellent Honey Producing

Fumidil-B fed colonies and nucs • February to May shipments
Airmail postpaid - Live delivery and prompt service guaranteed
Now booking orders for 2004. Call or write for prices.

Terms: 10% deposit with order. Balance due 2 weeks before shipping.

PACKAGE BEES AND NUCS WILL BE DELIVERED TO MI AND WI IN APRIL.

HONEY LAND FARMS

CARRY FRESOVIC



FL 352.429.3996, WI 920.528.1528, Cell 262.689.1000 • 22146 O'Brien Rd.
Howey In The Hills, FL 34737 • email: honeylandfarms@aol.com

??? Why use poison in your beehives ???

Use Mite Solution

Double blind studies and thousands of satisfied customers have proven that

Herbal Jelly applied thru front entrance is all you need

1 Packet treats 10 hive bodies for 1 year - \$18.00

5 Packets treat 50 hive bodies for 1 year - \$75.00

Concentrated Mite Solution capsules come ready to mix

1 cup treats 25 hive bodies \$11.00; 1 pint \$20.00; 1 quart \$38.00

A calm hive works harder.

Questions? Call 360.225.9631 or email: sltuttle@netzero.net

Tuttle Apiary Labs, 3030 Lewis River Rd., Woodland, WA 98674

Propolis Traps

Reusable molded plastic



www.propolistrap.com

Phone: (586) 752-9850

Fax: (586) 752-1809

Plastic Honey Containers

UNBREAKABLE, LIGHTWEIGHT, ATTRACTIVE



• HONEY BEARS 8, 12, 24 and 32 Oz., 38-400 neck finish. 8 and 12 Oz. Also available in K-resin, flip-top

• ROUND SKEP style bottle 24 Oz., 38-400 neck finish. Clear pet plastic, bulk package & 12 count box.

• ROUND SKEP style bottle 16 Oz., 38-400 neck finish. Clear pet plastic, bulk package & 12 count box.



Sailor Plastics, Inc.

8 Maine Ave., P.O. Box 309

Adrian, MN 56110

507-483-2469 • Fax 507-483-2777

1-800-380-7429

E-mail: sales@sailorplastics.com

Website: www.sailorplastics.com

• QUEENS LINE style jars 1# and 2# 38-400, 1# 58-400, 2# 63-400 Neck. Bulk package & 12 ct. box. Clear pet plastic, caps available.

• CYLINDER style, 12 Oz., 38-400 neck finish.





INNER COVER

An Open Letter To Ms. Ann Veneman, Secretary, USDA

Ms. Veneman,

January is, without doubt the silliest month for the USDA Honey Bee Research community. For it is this month that scores of your highly paid, poorly funded scientists tramp to meetings in random places in the U.S. to strut their research stuff. They do this in front of, maybe, a couple

hundred of *your* stakeholders. They will each give, on average, 1.25 presentations to these groups, using expensive laptop computers, and generally the poorest PowerPoint presentations imaginable.

There are exceptions, of course, when it comes to the PowerPoint thing, but they are rare. It is obvious that you pay these people by the word, else they wouldn't cram so many bullet-pointed phrases onto so small a space, with backgrounds of such outlandish color and design choices as to make even Alice blush. But I digress.

For this activity these people get yet another line on their résumé. But without the benefit of a review, a judgment or a critique of the merit of the information or quality of presentation – by those who are exposed to these events.

And you, too, Ms. Veneman, get notice and credit for the continued exposure of your minions to your stakeholders. It is a win:win:? situation for certain.

And then, after this annual sideshow, these scientists return again to their warrens of solitude, and quietly go about whatever it is they do the rest of the year. This, it should be noted, with thousands of fewer dollars available to do what they do best.

May I suggest an alternative plan?

Rather than spend critical, very critical dollars on travel and computers and hotels and missed work, to reach a very, very tiny number of *your* stakeholders, would it not be wiser to have these same scientists routinely publish their work in places where thousands and thousands of *your* stakeholders would gain from the information?

Yes, changes need to be made. For starters, you would have to actually give these scientists career credit for doing this. These folks are neither rewarded or appreciated, now, for providing stakeholder-paid-for information. I mean, how crazy is that? An internal, peer reviewed article would, and should be given more weight on a résumé than a routine, maybe boring talk in a half-filled room don't you think? Moreover, these articles would have to pass the final hurdle of being acceptable to the market place – is it readable, well written and informative?

And from a stakeholder's perspective, wouldn't reading the latest information, straight from the researcher who did the work, rather than through the filter of a reporter or PR interpreter be more direct, and more accurate?

Your argument that these same scientists need to venture from their Ivory Towers on occasion to mix and mingle with the great unwashed holds merit, I agree. But, you already have in

place meetings of industry and science, that, given adequate attention on your part would serve some of that purpose, I think. That purpose, certainly, is to mix and mingle, but also to be frugal with money that could be better used elsewhere, right?

Even sending one or two of these scientists to these distant meetings, having them give reviews of the lab's projects and then meeting with those in the industry they work with would save thousands of dollars, get the word out, and as importantly, get input from those they work for

Ms. Veneman, I trust you will consider these comments not as criticisms, but as an opportunity to enhance the communication between *your* scientists, and *your* stakeholders. We will all benefit if you do.

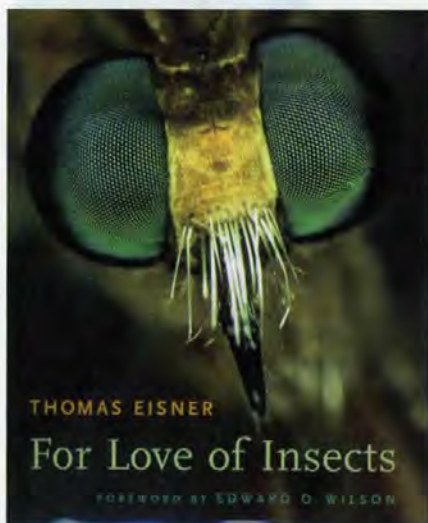
Thank you.

Continued on Page 49

Timely Topics

•
Richard

NEW FOR YOU IN 2004



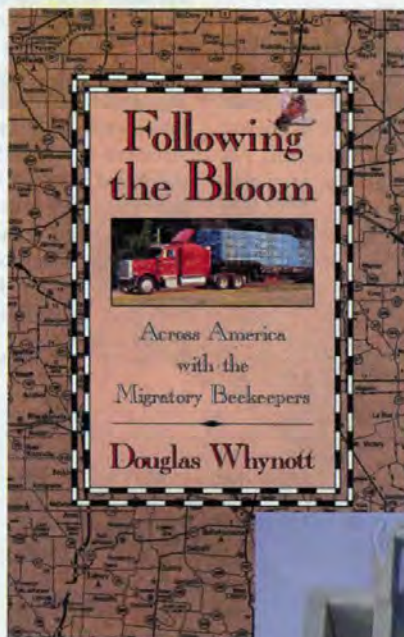
For The Love Of Insects. Thomas Eisner 448 pages, 9"x8". Hard cover, color throughout. Harvard University Press. \$29.95. ISBN 0674011813.

Thomas Eisner, one of the world's most eminent biologists, provides a retrospective account of his lifetime of discoveries of exotic insect behaviors. In his new book he celebrates the small creatures that have emerged triumphant on the planet. Mostly, he explores insects that protect themselves chemically...why do ladybugs smell? Blister beetles that squirt boiling water, sawflies that spit resin, termites that spray glue...all are fodder for exploration, and stunning photography. Eisner's book is candid, entertaining, funny, stimulating, and informative. This book will interest the general reader, but especially the naturalist, the naturalist in the making, and even beekeepers who encounter some of these on occasion.

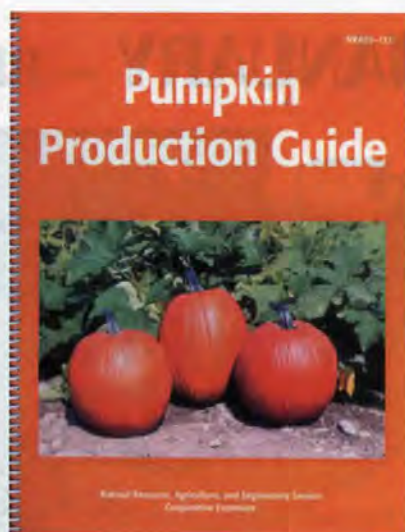
Ventilated Beehive Cover This cover uses a framed, stainless steel mesh screen in place of an inner cover. It is fastened at the top super so it remains in place with screws, but a less permanent means can be devised once you have it on your colony. The outside covers is oversized, so there is a space around all four sides, and in between the top of the screen and the inside of the cover. Bees will propolize the edges of the screen about an inch or so, according to the

Following The Bloom. Douglas Whynott. Tarcher/Penguin. Soft cover, 246 pages, 6"x9" B&w \$18.95, available from *Bee Culture* upon publication in February.

First published in 1991, this book follows the trials and tribulations of some of America's migratory beekeepers. It is about the day to day business of moving bees, fixing trucks, finding locations, a bit of science, myth and mayhem thrown in. Whynott spent a year riding and helping and learning the migratory life style. It is a window on a world most of us will never see. Since 1991, much has changed, but much has remained the same, and if you missed this book the first time, catch it now, with a few photos added, and an update on Andy Card's business, and his sons. It's a trip we'd all like to go on.



manufacturer. It was designed and tested in Wisconsin. \$32.00 + p&h from Norman DeYoung. P.O. box 777, Beetown, WI. 53802.



Pumpkin Production Guide. Natural Resource, Ag & Eng. Service, Coop Extension, Ithaca, NY Soft Cover, spiral bound, color 152 pages, 8"x11", \$42.50 from *Bee Culture*, pp in U.S.

Pumpkin pollination is becoming big business for small scale pollinators. Price/colony, colonies/acre and total number of colonies rented on this crop increases every year. Yet, many pumpkin growers still consider the crop marginal, and neglect many of the basics of producing good fruit. Pollination is often one of those basics. Thus, they realize reduced yields and income. This book will help. If you pollinate pumpkins, or want to, knowing the information from this book will make you, if not an expert, at least a well informed pollinator, and help them increase yields, profits and expectations. If you're in this business, this book is for you.



JANUARY - REGIONAL HONEY PRICE REPORT



Our Small Hive Beetle Survey indicates that these pests have been found in regions 1,3,4,5,6, and 7 by our reporters. Certainly this does not imply that SHB isn't in other regions, nor that all reporters in a region are encountering this pest. What treatments are being used and are they successful, and honey house practices were also examined.

Region 1.

Bulk, wholesale and retail prices steady since December, pails up. Minimal problems with SHB, Gardstar and Checkmite working to control, and rapid extraction helps.

Region 2.

Bulk, pails and retail up, wholesale down since last month. SHB not encountered by our reporters.

Region 3.

Bulk prices steady, pails and wholesale up, retail down. SHB present here. Chemicals, moving nucs, reduced entrance and strong hives countering infestation, along with fast extraction.

Region 4.

Bulk down, pails up and both wholesale and retail unchanged since last month. Moderate problems here, but serious in coastal areas apparently. Chemicals not fixing problem, but fast extraction helping.

Region 5.

Bulk and pails prices up, wholesale down, but retail steady since last month. SHB everywhere here. Chemicals, traps, strong colonies in some combination helping. Fast extraction, low humidity honey house and chemicals outside honey house helping after harvest.

Region 6.

Prices unchanged across the board since last month. SHB fairly well distributed here, but not everybody has them. Chemicals, moving colonies, traps, reduced entrances and strong colonies all being used with some success. Low humidity and fast extraction helping in honey house.

Region 7.

Bulk and retail prices unchanged since last month, pails and wholesale up a bit. Spot infestations here of SHB, but so far not deadly. Fast extraction and water on the honey house floor helping.

Region 8.

Bulk and pails unchanged since last month, wholesale up but retail down. No reported case of SHB here, so far, which doesn't mean they're not hiding somewhere, though.

Region 9.

Pail and bulk prices unchanged since last month. However, both wholesale and retail prices down this month. Reports of honey blends on shelves at lower prices suggests competition is stiff here. No SHB reported.

Region 10.

Bulk unchanged, pails down but wholesale and retail unchanged. No SHB reported.

Region 11.

Bulk prices up this month, but all the rest down. No SHB reported.

Region 12.

Pail prices down since last month, all the rest unchanged. No SHB reported, at least until the almonds bloom.

Reporting Regions													History			
	1	2	3	4	5	6	7	8	9	10	11	12	Summary	Last	Last	
													Range	Avg.	Month	Yr.
Extracted honey sold bulk to Packers or Processors																
Wholesale Bulk																
55 gal. Light	1.45	1.50	1.40	1.25	1.50	1.40	1.53	1.45	1.45	1.47	1.80	1.41	1.25-2.00	1.47	1.40	1.23
55 gal. Amber	1.15	1.25	1.34	1.03	1.23	1.25	1.52	1.34	1.34	1.45	1.65	1.24	1.03-1.65	1.31	1.27	1.13
60# Light (retail)	102.25	98.36	108.00	92.44	97.26	105.00	107.51	101.67	110.00	95.00	105.00	99.50	92.44-110.00	101.83	98.12	92.09
60# Amber (retail)	95.00	92.36	102.00	90.30	93.78	92.50	106.67	107.50	100.00	80.00	97.50	89.00	80.00-107.50	95.55	92.61	81.34
Wholesale Case Lots																
1/2# 24's	37.28	33.72	36.96	36.44	36.96	25.60	37.00	36.96	36.96	35.76	25.50	47.21	25.50-47.21	35.53	37.18	32.23
1# 24's	53.19	48.00	57.60	50.25	55.60	56.00	59.54	59.20	49.92	67.80	74.80	68.98	48.00-74.80	58.41	58.50	51.16
2# 12's	50.09	43.91	55.20	46.70	49.18	48.00	52.17	60.60	47.40	57.84	45.00	61.77	43.91-61.77	51.49	50.85	47.85
12 oz. Plas. 24's	48.49	42.78	54.00	41.03	44.60	48.00	46.93	46.80	46.22	43.09	69.50	51.68	41.03-69.50	48.59	45.56	42.08
5# 6's	48.75	52.41	54.72	50.88	54.72	60.00	57.10	50.00	54.80	56.43	42.00	64.50	42.00-64.50	53.86	56.53	49.63
Quarts 12's	62.50	73.32	82.20	68.34	80.43	81.33	80.20	74.20	72.00	82.60	81.00	83.00	62.50-83.00	76.76	76.15	67.00
Pints 12's	41.00	38.95	54.60	41.18	48.36	49.33	46.08	43.00	41.50	50.00	40.00	50.00	38.95-54.60	45.33	44.72	39.92
Retail Honey Prices																
1/2#	2.16	2.49	2.38	2.45	2.29	2.75	2.23	2.49	2.29	2.68	2.24	2.69	2.16-2.75	2.43	2.46	2.39
12 oz. Plastic	2.88	2.96	3.85	2.95	3.17	3.05	2.89	3.21	3.30	3.07	3.32	3.09	2.88-3.85	3.15	3.07	2.77
1 lb. Glass	3.24	3.65	3.95	3.51	3.20	3.82	3.27	4.16	4.03	3.84	4.30	3.99	3.20-4.30	3.75	3.57	3.38
2 lb. Glass	5.69	5.79	6.49	5.37	6.49	5.99	5.76	6.69	6.55	6.73	5.89	6.16	5.37-7.00	6.13	5.97	5.34
Pint	5.42	4.95	5.95	4.94	5.76	5.83	5.15	5.68	4.86	6.63	4.84	5.00	4.84-6.63	6.46	5.59	5.10
Quart	9.25	7.25	9.50	7.10	10.75	9.50	8.39	8.53	7.60	10.50	7.46	8.70	7.10-10.75	8.71	8.53	8.27
5 lb. Glass	12.50	11.98	12.67	12.36	11.20	13.55	11.97	14.32	12.70	12.31	11.96	13.45	11.20-14.32	12.58	12.20	11.65
1# Cream	4.32	4.42	4.51	4.45	4.51	3.80	3.99	4.17	4.51	4.59	4.65	3.91	3.80-4.65	4.32	4.23	4.19
1# Comb	4.50	4.23	3.95	5.12	5.07	4.00	4.37	4.39	5.07	6.00	5.15	5.91	3.95-6.15	4.13	4.85	4.71
Ross Round	4.50	4.00	3.60	4.90	4.69	3.75	4.63	4.50	4.00	5.75	5.44	4.75	3.60-5.75	4.54	4.71	4.05
Wax (Light)	2.45	2.49	2.20	1.71	1.20	2.03	2.04	2.18	2.38	2.25	1.43	2.81	1.20-2.49	1.60	1.43	2.72
Wax (Dark)	1.85	1.45	1.98	1.58	1.10	1.93	1.26	1.60	2.00	2.37	1.50	1.88	1.10-2.10	1.65	1.10	6.26
Poll. Fee/Col.	46.25	38.00	36.00	35.67	35.00	42.50	42.93	40.00	30.00	41.81	31.00	46.88	30.00-46.88	38.84	40.66	38.31

RESEARCH REVIEWED

Explaining • Defining • Using

Steve Sheppard

"The 'take home message' from the study . . . control of Varroa destructor using the fungus was equal to that achieved with the conventional treatment."

Given the high level of concern that beekeepers have for the parasitic mite *Varroa destructor*, it may appear that there is a bias in this column toward reviewing research papers that deal with this critter. Overall, the intention of the column is to cover research articles on a wide range of topics related to honey bee biology. My hope is that this approach will provide readers with a view of the breadth of scientific studies on the honey bee and also pique your curiosity to continue reading about honey bee biology on your own. However, after making such a statement, this month's column again takes a look at a research paper centered on the mite *Varroa destructor*. Why? The novelty of the subject matter (a field trial using a fungus to control mites in beehives) was just too alluring...plain and simple.

The authors, researchers at the USDA-ARS Beneficial Insects Research Unit in Weslaco Texas, describe research results from their investigation on the use of a fungal pathogen (*Metarhizium anisopliae*) to control *Varroa destructor* in honey bee colonies (Kanga et al. 2003). This fungus had previously been shown to be lethal to the mites, but in this study Kanga et al tested the fungus under actual apiary conditions and with differing application methods.

Prior to establishing the experimental apiary, the authors combined adult bees from 36 colonies into a large population cage. Mixing the bees in the cage provided a way

to equalize mite loads when the bees were subsequently distributed to test colonies. The authors set up 36 single story colonies with approximately 2 pounds of bees from the population cage and provided them with new sister queens. The colonies were divided into six treatment groups of six colonies each: two groups received fungal spores as dust (47 or 94 g shaken on the combs with a salt shaker), the third group received 4 plastic strips coated with fungal spores (total of 16 g). These strips were replaced 3 times over the course of the 42 day experiment. The fourth group received 5 spore-coated plastic strips (total of 47 grams), without subsequent replacement. Group 5 was an untreated control group and group 6 received Apistan® strips (fluvalinate) applied according to label directions. At the end of the experiment, all colonies received a treatment with coumaphos to determine the number of mites remaining in the colony. Before, during and after the experimental period, sticky boards were used to measure mite fall and ether rolls were done to estimate the number of mites/bee. Bees and mites were also sampled periodically during the experiment and their cadavers placed on growth media to

evaluate the fungal infection rate and the viability of spores through the course of the experiment.

The authors examined a number of specific questions related to the viability and persistence of the fungus during the experiment. The "take home message" from the study was as follows: control of *Varroa destructor* using the fungus was equal to that achieved with the conventional treatment Apistan®. The treatment method using multiple applications of strips coated with spores appeared to give the best control. The fungus was found to persist throughout the course of the experiment and there was a clear correlation between "death" of mites and their infection with the fungus. In contrast, only a small percentage of dead bees were infected with the fungus



at the end of the experimental period.

The authors conclude that their findings "support the role of *M. anisopliae* as a useful component in an integrated pest management strategy for the control of *V. destructor*" While using a fungus in your beehive to serve as a biological control agent for mites may seem far-fetched, recall that gardeners and

commercial growers alike have for years routinely used toxins derived from the bacterium *Bacillus thuringiensis* ("BT") to control insect pests. Undoubtedly beekeepers would welcome another option in the struggle to keep our colonies healthy in the face *V destructor*. This is clearly a subject that will bear close scrutiny in the near future, as we find out whether there may be the opportunity to maintain a fungus among us. **BC**

Kanga, L.H.B., W.A. Jones and R.R. James. 2003. Field trials using the fungal pathogen, *Metarhizium anisopliae* (Deuteromycetes: Hyphomycetes) to control the ectoparasitic mite, *Varroa destructor* (Acari: Varroidae) in honey bee, *Apis mellifera* (Hymenoptera: Apidae) colonies. *Journal of Economic Entomology* 96: 1091-1099.

Dr. W. Steve Sheppard, Thurber Chair, Department of Entomology, Washington State University, Pullman, WA 99164-6382, shepp@mail.wsu.edu; http://apis.wsu.edu



YORK BEE COMPANY

P.O. Box 307
2700 South Macon St.
Jesup, GA 31598-0307
912.427 7311

HOMAN-MCMASTERS APIARIES

503 CR 520, Shannon, MS 38868
662.767.3880 or 662.767.8923
FAX 662.767.3803

Mountain Grey Caucasian

2004 Queen & Package
Orders being accepted!

Bolling Bee Farms
Greenville, Alabama

Since 1925
334.382.6878
www.bollingbee.com



Plastics Packaging Concept

Sale & Distribution of
Angel Bottles

P.O. Box 617
Garden City,
MO 64747
816.862.8703 or
FAX 816.862.8702
GCPJKM@aol.com



Allen's Bee Ranch, Inc. Italian Package Bees & Queens

Mail Orders Our Specialty Since 1972

Queen Prices Are Any Quantity Plus Shipping and Handling

Queens April \$9.00 • May \$8.50 • Summer Savings \$7.00 each.

Package Bees: April & May • Queens: April Thru September

Call For Package Prices. We supply bees the entire year for Bee
Venom Therapy.

