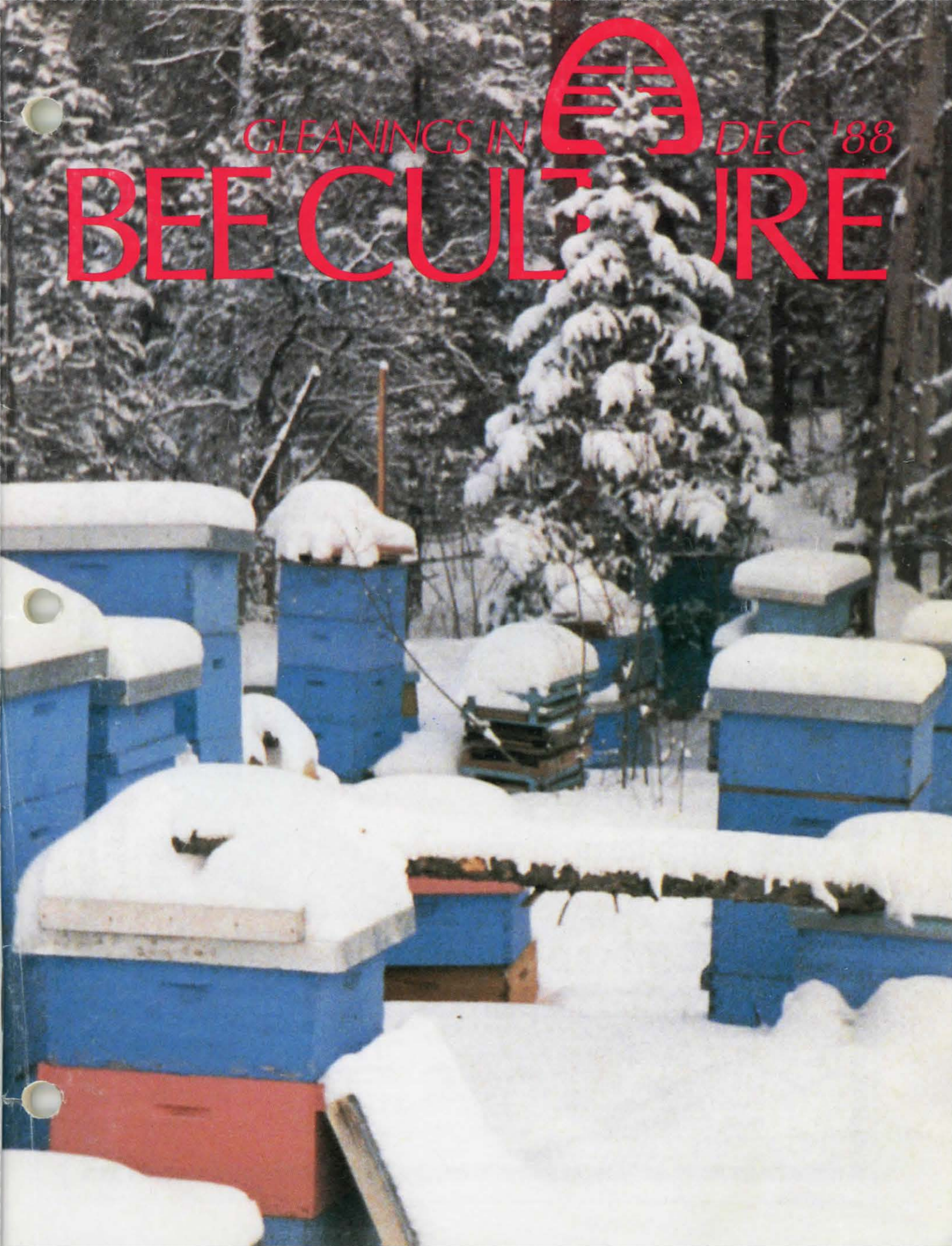
GLEANINGS IN
DEC '88
BEE CULTURE

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DECEMBER '88 CONTENTS

(ISSN 0017-114X) Vol. 116, No. 12

115 Years Continuous Publication by the Same Organization

Features

Articles

Columns

Departments

NEXT MONTH

January — the New Year. Next month we have in store probably the best, and most important article we've published. Entitled 'May The Forest Be With You', it takes a detailed look at the changes brought about by the destruction of tropical and temperate forests — to the planet as a whole, to the forests themselves, and to beekeeping.

The destruction of a tropical rain forest in Brazil *does* affect you and your bees. But supporting some activities that may appear to have little to do with forests, bees, or the rest of the world, can be immediately devastating to some, and in the long run, to us all. Tune in to 'May The Forest Be With You' next month. You will not be disappointed.