Phone: 530.221 1458 No Minimum Order Visa/MC Accepted
19150 Smith Lane, Redding (Northern) California 96002

Queens

Minnesota Hygienic
or Carniolan

1.Excellent Stock, SMR 2.Well mated 3.Reasonably priced

Available
March 15

Lamb's Honey Farm
409.384.6754
RRT3Box N. 592
Jasper, Texas 75951

RUFER'S EAST TEXAS QUEENS

Quality Deep East Texas Queens

We have the newest University of Minnesota Hygienic/SMR stock
Fumidil Fed Regimen - Excellent Drone Population

Shipping starts March 20th
(50 queen minimum)

Call Us If You Need
Brood In East Texas

P.O. Box 394, Hemphill, TX 75948
409.787.2783

3499 75th St. SW, Waverly, MN 55390
763.658.4036



Mark Winston

Gormanston

“The Irish beekeepers on their own have developed an elaborate system of training and education that rivals the best I have seen anywhere in the world.”

It's the kiss of death, the fatal flaw, the worst of the many pits into which we writers can fall. Stereotypes, that is, formulaic, oversimplified, and lacking originality. Occasionally, actually rarely, they can be accurate, and here's a stereotype that's true: the Irish are a lovely people, warm and welcoming, with a marvelous self-deprecating sense of humor that takes the world around them seriously, but never themselves. And they sure can sing.

I spent a remarkable week in Ireland with the Federation of Irish Beekeepers at their annual meeting at Gormanston last summer, and discovered an outstanding group of beekeepers. They not only are among the most delightful human beings on planet earth, but they also have developed an exceptional expertise in teaching beekeeping at all levels, from raw beginners to the most experienced of lecturers.

Their achievements are particularly notable because there are no professional extension, regulatory, or university apiculturists anywhere in this most beautiful of countries. “No” as in “Zero,” an entire country without a single expert getting paid to teach, do research, or conduct extension programs. Yet, the Irish beekeepers on their own have developed an elaborate system of training and education that rivals the best I have seen anywhere in the world, even when compared to

countries with many dozens of well-employed professionals working out of numerous institutions.

The Federation is a national group of tight-knit local associations, and the high point of their year is the annual meeting at Gormanston. The meeting itself is primarily educational, with fabulous sets of simultaneous lectures geared to different levels of expertise. Gormanston, though, is much more than a meeting, it's an experience that is difficult to describe because it so unlike anything we in North America are familiar with.

For one thing it's “rough” living, as the Irish would say. The meeting is conducted at the Franciscan College in Gormanston, County Meath, an elite school for boys of elementary and high school age. It attracts well-off students from Ireland and around the world, but physically it is nothing like any of us would imagine a high-end private school would be.

Most of the beekeepers stay in the dormitory, men and women together in one of two huge rooms with almost 200 beds each lined up wall-to-wall. Each beekeeper gets a thin mattress, a miniscule cubbyhole, and the flimsiest of curtains for privacy. They share washroom facilities, with a decrepit few showers in a building about 100 yards across the way from the dorms.

As the uber-speaker, I got to stay in a private room, but I wandered into the dormitory one night and was amazed at the cacophony of snores and other unmentionable

noises. I've heard symphonies that weren't nearly as interesting.

And I haven't even started on the food. Think about your typical high school cafeteria experience, throw in the absolute worst coffee that has ever been served in the galaxy, and you've got Gormanston. Luckily, the stereotype about the Irish and potatoes is another truism. The innumerable ways they serve the humble potato saved my stomach through the week.

Yet, the staff at the college are spectacularly friendly and hospitable, and the beekeepers just never complain. In North America, there would have been a revolution at the accommodations within minutes, and mass exodus within the first hour. More than 300 beekeepers kept their good humor and fine dispositions for a full week, many of them repeat customers who come year after year to enjoy the close fellowship into which they are crammed.

They arrive enthusiastic, and stay happy, because they truly, deeply, and sincerely like each other, and the program the Federation puts on is phenomenal. The presentations are based on a hierarchical system of examinations, starting with beginner, moving through various intermediate and advanced stages, and culminating in the rigorous Lecturer Examination for those aspiring to be officially sanctioned to lecture by the Federation.

The Beginner program is cleverly constructed to be fun, fascinat-

Continued on Next Page

“The Lecturer examination is as tough as it gets, equivalent to a graduate student taking a comprehensive examination before conducting their research.”

ing, hands-on, and attractive. More than one hundred Irish men, women, and children come every year to take the Beginner's course as an educational holiday. Whether they become beekeepers or not, all of them leave with a deep appreciation for bees, beekeeping, and pollination. They do have to pass a test to get their certificate, which almost all of the beginners take and pass, but even the test is an upbeat, friendly learning experience.

I looked over the shoulders of a number of examiners during the hands-on part of the test, and was deeply impressed with the slow, instructive way the exam was conducted. Each beginning beekeeper was asked to do a few simple things, opening the hive, taking out frames, finding the queen, pointing out worker and drone brood, and so on. The examiners guided them easily through the process, pointing out interesting things, gently correcting mistakes, and generally making it fun to be examined.

The Lecturer examination is at the other end of the spectrum, and it's as tough as it gets, equivalent to a graduate student taking a comprehensive examination before conducting their research. Those hopeful of becoming a Lecturer study for years, taking a series of difficult written tests and practical in-apery examinations before being allowed to proceed to the final stage.

The end of this process involves presenting a lecture before a large audience on a pre-prepared subject, and then being given about five minutes to put together an impromptu talk on a subject decided on-the-spot by the three official examiners. And this was a tough committee: I was one of the examiners, a professor in chemistry from an Irish university was another, and the third was 92 year-old D.J. Deasy, who has one of the sharpest minds I've ever encountered.

We examined two candidates, and both of them passed with high

marks. Each gave an amazing lecture, clear, crisp, learned, complete, and most importantly, interesting. One was a physician, the second a lawyer, but neither had any experience or aspirations to be a professional apiculturist. Rather, they were hobbyists with deep passions for bees, a love of learning, and a commitment to teach their fellow-beekeepers for the joy of it rather than for income.

The fun side of their meetings was equally impressive. Not surprisingly, there were two pubs within walking distance of the college. Every evening there was a stream of beekeepers walking briskly to the pub after dinner, and much later returning to the college a bit less directly.

One night, they had an “Irish Hoolie,” a tradition throughout Ireland in which friends gather and entertain each other. Each has a party piece they perform, sometimes a poem or story, perhaps a joke, but most often a song. Here's another stereotype: all Irish can sign on-tune, loudly, and with great feeling.

I particularly recall one quite elderly gentleman who sat quietly in the back of the room, neatly dressed in a tweed sport coat and tie. His fellow beekeepers repeatedly urged him up to perform, and he just as repeatedly but politely declined. Finally, though, towards

the end of the evening, he finally rose to do his piece, walking slowly and deliberately to the front of the room.

Old he was, slow with age, but as he began to sing the years dropped off, his voice booming clearly and firmly throughout the room. He sang “Some Enchanted Evening,” transformed into a young man again, and I can't say I've ever heard it sung better or with more emotion. When done, he smiled with the pleasure of memories, recalling the innumerable times he's performed the same song in a pub or living room for his friends and family.

The meeting was like that throughout. We took walks around the beautiful grounds of the college, and I asked some of the beekeepers whether they believed in fairies, as I somehow had it in my mind that the Irish were big on fairies. “Yes,” they said, without hesitation, and there wasn't a one of them that didn't firmly believe in the little people living within the trees, rocks, and moss.

I take my green hat off to the Federation of Irish Beekeepers. A fine group of people, amateurs all but with self-taught skill and a high level of expertise that is admirable among a group that does it not as a job but just from love of bees and learning.

I left Ireland believing in fairies. If you can ever make it to Gormanston, bring your own coffee, but do go. This is Some Enchanted Meeting. **BC**

Mark Winston is a Professor at Simon Fraser University, Burnaby, B.C. Canada.

The world's largest producer of New World Carniolan queens

Strachan Apiaries, Inc.

2522 Tierra Buena Rd. Yuba City, CA 95993

Russians and Italians also available. Our queens are selected for hygienic behavior, mite resistance, honey production, and gentleness.

Visit our up-to-date website, email us, or call for prices:

www.strachanbees.com

orders@strachanbees.com

1-800-368-3881 (orders only)

we accept major credit cards!

(530) 674-3881

(530) 674-5802 (fax)

"We are sold on your Carniolan queens!"

-Mark Rulison,

customersince 1987

Minnesota Bee Research and Extension

Malcolm T Sanford



"Good things keep coming from the Land of 10,000 Lakes."

I have many good memories of Minnesota. My parents were born and grew up in the Twin cities area. When I was a kid, we would travel from Texas at Christmas time into the cold north, arriving by Rock Island Lines into a foreign land, dominated by snow, ice and mittens drying on my grandmother's radiator. That was way before a swarm of honey bees entered and transformed my life. My graduate school professor, Dr Al Dietz was trained in Minnesota; while I was at the University of Georgia, he still drove his 1960s era Mercedes Benz that he purchased through honey sales, while in graduate school. He also told me about his professor (M. Haydak) and experiences with fellow students like Basil Furgala. Later, I met Dr Furgala, "Mr Nosema," at one of the first meetings of the American Association of Professional Apiculturists (AAPA)¹. He invited me to address the beekeepers in Minnesota; my Aunt Irmagene from Edina, MN accompanied me on that occasion and still talks about the experience. I also gave the keynote address to the 1984 Convention of the American Beekeeping Federation in Minneapolis on "Beekeeping and the Information Age." That meeting is still remembered by several who found their engine blocks cracked by 80 below zero temperatures, even in the confines of an underground garage and guarded by antifreeze protection.

Recently, I found myself again in Minnesota visiting Dr Marla Spivak, the current, resident bee researcher on the St. Paul Camus.² Marla and I go way back as professional colleagues. And most recently, we shared the honor of receiving two of the Eastern Apiculture Society's most coveted awards, the James Hambleton for research was awarded to her and the Roger Morse for teaching and extension was presented to me at this year's meeting in Maine. We spent a pleasant time talking about beekeeping research and education in Minnesota over the years.

Marla showed me a photograph of the beekeeping short course of 1944, including a separate picture of

the women in the course.³ Many are not aware of the role women have played in beekeeping over the years, not just as spouses and observers, but active participants. These include both Marla and her colleague, Sue Coby, who I profiled in this magazine in January of this year.⁴

The tradition of beekeeping short course education continues in Minnesota with the 2004 short course already being planned for March 19-21⁵ Marla teaches it using the principles developed by Basil Furgala during his tenure in Minnesota as graduate student and professor. She can't say enough about the help that Basil gave her during her orientation when she replaced him at his retirement. After his untimely death, Basil was also remembered by his colleagues on the University senate:

"Basil Furgala, who served as a USDA National Research Program leader and as National Extension Apiculture Program leader in Washington, died May 11, 1996. Basil's research focused on Minnesota's beekeeping industry, though his findings benefited beekeepers around the world. Basil received his bachelor's and master's degrees from the University of Manitoba. He earned his Ph.D. in entomology from the University of Minnesota in 1959. He was a research scientist with the Canada Department of Agriculture from 1959-67 when he returned to the University of Minnesota to accept a position as associate professor of agriculture. During his career, Basil received the J.I. Hambleton Award, a USDA Certificate of Appreciation, the Apiculture Research Award, and the Outstanding Service of Beekeeping Award, among others. He will long be remembered as a scientist with great enthusiasm, insurmountable optimism, an appreciation for experimental design, and a true devotion to the industry he served."

As I noted previously, Basil was an expert on

3. University of Minnesota Department of Entomology Beekeeping Web site, accessed November 23, 2003 <http://www.entomology.umn.edu/Beekeeping/1944beeclasspictures.htm>.

4. Sanford, M.T. 2003. Sue Coby and Her New World Carniolans, *Bee Culture*, Vol. 131, No. 1, pp. 21-23.

5. University of Minnesota Department of Entomology Beekeeping Web site, accessed November 23, 2003 <http://www.entomology.umn.edu/Beekeeping/index.html>.

1. American Association of Professional Apiculturists Home Page, accessed November 23, 2003 <http://entomology.ucdavis.edu/aapa/index.cfm>.

2. University of Minnesota Faculty Directory, accessed, November 23, 2003, <http://nash.cbs.umn.edu/BBBG/directory/spivak.html>.

nosema disease. His considerable research on the subject led to the current chemotherapy practices using fumagillin. His student, Dr. Eric Mussen, is currently California's extension apiculturist, who writes one of the longest running beekeeping extension newsletters, *From the UC Apiaries*.⁶

Before Basil, The University of Minnesota had another one of beekeeping's pioneers on its faculty, Dr. Mykola H. Haydak, a world-renowned authority on beekeeping. He wrote more than 200 papers and a textbook dealing with this subject according to *The Ukrainian Weekly*, February 8, 1998, No. 6, Vol. LXVI, which detailed contributions of Ukrainian-Americans to U.S. Agriculture.⁷ A search on the electronic bibliography of beekeeping associated with the Beltsville, MD USDA-ARS bee laboratory shows the majority deal with nutritional resources.⁸ Much of Dr. Haydak's research is the basis for the pollen supplements/substitutes now in use. He was also a prolific writer for the popular bee journals. In 1961, he wrote an account of the considerable amount of bee research at The University Of Minnesota (1913-1960) in the *Minnesota Beekeeper*.⁹

Nutrition no longer dominates Minnesota beekeeping. New challenges, including mites and small hive beetles, along with traditional diseases like American foulbrood, are mostly on beekeepers' minds. This preoccupation meshes well with the interests of the University's relatively-new bee researcher. Equally at home in the "Ivory Tower," as her writings are categorized by the Minnesota Beekeepers Association in its newsletter, or in the bee yard, Dr. Spivak seems quite successful in catering to not only those in the land of ten thousand lakes, but also the region in general, which includes the Dakotas, Iowa and Wisconsin.

Marla is also blessed with the help of Mr. Gary Reuter, an on-the-ground, practical beekeeper, who routinely keeps her on track from the practical side of bee culture. They team up beautifully not just in the laboratory, but in beekeeper education. This approach is clearly seen in the workshop on beekeeping in northern climates given each March.¹⁰ They also teach a queen rearing course each year and have produced a queen-rearing educational suite through the U.S.D.A's Sustainable Agricultural Network. A "copyrighted, 13-minute-long, VHS-format video demonstrates the Doolittle method of queen rearing. Takes the viewer, step-by-step, through the entire pro-

cess, from selecting breeder stock to ensuring successful mating. A companion 'Successful Queen Rearing Manual' (item MI-6346-SAN), which goes into more detail, is also available. For hobby and commercial beekeepers and professionals who work with apiarists."¹¹

Marla comes from a background rooted in studying the infamous Africanized honey bee in the Americas. Her landmark book, *The African Honey Bee*, cooperatively edited by Drs. David Fletcher and Michael Breed, is a must read for anyone interested in this important and controversial insect.¹² Her resume speaks volumes, including stints in commercial beekeeping and as a research assistant at the USDA labs, as well as study under the tutelage of Dr. Chip Taylor at the University of Kansas. She's a "no nonsense" kind of person that is refreshing to hear and speak to.

In accepting the Hambleton award, Marla said honey bees are in crisis and beekeepers are not helping them much. Bees are certified "junkies" and beekeepers have become their "pushers." A new set of rules is necessary to get the bees off the chemical/pesticide treadmill. Her advice was direct and to the point:

1. Stop right now any preventative feeding of antibiotics.
2. Cull combs to remove AFB spores and pesticide/antibiotic residues.
3. Leave mites in colonies; do not try to eliminate them all; in some cases bees can sustain 10% to 15% infestation with little harm.
4. Pesticides "pamper" bees; let them use their own innate defense mechanisms. Use selective breeding to give bees tools to work with and then leave them on their own. This includes incorporating hygienic behavior, SMR and characteristics of other stocks (Russians).
5. Use IPM now! This means thinking before acting; apply pesticides only as a last resort. Use soft chemicals when possible. Again, leave mites in the colony so the bees have a long-term fighting chance on their own.

She concluded that none of the above will be easy, but beekeepers must quickly learn what other farmers now take for granted. Integrated pest management (IPM) is here to stay and is the best option to save the bees and beekeeping industry in the long run.

Marla also walks the IPM walk by concentrating on breeding bees for resistance or tolerance to diseases and pests. Her tool of preference is "hygienic behavior," a term coined by Dr. Walter Rothenbuhler for a set of genes that helps honey bees keep a dis-

6. University of Davis, CA Department of Entomology Web site, accessed November 23, 2003 <http://entomology.ucdavis.edu/faculty/mussen/news.cfm>.

7. Ukrainian Weekly Web Site, accessed November 23, 2003 <http://www.ukrweekly.com/Archive/1998/069815.shtml>.

8. USDA-ARS Beekeeping Bibliography on the Web, accessed November 23, 2003 <http://alembic.nal.usda.gov:8088/>.

9. Haydak, M. 1961. Bee Research At The University Of Minnesota (1913-1960), *Minnesota Beekeeper* 13:3-5, 12, 14-16.

10. University of Minnesota Entomology Web page, accessed November 23, 2003 <http://www.entomology.umn.edu/Beekeeping/index.html>. See also <http://www.extension.umn.edu/units/dc/item.html?item=06684>.

11. Sustainable Agricultural Network, USDA Web site, accessed November 23, 2003 <http://www.sare.org/sourcebook/book/MN0328.html>. Also see <http://www.extension.umn.edu/abstracts/nonweb/abstract.html?item=06347>.

12. Amazon.com Web site, accessed November 23, 2003 http://www.amazon.com/exec/obidos/tg/detail/-/0813372097/qid=1069613939/sr=1-1/ref=rsr_1_1/102-7444767-2418542?v=glance&s=books.

ease-free brood nest. Marla and Dr. Martha Gilliam of the Tucson, AZ USDA-ARS Bee Laboratory,¹³ wrote a summary of this research several years ago.¹⁴ I wrote a summary of this publication in my September 1998 *Apis* newsletter¹⁵

There is more and more evidence that hygienic behavior also affects *Varroa* mite loads in colonies. In a recent paper, Marla and Gary reported that honey bees bred for hygienic behavior performed as well if not better than other commercial lines of bees and maintained lower mite loads for up to one year without treatment.¹⁶

Marla's work and results are now being recognized all over the world, including the United Kingdom,¹⁷ Australia,¹⁸ Canada,¹⁹ and elsewhere. With all this attention, the pressure continues to be enormous to produce and release this stock. This

13. USDA Tucson Bee Lab Web page, accessed November 23, 2003 <http://gears.tucson.ars.ag.gov/home/gilliam/>.

14. Spivak, M. and M. Gilliam. 1998. "Hygienic behaviour of honey bees and its application for control of brood diseases and varroa. Part I. Hygienic behaviour and resistance to American foulbrood," *Bee World*, September 1998, vol. 79, no. 3, pp. 124-134(11) International Bee Research Association, Cardiff, UK, Web page accessed November 23, 2003 <http://www.ibra.org.uk/beeworld.html>.

15. Sanford, M.T. 1998 *Apis* Newsletter Web site, accessed November 23, 2003 <http://apis.ifas.ufl.edu/apis98/apsep98.htm#1>.

16. Spivak, M. and G. Reuter, "Varroa destructor infestation in Untreated Honey Bee (Hymenoptera: Apidae) Colonies Selected for Hygienic Behavior," *Journal of Economic Entomology*: Vol. 94, No. 2, pp. 326-331.

17. Dave Cushman's Web site, accessed November 23, 2003 <http://website.lineone.net/~dave.cushman/hygenequeen.html>.

18. University of Sydney Social Insects Lab Web site, accessed November 23, 2003 http://www.bio.usyd.edu.au/Social_InsectsLab/Hygienic_bees.htm.

19. Allen Dick's Web site, accessed November 23, 2003 <http://www.honeybeeworld.com/misc/hygienic.htm>.

was acknowledged by Marla who said, "After careful thought, I have decided to have Tom and Suki Glenn, of Glenn Apiaries maintain and sell breeder queens from the hygienic line of bees that I have bred here at the University of Minnesota."²⁰ She concluded: "The breeder queens from the Minnesota Hygienic line demonstrate good resistance to AFB and chalkbrood, and some resistance to *Varroa*. I am defining resistance as the ability to defend themselves against these diseases and mites better than unselected colonies. Naturally mated daughters of the breeder queens will still require treatments for *Varroa*, however at less frequent intervals. If left untreated, especially when mite invasion pressure is high (when many colonies are located in one location for pollination or in migratory beekeeping) even the most hygienic colonies eventually will collapse. Don't be fooled by the word resistance!"

While visiting with Marla, she told me that right now there is every indication that this stock is taking hold and making a difference in midwestern beekeeping outfits. Time will tell if she is correct, but my bet is that she's right on. If so, this will be another "successful" page added to the already rich history of Minnesota bee research. **BC**

Dr. Sanford is a former Extension Specialist in apiculture at the University of Florida. He publishes the APIS newsletter, api.shorturl.com.

20. Glenn Apiaries Web site, accessed November 23, 2003 members.aol.com/queenb95/minn.html.



Candles
Salves
Cards
Soap
Balms
Licensing

Call 1.877.382.4618
www.redbeestudio.com



Ventilators
2502 Greenbush Rd.
N. Ferrisburg, VT 05473

Keep the moisture out during winter
WWW.BEECOOL.COM

1-8 units \$120! plus \$9.95 ea in 48 states. AC units at \$90.00
MC/Visa/Check
More Information Call/Write or
1-888-233-5665/fax 1-802-329-2007

Hawaiian Queen

JAN. QUEENS

Ph. 808-328-2656
Toll free: 888-485-2244
FAX 808-328-7433
email: HIQUEEN@HIALOHA.NET
www.hawaiianqueen.com



Ross Rounds, Inc.

Round comb section equipment
and Sundance pollen traps.

Contact your dealer for supplies.

P.O. Box 11583, Albany, NY 12211
V 518-370-4989 • F 518-381-6370
www.rossrounds.com

For Your Queen Needs Call

Queen Cells Available - Shipped By UPS

MIKSA HONEY FARMS

David & Linda Miksa
13404 Honeycomb Rd. • Groveland, FL 34736
Ph. 352-429-3447
EMail miksahf@aol.com

PENDELL ITALIAN QUEENS

Frank & Sheri Pendell
P.O. Box 40
Stonyford, CA 95979
(530) 963-3062

Selected for:
Honey Production / SMR Trait
Hygienic Behavior / Gentleness



Bee Culture's Beeyard

Winter Feeding Starving Bee Colonies

Right up front

I want to tell you immediately that the story presented in this article will not have an ending until much later in the Winter, and that ending will probably not be a happy one. The small hives that I am about to discuss don't have a good chance of survival. Frequently, real-life stories don't end right. This is real-life beekeeping.

The situation – last year

Last year, we provided about 35 four and five frame nuclei to be used in caged pollination studies. A professional group within my university needed bees to pollinate ornamental plants that were grown in large cages. The plants were strains of plants that had not out crossed with wild plants, so the bees and

plants had to deal with extreme confinement within the cage. I knew the small hives would be damaged by such a restrictive task but I was paid enough to justify the use of the bees. As I expected and even though the nucs were fed while in the cages, the nuclei came home last year in terrible shape having essentially no Winter food stores. It was obvious that they would die early in the Winter. They did. Though we were paid appropriately for the bees and though the bees did their assignment within the cages, allowing the bees simply to die was remarkably distasteful. On one hand, I told myself this was specialty pollination for which I was paid and the bees did their job very well. I felt good about that. But, on that cold, Winter day when we cleaned the dead

bees from the nucs and put the equipment away, it didn't feel all that good about my bee management decision.

The situation – this year - worse

The situation this year is amazingly the same – except worse. In this part of Ohio as did much of the U.S., we got essentially no honey crop. When the nucs were made up last Spring, I boldly said that we would not simply stand by and allow all these food-stressed, overworked colonies to die. We would combine them into larger colonies and give them proper honey stores. While they had nice clusters and good adult populations, the nucs came back to me essentially devoid of any food stores, but I have absolutely no honey crop to give them. We didn't get any crop this year. It was last year all over again – but worse.

I have been waiting for some kind of inspirational answer to come to me. Some plan...some idea. In the interval, several of you wrote to me asking how and what to feed light colonies. I have dutifully told you what all the traditional books say to do, but I also told you that your weak colonies' chances of survival were slim. As I told you that, I realized that I was talking to myself, too. I had 35 nucs that didn't have five pounds of honey between them. Yet, I was giving advice to others on how to feed starving colonies.



Some of the nucleus colonies that I am feeding at night.

Again, right up front

My second "heads-up" comment that I want to give you is that the chances of any of these colonies surviving the upcoming Winter are not good – in fact, the chances of their survival are bad. I suppose that by doing anything at all, I am only trying not to feel so guilty when it comes time to clean the dead bees from the equipment (again). But at least this time, I am trying to do something.

The Winter feeding problem

The universal problem with Winter feeding, in cold climates, is that the colony can't access the feeder consistently enough to get to high



A nucleus hive with the top pushed back to allow space for the feed.

grade sugar sources. Entrance feeders are about 99% useless. Division board feeders are no better during hard Winter. Top feeders are somewhat more useful, but not much. In hard Winter when the bees are tightly clustered, the feeder must literally be on the cluster in order for the starving bees to feed. A single bee can only move a few inches in such cold weather, feed, and then get back to the cluster without her core temperature dropping below 40°F. That's restrictive. Then there's the labor of mixing syrup and keeping feeders filled during cold weather. It's not pleasurable beekeeping.

In past articles, I have written about using fondant as Winter feed. Simply put on "bricks" of solid sugar on top of the brood nest. The bees are in direct contact with the feed stuff and can exist for a while on this food. In desperation, that is the

path that I decided to take. My labor costs would be greatly reduced. I didn't need special feeders (that really wouldn't work anyway) and I would cause the least disruption to the wintering cluster. While all of this sounds doable, review my comment above – it looks better in writing that actually implementing on cold, starving colonies – but at least it's something of a plan.

Night work

For several reasons, I normally feed these weak colonies at night. First of all, I have the time to do the work and secondly, the bees are not quite so inclined to fly and become overly disturbed. As I was performing this task, I was taken back to so many other nights when I did bee work. Moving bees and occasionally hiving swarms is work more properly done at night. Night feeding colonies is a new experience for me.

In the real world, on a cold night, I tend to get sugar everywhere – but most of all on the steering wheel of my car. I lose hive tools. I have full hands carrying a flashlight, a feed bucket, a hive tool (and a camera which is also covered in sugar). Generally, it's quiet, cold, and lonely. But not having to pour syrup or to deal with feeders, the work moves quickly.

In the first figure, feeder jars that were used when the colonies were in the cages are still in place. They are empty and are not being used for anything other than keeping the feeder hole in the lid closed.

The procedure

From feeding episodes last year, I still had some commercial baker's icing¹. Also, I had some corn syrup that had crystallized. I decided to use them both to see if I could see any obvious preference. Up to this point, I can see no obvious preference. How much to feed? Honestly, I started out at about a cup or a glob about half the size of a soft ball. As

I neared the last of the nucs, it became clear that I would have plenty of food for the first serving, so I bumped my ration up about 1/3 more to a big glob. I apologize for using such technical measuring terms, but keep in mind that when I do this task, it's cold, dark and messy. Under the same conditions, you will know a glob when you see one. How often to feed? It took the bees about a week to take the first feed down. I don't know if they will be able to hold that rate as the Winter becomes brutal. I plan to feed again tomorrow night.

Since the bees are tightly clustered, I put the feed lump on the top bars at the edge of the cluster – either toward the front or back depending on the cluster location. The bees normally take no notice of me, but occasionally, I do come across a hot hive. I cock the lid up on one end to leave space for the feed. I initially pressed the lid down, but when cold, the feed lump can be hard and not very pliable. I was fearful that I would break some of the top bars and/or kill too many bees.

Some points worth mentioning – up to this time

1. Just as with liquid feed, all colonies don't take the crystallized feed at the same rate; however, so far, all colonies have eaten the sugar to some degree. I was initially concerned that they would eat it overnight, but no colony ate the ration before 3-4 days passed. If I had to estimate right now, after a week has passed, some nucs have eaten all the feed while about 1/3 still has about 1/3 of the ration.
2. Colony disruption is a problem. I am trying to help, yet each time I open the cold colony, bees fly out and become disquieted, hence my reason for feeding at night. Secondly, I have already said that I put the feed to edge of the cluster. The first few times I fed the bees, I put the feed right on the cluster. They didn't like that and let me know it. Additionally, as I go through this procedure more often, I suspect I will become more patient and will not be checking the status of the project every day (as I was doing).

¹ I use Karp's Fondant For Icing No. 137 that I get from a local commercial bakery. It is manufactured by: L. Karp & Sons, Inc. Elk Grove Village, IL. 60007 (847)593-5700.



Bees feeding on my crystallized corn syrup.

3. Make no mistake - this is messy work. The crystallized corn syrup is hard to scoop out and it's sticky. I used a hive tool and a heavy-duty ice cream scoop. In the dark, try as I might, I still get the stuff everywhere - even on the bottom of my shoes. When I began this process, I was slow and methodical but as I moved down the line and I became increasingly colder, I just tried to get the feed on the colony and get out.
4. Do these colonies need water? I don't know, but there is no practical way to give them water. It would only freeze or be as inaccessible if in a feeder. I hope they can get enough metabolic water or moisture from inside the hive to liquefy the granulated feed.
5. There is a disassociated problem - I have a woodchuck in the yard. Shouldn't these animals hibernate? The animal is harassing several of the colonies as indicated by the markings at the front of the hives. Also, since the hive tool and ice cream scoop was messy and sticky, I just left them on the top of one of the nucs. The next day, I (finally) found the missing tools in the wood chuck's burrow. I really didn't want to put my hand down there so I had my technician do it. I won't be leaving my tools out there again, according to my technician.

The future of these small colonies

This project can go one of several ways. I suppose I could just continue to feed as I am doing and hope for a bee miracle. Such a miracle is probably not going to happen. As Winter gets much more serious, I am considering putting the nucs in my bee barn which is heated to about 50°F. It needs to be hard Winter or the bees will want to fly on warm days when confined in the storage barn. Another (expensive) option is to take the nucs to my beekeeping brother who lives in Tennessee. While the Winters are not a cakewalk there, at least the Nashville area is generally warmer than the Wooster area (and he can be responsible for feeding them once per week.)

In any case, I need to get them off the cold ground. Just a few inches would be enough but left sitting on the ground seems to make the hive body colder. Maybe it's just me.

No more

The project that required these colonies has ended for me. I don't anticipate having this situation next year. I thought I had a plan that would meet their food needs, but then my other beehives made no honey either (in fact, they have their own food stores problem). I am trying to help these small colonies.

I suppose they were unfairly used and their situation was not of their own making. Whatever the reason for their plight, their future is cloudy. **BC**

Dr. James E. Tew, State Specialist, Beekeeping, The Ohio State University, Wooster, OH 44691, 330.263.3684, Tew.1@osu.edu; www2.oardc.ohio-state.edu/agnic/bee/; www2.oardc.ohio-state.edu/beelab/

20% ←

White vinegar is counteractive to chalk brood, nosema spores, foul brood and parasitic mites (varroa, tracheal).

A special quick tach method that turns 5 tablespoons of white vinegar into steam (vapor) and introduces it into the front entrance for one minute and you are finished. (No need to take the lid off.)

Spraying straight vinegar into the colony does not work. It must be volatilized by steam.

Beekeepers who have used this machine claim a massive buildup of brood and bees, increasing splits and tremendous production. *Requires a 120 or 240 volt generator.*

References can be supplied.
Please write or call for more information,
U.S. Pat. #5,069,651

**Better Way Wax Melter
Honey Processors Ltd.**

116 11th Street SE • Altoona, IA 50009
515-967-4952

Stimulating Drone Development During Winter In Florida

Larry Connor

“Making days longer may make the difference.”

It was January-February 1977. Over the previous eight months I had moved from Columbus, Ohio to Labelle, Florida, found a lab site, 'built' the Genetic Systems laboratory, and hired staff. Bees were moved in from Georgia, including the precious breeding stock from Dadant and Sons of Hamilton, Illinois. Dr. G.H. "Bud" Cale from Dadant's was visiting to help with staff training and to keep me out of trouble. We set up a dozen microscopes and insemination devices and started training.

As training took place, I realized that we did not have enough mature drones. We immediately ran out because the trainees used everything we gave them. The newly hired inseminators were promptly sent home and slowly called back over a period of months as drone numbers allowed for breeder-stock inseminations. Only then could we use drones for training and production.

The bees moved from the Georgia were weak, and they required constant feeding. They were nowhere near the strength we needed for drone rearing. You may think that temperatures in South Florida are warm all Winter, but they are not. Winter coats were found whenever a cold front came through (although not for long).

Until I left Genetic Systems in October, 1980, inadequate drone production was the most common problem we encountered. Insemination crews 'consumed' amazing numbers of drones every day, and we were often working six days a week. We needed to produce over 10 thousand drones a day to supply this demand, and the staff and I developed a series of management manipulations that stimulated drone production and provided us with the drones we needed when we needed them. These methods have been reviewed in earlier articles in this series. We usually had adequate drone-producing conditions from mid-February through November each year, when new drone production usually stopped. There was a dearth period in the Summer, but we found micro-flows in different areas that supported some drone production. After mid-October, adult drones would be held in strong colonies as long as weather was agreeable, but as soon as a cold front arrived, special manipulations were necessary in order to insure drone numbers.

The month of October is the month when the length of each day decreases at the greatest rate, and earlier studies have shown that photoperiod influences brood rearing of both workers and drones. This natural shut-

down by European stock bees can be overridden by feeding or by moving them to areas with natural flows. We were doing this, but wondered if we could use photoperiod somehow to manipulate drone production.

An American-born beekeeper living in France, Dr John Kefuss, was visiting Genetic Systems during the Fall and Winter of 1979-1980. He had worked in Germany on photoperiod doing his doctorate with F Ruttner, and he was eager to work on this project with me in south Florida.

John and I realized the limitations of our situation. We were not at a research facility, but one designed to produce thousands of instrumentally inseminated queens every week. We had no means of controlling photoperiod *and nothing else* in a colony. We chose to approach the challenge in a direct manner: could we do something to colonies that would stimulate drone production during the Winter: we installed light bulbs into test colonies.

We knew that a light bulb produces both light and heat, and that our results would not be a measure of photoperiod per se, but perhaps using it as a key component. We knew that we would need to arrange the bees over the bulb so they would not have direct or stressful contact, to prevent any comb damage, and to provide adequate moisture to counteract the drying effect the bulb would create.

Our Study

On October 31, 1979 we moved 30 colonies from out-apiaries to 10 hive stands that held three colonies each. The queens were caged during the move and later released. There was some brood and a healthy worker bee population. On November 12, we requeened all the colonies with instrumentally inseminated Starline queens (HG x aEF) of the same age and HG grafting mother. We used instrumentally inseminated queens because we wanted to control the variability between queens. We kept a reserve of sister queens from cell builder colonies the same apiary for replacement should any queen fail during the experiment. Queens were installed with push-in hardware cloth cages on November 7 and 8.

Each colony consisted of an empty hive body on a bottom board containing a sixty-watt light bulb. The socket was fastened to one side of the hive body. Above the empty hive body was a double screen with an en-

trance for the colony. Above that were two deep chambers containing the bees and combs. The top chamber also contained a division board feeder that was kept filled with a 1:1 sugar syrup.

There were two treatments and a control on each hive stand. The colonies were randomly selected for the treatment each would receive. The experiment was located outside our laboratory because it had a source of electricity.

We set up 10 blocks of colonies containing one of each treatment and control. If one of the queens failed, we were able to replace the queen with a laying queen from a cell builder and thus keep the colony in the experiment. If that introduction failed, the block was removed from the study. During the progress of the experiment, we removed two blocks due to replacement queen installation failures.

Syrup feeding was essential. If a colony ran out of the 1:1 syrup in the division board feeder, we would see signs of drying effects in the colony, especially in the open brood. As a result, we kept the feeders full.

We fed pollen substitute, using the Dadant product called QuikGro, which contained no natural pollen (we had learned, rather painfully, that natural pollen was an ideal source of chalk brood). The substitute was placed immediately over the brood area of each colony.

All colonies were allowed full flight, and were collecting pollen and nectar on good flight days.

We started the experiment on November 12, 1979, with the time clocks set and electrified.

Long day treatment: Each colony was fitted with a light bulb on a long-day timer. The timer provided an 18 hour day with the bulb on, coming on three to four hours before daylight and staying on three to four hours after sunset so as not to compete with natural day/night cycles. Lights were left on during the daylight hours.

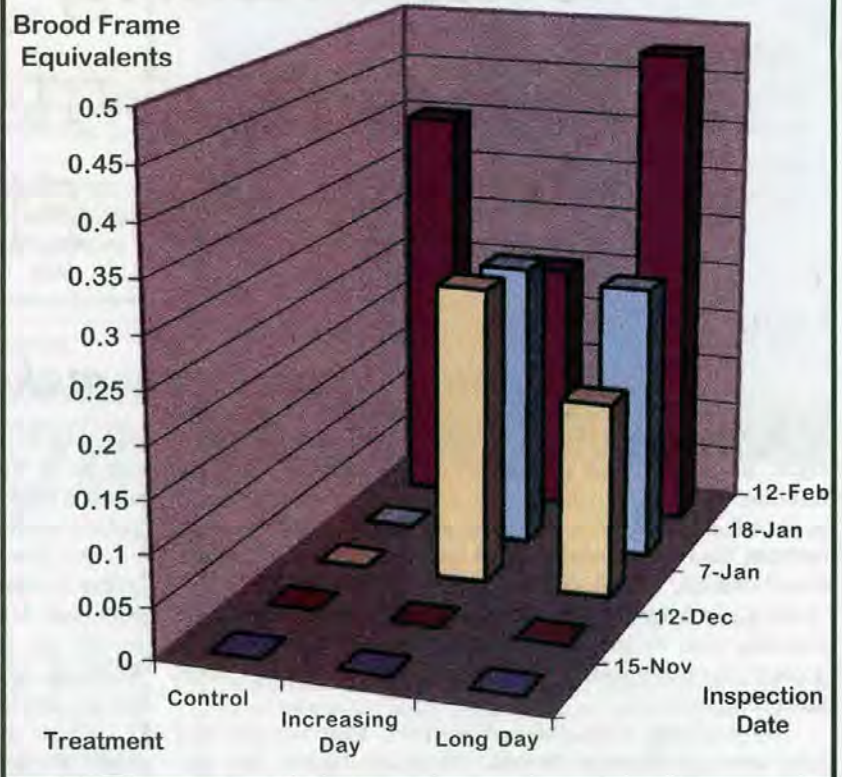
Increasing day treatment: The second group of colonies were started with existing day length (11 hours and 18 minutes), and increased about 10 minutes every day, alternating morning and night (at both ends of the photoperiod). Lights were left on during the daylight hours.

Control: Colonies were identical in all ways except they did not contain a light bulb.

Data Collected

Colonies were inspected and evaluated for worker and drone production, as well as stores. We used a measurement we called a **BFE, for Brood Frame Equivalent**.

Drone Brood Production



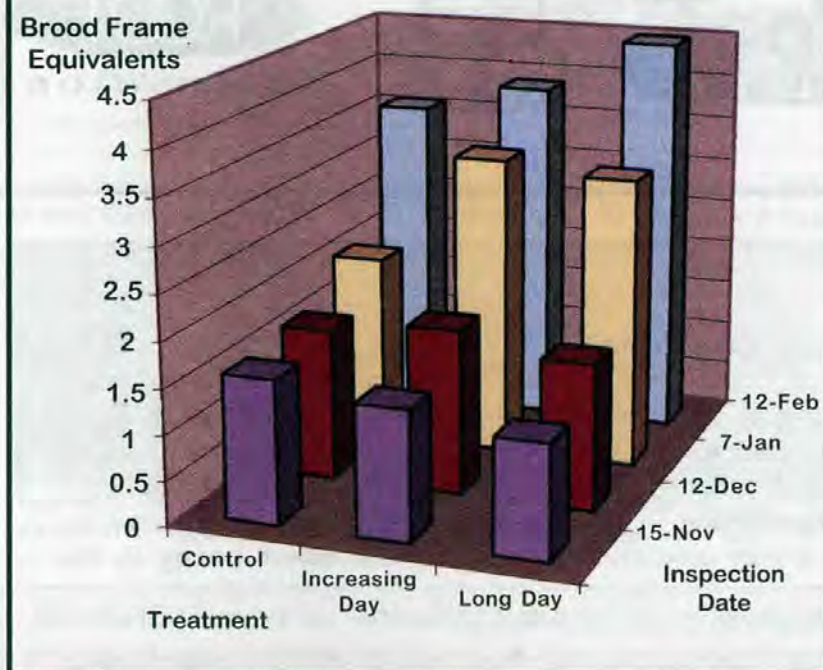
Equivalent. With a little hive-side debate, we uniformly estimated the amount of worker brood and drone brood on the brood frames. A BFE of 1.0 meant that every cell of one frame was filled with brood (both sides), but the brood would actually reside on several frames. I felt that we could all estimate a tenth of a frame of brood. In reality, we were a group of beekeepers who had worked together for several years, and we were usually in very close agreement as we worked colonies as a team, silently measuring the brood in our heads and keeping count. The use of BFE's provided a quick method of evaluating brood rearing without more extensive measuring systems. I consider it a 'quick and dirty' method of collecting data, and would use it again.

What We Found

We made colony inspections and brood counts on 11/15/1979, 12/12/1979, 1/7/1980, and 2/12/1980. An additional drone brood measurement was taken 1/18/1980. The increasing day colonies showed a slight increase in worker brood on the 12/12 inspection, but the greatest increase over the control on 1/7. The long day treatment colonies held one more BFE over the control on 1/7 and 2/12.

Drone production did not appear until the 1/7 inspection, but reflected drone egg laying during the shortest days of the year. The increasing day colonies had an average of 0.29 BFE of drone brood, while the long day group had 0.19 BFE of drones brood. The control colonies did not produce drone brood until the 2/12 inspection (0.40 BFE), by which time the long day colonies had produced 0.94 BFE and the increasing day colonies had produced 0.82 BRE of drones.

Worker Brood Production



We estimated the control colonies had an average of 50 pounds of stored honey and sugar syrup in the upper brood chamber at the end of the study, while the long day colonies had 54 pounds and the increasing day colonies had 48 pounds. This suggests that long day colonies may have been able to forage for more nectar or store more syrup than the other two groups, but not by much.

Best Made Plans

John Kefuss returned to France to work at his own queen rearing, and I hoped to repeat this experiment and eventually publish the data in a scientific journal. But in May and June, 1980, Genetic Systems experienced heavy losses of inseminated queens in our queen banks, we were unable to ship queens and the company reached a financial crisis which led to my departure from Genetic Systems and selling the breeder stock to Hybri-Bees, Inc, owned by Starline and Midnite queen producers. I moved to Connecticut in November that year and kept my notes on this experiment in storage until I retrieved them to write this article.

What We Learned

These data offer a one-time look at early drone stimulation, and represent a snapshot of what happened, but may not be useful to many beekeepers. However, I feel that we found a quick and dirty, relatively inexpensive method of raising extra drones during Winter conditions in Florida. I think the ideas represented here may provide queen breeders and commercial beekeepers who rear their own queens with a method of insuring drone supplies early in the season. These are the points I take away from this study:

1. We can produce mid-Winter drones. While the drones produced by the control colonies were used

to inseminate 133 virgin queens, we were able to inseminate 273 queens with the increasing day colonies and 306 queens with the long day colonies. More important, we were able to harvest some of these drones from the treatment group over a month earlier than the control colonies. At the time, those queens were valued at approximately \$5,000 as production queens. As possible breeder queens, they could save a valuable program or line.

2. An ordinary light bulb can have a powerful stimulative effect on a colony, and it must be used wisely. I have no idea how much of the stimulative effect reported here is from light and how much is from heat, or if it is an interactive process. The heat from one bulb is very drying, and constant feeding with thin syrup is essential. Other lighting sources could be investigated, as well as the use of European-type bee houses with colonies exposed to a photoperiod treatment inside the room.

3. Choosing between the increasing day and the long day treatment, it appears that the long day has a greater benefit to overall drone production. However, the increasing day length may have had a stronger initial benefit, remaining constant for three inspections.
4. This may seem like a great deal of bother to most beekeepers, and I agree with them. But this may be very useful for the production of breeder stock immediately before it is needed, rather than storing the breeder queens over the winter in queen banks or nuclei colonies.
5. The use of closely related hybrid queens presents many possible applications in research. These were sister queens mated to brother drones, all based on inbred lines. I am not sure these results would have been possible with a group of unrelated, randomly selected queens.
6. The use of BFE (brood frame equivalents) is an easy way to collect data and make comparisons. There are roughly 6300 cells in a deep frame of worker brood, and 4000 cells in a deep frame of drone brood (both sides).

Humans use light to counter Seasonal Affective Disorder (SAD). Why not use the same treatment ideas for bees as a benefit to queen and drone production and mating? **BC**

Special thanks to John Kefuss, Marty Stavenhagen, Mary Howard, Thelma Jones and others who assisted in this study.

Dr. Lawrence (Larry) Connor is owner of Wicwas Press, New Haven, CT where he edits and publishes books on bees and beekeeping - LJConnor@aol.com or website www.wicwas.com.



January 1, 2004

Dear A.I. Root Company Bee Supply Customers,

This month marks the beginning of the 134th year of business for the A. I. Root Company. We started small – one man and a beehive. But we quickly grew to many employees, a new factory, additions, inventions and more. Manufacturing beekeeping equipment was a pursuit of excellence in quality for us. We grew from there to producing queens and packages, honey and then to packing the finest honey in the U.S.A., Airline brand.

Eventually, we added manufacturing candles for the church to our product line, and from there, using the skills and technology developed, to producing decorative candles for the home.

In 1991, due to our rapid growth in the candle business, we expanded again our operation, modernizing our warehousing and shipping facilities. This expansion closed our wood-mill, so we no longer manufactured bee supplies at all. We did, however, sell a full line of supplies for several years.

As these sales have decreased in recent years, and other suppliers have filled that niche, we have decided that as of January 1, 2004, we will no longer handle any beekeeping supplies, as mail order, or walk in at our store in Medina.

However, we want to emphasize our Publications Department, which continues to be without doubt a bright spot in the beekeeping industry with our magazine *Bee Culture*, and the many books we publish and sell.

We continue our interest and support of the American Beekeeping Industry through our magazine, and the many beekeeping organizations we support. And we wish only the best to all those who continue the task of supplying America's beekeepers with the equipment they need to effectively produce and sell in a very competitive, global market place.

We want to thank our many customers for their past loyal patronage, and we look forward to serving you with the information provided in our magazine, and the beekeeping books we publish.

Sincerely,



The Story of Flight

David Morris

A.I. Root, the Wright Brothers, and the Story of Flight - A footnote in history . . .

"When it first turned that circle, and came near the starting-point, I was right in front of it; and I said then, and I believe still it was one of the grandest sights, if not the grandest sight, of my life. Imagine a locomotive that has left its track, and is climbing up in the air right toward you."

The world has noted, with much fanfare and re-enactments, the momentous events of the Wright Brothers on December 17, 1903, the first powered flight by a heavier-than-air craft. Contemporary journalists gave the event much less coverage. In fact, it wasn't until 1905 that a complete description of a flight by the Wright brothers was published. And it was published in, of all places, a beekeeping journal. Readers who subscribed to *Gleanings in Bee Culture* were better informed about contemporary developments of flight than most of the rest of the world because of the interest of A. I. Root.

Three years after the Alamo, the year Ulysses S. Grant graduated from West Point, Amos Ives Root was born in a log cabin north of Medina, Ohio, December 9, 1839. He became a man of many talents and interests. An excellent student who read books well beyond his years, he gave demonstrations in area schools in chemistry, physics, and electricity. Fascinated by bees as a child, his father would not allow him to keep any "because they did not pay for the fuss - besides, they would sting!"¹, so he raised chickens and sold eggs, bought a book on raising chickens, improved their food and increased his production. He had a habit and desire to learn everything he could about whatever he had become interested in.

Age 18 found him on the road, giving lectures on chemistry, electricity, physics, and magnetism. The next year he came home, taught school, and subscribed to the *Scientific American*. At 24, he paid a jeweler \$25

to teach him jewelry and watch repair, and then opened a business in Medina, Ohio. He established his reputation for honesty very early and soon had a thriving business.

Bees!

Bees found their way back into Mr Root's life in August, 1865, when one of his employees caught a swarm, and sold it to Mr Root for \$1. That late swarm did not survive the winter, but he was hooked. Next spring he bought another swarm and began buying and reading bee books, once making a 30 mile, two-day round-trip to Cleveland, to purchase Rev. Langstroth's *Hive and the Honey Bee*. He wrote to Rev. Langstroth for more information and learned that a national beekeeping magazine had ended circulation after only three years. A.I. convinced the former editor to revive the *American Bee Journal*, then published in Washington, D.C.

Never one to let pass a business opportunity, Mr. Root soon was selling bees, bee equipment, honey and beeswax, and began publishing *Gleanings in Bee Culture* on January 1, 1873. *Gleanings* reflected his personal interests and beliefs. He had regular columns on Temperance, Gardening, Poultry, and a column named "Our Homes" where he shared his personal experiences. As a young man, A.I. suffered his share of swindles. When he learned his readers were being swindled by ads in *Gleanings*, he began investigating and challenging spurious ads. In 1881 and '82, he reimbursed readers \$248.15 for queens and bees they bought from H.A. Burch & Co. but never received. He reported other advertisers to the Postal

¹ "An Eyewitness Account of Early American Beekeeping, A. I. Root Co. 1984, page 1

authorities, and often repaid subscribers from his own pocket. In response to overwhelming amounts of mail received asking for beekeeping advice, in 1877 he began printing eight page circulars that answered the most frequent questions. They soon became the basis for "The ABC and XYZ of Beekeeping".

In 1883, Mr Root was sued by a Mr Forncrook in a patent infringement case over single piece wooden comb section boxes. In typical fashion, Mr Root first offered to quit manufacturing and selling the equipment and give a \$500 settlement, but only if Mr Forncrook could give a reasonable defense of his claims in *Gleanings*. Instead, it went all the way to the Supreme Court. A. I. showed that the comb section boxes had been incrementally improved and patented by different beekeepers over 20 years, and, after the expenditure of \$1300, won the case.

Here are just some of the many beekeeping items A.I. experimented with and improved:

The Simplicity Hive.

Handholds cut into the hive body.

Dovetailed hive bodies.

Various grain flour pollen substitutes.

Feeding bees with thin and thick sugar syrups.

Controlled queen mating in screened cages.

The smoker

The mechanical extractor

Mailing bee eggs

and larvae in brood comb and queen cells in attempts to devise an easy method to requeen hives with Italian queens.

The first to graft queen cells.

Created the queen introduction cage.

Began the practice of shipping one-pound packages of bees to reduce shipping.

Rolled foundation mills trying mixes of beeswax with paraffin, tissue paper, cloth, wood, twine impressed into foundation, and finally wires.

In the late 1880s he began to turn over day-to-day operation to his son, Ernest and son-in-law, J T Calvert.

The Wright Brothers

Wilbur Wright, the third child of Milton and Catherine Wright, was born in Millville, Ohio, on April 16, 1867 Orville, the sixth child, was born on August 19, 1871, in Dayton, Ohio. Twins, born between Wilbur and Orville, died as infants.

In the 1860s, Dayton was a developing city of about 10,000 people. America had bought Alaska in 1867 General Grant took office as president in 1869. Chicago burned in 1871 And A.I. Root was an obscure beekeeper

Their father, Milton Wright, an ordained minister

and Bishop in the Church of the United Brethren was constantly traveling most of the year

Their mother, Catherine, was the daughter of a carriage maker. She often worked with her father in his shop, learning to handle tools and creatively solve problems. She made toys and sleds for the boys and was well educated, having completed all but three months of a college education.

While in eighth grade, Orville started a printing shop. Deciding not to finish high school and become a printer, he soon had his own business, built his own printing presses, brought Wilbur into the business, and began printing a short-lived newspaper

The year 1887 saw the introduction of the safety bicycle which had both wheels the same size. By 1892 both Wright brothers were enjoying the new craze of bike riding. Friends brought them bicycles to be repaired because of their mechanical skills, so they opened a bicycle store and began building their own bicycles.



A.I. Root seated on one of the early Wright Brothers' gliders, in 1915 at the Medina County Fair, in Ohio.

Dreams of flight

In August, 1896, Orville fell ill with typhoid fever. For six weeks he fell in and out of consciousness with a fever of 103°. Spending long hours at his side reading to Orville, Wilbur read about the death of the famous flight experimenter, Otto Lillenthal, and the successful flight of a steam powered flying model by Samuel Langley, Secretary of

the Smithsonian Institution. Wilbur began to seriously think about flight.

From the very beginning, Wilbur took pioneering steps in the study of flight. After reviewing the available literature on flying, rather than working from preconceived notions, he concluded there were three problems: LIFT to get the machine off the ground – Otto Lillenthal had "solved" that problem with his lift and drag tables; POWER to propel the machine – new gasoline engines could provide power; and, CONTROL in flight – no one had yet mastered controlling gliders. Wilbur's crucial contribution was developing control of the machine by *warping the wings*. This invention, that later became ailerons, gave the control that made flight possible.

Kitty Hawk

Kitty Hawk, NC, was chosen because it was both windy and remote, far from the prying eyes of reporters. Their experiments began in 1900 with a large biplane kite, testing their wing warping controls and measuring the lift and drag of the kite. In 1901 they returned with a larger kite that also could be flown as a glider They gained valuable experience in flying the glider, but they noted that their glider's lift and drag did not meet the values predicted by Otto Lillenthal's tables.

Continued on Next Page

Back home, Wilbur and Orville concluded that Lillenthal's tables were wrong and set out to test them. Here, they took another new step. They built a wind tunnel to test aerodynamic surfaces. No one else had tried this before, and they spent all winter gathering the *first data using a wind tunnel*. They tested hundreds of wing designs for the best shape and arrangement for a biplane, and proved Lillenthal's data was wrong.

In 1902, they returned to Kitty Hawk with a new glider and wing design based on their tests. Setting world gliding records convinced them they had finally solved the problem of lift and control. Now, they needed only a motor

Back in Dayton they designed their own motor and assigned the task of building the four cylinder, 12 H.P.,

cast aluminum motor to an employee. The motor was simplicity itself. It had no carburetor, but dripped gas onto an intake manifold. It had no spark plugs, but used a breaking circuit for spark. Cooled by a water jacket, it had no water pump. It powered two counter rotating propellers.

Designing the propellers was the result of another of Wilbur's inspirations. No one knew how to predict the thrust of a propeller until Wilbur realized that a propeller was simply a rotating wing. Applying the rules

of aerodynamics and wing design he predicted the thrust of the propeller

Flight

Returning to Kitty Hawk, on September 26, 1903, with their new flying machine, they began ground tests to measure engine power and propeller thrust. They suffered some equipment problems, but finally, in December, all looked ready for a day of good weather.

Meanwhile, unbeknownst to them, Secretary of the Smithsonian, Samuel Langley, was ready to test his own flying machine. He had spent five years and \$50,000 of the War Department's money to build two flying machines. On December 7th and 8th, 1903, Langley's test pilot catapulted the two machines from a houseboat anchored on the Potomac River near Haines Point. Luckily, for the Wright brothers, both machines went straight into the river. With them went the War Department's enthusiasm for flying machines.

Late in the morning of December 17, 1903, the two brothers made final preparations for their first flight. The rain had stopped. The winds were picking up. They laid out a rail for the flyer to take off (wheels weren't

used because of the deep beach sand). They tossed a coin and Orville won. Before he climbed into the machine, the brothers clasped hands, an observer noting, "they held onto each other's hand sort o' like two folks parting who weren't sure they would ever see one another again."²

They started and warmed the engine. Wilbur held one wing to keep the aircraft balanced. Finally, Orville gave a sign, released a latch holding the plane, it lurched down the 60 foot rail, and lifted into the air. Man had flown!

Orville's first flight was only 120 feet. Three times the plane was dragged back to the starting point and flown. Wilbur flew the fourth, and last, flight for 59 seconds and 852 feet in a straight line. Before the plane could be returned to the starting point a fifth time, a gust of wind flipped over and broke the *Flyer*. Left with a jumble of fabric, broken sticks and tangled wires, it was time to go home.

In Dayton, the local papers were not impressed when their older brother, Lorin, reported the news. You may know what is probably one of journalism's most historic quotes. "59 Seconds! If it had been 59 minutes, then it might have been news."

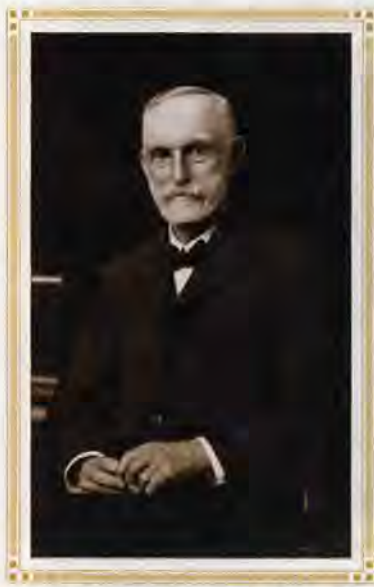
The Roots and the Wrights

But the news of their flight did get out, and A.I. noticed.

In his first letter to the Wright brothers in February, 1904, Mr Root congratulated the brothers on their accomplishment and asked for the privilege of being able to observe any forthcoming flying experiments they might attempt. As he put it "... I want to be in the crowd and see you work, and if I can be of any assistance in any way, I would be exceedingly glad."³ In March he wrote, "I am exceedingly anxious to be on hand when you make your first trial this season.... I have made one or two references to flying machines in our journal.... In consequence of these articles our readers are sending me items in regard to flying machines. I enclose one of them." Root had the flying bug and was becoming a scout for the Wrights, sending them the latest news on flying from around the country, courtesy of the readers of *Gleanings*.

In mid-May, Mr Root wrote, "Please excuse me, friends, but I am getting quite anxious to see some experiments with that flying machine... I have heard some talk to the effect that you are having some trouble with getting patents. ... I should be very glad to help you. I am 64 years old and have had quite a little to do with patents and the patent office business."⁴

On May 23rd and 26th, the Wright brothers gave the first public demonstration of their *Wright Flyer*, as they called it, in a field known as Huffman's Prairie, eight miles west of Dayton. The winds failed, the engine was misfiring, and the plane flew only 25 feet. The press and public was duly unimpressed. Some still wonder if the brothers intentionally did poorly to discourage the



A.I. Root about the time of the first Wright Brothers flight.

² A.I. Root to the Wrights, November 23, 1904

³ A.I. Root to Wright Brothers, Feb 16, 1904

⁴ A.I. Root to the Wrights, May 16, 1904

press. All summer the brothers had problems getting the flyer off the ground due to the fickle winds and the windbreaks around Huffman's Prairie.

In July, Mr Root wrote four letters asking if the brothers would let him know in advance of some of their next experiments, finally telling them he planned to drive the 175 miles to Dayton in his 1903 Oldsmobile. Unable to contain his excitement, A.I. wrote, "Please excuse me, friends, but I am so anxious to see that airship I can hardly sleep nights. Won't you please tell me on the enclosed postal if there is any prospect that you will make a trial with it this week. If there is, I want to start down right away. May be I can run errands for you or do something with my automobile; if so, it will be entirely at your service while I am around there."⁵

A.I. finally did make that trip and met the Wright family. When he asked about books he should read to learn more about flying, they loaned him some books from their own library. Evidently they also discussed the problem they were having getting the *Flyer* airborne without the strong winds of Kitty Hawk. Mr Root later wrote "I suggested wheeling the machine up on a platform... so as to get up momentum by running down hill. After I left them I figured out in my mind that a derrick from which a weight could be dropped ... would be a good plan. I was so full of this idea that I made a second trip in a short time and was astonished and pleased to find they had got hold of the same thing and had it in practical operation."⁶

After the visit Mr Root wrote: "Dear Friends, I have not laid awake nights thinking about your work quite so much since I got home as I did before.... I am very anxious to know in regard to that plan of dropping a weight from a little derrick.... I am reading the two books you gave me over and over again and I get some new apprehension of the matter every time I look them over. May God be praised that He has permitted me to live at the same time with the Wright Bros. came here on earth and still more that it was my privilege to feel at least to some extent that they are my personal friends."⁷

On September 7th, the Wrights completed their 20 foot derrick and loaded it with a 1600 pound counterweight. By the 15th, they were flying up to one-half mile and attempting their first turns.

On September 20th, Orville completed a full circle, flying 4080 feet in 1 minute 35 seconds, landing back where the flight started from. This is considered the first *controlled*, powered flight, of a heavier-than-air craft, the real beginning of true flight. *A.I. Root was there that day*, and witnessed the event. By September 22, he had written an article describing the flight, and asked the Wright brothers for permission to share with his readers what he had witnessed. But the brothers were very concerned about any reporting that might jeopardize their patent rights, since contemporary law prevented patents on anything that was public

⁵ A.I. Root to the Wrights, July 26, 1904

⁶ *Gleanings in Bee Culture*, November 15, 1908, vol. 36 page 1391

⁷ A.I. Root to the Wrights, August 23, 1904



knowledge. A. I. explained, "I have for years been trying to keep posted, and to keep before our people, through our journal, all real progress in science and art.... Perhaps there is a little pride in wanting to be the first to give the great world the real facts in the case."⁸

In October, Mr Root continued to address the Wright's concerns in a series of letters, promising not to say or publish anything without their permission, expressing his enthusiasm for flight, and sending them a complimentary copy of *Gleanings*, adding "... I should be ready now to give you an order for a machine, that is if you wanted an order, if our folks would let me practice on it; but they would say my bones are too old and would break too easy, etc."⁹ He was, after all, 64 years old!

After a visit in November, he congratulated Orville for the graceful flight he witnessed saying "... a swallow could not have made the curves any better..."¹⁰, and again in December congratulating Orville on circling the Huffman's Prairie four times. By early December the brothers had completed their tests for 1904 and would spend the next five months improving their design.

Meanwhile, A.I. was still trying to publish an article and asked if the Wrights would send him a photo of their 1902 glider instead of their *Flyer* to assuage their concerns about patent rights.

Finally, on January 1, 1905, *Gleanings in Bee Culture* became the first magazine in the world to publish a complete, eyewitness account of a successful flight by the Wright brothers and their *Wright Flyer*. In his three page article, A.I. ranked the invention with that of the

⁸ A.I. Root to the Wrights, September 22, 1904

⁹ A.I. Root to the Wrights, October 8, 1904

¹⁰ A.I. Root to the Wrights, November 23, 1904

automobile, the telephone and the wireless telegraph. In his vision he saw the day man could travel without the impediment of building roads or bridges. Of the flight he wrote:

"At first there was considerable trouble about getting the machine up in the air and the engine well up to speed. They did this by running along a single-rail track perhaps 200 feet long. The operator takes his place lying flat on his face. This position offers less resistance to the wind. The engine is started and got up to speed. The machine is held until ready to start by a sort of trap to be sprung when all is ready; then with a tremendous flapping and snapping of the four-cylinder engine, the huge machine springs aloft. When it first turned that circle, and came near the starting-point, I was right in front of it; and I said then, and I believe still, it was one of the grandest sights, if not the grandest sight, of my life. Imagine a locomotive that has left its track, and is climbing up in the air right toward you—a locomotive without any wheels, we will say, but with white wings instead, we will further say—a locomotive made of aluminum. Well, now, imagine this white locomotive, with wings that spread 20 feet each way coming right toward you with a tremendous flap of its propellers, and you will have something like what I saw. The younger brother bade me move to one side for fear it might come down suddenly; but I tell you, friends, the sensation that one feels in such a crisis is something hard to describe."¹¹

On Jan 18th, Mr. Root sent the brothers a check of \$100 for the privilege of publishing the story. When they returned the check, A.I. sent them 10 copies of the January issue with the offer of 100 more if they wished. He also sent two copies of the article to the *Scientific American* for use in their publication. They claimed they never received the articles and did not write about the Wrights until much later.

Years later, in 1933, Orville would write to Ernest Root (A.I.'s oldest son) about the January 1, article, "I believe this was the first published account of our 1904 experiments."¹²

A Friendship Sustained

In late May of 1905 the brothers began building their third *Flyer*, incorporating changes from the lessons learned last year. At the conclusion of their 1905 flying season, in October, they had flown the *Flyer* for 39 minutes, covering 24 miles, until the fuel tank ran dry. The November 15, 1905 *Gleanings* carried this short notice on page 1202: "At present I am not at liberty to give a report on what the Wright Bros. have done



over the past Summer." The Wright brothers did not fly again until 1908 for fear that their technology might be stolen.

A. I. Root continued to write to, and about, the Wright brothers. Since the Wrights had stopped flying there was little to report in *Gleanings* until August 1, 1907 when he reports that the Wright Brothers had sold some *Flyers* to the Government of France for 1,000,000 francs, or about \$200,000.

Then, in July 1, 1908, an article on page 836, titled "The Wright Brothers and their flying-machine; also something in regard to other flying-machines", concludes with this little note, "Last, but not least (in my opinion) I hold in my hand a card postmarked Montaigne, Paris. Underneath the picture of L'Arc de Triomphe there are just five words that I prize very highly. These words are 'With kind regards, Wilbur Wright' I prize them because they remind me that my good friend Wilbur Wright, even if he is 'away up in the air' and traveling all over the world, still remembers his old friend A. I. Root."¹³ Wilbur, now in Paris, preparing for demonstrations in Europe that would soon win them fame and recognition for their mastery of flight, and invitations from European heads of state and royalty, paused a moment to send Mr. Root a short note.

The Root/Wright friendship continued, as did the articles, even after Wilbur Wright died of typhoid fever in 1912. In April 1918, Huber Root wrote to Orville Wright, expressing his regret and "real vexation" that he and his wife had not been home when Orville stopped by to visit. A. I. had been away in Bradenton, Florida.

There are three last poignant pieces of paper worth mentioning. On April 30, 1923, Ernest Root wrote to Orville informing him of A.I.'s passing that morning. Orville extended his sympathies to the Root family on May 8th, saying "Your father was a man of unusual character and intelligence, and his passing is a real loss to the world as well as to his family. I look back on the times when your father used to visit us while we were carrying on our early flying experiments with much pleasure... If some account of his life should appear in 'Gleanings' I would be very grateful if you would send me a copy of it."¹⁴ There also is a note page printed "From the desk of ORVILLE WRIGHT". On it is handwritten, "A. I. Root died April 23 (sic), 1923".¹⁵

If you want to read more...

The letters of A. I. Root to the Wright Brothers can be viewed on-line. Go to memory.loc.gov/ammem/wrighthtml/wrighthome.html, page down and click on "Search by keyword" Type in "Root" and click on "Search". You will see five collections of letters from the Root family to the Wright brothers.

¹¹ *Gleanings in Bee Culture*, January 1, 1905, vol. 33 page 38

¹² Orville Wright to E. R. Root, January 31, 1933

¹³ *Gleanings in Bee Culture*, July 1, 1908, vol. 36 page 837

¹⁴ Orville Wright to Ernest Root, May 8, 1923

¹⁵ Wilbur and Orville Wright Papers, Manuscript Division, Library of Congress, Washington, D.C.

A note about the letters

The Wright brothers documented all their work and maintained copies of their business correspondence records. Much of the material is now held by the Library of Congress. However, they did not keep copies of personal correspondence to individuals such as Mr. Root; but Mr. Root did keep the letters from the Wright brothers. These were later found in the attic of Mr Root's winter home in Bradenton, Florida, sometime before 1938. There is an undated note, in Orville's handwriting, on his note paper, "See letter Mrs. A E McLandon Dec 1938 offering for sale, letters W Bros. to Root, clippings & pictures found in attic of Root home at Bradenton, Fla."

In an unsigned copy of a November 5, 1943, letter from the A. I. Root Co. to Fred Kelly, Peninsula Ohio, the writer proposes to visit "the woman in Florida" and make copies of the letters. What became of these letters I have not discovered. **BC**



Sources:

The Bishop's Boys, Tom Crouch, 1989 W.W. Norton & Co., New York, New York. ISBN 0-393-30695-X
An Eyewitness Account of Early American Beekeeping - The Autobiography of A. I. Root, Amos Ives Root, 1984, the A. I. Root Co., Medina OH.
Gleanings in Bee Culture, vols. 33-36, 1905 - 1908, A. I. Root Co., Medina, Ohio
 All correspondence is from The Wilbur and Orville Wright Papers, Manuscript Division, Library of Congress, Washington, D.C.

Preferred Citation: Researchers wishing to cite this collection should include the following information:

Wilbur and Orville Wright Papers, Manuscript Division, Library of Congress, Washington, D.C.

Correspondence from A. I. Root made available here with permission from John A. Root and Brad I. Root, P.O. Box 588, Medina, Ohio 44258-0588.

David Morris is a sideline beekeeper from Laurel, MD.



Extractors

"Betterbee offers the best Honey Extractors around!"



Deluxe Italian Compact Extractor

The BEST little extractor for the money! If you have only a few hives and want the convenience and ease of extracting, this is just what you need. Highly polished stainless steel quality construction, plastic gears with 3:1 ratio makes cranking so easy, plus an added bonus: a 100 lb. tank with built-in filter screen - all in one handy unit! (Ship Wt: Extractor w/tank 70 lbs., w/o tank 50 lbs., Stand/10 lbs. in separate box, Top Lid/3 lbs., Gear Assembly/1 lb., Handle/1 lb.)

IED1	Deluxe Extractor with holding tank and screen.	\$ 239.00
IESTAND1	Extractor Stand	\$ 29.00



New! Hobby Extractor

This Hobby Extractor is larger, and sturdier and less expensive than what is available on the market elsewhere. It has what other hobbyist extractors don't have - a heavy steel band on the bottom which gives it rigidity. Holds two deep frames or four medium frames tangentially, and therefore, one side of the frame is extracted at a time. It has extra wide baskets for easy placement and removal of even the widely drawn frames you get when you put eight frames in a ten frame super. Comes with 1-1/2" honey gate. (Ship Wt: 60 lbs.)

HOB3 Tangential Hobbyist Extractor . . . \$ 198.00

Also available - For the sideline - Top of the line German Fritz Extractors, the Mercedes of the bee industry! Call us for details



Maxant 3100

6 Frame Radial Extractor. Extract from BOTH sides of shallow/ medium frames at the same time! Can be bolted to a stand for added stability. Available with hand crank or motor. Note: Legs measure 15" (Ship Wt: hand/50 lbs., motor/60 lbs.)

M3100ML	Motorized, with Legs	\$ 630.00 each
M3100M	without Legs	585.00 each
M3100L	Hand-crank, with Legs	430.00 each
M3100	without Legs	385.00 each



BETTERBEE, INC.
ORDER TOLL-FREE
800-632-3379

Please mention Source Code ABJ0803 when ordering.

www.betterbee.com



LIVING LARGE

Life With An Over-Sized Observation Hive

James E Tew

In a perfect bee world

In a perfect bee world, all honey crops are large, colonies never swarm, bees are always gentle, and observation hives are always healthy and pretty. In reality, I got no honey crop at all this past season; between constant rain showers this past spring, my colonies swarmed constantly; I was stung on the ear just yesterday; and my observation hive is not even stocked but is presently in storage – completely beeless. There is a lot to be said for the ideal world.

The “standard” observation hive

Bluntly stated, there is no standard observation hive. As I was photographing my large observation hive in preparation for this article, I took a minute to count about fifteen observation hives sitting around my storage barn. They, for the most part, were different sizes and different designs, but they all had glass sides and they were all intended to allow the observation of bees doing their “natural” thing (*as though bees trying to live in a glass box is ever natural*). While our beehive equipment has become standardized, observation hive designs are still all over the page. It is a good place for beekeepers to express their creativity and cleverness of design. Yet, after all this effort, I still don’t know of a perfect design.

The “standard” problems of any observation hive

Some hive designs are better than others, but in general, they all have similar problems.

General Observation Hive Problems

1. Adding space. Most observation hives don’t provide for any way to add space other than putting in empty frames. Though you have the best of intentions, you don’t get to it; the colony becomes crowded and swarms – even late in the year
2. Burr comb and brace comb construction. Even if you build your hive to machinists’ standards, most colonies will still build burr comb. As you crowd the small hive, it will put comb where it would not

normally put it – on the glass or between the frames. Then the unit becomes increasingly difficult to open when necessary.

3. Feeding. There are always a collection of various holes in the top of the unit for feeding the small hive. At best, observation hive feeders work okay while at worst, they leak, streaking the glass and wetting the bees. Normally, if the unit is wide enough, a feeder hole large enough to accept a glass jar is used, but hole sizes may be especially cut to accept a specifically-sized jar cap.
4. Disease treatment. Most units have no way for installing mite strips or for putting on Terramycin®. Do whatever you can, when needed, depending on the design of the unit.
5. Requeening. Even the most common observation



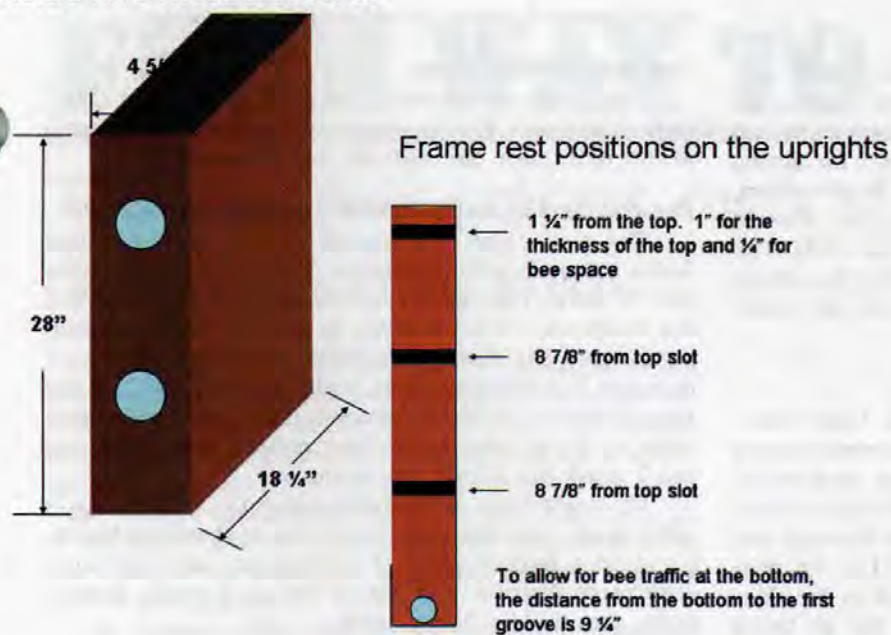
Burr comb and propolis from previous occupants.

Buttresses for end support.

The entrance tube enters here.

Hinged, 1/4" glass walls. The white clips lock walls closed.

Inside hive measurements



hive is normally built to demanding standards meaning there is simply no place to put queen cage for introduction purposes. As in #4 above, do whatever you can, when needed, depending on the design of the unit.

6. Providing for an entrance. This may or may not be a problem, but many times providing for an entrance, through the house wall for instance, is a problem. I use plastic tubing and improvise a hole through which to pass the tube.

Long term and short term observation hives

At times, I need both types. For a trip to a local school, I will make up a single-frame unit that does not even have an entrance. I described the design I use for a simple single-frame observation hive in *Bee Culture*, December, 2000¹. But for the permanent observation hive in my lab, I will provide a permanent entrance and position the unit to withstand the long haul for a much larger hive. So there are big units and there are small, single-frame units – and everything in between.

Our one-of-a-kind large unit

When my lab was new in 1985, I wanted a furniture-grade observation hive for the many school groups who toured my lab. I scoured the bee supply companies but found nothing that precisely met my needs. Being a jack-legged woodworker, I set about designing my own. We have used the unit, nearly continuously, for the past eighteen years with varying degrees of success.

The unit basics

I used California redwood to build my large observation hive because it is a stable, straight grained wood, but very prone to splintering. I used 1" thick material. I wanted a large unit that could normally withstand Ohio winters so I designed a 9-frame unit (3 deep frames wide and three frames high). A hive with this many frames means that the queen is not always vis-

ible. I needed the unit to withstand the rigors of innumerable inquisitive kids tapping and shaking the unit, so I used 1/4" plate glass and had the glass attached to hinges. Both glass sides are hinged, but commonly I only had to open one side. I had the glass doors custom made, at a considerable expense, at a local glass supply company. I cut six vent holes (2 5/8" diameter). I positioned two of these holes on each end and two on the top. I covered them, from the inside, with 8-mesh hardware cloth. In the center of the top, I cut a hole that would accept a common jar from an entrance feeder (2 3/4" diameter).

Wanting a high quality unit, I constructed a simple table, also from redwood, on which to attach the hive. While not perfect, it looked and functioned very well, but some modifications were in its future.

The hive unit specifics

The entrance.

Since the observation hive sat on a rather high table, many of my smaller viewers could not see much of it. I initially designed the hive for the entrance to come in from the bottom and go through the wall near the floor, so small students could see bees traveling up and down the clear plastic tube. There was an immediate problem. The bees had great difficulty climbing up the smooth tube and would fall cascadingly back down the tube onto other bees. I put a piece of rope in the tube for the bees to cling to when climbing. This helped, but didn't completely alleviate the problem. After about a year of fiddling with the problem, I gave up on the low entrance idea. I plugged the bottom hole and provided an entrance through the end of the unit as is more common. The bottom entrance concept was an interesting idea that I reluctantly let go.

The glass walls

Initially, the glass walls simply screwed onto the unit with redwood molding. When reinstalling the glass, it was hard to precisely hit the screw holes with honey dripping and bees being crushed. As described earlier, after about a year, I had glass doors commercially built that were hinged and could be opened to access the bees. This was a significant improvement. Even though I built the unit as close to bee-space specs as possible, I still got messy burr comb and propolis accumulation. When opening the glass walls, after the bees had sealed them tightly, I used a hair dryer to soften the burr comb and propolis before opening. Obviously the bees were not crazy about this procedure, and in general, working the hive was somewhat of a pain.

The observation hive ends (or uprights)

At the base of each upright, I bored a 1 7/8" hole to serve as an entrance. I left one hole permanently closed off for future use. That meant that I could only get two screws through the bottom into the uprights (one on either side of the hole). Additionally, I was

putting the screws into end grain which is notoriously weak. To address this weakness, early in the design phase, I included two redwood buttresses on each end to provide bracing and additional locations for gluing and screwing uprights. This worked well. In the photo, there are two boxes on either side of the hive. Essentially, this was an idea that didn't exactly work. The boxes have removable tops. I had planned to be able to put a queen cage and possibly medication in the boxes when needed.

Ventilation

As discussed earlier, I put numerous, large ventilation holes in the unit. However, I unintentionally ignored the heavy-duty air handling system used in my lab. After a few months, I discovered that the air handler was drawing a gale-force blast of air through the observation hive. Ultimately, we rectified this by putting a collar made of 8-mesh hardware cloth in the plastic entrance tube to serve as a shunt for the air being drawn in. While that worked, the bees had already propolized over all the vent holes essentially making the unit air-tight.

While the hive essentially had no ventilation, the bees seemed okay with their situation. During summer months, they would beard outside, but otherwise, they seemed happy. While the hive is not in use, I do plan to open these ports back up. If the bees only seal them again, I will take that as an indication that they don't want much ventilation.

When not being viewed

When the hive was not being viewed, we cover the glass walls with 1" thick blue expanded polystyrene insulation. This protects the hive from the morning sun and allows more use of the outside comb as brood combs.

Maintenance

In general, the hive has worked well. As was described above, it is hard to open; there is no way to super it; and treating for mites is still a challenge, but it does commonly survive the Winter. It doesn't require a lot of actual punctual work. As tasks arise, we



The propolized ventilation screen from the inside.

do whatever it takes to address the situation.

The general dimensions

The inside measurements are 4 5/16" wide x 18 1/4" wide x 28" high. The thickness of the building material would determine the outside measurements.

The positions of slots (dados) to serve as frame rests

The slots used to suspend the frames are called dados in woodworking parlance. These slots are 3/4" wide and 1/2" deep. They go across the grain. When I laid out the locations, I used a frame to develop a story board. I measured the distance between the frame top bar; I included 3/8" for bee space, and I included 1/8" for the space required for the frame rest. If you don't use frame rests or if you use simple bent metal frame rests you won't need the additional space.

My point here is that this appears tedious. I will write again, that you can simply use a standard frame, lay it on a narrow piece of scrap wood, and get measurements directly. It is not as bad as it reads. Essentially, you build a "story stick."

I think you should know

Even under the best of conditions, opening and maintaining this hive is messy. Burr comb and propolis sealing are common occurrences. Upon feeding the bees, they would track honey on the glass, making it cloudy and somewhat stained. Even in the best years, we probably will need to replace the bees, add or remove some brood, or provide a queen. Observation hives – of any design – cannot simply be left alone. It's the dark side of observation hivedom – an observation hive only looks good for a short time. To look good all the time, an observation hive would require some work practically all the time. I think this hive is working about as well as an observation hive is going to work.

My final remarks

An observation hive is not a standard hive. Beekeepers routinely express their creativity when designing them. Some rotate on a base while others are attached to the wall. Other styles are simple single frame units that go with you to give a quick talk and are then disassembled. Maintaining an observation hive year-round will require a lot of help from you. Living in a glass box is not a natural situation for a hive, but nearly everyone loves to look at bees in a glass-walled hive.

If you have not worked with observation hives before, you may very well want to buy a simple unit from which to get your basic measurements. Observation hives are rewarding, but rarely truly permanent. Like producing comb honey and raising a few queens, setting up an observation hive is just one more step in your beekeeping development. I have multiple units in storage that will probably never see bees again, but when they were in use, they were interesting devices. Good luck. **BC**

Dr. James E. Tew, State Specialist, Beekeeping, The Ohio State University, Wooster, OH 44691, 330.263.3684, Tew.1@osu.edu; www2.oardc.ohio-state.edu/agnic/bee/beelab.osu.edu/

¹ Tew, James E. *Build this Observation Hive*. www.beeeculture.com/beeculture/months/00dec/00dec2.html

FROM WAX TO BRONZE

The Lost Wax process casts statues, and history.

Les Sindy and Laszlo Boesze

We beekeepers focus our efforts on the health of our hives and on the quality and quantity of their productivity. A by-product of our hives' efforts is the honeycomb, that waxy substance that often ends up in sweet-smelling candles. But there is another use for the beeswax; sold in thin square slabs it sometimes ends up in an artist's studio. And that is what happened in the case I am about to tell you. But first, my story requires a little background.

In October 1956, the Hungarians revolted against their occupation by Soviet Forces. The uprising was initially successful: the Russians pulled out. But then, with NATO providing no support, the Soviets returned with a vengeance. There was bitter fighting, several hundred thousand fled Hungary. The Hungarian community in Chicago was frantic in trying to get some help to these refugees. The Mayor of Chicago, Richard Daley, approved an official "Chicago Hungarian Relief Day" for December 6, 1956. Several designs were submitted for use on the official fliers, collection boxes and the "tags" to be given to donors. The design by John Boesze, himself a refugee from Hungary who arrived in Chicago in 1951, was chosen. A year later, John Boesze sculpted his graphic design into a three-figure statue using plastique with the intention of some day having it cast in bronze. The years passed and the plastique statue slowly disintegrated and with it the possibility of getting a negative off it into which molten bronze could be poured.

Fast forward to Spring 2002. John Boesze, by now in his 89th year, was persuaded to finally fulfill his dream and do the statue. Because of the complexity of the statue - three figures and a flag - the foundry¹ that would do the actual casting recommended the "lost wax"



casting: initially sculpt the statue in wax, have the wax figure covered in ceramic, heat the ceramic so that the wax flows out, and then pour the liquid bronze into the cavity. And now we come back to "beeswax." It turned out that John had several pounds of beeswax that he had acquired about 25 years earlier! Well, he told me that the task was much more difficult than he had thought: he had carved in wood and had made ce-

#1. Heads, arms, legs, and torsos are formed first and then assembled.



#2. Many minute changes/corrections are made.





#3. The ceramic shell around the wax statue; note the pouring cup, sprues, and vents.

ramic figures, but he came close to throwing in the towel several times because of the difficulties when working with wax. When the wax is cold, it is brittle; this meant that the wax could not be carved. When the wax was touched with something warm, then the wax ran. Two pieces of wax will stick to each other only when both pieces are heated; etc. So his approach was to form small parts and then attach them to each other: the head bone is connected to the neck bone, etc. – heads, arms, legs, torsos were formed first and then assembled (see photo #1). It took him two months; then the wax statue was finished and then the fact that in the “lost wax” process the wax model is melted to leave a cavity for the molten bronze sank in. But there was another wrinkle: according to the foundry, there is always the chance that for any number of reasons the process does not result in a perfect casting. Thus there was no choice, a back-up wax model had to be made. From the lessons learned on the first model, the second was done in three weeks (see photo #2). This was followed by an extremely critical assessment of each model; then they were compared to each other and the subtle differences noted. This assessment phase lasted two weeks and many minute changes/corrections were made. A final critical comparison was done to determine which of the two models was to be chosen for casting.

The casting process is most interesting. At the foundry, the wax model received a protective coating and a pouring cup and tube were attached to its bottom. Several sprues (ingates, or holes through which melted metal is poured into the mold) and vents were attached to critical points of the wax statue and connected to the large-diameter tube through which the heated wax would exit and through which the molten bronze would be poured. Then the wax status (and the attached apparatus) was dipped into a ceramic shell slurry mixture, covered with refractory grain powder, and then hung by a hook attached to the pouring cup in a drying cabinet to dry. This process was repeated until the ceramic shell around the wax status was about ½-inch thick; then the ceramic shell was sealed with a colloidal silica binder (see photo #3). Then came the “de-waxing” process: the thick, hardened ceramic shell is heated and every bit of wax from the “de-waxing” process: the thick, hardened ceramic shell is heated and every bit of wax from within the shell is burned out (the wax flows through the ceramic covered sprues, vents, and pouring tube/cup. Then, molten bronze was

#4. The “released” sculpture still covered by a very thin film of ceramic.

poured through the pouring cup into the glowing hot, empty ceramic shell, the hot, bronze-filled shell was buried in special sand² and allowed to cool for several days. Once cool, the ceramic shell was broken and the bronze sculpture was “released.” At this point the sculpture was still covered by a very thin film of ceramic (see photo #4). The ceramic film was then removed, a patina was applied, and – as the final step – the sculpture was buffed³. It must be pointed out that it is very difficult to see the very fine work on the wax model; it most certainly becomes very apparent on the cast statue.

The statue symbolizes the valiant effort on part of



the Hungarians. A defiant man holds high the flag from which had been cut the hated Communist Government’s emblem while at the same time he supports a wounded youth who leans on an old rifle to which clings a child. It symbolizes the three age groups involved in the uprising, and the defiance in face of overwhelming odds.

I am one of those Hungarians who fled Hungary in 1956. We came to the U.S. in 1957 I had not been



Detail work on the wax model becomes very apparent on the cast statue.

aware of the efforts of the Chicago Hungarian community back in 1956 nor had I known the artist, John Boesze, till many years later. And here is another example of the little ironies of life; it turns out that John and I hail from the same town in western Hungary – Szombathely – the ancient Roman city of Savaria, the birthplace of St. Martin of Tours. **BC**

1. Wagner Foundry, Inc., 1838-42 N. Elston Ave., Chicago, IL. Richard Wagner, the grandson of the founder, and Rick Gurrieri were most helpful in explaining the various steps. They were also very understanding of the worry of an artist who places the fate of his creation into other people’s hands.

2. The sand actually consisted of a mix of very finely ground white rock available only from a specific quarry in Illinois and of finely ground red lava.

3. A book that gives an excellent explanation of this entire process is: Ronald D. Young and Robert A. Fennell, *Methods for Modern Sculptors*, Sculpt-Noveau, 21 Redwood Drive, San Rafael, California 94901, 1980.

Sucking Swarms



Don Sperry

I enjoy the challenge of hiving bee swarms (especially when they are from my own colonies). Each situation is a little different and requires some study to successfully make the capture.

Next to my home and partially under a large Ash tree I keep about 30 colonies. The majority of the swarms that emit from them naturally end up in that tree. I pass by the tree daily and usually spot them within a short time. Removing them however was rather difficult. It seemed that a vacuum machine of some kind would be very helpful. I came up with a very simple design, weighing only four pounds. It works extremely well and can be easily constructed with materials from a Home Depot store. The total cost will be well under \$50.

In operation, very few bees will be killed and usually the queen will be with them. The most recent swarm that I caught was about three pounds and took less than 10 minutes.

Using a 10-foot length of one half inch EMT rigid electrical conduit with appropriate end fitting for a pole handle, I can reach to about 15 feet into the tree. Without the pole, it can be easily handled with one hand while on a ladder.

The photos are fairly self explanatory I think, but here is a brief explanation of the construction process.

The vacuum machine consists of only three basic parts. A cordless hand held vacuum cleaner (I used a Ryobi® from Home Depot.) It is very light, compact, and costs about \$20. Second, a five-gallon plastic water bottle, and last, an automatic transmission filler funnel.

To begin construction, cut the bottom off of the water bottle. Use two cuts about one quarter inch on each side of the transition point where the bottle slightly changes in diameter. Start the cuts with a hack saw and finish up with a jigsaw. Try to make the cuts straight. The object is to make one part able to slip over the other. The cut edge of the bottom just removed should be fitted with some plastic, automobile door edge protector. It is a snug fit and should not need any glue. Most auto parts stores carry this material.



The disassembled unit, (from left to right) the vacuum and inside screen attached to the removable bottom, with the black plastic automobile door protector; the larger section, showing the felt weather stripping and white foam seal.

Cut off end, showing the two white stool feet for stability, the cover of the vacuum glued in place, the screen on the inside, and the electrical fitting for the pole.



Rivets attaching the pole holder.

The next step is to cut a hole in the top of the bottle about one eighth of an inch smaller than the large end of the funnel. Slip the funnel in from the back and glue in place with a bead of silicone caulking compound both on the inside and the outside. Later, cut the small end of the funnel off at a point that leaves a one and one

Continued on Next Page

quarter inch hole.

The cut edge on the main body of the bottle should have a strip of felt weather strip material three quarters of an inch by three sixteenths inch applied with contact cement to the perimeter. In back of that apply a narrow strip of closed cell foam or a small bead of silicone to seal any air leak through the felt.

Next, remove the nozzle from the hand vac and cut off the front six inches of it. Then with the remaining portion, mark and cut a hole in the bottom of the bottle large enough to allow the nozzle to pass through about three quarters of an inch. Secure this in place also with a bead of silicone on both sides.

To prevent bees from being sucked into the fan or blocking the air flow, glue a six inch screen sieve (with the handle removed) in front of the nozzle opening.

Following this, an attach point for the pole handle is installed. I used an electrical fitting called a one half inch 90 degree pull elbow. Cut off one of the threaded parts leaving the flat portion. This has two cover screw holes in it that are perfect for pop riveting this part to the flat bottom of the nozzle. It should

also be glued with something like JB weld epoxy.

Two 10 inch long bungee cords with small diameter are used to hold the bottle parts together. Hook them into the vacuum motor discharge vents and two small holes drilled into the bottle.

The addition of a couple of rubber, stool leg feet, cut to fit and glued to the bottom portion, complete the project.

The continuous operation time with battery is about five to six minutes. That is enough for some swarms, however I like to keep a fully charged spare handy.

After collection, the bees should be removed from the bottle as soon as possible and never allowed to set in the sun. The plastic bottle gets hot very quickly.

If an AC power source is available, the more powerful 110 volt vacuum cleaner can be used instead of the cordless type. I have both kinds, and operate this one with a portable Honda generator or long extension cord. Both work equally well but you get unlimited working time with the AC unit. **BC**

Anyone with a question, may call or write to Don Sperry, 224 E. Washington Ave., El Cajon, CA 92020 (619.401.8919).

EAS 2004 • AUG. 9-13 7 Springs Resort Champion, PA

HURRY!
Limited # Available

Form & Function in the Honey Bee

*Soft Cover, 220 Pages
Color Throughout*



This is the Book Winston and Seeley are talking about. It has Absolutely Spectacular photos and art.

Chapters include The Antennae, Smelling, Tasting, Dance, The Compound Eye, Vision, Navigation, The Ocelli, Mouth Parts, Collecting Pollen, Respiration, Flight, Temperature Control, Glands, Beeswax and The Sting.

Photos, art and exceptionally detailed writing make this book a **MUST HAVE**

\$55 Postpaid in the U.S.

ROOT™
PUBLICATIONS

Call 800.289.7668, Ext. 3255

MITE-AWAY II™

PRE-SOAKED, SINGLE APPLICATION FORMIC ACID TREATMENT, READY-TO-USE, COST EFFECTIVE, ENVIRONMENTALLY SAFE.

TREATMENT for varroa and tracheal mites.
There is an alternative to Apistan® and CheckMite+™ that is recognized as organic.

Currently not available in the United States.

EPA registration in process.



"The Vaporizer"



**NOD Apiary Products
USA Inc.**

P.O. Box 142
Stirling, Ontario K0K 3E0
Canada

Toll free USA &
Canada 866.483.2929

www.miteaway.com

"We look forward to meeting you at the AHPA convention in San Antonio & the ABF meeting in Jacksonville!"

Think Pure. Think Mite-Away II

Try Before You Buy

How much shouldn't be the only question you ask.

Peter Sieling

Last Fall the retired Reverend Bence decided to sell his honey processing equipment. He was facing the first harvest without his wife of 60 years. We were driving around to his various beeyards when he asked me, "Any equipment you want?"

"Well, how about your uncapper and uncapping tank?" The tank was galvanized steel. An oscillating knife blade clamped on top. Steam ran from a pressure canner through the knife and into the tank lining. The cappings dropped into the heated tank. Warm honey and wax flowed out a spout and strained into a bucket. I drooled over the unit like some men drool over Harleys. Reverend Bence "Harrumpffed," and changed the subject.

A little later he



asked, "Would you like my extractor?" Rev Bence's extractor is an ancient four frame tangential Root Automatic; probably soldered together by old A.I. himself. Sometime in the last 100 years, Rev Bence motorized it with homemade wooden bearings and a foot switch. I already own two smaller extractors; a Root Novice two frame that my dad bought in the 50s for \$2.50 and a Root Cowen semiautomatic that I paid too much for. Both are hand cranked, but I have three fractional horsepower children and they

all enjoy spinning out honey. I did not need another extractor but I didn't want to hurt his feelings, either.

"How much do you want for it?" I asked cautiously.

"Why don't you try it out and see how you like it?" he said. He was hinting at something.

"How about we bring your extractor over to my shop and we can process all our honey at once."

"I'll be glad to help you with your honey too," he added.

Two weeks later we drove around to his beeyards. He opened the hives and I carried honey supers to the Jimmy. By sunset we had the processing equipment set up

and stacks of honey boxes inside the shop. My knuckles were dragging on the ground. Rev Bence's ankles looked like butternut

squash and his feet looked like watermelons injection-molded into his unlaced shoes.

"Well," I said, "That was a good day's work. I guess we can start extracting tomorrow."

"Oh, well, if you want to stop, I suppose we could. Or we could get a head start on tomorrow."

"Ah I'll just put the supers in the lumber kiln and keep them warm overnight. We can start bright and early tomorrow. Aren't you tired?"

"My feet hurt a bit. I could put in a couple more hours, but if you're tired we can stop. You did all the lifting." Reluctantly he headed home.

At 6:30 a.m. Reverend Bence's old Jimmy lurched into the driveway below my window. I dressed, ate and wandered out to the shop with a cup of coffee. A whumpeta whumpeta whumpeta noise came from inside the building. Reverend Bence stood over the extractor. He had dragged his equipment around to perfectly match their positions in his honey house. My extractors sat in a corner. Now he was running the empty extractor, pulling levers and feeling the cool wind rising out of the barrel.

He looked up at me and grinned. "Air's coming out cold. Honey's gonna move slow today."

I pulled the first super out of the kiln and carried it into the shop, then plugged in the knives. His uncapper and tank stayed at his shop. The year before he absentmindedly melted the steam generator by letting it boil dry.

I started uncapping with my electric knife. I keep my knife shiny clean, constantly adjusting the thermostat and regularly wiping off hot honey and wax. His knife was black with decades of burnt honey and wax. He cut cappings off a couple combs and carried them to the extractor. I handed him the first of my uncapped combs.

"Hand them to me right side up. Then the honey won't drip out as fast." This guy was picky. "Whoa, you missed some cells here!" He showed me a half dozen cells in the corners of the frames. "It's important to uncap every cell." I ran to the house to get a couple of forks for poking out the cells in the cor-

Continued on Next Page

ners. When I returned, the air was full of smoke. My knife! It was black with caramelized honey. Ruined! I shut it off and wrapped it in a hot, moist paper towel. I scraped the three or four capped cells on the second comb and carefully handed it right side up to Rev. Bence. Returning to my knife, I gently stroked it with the towel. Some silver showed under the black. Perhaps it could be restored with a couple hours of polishing. I turned it back on and unplugged Reverend Bence's smoking knife, then returned to uncapping.

Mr B. pushed the extractor's switch. With a loud thunk, the basket began to rotate. He kept one foot on the hinged motor mount to control the speed by belt slippage. The basket rotated slowly. With one hand on the brake lever and the other on the clutch, he guided the extractor up to speed. It vibrated wildly. He leaned into it, shirt buttons a fraction of an inch from the spinning basket. What would I tell his kids? "Hello, your dad was sucked into his extractor. I'm so sorry. He would have been glad to know I saved the honey." The brakes shrieked. The basket stopped. With

a loud clank the frames magically flipped. He yanked another lever to disengage the clutch. It spun faster than ever as the extractor lurched around on its platform. Again the brake screeched, the basket flipped and away he went. With a final squawk, the basket stopped. His face shiny with sweat and wispy white hair blown back, he looked up and grinned. "I'm surprised how well the honey's flowing. With a breeze this cool, I usually have a much harder time getting it out." He pulled out and hefted an empty comb. "Hard to believe."

"That's why I have lumber kilns: to warm the honey to 88° once a year. If you want, I could run the extractor and you can uncap combs."

"Oh, I'll run this for a while and you can uncap. If you get tired, we'll switch."

Reverend Bence showed no signs of slowing down at lunch time. I sneaked into the house and ate, then brought him out a blueberry muffin. He took a bite. "Umm, Nancy makes good muffins! How about I show you how to run this now."

He went carefully over the controls like a father showing his son how to drive for the first time. "Now I'll show you how to run it." He

guided it through a cycle, explained the positions of the levers, and demonstrated the various combinations of coordinated foot and hand actions as the basket accelerated and slowed down. "There! Now you know how it works."

"Cool! Now I get to drive," I thought as I helped Rev. Bence replace the empty combs with full ones. As I eased toward the "driver's seat," Mr B slipped in front of me and threw the switch, leaning dangerously over the spinning basket. I returned to the uncapping table and the smoking knife.

We finished his honey the first day and mine the second. My supers went much faster as he didn't mind leaving a little honey in the corners of the combs. I never did run the extractor and I never figured out how he made the baskets flip all the way around.

"If that equipment's in your way we can bring it back over to my shop," Reverend Bence offered a couple weeks after the harvest.

"Oh no," I lied. "We'll leave it in my shop. Saves moving it again next year." **BC**

Peter keeps his honey warm in his woodshop in Bath, NY. He is a regular contribution to these pages.



It's that time of year for dreaming & planning!
Hope your New Year is Productive!
We are taking orders for package Bees.
Pick-up Only.
Supplying Apiaries of all sizes.

GzBz Honey Farm

2295 E. McPherson Hwy.
Clyde, Ohio 43410

Phone: 419.483.7496 or 419.483.5522

FAX: 419.483.4160

Email: gzbz@yahoo.com



Cowen Manufacturing

716 Honey Lane • P.O. Box 399

Parowan, Utah 84761

800.257.2894

435.477.8902

FAX 435.477.3569

Jester Bee Co.

P.O. Box 87/5099 Hwy. 297
West Ridge, AR 72391

Visa, MC, Discover, AmEx accepted
870.531.2373 • Fax: 870.531.2369

For Orders: 800.294.2373

jesterbee@eritter.net
www.jesterbee.com

3 lb. Package W/queen

1-9 - \$52 each plus postage

10 up - \$47 each plus postage

QUEENS

1-10 - \$15 each plus postage

11 up - \$12 each plus postage

Queen Cells \$2.50 each

Marking Or Clipping Queens \$1.50 each

4 Frame nuc w/queen \$75

Single story beehive \$100

(picked up at West Ridge only)

Orders for delivery before April 15 add 20% to prices.
Prices subject to change with availability & honey prices.

MEETING PLANNING



Ann Harman

Well, now you've done it. You have just been elected Vice President of your beekeepers' association and, guess what, you are now in charge of the next meeting. No matter if the last meeting was a flop or a resounding success, you want to make "your" meeting a really good one.

Local association meetings generally fit a pattern from month to month. Attendance is about the same each time. But state or regional meetings are a bit different. The beekeepers attending these meetings want a smoothly-run meeting with a program that attracts attendance. The secrets to the whole thing are advance planning and delegating tasks.

So now the brain starts functioning: speakers, who? lunch, how? meeting place? at what cost? how much money in treasury? where will the speakers stay overnight? one day or two days registration fee how much get notices in journals...WHOA!

You need a Time Line.

This Time Line can be in months, days, even hours. It is simply a type of chart to use as your guide to when something has to be done. A Time Line saves everything from becoming a jumble with the result that something falls through the cracks. For example, to get a notice in the bee journals it needs to be sent in eight weeks before the month of the notice. Ten is better. If the meeting is early in the month, it needs to be in the journals the month before. But there is no point in sending in your notice unless you have a venue and speakers to put in the notice. Everything depends on everything else.

Get a pen and paper – no, use a pencil, at least you can erase and correct. Your Time Line starts now, right now. The end of the Time Line

is at the end of the last day of the meeting. Now the tricky bit is to fill in between those two dates what needs to be done when.

You, or the Executive Committee, have chosen a date, haven't you? Does this date conflict with anything – Super Bowl, neighboring states' beekeepers meetings, some local celebration, national holiday? When choosing a date, consider what else might be happening. And, for good measure, choose an alternate date if possible. That can save contacting Executive Committee members in case the meeting place is booked for your first choice. Get in touch with other associations by contacting them through *Bee Culture's* Who's Who, on their web page.

Before you start filling in the Time Line, get in touch with the Treasurer of your association. You will need to work closely with the Treasurer from the very start. The Treasurer should be able to give you attendance numbers, registration fees, speaker compensations, lunch prices, and other data from past meetings. These figures can help you direct your thoughts on your meeting. So first, get the history.

The Treasurer can also give you the state of the treasury – practically empty or overflowing. The Treasurer can tell you if there is enough money for deposits for meeting rooms and even for advances for assorted meeting expenses. This information will enable you to calculate your expected income and help decide if catastrophes can be covered.

Catastrophes? Yes, they occur. Mother Nature can put some glitches in your plans. Hurricanes, blizzards, tornadoes and worse weather events could cause cancellations or could mean putting a speaker up in a motel for a few



more days, giving you an additional, unexpected expense of the meeting. Nobody wants such problems, but be aware they can happen.

At this point it is time to ponder whether you have help for any of your responsibilities. Will members of the local association provide helpers? Do you know any of them? If you do not live close to the meeting place you may need an assistant to inspect the venue and discuss prices, dos and don'ts, parking, heat, air conditioning, chairs, tables, janitor's fees, and many other little details. Little? Well, actually important details that can mean the difference between happy beekeepers and grumbling beekeepers.

While you are thinking about helpers, think about who likes to get up at the crack of dawn to put out signs. In fact, is there anyone who can make a decent set of signs? How about one, two or three people at the registration table? Is there anyone who can be responsible for morning and afternoon breaks and for lunch?

A very important person is the one who will keep the meeting running ON TIME and introduce the speakers. Will you do that? Can you muster up the courage to tell a speaker to shut up and sit down (politely, of course) so the next speaker can have the full time allotted? If not, find someone who can.

Other helpers could include someone to contact and assist vendors (you are having vendors aren't you?), someone to make reservations for speakers staying overnight, someone who can transport the speakers to/from

Continued on Next Page

airport and to/from motel, someone in charge of door prizes or auctions, someone who understands computers and Power Point, someone who will obtain any A/V equipment and make sure it works, someone who will stay and make sure the meeting room is clean and chairs and tables put away if necessary. Other someones to help you with little or big tasks.

Before you say there is nobody willing to do anything, let me suggest asking people to help. Some of my best helpers have been those, perhaps too shy, who have not volunteered but have simply, quietly waited to be asked. You will put these people in your Time Line to remind you to check on their progress. After all, you are responsible. So, establish your crew.

It is now time to start your Time Line. Put the meeting date down at the end. And for the beginning - today - put "obtain the meeting place." Any meeting place you choose will have advantages and disadvantages. The solution is to have the fewest disadvantages - or you will spend the entire meeting day apologizing for all its drawbacks. You will need answers to some questions: is any A/V equipment available? What time can the vendors arrive to set up their tables (can you get tables?)? Will there be overnight security for vendors if needed? Is there a charge for tables and chairs? Can the room be darkened for visuals? Does the meeting room have to be emptied by a certain time? How many rooms do you need? Vendors, huge room, smaller rooms?

You certainly can consider an assortment of meeting places: fire department halls (some come with a ladies' auxiliary who fix lunches), libraries, conference centers, 4-H camps, church halls, college halls, resorts, motels/hotels (with some you guarantee a given number of rooms and get the meeting room free). It is interesting to note that hotels/motels inside city limits frequently have an extra tax applied to your bill. Those just outside city limits will be happy to tell you they are cheaper because of no city tax. Before you decide that there are no

suitable meeting places, check with the local service organizations (Lions, Rotary, etc.) for suggestions.

Have you found suitable places for out-of-town speakers to stay? You need to find a decent hotel/motel within a sensible distance. Visit it, or have your helper visit. You may not want to choose one that is "next in line for renovation" meaning bad plumbing and lumpy beds. Would you stay there?

O.K.! You now have a date and the meeting place. With these two pieces of information you can fill in the rest of your Time Line. Immediately after "obtain meeting place" you will put "plan program." You need to have the program planned before you go to the next step, which is "obtain speakers."

Next month we will consider planning a good program and working with speakers. So right now we will skip over those two entries in the Time Line and go to other details.

It is not too early in the Time Line to put "food." Food involves both morning and afternoon breaks, as well as lunches, and, if on the agenda, a dinner or banquet. Hotels/motels generally require that you use their services for all food, including breaks. The price of coffee breaks is usually horrifying but if your registration fee and treasury funds can cover that cost, then accept the fact. If you must use a hotel/motel lunch do not select a hot meat-and-potatoes type - everyone will be sound asleep during the first part of the afternoon. Choose sandwiches instead.

If not meeting at a hotel/motel, you will be more flexible for breaks and meals. Keep in mind that even if fast food places are within a short distance, people who go out for lunch sometimes do not return, leaving a noticeably emptier meeting room than at 10:00 in the morning. Therefore consider bringing in a box lunch. Local restaurants do these, and some fast food, like KFC, are easy and inexpensive. For breaks perhaps some of the good honey cookery members will make cookies, cupcakes or sweet breads. They can be made in advance, frozen, and brought on the day of the meeting. Everyone appreciates homemade treats! Potlucks are a possibility provided you have someone coordinating not only the bringing

but also the serving.

A word of warning. If you plan to use a catering service for lunch or banquet, get some references and check with them. Some catering services are fantastic and everyone is happy. Others promise but do not deliver. Food runs short, delivery is late, rude servers, general disorganization. A few phone calls to the references will point out any shortcomings and enable you to keep those hungry beekeepers happy.

You need to have some type of control over the number of people for banquets. Preregistration for that is a must since you have to meet a deadline with the food organization. You can get by for box lunches without preregistration, but that is a gamble. A food helper who will plan and coordinate lunches and banquets is a valuable person. A minimum reward would be to offer that person a free lunch and/or banquet.

This would be a good place in your Time Line to put "preliminary layout for registration form" if, indeed, you are going to have preregistration. Keep the form simple, easily read. Check with the Treasurer for past problems with preregistration. You probably cannot put the registration fee down yet, but make a note on your Time Line to complete the form. When you have it finished, and you think it is just fine, take it to someone, anyone, and ask them to fill it out. Any questions or confusion can be sorted out *before* the form gets printed and mailed.

You probably have thought of things to add to these parts of planning and your Time Line. The next big items to solve, after selecting the meeting place and food, are program planning and choosing speakers. The February issue will address these important factors - ones so crucial to successful meetings. **BC**

Ann Harman is planning a meeting right now from her home in Flint Hill, VA.



George Bush was going to attend the National Honey Show in London, in November, but he got hung up at a fundraiser and missed it by a few days. Though I'm sure, had he paid the £10 entrance he would have been welcome. It's just as well he missed it, for the security required would have mucked up the whole affair. We all had a grand time without him.

No matter your experience with preparing and entering honey shows, no matter your experience attending, observing or planning honey shows, nothing we do here compares. Other than, perhaps, all of us are beekeepers.

The technical differences in how honey, wax and the rest are judged there, and here, are legion, and though examination is instructive, it requires more space than available here this time. I spent a full morning with two extraordinary teachers, scratching only the surface of the ways the English, Irish, Scots and Welsh do things.

By every comparison, though, the National exceeds any event we know. More than a thousand entries, scores of Judges, an array of stewards, and uncountable record keepers, errand runners and administrators. Volunteers all, this dedicated crew comes together to fashion this event on an annual basis. The organizational logistics would bewilder the casual observer, and even our show planners are amateurs by comparison.

But it was the similarities of the event there, to events here that bear exploring. We are, it seems, more alike than not.

National entries were down this year from last. And last year from the year previous, I understand. Reasons for the decline are all too familiar.

Cost of the event is a reason. The venue, though adequate certainly, is expensive to let for the several days required, and expensive to visit due to the limited parking in the city. But everything is expensive there by our standards. As for instance, gasoline is sold by the liter, and it is four times as expensive as we pay here.

Fewer beekeepers to enter is a factor, too. Sound familiar? Cost, urbanization, labor involved, return on investment and *Varroa* have taken their toll there, as well as here. But new EU rules have also played a role, I'm told.

A less interested public, thus fewer non-beekeeping attendees, enters in, and even the number of beekeepers attending the show, and listening to the speakers, while respectable is also in decline.

And of course all this trickles down to the vendors - fewer customers, fewer sales, reduced profit, and yet increasing costs cause all vendors to critically evaluate their return on investment.

There is, though, a very subjective, ever present entity that contributes to all this. And though the very same entity exists here, in every county, state and national honey show, it is a living force there - and that is, simply, tradition.

The past lives and breathes at the National. It walks among the Judges, examines the silver bowls, speaks to the Stewards and in fact dictates the agenda. It is the way it was, 100 years ago. Mostly, anyway.

If, just like honey shows in this country, the National is to survive and grow, both must examine their inner selves. Who are they serving? Who benefits? Is there value to any but those who enter? Are rules and categories relevant to current practices? What is important, really to producing a saleable public-centric product? Does anybody know? Have we lost sight?

What, we *all* should be asking, is the value of a honey show? And who benefits? If only the beekeeper, do we need to adjust our sights? If only the public, do we have the right set of standards?

The National Honey Show is a wonder to behold, and I am wiser to have been a part of it. But that show, like our shows I think must evolve to accommodate a changed world.

If they don't change, if they don't examine their goals, their audiences and their participants and find a balance that benefits all involved the future is certainly uncertain.

The National is a treasure of global significance, and, though modest by comparison, our honey

shows are also important. Can we afford to lose even one?

My introduction to Richard Taylor was similar to that of the thousands of beekeepers he visited over the years. He came to a meeting in Connecticut to speak about comb honey production. Dressed in his traditional painter pants with a rope belt, sandals, neck scarf and leather satchel with tea, hot water and cream, and broad brimmed hat, he was the perfect image of Richard Taylor.

I was amused, but distracted by a pressing problem with pesticides, and spent the time mostly with those who were organizing a lawsuit to foil that demon.

About a year later I was here. I started on a Monday in early March and that Saturday was the Tri-County meeting in Wooster, then only a 300 or so shadow of the 700+ that attended last year. Richard was the keynote speaker, and John Root and I captured him during lunch. John introduced me as the new Editor of his magazine and then vanished, leaving us to get acquainted. I spent the whole time being grilled by Richard - him probing to see what this upstart knew, his experience and his philosophies. I didn't get to eat much that day. He still had the rope belt and leather bag.

On the final page of this issue is a more detailed background of Richard's contributions to the world he lived in. This, however, is a far more personal recollection gathered from nearly 20 years of having Richard a part of my life.

I spent this past Thanksgiving weekend with Richard, for reading his books is little different than sharing tea with him at the kitchen table. I read the latest *How-To* book, and then reviewed the first edition for which I have his notes and original copy written in 1973.

I read *Comb Honey, Gardening*, and spent a long afternoon immersed in *The Joys Of Beekeeping*, one of the best books on the subject ever written. And then I spent a day with *The Best Of Bee Talk*, the only work of Richard's I was a part of, other than his regular column in the magazine.

Past Pieces

A New & Improved Clark Smoker - What Will They Think Of Next?



Wyatt Mangum

As is typical with developing technologies, whether with such disparate things as computers or bee smokers, problems arise and corrections are needed. And here, the Clark smoker was no exception. Last time we saw a couple of ways its blast tube could be kept clear of hard sooty deposits. These deposits came from some of the smoke drawn back through the blast tube when the bellows expanded. In 1885, E.P. Churchill, a beekeeper from Maine,

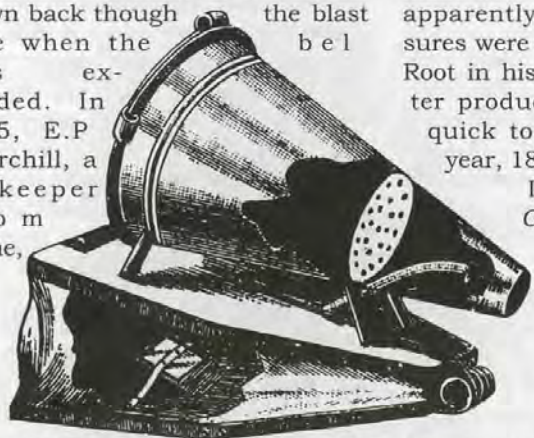


Figure 1: The new Clark smoker. Subtle changes were made to the blast tube, the valve in the bellows, the grate, and where the funnel ended in relation to the coils of the spring. In addition, the bellows were enlarged slightly. Note also the position of the blast tube near the small end of the funnel. This will be helpful to appreciate Figure 2.

suggested using a little wire-cleaning tool to clear the blast tube. The wire was inserted into the blast tube from the outside of the smoker. During the cleaning, some of the deposits were likely pushed into the bellows, which probably made this method unsatisfactory.

In 1887, a more drastic change appeared in the pages of the *Gleanings in Bee Culture*. Prompted by the suggestions of other beekeepers, J. T. Calvert, a manager of the Root Company, redesigned the smoker. In what must be most amazing to

the mind of the modern beekeeper, this version of the Clark smoker had a screw-on cleaning cap. The cap, positioned strategically on the bellows, allowed Churchill's wire to push the deposits out of the blast tube, through the cone of the smoker and to the outside. It seems for a year or so, Clark smokers were made with these cleaning caps. But apparently these corrective measures were still not good enough for Root in his desire to supply a better product. More changes were quick to come in the following year, 1888.

In the April issue of the *Gleanings in Bee Culture*, Root published the defects nagging the Clark smoker, and announced a new version of it (see Figure 1). To help keep the blast tube open and to make it easier to clean out with a stiff wire, Root enlarged the diameter of the tube (from about 6 to 11 mm). I remember

first reading about this enlargement of the blast tube. Now that's a subtle difference I had never thought of, perhaps because the tube is down in the dark interior of the cone, well out of sight. Shining a penlight into the funnels of my Clark smokers really drives home the severity of this problem. Some smokers have the (earlier) small tubes and other have the (later) larger ones. But particularly for the small tubes, most are virtually clogged with hard gray soot, the smoker version of a clogged artery.

Now here's the difficult part of this investigation. How do you take a picture of that clogged blast tube? The tube is positioned back from the hole at the end of the cone. So the camera will have to focus on something that's inside the smoker. After much trial and error, and numerous adjustments, I finally managed to get the camera focused near the end of the blast tube. (In this situation, the depth of field, the part of the picture in focus, is very shallow, so parts of the picture stay out of focus.) Peering in the viewfinder of the camera, the next problem was obvious. It's dark in that smoker! There's not nearly enough light for a picture, so I'll definitely need a



Figure 2: Looking into the funnel of a Clark smoker. The blast tube (in the middle of the picture) is almost completely filled with a light gray deposit. This is the large size blast tube. Small size tubes show the blockage even more acutely, but they are recessed further back in those smokers and were too difficult for me to photograph.

flash of light. The problem now is that the best place to illuminate the interior of the smoker is for the flash gun to be right in front of the hole in the cone. But that's where the lens must be, so the flash of light must come a little from the side, even though that will cause a small shadow in the picture. After more photographic tinkering, I finally got a fairly good image. Although admittedly it looks like some strange medical picture that you might see in a hospital, nevertheless, it's a partially clogged blast tube from a Clark smoker (see Figure 2). And I would think this is the first picture of its kind to grace the pages of *Bee Culture*. This change, though quite subtle, was not the only one Root made to his newly redesigned Clark smoker

Next, the valve on the bellows was moved back to its former position towards the rear of the smoker (as seen in Figure 1). This meant the screw-cap technique of cleaning the blast tube was abandoned. However as another way to alleviate the soot build-up in the tube, the leather valve on the bellows was loosened. This adjustment allowed an easier airflow into the bellows from the outside, rather than back through the blast tube. The looser



Figure 3: The older style holes in the fire grate. these are the larger holes that let the sparks fall on the bees. To get an idea how big these holes are, compare them with the holes in the fire grate of your modern smoker.



Figure 4: Comparing two versions of Clark smokers. Note where the funnel ends in relation to the spring coils. The older one has the funnel protruding past the spring. The newer one has the funnel even with the spring.

valve also helped keep soot from building up in the bellows itself, which stiffens the leather valve, causing the bellows to "wheeze," as the beekeepers of that time would say. Without these corrections, it was found that the fabric on the bellows would fail prematurely. (Remember Corey noted a similar problem when using the old hot-blast version of the Simplicity smoker years before. And now essentially the same problem returned, inflicting itself on the Clark (cold-blast) smoker design.)

At this time, two other minor defects were corrected. The holes in the fire grate were made smaller (from 3/8 to 1/8 in) and the number of them increased (see Figure 3). This adjustment may seem inconsequential, but the recommended fuel for these smokers consisted of sawdust and crushed pieces of soft rotten wood. Occasionally small embers from this fuel would pass through the larger holes in the fire grate and blow out on the bees. The smaller hole reduced this annoying problem.

Another interesting adjustment sought to keep the small end of the funnel protected when the smoker was dropped. In the prior version, the small end of the funnel protruded a little past the coil of the external spring at the end of the bellows. When dropped, the small end of the funnel could strike the ground and become dented. In the next version, the small end of the

funnel was even with the coils. Now when dropped, the rugged coils could hit the ground first, taking the impact, and sparing the more delicate tin of the funnel from damage (see Figure 4). This redesign not only made the smoker more durable for beekeepers, but also helped it arrive undamaged since the shipper could drop it too. From other reading, I think this latter concern arose because some Clark smokers were shipped without their protective wooden packing boxes, probably to reduce manufacturing and shipping costs.

So this was the new and improved Clark smoker as made by the A.I. Root Company. Keep in mind that other bee supply manufacturers could have copied it or made their own versions. But nevertheless back the late 1880's, times were good for the Clark smoker. With strong sales and a wide following among the beekeepers, it may have seemed that the Clark smoker was there to stay.

But those good times would not last forever. In the next article, we will see this once popular smoker fall from favor and go down the one-way road to becoming a relic. **BC**

The author thanks Suzanne Sumner for her comments on the manuscript.

Wyatt Mangum is a honey bee scientist, life-long beekeeper and part-time mathematics instructor at Mary Washington College, Fredericksburg, Virginia 22401-5358, wmangum@mwc.edu



? DO YOU KNOW ?

Pest Management

Clarence Collison
Mississippi State University

In several beekeeper meetings lately, I have heard a great deal of discussion on how beekeeping practices have changed in this country since the parasitic mites arrived. You often hear the phrase that "beekeeping is not like it used to be." Now days to be successful, each beekeeper must develop a bee disease/mite management program based on periodic colony inspections, sampling for mites, and treatment when infestation levels exceed economic thresholds. 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. Colony health must be a major consideration in the Spring, if colonies are to develop into strong productive colonies and in the Fall if colonies are to survive the Winter.

Take a few minutes and answer the following questions to determine how well you understand the various mites and diseases that impact beekeeping and the development of a pest management program.

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

1. ___ Some colonies heavily infested with tracheal mites cannot form tight, well organized clusters.
2. ___ *Apis mellifera* colonies usually die from *Varroa* disease within a few years, if left untreated.
3. ___ For resistance to develop in a mite population, the genes for resistance must be already present in the population, even before exposure to the acaricide has begun.
4. ___ *Melittiphis alvearius* is a damaging parasitic mite associated with honey bees.
5. ___ Outside of the honey bee brood cell, female *Varroa* mites prefer to live on field bees.
6. ___ Worker honey bees are more likely to be infected with nosema disease than drones or queens.
7. ___ Male and female *Varroa* mites normally mate more than once within a capped brood cell.
8. ___ In the absence of a bee hive, small hive beetles are attracted to and can reproduce on some species of fruit.
9. ___ Vegetable oil (grease patties) disrupts the dispersal of tracheal mites to young host bees within the honey bee colony.

(Multiple Choice Questions, 1 point each)

10. Screened bottom boards normally are made of hardware cloth with ___ grids.
A. 3 mesh
B. 6 mesh
C. 5 mesh
D. 8 mesh
E. 4 mesh
11. ___ When treating colonies with Animal Formulation Terramycin® (TM25), the drug is mixed with powdered sugar at a ratio of:
A. 1:1
B. 1:5

C. 1:7

D. 1:2

E. 1:3

12. Melanosis, a disease of queen honey bees that affects their ovaries is caused by a ___ infection.
A. Viral
B. Yeast
C. Bacterial
D. Fungal
E. Protozoa
13. If you find a large, well formed dead Winter cluster in a hive with plenty of honey, what is the likely cause of death. (1 point)
14. When dusting a colony with a mixture of Terramycin® and powdered sugar, please explain why one should avoid dusting the center of the brood nest. (1 point)

Most honey bee diseases and pests affect either the brood or adult honey bees. Please indicate which stage(s) are affected by the following diseases and enemies. (9 points).

- A. Adults only
- B. Larvae only
- C. Both adults and larvae
- D. Adults, larvae and pupae
- E. Eggs, larvae, pupae and adults
15. ___ *Varroa* mite
16. ___ Honey bee tracheal mite
17. ___ American foulbrood
18. ___ Nosema disease
19. ___ European foulbrood
20. ___ Paralysis
21. ___ Chalkbrood
22. ___ Sacbrood
23. ___ Skunks
24. Please indicate how Checkmite+ strips and corrugated plastic are used within the hive. (2 points)

ANSWERS ON NEXT PAGE

?Do You Know? Answers

- True** Symptoms of colony death from tracheal mites generally differ from those who starved to death. Some colonies heavily infested with tracheal mites cannot form tight, well organized clusters. Instead of one large dead cluster of bees, head first in cells, you may find little clusters of dead bees here and there. Colonies dead from tracheal mites usually still have ample honey stores unless a warm spell has let robber bees remove all the honey.
- True** Advanced *Varroa* mite infestations cause considerable damage to honey bee colonies and if left untreated, will usually kill the colony in one to two years.
- True** For resistance to develop in a population the genes for resistance must already be present in the population, even before exposure to the pesticide has begun. Exposure of a population to the pesticide kills the susceptible individuals, but leaves the resistant individuals alive. If the number of individuals containing the genes for resistance is high, then resistance will develop more quickly.
- False** *Melittiphys alvearius* is a harmless mite associated with honey bees. The mite is not a nuisance in beehives nor parasitic on honey bees. It lives in beehives and attaches itself to adult bees for dispersal. The mites actively feed on pollen and are not attracted to bee brood or eggs.
- False** Female *Varroa* mites found outside of the brood cell prefer to live on nurse bees, not field bees. They feed on the adult honey bees hemolymph.
- True** Worker honey bees are more likely to be infected with nosema disease than drones or queens because they are the bees involved in cleaning combs. They pick up the spores associated with fecal wastes deposited in the hive by infested bees and the older combs in the hive can serve as nosema spore reservoirs.
- True** The male *Varroa* mite is sexually mature when the first female mite reaches the adult stage, so that he can mate with her until the second daughter female is mature. Every female mite as she matures is mated as often as possible until a new daughter female arrives at the fecal accumulation site. In order to mate all females, young molted females are preferred to older ones. As long as no younger female arrives at the aggregation site, males mate the older ones, thus increasing their potential fertility.
- True** In the absence of honey bee colonies, emerging small hive beetle adults from the soil were attracted to a variety of fruits. They were highly attracted to cantaloupe and pineapple, moderately attracted to grapes, mango and honeydew melon and weakly attracted to avocado, banana and starfruit (carambola). Feeding trials under captive conditions showed that mating, egg laying, larval development and adult eclosion occur normally on a diet of cantaloupe.
- True** The application of vegetable oil in the form of grease patties to honey bee colonies can disrupt the dispersal of female tracheal mites to young host bees. It is believed that the vegetable oil effects the chemical cues that the fertile host-seeking female uses to locate new young bees to infest.
- D) 8 mesh
- B) 1:5
- B) Yeast
- Clustering bees in the winter need periodic warm spells to break the cluster and move toward new food stores. During extremely prolonged cold spells, bees may exhaust all food within their reach and starve when food abundance is only inches away. The well-formed dead winter cluster in a hive with adequate food stores probably starved from the inability to move to new food stores.
- When dusting a colony with a mixture of Terramycin® and powdered sugar, you should avoid dusting the center of the brood nest where medication may fall into open cells of brood, since it can kill young larvae.
- D) Adults, larvae and pupae
- A) Adults only
- B) Larvae only
- A) Adults only
- B) Larvae only
- A) Adults only
- B) Larvae only
- A) Adults only
- Checkmite® Strips (coumaphos) can be attached to corrugated plastic and placed on the bottom board with strips down to control adult small hive beetles inside of the hive.

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

Clarence Collison is a Professor of Entomology and Head of the Department of Entomology and Plant Pathology at Mississippi State University, Mississippi State, MS.

The Bee at the Air Show

I love the air show, I love the sleek
Look of the fighter planes, the oblique
Turning beauty-it takes the breath-
Of those efficiencies of death.
At the air show the other day
A bee passed by me on its way,

Doomed, perhaps, to a viral demise,
Intent on some bee enterprise.
If I never see another show,
Oh, I'll survive, as I well know;
But if I see no further bee,
Then I'm for death. Perhaps literally.

by Denis Corish
Bowdoin College, Brunswick ME

Duty.



Calls.



If you have any questions when your employees are called for duty, you can call us for answers.

It's easy to get answers to questions about your obligation to your employees in the National Guard and Reserve and their obligation to you. Just call 1-800-336-4590, and a national ombudsman will be happy to help.



A Public Service of
This Publication



There were, over the years, some number of our readers that absolutely could not tolerate Richard's writing. It took me awhile to understand why. Mostly, they were the people (maybe you are one) who could not see, and did not feel the Joy in the things that bring us close to our beginnings. Things like crickets in the honey house, chipmunks, sweet corn and bluebird houses. These things were a sought-after part of Richard's life, and he shared them willingly and without hesitation.

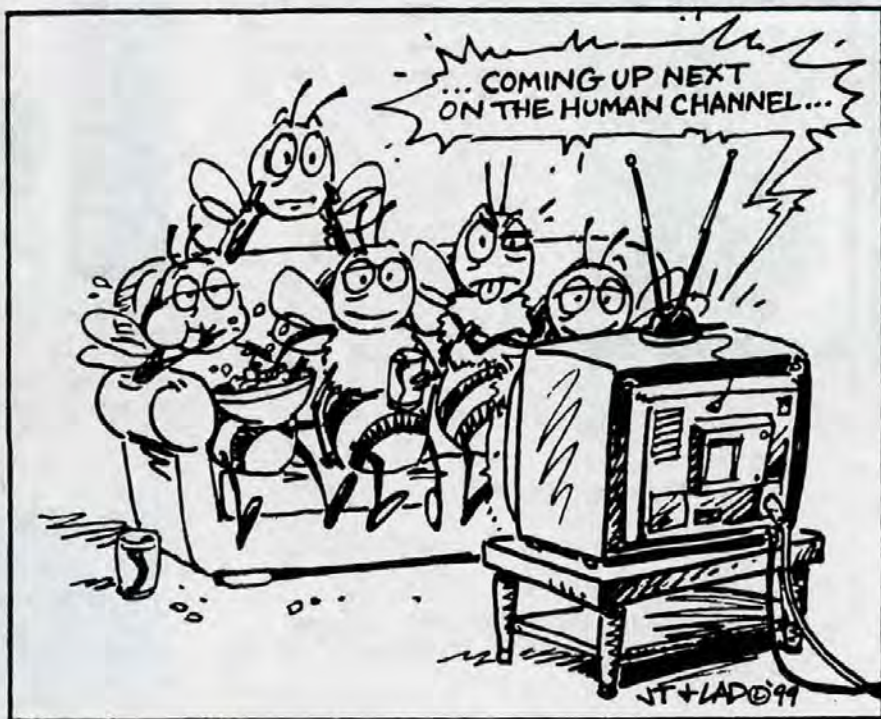
These things were, though, like the bees, only a part of Richard's true spirit. And that was the immense pleasure, the true Joy he took in watching things grow. His children were an infinite source of that Joy, and he shared that with them, and with everybody that touched his life.

We became close over nearly 20 years, visiting not nearly often enough, but offering each other support and friendship during difficult patches in our lives. His insight to human nature gave me solace, and my experience in a world apart from Academia gave him hope when he was floundering. We used each other well, I think.

But the trait I found most admirable, and most humbling, was his unbridled enthusiasm for the truth. For getting things right. For saying what was, no matter what. The politics of university life tempered, somewhat, his frankness, but he, in my experience, never shied from being brutally honest. But you could not stay upset with Richard after he told you what you had done was foolish, when in the same breath he shared a time when he had committed an even greater folly. He did not use his great intellect or his position to gain power. It just wasn't in him. Rather, it was an opportunity for both to learn, and to grow.

There is more to beekeeping than keeping bees, and for nearly 30 years Richard made us keenly aware of all of those things. Puttering in a honey house, making candles, the beauty of flowers, the silliness of seeking only wealth and prestige.

We are better because he made us aware of all of the Joys of Beekeeping, and I shall miss him more than you know.



GLOBAL NEWS

JANUARY 2004 • ALL THE NEWS THAT FITS

Jerry Hayes FL APPOINTS ASSISTANT CHIEF, APIARY INSPECTION



Florida Agriculture Commissioner Charles Bronson announced the appointment of Gerald W. Hayes, Jr., to the position of Assistant Chief, Apiary Inspection. Apiary Inspection is part of the Division of Plant Industry, a division of the Florida Department of Agriculture & Consumer Services.

Hayes has more than 20 years of apiary experience – the last 18 years with Dadant, Inc., one of the world's oldest equipment suppliers to the beekeeping industry. While at Dadant, Hayes served as

Director of Honeybee Product Development. He is also well known for his monthly column, "The Classroom," which appeared in the *American Bee Journal*. Hayes travels extensively, nationally and internationally, working with research companies on apiary issues.

"I believe his years of experience and understanding of the apiary industry make him a natural for this job," Bronson said. "His background and research experience will be extremely beneficial to the Department, as we continue to work hard to protect the beekeeping industry, a foundational element of our agricultural well being."

The Department has the only full-time certified beekeeping inspection force in the nation and is responsible for protecting the industry from pests and diseases including unwanted races of honey bees, such as Africanized honey bees.

Hayes assumed his duties November 7.

NC POSITION AVAILABLE

North Carolina State University is offering a Agricultural Research Technician II position available in the Department of Entomology with the NC Agricultural Extension Service. It includes responsibilities in the field, laboratory and apiary. The main duties will be to maintain an active beekeeping operation and to be an integral component of the research and extension programs.

Applicants should have both practical experience in beekeeping and theoretical knowledge of apiculture. This background should be in conjunction with some academic training in apicul-

ture, namely a bachelors and M.S. degree in the biological or life sciences concentrating on honey bee biology.

Interested persons are asked to submit: 1) curriculum vitae; 2) separate statements of extension and research experience and interests; 3) copies of official university transcripts; and 4) names and addresses of at least three individuals who are familiar with the candidate's beekeeping and research abilities.

Please submit materials to David Tarpy, Dept. of Ent., Campus Box 7613, NC State University, Raleigh, NC 27695-7613, 919.515.1660.

SOLDIER, BEEKEEPER, FRIEND

Our State Beekeepers Association recently lost a member. His name is Kyran Kennedy, and he was a Blackhawk pilot for the 101st Airborne stationed at Fort Campbell, KY. Kyran is survived by his wife Kathy, and children Chris, Kaitlan, and Kevin. We sometimes take for granted the fact that our soldiers are much more than "just soldiers." Kyran was a devoted and loving father and husband. He was also a beekeeper, and a member of the Christian County Beekeepers Association as well as the Ky. State Beekeepers Association. He and Kathy were instrumental in chartering the Christian County Beekeepers Association, and were officers in that club. It is a

wonderful sight to see the three children dressed in their beesuits looking into and learning about the inner workings of a hive of bees at our field days, because fewer and fewer youngsters have any interest or encouragement in becoming beekeepers. Kyran was killed in action November 6 when his Blackhawk helicopter was shot down over Tikrit, Iraq. Kyran is our hero; he answered the call of duty and gave his life in that service. He will be greatly missed by all... especially by his wife and children. I am thankful for the great privilege I have been allowed, to know and enjoy the company of such a fine family.

Respectfully Submitted by Kent Williams, KY State Beekeepers

New Label

FRESHNESS AT A GLANCE

A new label that allows consumers to see at a glance the freshness of a food product is about to take the squeeze out of the way consumers select their fruit in stores.

The labels created in New Zealand change color to show how ripe a piece of fruit is and the designers say it could lead to packaging that gives the buyer instant messages.

Called ripeSense, the color change is driven by detecting aroma compounds given off the fruit as it ripens, changing the label through a range of vibrant colors.

The first fruit it has been used with are Green Anjou pears because pears need to soften before they achieve their maximum flavor.

A clamshell pack, molded to the shape of the pears, was developed to trap the aroma necessary for ripeSense to function.



It also protects them from crushing and bruising, permitting retailers to sell tender juicy ripe fruit without wastage.

The government HortResearch institute said there is nothing else in the world that measures ripeness in this way.

More research is planned to develop sensor labels for kiwifruit, avocados and melons.

Lebanon, Tennessee

HEARTLAND APICULTURAL SOCIETY

Barry Richards, president of the Heartland Apicultural Society has confirmed details on the 2004 convention of beekeepers, to be held July 8-10, 2004 on the campus of Cumberland University in Lebanon, Tenn. In making the announcement, Richards said, "Cumberland University is a great location with two "tiered" classrooms seating 75 each and a fine arts auditorium seating 250 as well as a gymnasium and regular classrooms. All the facilities are air conditioned."

This will be the third annual convention for Heartland, which was founded as a multi-state edu-

cational, and support organization covering the continental Midwest from Ontario to Alabama and Mississippi. Working closely with state and regional beekeeping associations, Heartland has had participation from all Midwest states and several other nations.

The annual convention is an opportunity for beekeepers, educators, scientists, vendors and product developers to meet and share through a broad range of seminars and hands-on demonstrations.

For more information contact: publicity@HeartlandBees.com or www.HeartlandBees.com

BIOTERRORISM GOES ABROAD

Australia has raised concerns with the World Trade Organization and the U.S. government about a tough new anti-terrorism law that will apply to food exports to the U.S. from next month.

The new law applies to seafood, dairy, game and horticultural products but not to Australian shipments of meat, poultry and wine that are already covered by agreements between the Australian Quarantine Inspection Service and U.S. agencies.

From Dec. 12 exporters have to be registered with the U.S. Food & Drug Administration.

The exporters will also be required to give advance notification of the expected arrival time, date and location of each shipment along with information about the shipment including manufacturer and

grower.

That notification has to be made no more than five days before or less than four hours before arrival.

The U.S. law aims to prevent the deliberate introduction of diseases such as foot and mouth, bovine spongiform encephalopathy (Mad Cow disease), anthrax and smallpox.

FDA general manager of product safety Steve McCutcheon told a parliamentary estimates hearing that while the government had raised its concerns with the U.S. and the WTO, it did not plan to ask for formal consultations at the WTO.

"We don't believe they are trying to make the market more difficult to penetrate," he said. "We think it's genuine. We believe it's an over-the-top, prescriptive approach." — Alan Harman

PLANT HEALTH AWARENESS

Plant Health Australia (PHA) launched its first national plant health awareness campaign targeting commercial plant producers.

PHA has urged honey bee producers to develop and maintain their vigilance and to take action if they spot anything unusual in crops they may be pollinating.

"The Australian Honey Bee Industry Council welcomes the new plant health awareness

campaign and commends Plant Health Australia for its development," executive member Craig Scott said. "We take plant health very seriously and are very happy to see such a collaboration between industry and government."

"The campaign will give the honey bee industry a share of voice in the national arena, as well as provide specially developed materials which we can pass on to our client producers."

OBITUARIES



Lawrence P. Yack, Mayor, Bee Keeper Roosevelt; Lawrence Peter Yack, age 81, of Roosevelt, passed away peacefully November 18, 2003 surrounded by his loved ones. He was born June 9, 1922 in Neola, Utah to George and Maryana Felix Yack. He mar-

ried Jennis Chivers February 6, 1946, in Salt Lake City. Lawrence served Roosevelt as a councilman for four years and mayor from 1982-89. He worked with his brothers in Yack Honey and was President of the Utah Bee Federation for three years. He was a veteran of World War II, serving in the US Navy in the South Pacific. He is survived by his wife and best friend of 57 years, Jennis, sons and daughter, Jerry (Suzy) Yack, Sandy; Robert (Teresa) Yack, and Lori (Chris) Nebeker, all of Roosevelt; seven grandchildren; two brothers, Frank (Thora) Yack, Roosevelt and Don (Berniece) Yack, Neola. He was preceded in death by brothers, John, Joe, George, Bill, Edward and sisters Mary Chasel and Annie Yack.

Dr. Harry Eugene Williams passed away Monday, December 1, 2003. Born November 8, 1924 in Chattanooga, TN, he is survived by his wife Evelyn Elliott Williams, Knoxville, and daughter and son-in-law Karen Ann and Peter Morava, Oak Park, IL. Dr. Williams was an Army Veteran serving in WWII with the 656th Medical Hospital Ship Platoon as a medic. He received his Bachelor's Degree in biology from EMTSU and his Masters Degree in Entomology from the University of Tennessee. Dr.

Williams was employed by UT as an apicultural specialist with the extension service from 1965 until his retirement in 1995. He was the original author of 'Beekeeping in Tennessee' the UT extension publication used by every beekeeper in Tennessee! Even after his retirement, he stayed active in beekeeping and was always helpful to whoever needed his knowledge. He was a great man and a real sincere educator and friend to beekeepers throughout Tennessee. He will be missed.

Wesley Dyson Fisher, owner with his sons and brother of Fisher Honey company, and Fisher Bee Farm, near Lewistown, PA, died in a plane crash in Pasco county, Florida, December, 5, 2003.

Fisher had purchased the plane from Wade Shotts earlier in the year and the two were testing the plane with it crashed, according to the St. Petersburg Times. Shotts was seriously injured in the crash.

The plane, an Aeronca 11AC Chief was over 50 years old, but had likely been restored, according to an Aeron expert in MI.

Fisher spent winters in Florida with his bees, then migrated north and west for pollination and honey production from spring to fall.

He was 61 years old, married to his wife Linda for 41 years. He has seven children and four grandchildren.

LAWSUIT DISPUTED MAINE BLUEBERRY POLLINATION UNCERTAIN

Maine Blueberry growers three years ago filed, and this past December won a class action suit involving price fixing by three large wild blueberry processors in the state, to the tune of \$56 million. The original \$18.6 million suit was tripled because it involves federal antitrust issues. In mid-December the growers were in the process of freezing the compa-

nies' accounts and assets.

December is when pollination contracts are normally signed with dozens of beekeepers from all over the eastern part of the U.S. With high honey prices, and uncertainty in the barrens, pollination is a definite maybe for those who normally head north in May. About 60,000 hives are normally rented for the crop each year.

University of Minnesota SHORT COURSE & ADVANCED TOPICS

The University of Minnesota Advanced Beekeeping Topics interweaves information on honey bee biology and management to help you be a better beekeeper. Each year, in addition to reviewing the basics of disease and mite management we will cover one or two topics in depth. This year's main topic will be centered on the dance language, and how bees recruit each other to floral sources. How will knowing about recruitment help you as beekeepers? If you understand how bees communicate the location of profitable resources, it will help you understand how they are able to make huge honey crops. Knowing how bees decide when they need more pollen will help you maximize their potential as pollinators.

The course will be held Saturday (9am-4:30pm) April 10. This will be a full day of discussion with lots of time for questions and answers. The cost for the course is \$30 if you register before March 13 and \$40 after that date. Registration includes lunch, and refreshments. This course is intended for experienced beekeepers. To attend you should have kept bees for at least 1 season.

The University of Minnesota Beekeeping short course teaches how to keep bees in cold climates. The method of colony management taught in the course is based on Dr. Basil Furgala's system, which ensures high honey production and wintering success. Other topics covered are equipment needs, disease and mite control, and extracting, bottling, and marketing honey. The cost for the two-day course is \$75 if you register before February 21 and \$85 after that date. Registration includes a 68-page manual, lunch, and refreshments. A discount on an accompanying video is available to those who attend the course. The course will be held Friday (pm), Saturday (all day) and Sunday (am) March 19-21.

Dr. Marla Spivak and Gary S. Reuter teach the course on the St. Paul campus of the University of Minnesota. For further information and registration brochures, please call, write, e-mail or visit our web site.

For information on either course contact 612.624.3636, Univ of MN, Dept. of Ent., 1980 Folwell Ave. Rm 219, St. Paul, MN 55108 6125; spiva001@umn.edu; reute001@umn.edu; www.entomology.umn.edu/

IL BEEKEEPER OF THE YEAR



The Illinois State Beekeepers Association is proud to announce its Beekeeper of the Year! The IL State Beekeepers Association - Beekeeper of the Year for 2003 is Charles Lorence! The ISBA, each year, recognizes a member who has shown incredible passion and dedication to the ISBA's key objectives and to the Beekeeping

industry. At its recent Annual Fall Meeting, the ISBA presented Charles Lorence with a plaque of recognition.

Please join the ISBA in congratulating Charles as the 2003 IL State Beekeepers Association Beekeeper of the Year!

EAS 2004 - 7 SPRINGS

The Eastern Apiculture Society returns this year to 7 Springs Resort, in Champion, PA, near Pittsburg. A full week of beekeeping education, experience and entertainment are planned so you can take full advantage of the excellent facilities at this resort.

EAS starts with the 2 level, 2 and a half day short course, with an array of speakers, hands-on with the bees and equipment, working with Master Beekeepers, scientists and other experts. Evenings are full with more how-to, lectures and socials. It's an intense, educational experience, unlike anything in the industry.

The 3 day conference starts Wednesday morning with a joint session with the SC, then more on Wednesday afternoon. Lunch is free everyday this year, and there are plenty of places to eat supper right at the resort. Breakfast is included with your room...a big, hearty breakfast every morning.

Dewey Caron has a double slate planned for every morning, so there's more to choose from than ever, and the work shops are really going to be something special this year, with a host of new and different topics, speakers and adventures.

Plus, this year, EAS hosts the A.I. Root Distinguished Lecture Series, with a whole morning and afternoon full of marketing experts detailing the how's and why's of marketing varietal honey - whether wildflower, clover or sourwood - you won't want to miss this extraordinary event.

And there's the Honey Exchange again this year. Bring three of your jars, take home three of somebody else's. Try something you've never tried before.

EAS 2004, August 9 - 13. Don't miss this one. For more info check out the web page at www.easternapiculture.org, and watch the journals for more.

AGRICULTURE LECTURES

April 3 & May 29 - For the first time Gunther Hauk, program director of the Pfeiffer Center, offers an indepth study of the nine lectures which are the basis for the spiritual renewal of agriculture known as "Biodynamics." These lectures, encompassing all fields of natural science, contain profound insights into nature and agriculture, as well as their interconnection with the whole cosmos. Tuition: \$85 per Saturday.

March 5-7 - The Pfeiffer Center will host a conference examining the real causes for the honey

bee's decline and the newest research on alternative methods of dealing with mites and AFB. With Gunther Hauk, director of the Pfeiffer Center for Biodynamic and Environmental Studies, Chestnut Ridge, NY; Medhat Nasr, Ph.D. research scientist from Alberta; Thomas Radetzki, Program and Research director of one of Europe's best research apiaries.

Pfeiffer Center, 260 Hungry Hollow Rd, Chestnut Ridge, NY 10977 845.352.5020; info@pfeiffercenter.org or www.pfeiffercenter.org.

OK BEEKEEPER & JUNIOR BEEKEEPER



The Oklahoma Beekeepers Association recently presented Jerry Logan (right) with the 2003 Beekeeper of the Year Award. Mr. Logan is the Vice President of Association. Also presented was the Junior Beekeeper of the Year Award to Brandon George (left).

2004 Swarms With Italian Queens

1/2# Swarms \$37 ea. (for observation hives)

1-9 Packages

2# Swarms \$44 ea.

3# Swarms \$49 ea.

10 and UP

\$43.00

\$48.00

For package bees with
Russian Hybrid Queens
add \$3.00 per swarm

Clipped Queens, add \$1.00; Marked Queens, add \$1.00

Prices above do not include shipping charges.

PACKAGE BEE PICK UP

We have reserved every Saturday in April and the first two Saturdays in May for package bee pick up at our Clarkson, Kentucky plant. If you would like to avoid the risks involved when bees are shipped through the Postal Service call us. Please place your order early for the Saturday of your choice.

ITALIAN QUEENS

1-9 \$12.50 ea.

10-24 \$11.00 ea.

25-up \$10.75 ea.

Prices include 1st Class shipping
Clipping/Marking - \$1.00 ea.

RUSSIAN HYBRID QUEENS

Add \$3.00 per Queen to these prices.



No more hammers and nails!
This heavy duty stapler saves
time and will use staples 1/2"
to 1-1/2" Cat. #609 - \$115



We are now offering **Pierco Plastic Foundation** available in 8-3/8" & 5-1/2" widths. Snap them into our grooved top and bottom bars.

Visit our web site: www.kelleybees.com

WALTER T. KELLEY COMPANY

MANUFACTURERS OF BEEKEEPING SUPPLIES

West Main Street • P.O. BOX 240 • CLARKSON, KENTUCKY, U.S.A. 42726-0240

Phone: (270) 242-2012 • Fax: (270) 242-4801

Credit Card Orders

Call Toll Free:

1-800-233-2899



Display Advertisers

Bees & Queens

Allen's Bee Ranch	14
Bolling Bee Farms	14
Buckeye Bee	18
Calvert Apiaries	26
Dunn Bee Farm	31
Glenn Apiaries	17
Hardeman Apiaries	Ins. Back
Harper's Honey Farm	31
Harrell & Sons	22
Hawaiian Queen	21
Homan-McMasters	14
Honey Land Farms	7
Indian Summer Honey Farm	18
Jester Bee Company	46
Koehnen, C.F. & Sons	17
Lamb's Honey Farm	14
Miksa Honey Farm	21
Olivarez Honey Bees	18
Pendell Apiaries	21
Rossman Apiaries	22
Rufer's	14
Shumans Apiaries	18
Strachan Apiaries	16
Taber's Queens	18
Weaver, R Apiaries	26
Wilbanks Apiaries	4
Wooten's Golden Queens	18
York Bee Co.	14

Associations/Education

American Honey Producers	26
American Beekeeping Federation	22
Organic Beekeeping Conference	4

Equipment

CC Pollen	Inside Front
Cowen Mfg.	46
Custom Woodenware	12
Dakota Gunness	12
Golde Bee Products	62
Humble Abodes	
Woodenware	31
Perma Comb	31
Pierco Frames	17
Propolis Traps	7
Vented Beehive Cover	4

Related Items

Angel Bottles	14
Bee Cool Ventilators	21
Bee Services	31
Branding Irons	17
Fisher's Honey Sticks	Ins. Bk.
Honey B Healthy	17

Mite-Away	44
Observation Hive	7
R. M. Farms	14
Red Bee Candles, etc.	21
Sailor Plastics	7
Top Entrance Hive	22
Tuttle Apiaries	7
Weaver, B. Apiaries	1

Suppliers

B&B Honey Farm	Inside Front
BetterBee	4,37
Betterway Equipment	25
Browning Cut Stock	31
Brushy Mountain	12
Dadant	11
Draper's Super Bee	26
GzBz Honey Farm	46
Kelley, Walter	63
Mann Lake Supply	Bk Cover
Maxant Ind.	12
Mid-Con	31, Inside Front
Root	3,44,50,56
Ross Rounds	21
Rossman Apiaries	22
Ruhl Bee Supply	22
Sherriff, B.J.	1
Simpson's Bee Supply	26

Richard Taylor 1919-2003

Richard Taylor and his twin brother were born November 5, 1919, in Charlotte, Michigan. Their father died before they were born. The children then were raised by their mother to exacting standards of high principles and honesty. She taught healthful living, with oatmeal, castor and cod liver oil and open windows to avoid tuberculosis part of the routine. Idleness was to be shunned, and things worthwhile were not easily won. Generally, there was great value in thrift, and avoid the "trivially frivolous"

With that as a background, he eventually adopted his own rule for living. "I should care nothing whatsoever what others might think of me, but only what I think of myself" He trademarked this image, and this philosophy for living.

Richard was fascinated with nature as a child, ants and butterflies, and eventually honey bees. His first experienced sting, atop his head, led to an exceptional case of hives, but that was the first, and last reaction of its kind.

He soon had a hive of bees, then two, then many. He worked with local beekeepers offering muscle and energy, and was paid in wisdom and experience. These beekeepers, typical in their day, were not driven by money, though it was necessary, nor did they strive to build empires beyond their ability to control. Their calm nature and passion for the bees made a life-long impression on Richard.

Brief stints at college in Michigan were unproductive, and WWII intervened, perhaps at the right time. Richard served in the Navy for four years, where he found the writings of the great philosophers.

After service, he returned to college, first to Oberlin College in Ohio, then receiving his PhD from Brown University, in Philosophy, in Rhode Island in 1951.

His career and fame in this academic world enabled him to serve on the faculties of Brown University, Columbia University in New York and at the University of Rochester, also in New York. He was also visiting professor at Swarthmore College, The Ohio State University in Columbus, Wells College, Hamilton College, Hobart and Smith, Princeton, Cornell, Hartwick and Union College.

During that time he published several books on his subject, including *Metaphysics; Action and Purpose; Good and Evil; Freedom, Anarchy and Law; With Heart and Mind; Having Love affairs; Ethics, Faith and Reason; Restoring Pride*; and completed shortly before his death, *Understanding Marriage*.

He was also Editor or contributor to more than a dozen other academic works, and published more than fifty scholarly articles and a great number of reviews in philosophy journals. Plus there were articles published in the popular press such as *Cosmopolitan, The New York Times Magazine, Mother Jones* and *The Country Journal*, among many.

As soon as Richard was able after finishing his studies, he returned to beekeeping, having bees in the

city on rooftops and balconies. But once settled in his ancient farmhouse near Ithaca, New York, he expanded his operation. For a time he was a successful sideline beekeeper, selling honey from his house and by mail and to other beekeepers.

He continued as a liquid honey producer until his conversion to producing round-comb honey in the early '70s. He never looked back. His articles in *Gleanings In Bee Culture* advocating this type of beekeeping undoubtedly were instrumental in the popularity this product has enjoyed ever since.

In 1966 Richard published his first article in this magazine, an unassuming piece on removing bees from a house. There were others in '67, '68, and '69, and in March, 1970 he began his column **Bee Talks**, which ran until after 2000, with several contributions even after he retired. His last article was in June, 2002, describing the beekeeping area around his home in Ithaca, New York, site of the 2002 EAS Conference that he would attend. At that conference he was awarded the first, and only, **EAS Joys Of Beekeeping Award**, for his 30 years of contributions to the beekeeping industry.

He published several well known beekeeping books. The first edition of *The How-To-Do-It of Beekeeping* was published in 1974. It was updated for four more editions. *How-To-Raise Beautiful Comb Honey* came out in 1977, with three updates, and timeless was *Beekeeping For Gardeners*, and *Beeswax Molding and Candle Making*. In 1974 Richard brought together the whole of his lives as philosopher, parent, naturalist and beekeeper in *The Joys Of Beekeeping*. No work, before or since rivals the combination of simple explanation of the craft, elegant style, and the profound sense of satisfaction beekeeping plays in the lives of those who pursue it.

Two other books need mention. In 1988, we collected the best of his writings from his column in *Gleanings* under the title *The Best Of Bee Talk*, and in 1989, John Donnelly published the most noted of Richard's writings from his other life, entitled *Reflective Wisdom*.

Richard's writings, and his beekeeping, reflected his mother's influence in the value of thrift and healthy living, and her Midwestern perspective of high principles and honesty. And Richard's early decision to care not a whit what others thought of him, but only what he thought of himself were evident his entire life.

His image in our world was unpretentious. It was one of sandals and rope belts, wide brimmed hats and frugal ways. His writings extolled the virtues of recycling, repairing and reusing any odd bit to save money and time. Some never got past that image and that philosophy, so never were able to profit from the rest.

He is survived by his precious companion, Connie Bright, four strong sons and a beautiful stepdaughter.

For over 30 years Richard Taylor was an active voice in American beekeeping. We were fortunate to have him as a part of us, and if we are wise, we will keep his words and his philosophies a part of what we do.