January brings more than forests, though. 'Southeast Exposure' takes a close look at aspects of Florida Beekeeping. Dr. Tom Sanford contributes excellent information on Florida honey plants and the education efforts of Florida Extension. Good reading even if you're not a honey plant lover, the best if you are.

More? Part 3 of Jim Tew's series on Workshops. This time he looks at the 'Day After' affect. How did it go? What went wrong? What went right? What did the participants think? How to do it better next time! Follow through also includes gaining new members in your group, having a different type of workshop, with the same audience, and measuring the response to all of this. Probably the most important part of a workshop, and often the least attended to. Don't miss it.

And all the regulars, with their own brand of wit and wisdom. Stay tuned — Next Month.

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THE INNER COVER

Obsession

(Obsession: An unreasonable domination of one's thoughts or feelings by a persistent idea, image, desire)

Do you know anybody with an obsession? Perhaps you do, there are lots of us around. Beekeepers are often accused of being obsessed with their craft, or some aspect of it. But then so are some bird watchers, joggers and even car racers — ". . . an unreasonable desire . . . ".

It is this very unreasonableness that binds these groups, an unformal "we - they", together. Obsessions legitimize irrational behavior, and when you've been labeled "obsessed", nearly anything you do, along the lines of your obsession can be explained by (or blamed on) this affliction.

Dealing rationally with an obsessed person can be difficult, if not impossible. Often it leads to some kind of conflict. After all, the nature of the disease rules out differences of opinion. Obsessed people are always right, just ask us.

Truly splendid conflicts arise when the "we" and the "they" groups are driven by their respective, but opposing obsessions. History books are full of these spectacular events.

It is sad though, when one obsessed encounters true indifference, certainly the worlds greatest evil. There is no technique to overcome indifference, no manner of motivator to stimulate "I don't care" to change.

One can challenge a position, a stand. But you can't fight (cajole, force) a nameless, faceless, massless lump of "so what?".

Beekeeping often faces this enemy in the form of local, state and even Federal government; neighbors; associations; and others. I don't know the answer. It is frustrating in the extreme. If I were to offer advice to anyone facing this dilemma, it would be to first identify those responsible, exactly, and get them to take a stand — then there is something of substance to deal with. It's not easy, but it must be done.

•

The Other Side

I was recently asked a question about some aspect of beekeeping by a well meaning friend. I answered the best I could, and then she said "Well, according to *(well known beekeeping expert)*, you're wrong! In fact, he said that anybody that believed the way you do was a fool!"

Of course the well known expert wasn't standing around waiting to defend his point. He won the argument, or the debate, and only had to fire one shot.

How do you deal with a situation like this? More specifically, how do handle a reporter that refutes an answer to a question you gave when the "other" side isn't there!

This is a technique used, on occasion, by reporters whose story is not the issue, but rather the conflict that revolves *around* the issue. It works because they can preface it with, "Well, (the other-side person) said something like 'Alfalfa is one of the most overrated honey plants there ever was', and now you're saying he's wrong?"

There are a lot of ways to go with this one, and they're almost all wrong. You can refute the expert, back up your side with all sorts of facts and figures, and hope you get a well balanced story. Of course "the expert" hopes the result is balanced too.

Or, you can stack the story in your favor and hope it doesn't get checked out (not a very good idea at all!). Or, you can refrain from answering until you can arrange a face to face situation, (good idea, difficult to pull off).

Best of all, ask the reporter for "THE EXACT" comment from the expert. The entire, exact comment.

If there is a conflict here, (and often there's not as much as a reporter would like), you can confront all differences of opinion (or fact), rather than

Continued on Page 707

COVER . . . Winter in British Columbia, from our friend the Old Timer. Unlike the bees, beekeepers seldom languish during December. Enjoy the holiday, enjoy the weather, and enjoy the break from the bees.

DECEMBER
Honey Report

December 1, 1988

These figures represent current prices from our contributors. They are based on reports from many states and averaged for each region. Where insufficient information is received, no price is shown.

Wholesale Extracted	Reporting Regions								Summary		
Sales of extracted, unprocessed honey to Packers, F.O.B. Producer.											
Containers Exchanged	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**R**	**A**	**L**
60 lbs. (per can) White	43.50	40.00	37.15	36.00	38.00	36.00	37.25	42.00	36.00-43.00	39.34	40.86
60 lbs. (per can) Amber	42.50	35.08	35.00	31.00	35.00	30.00	36.00	39.00	30.00-43.00	35.82	36.55
55 gal. drum/lb. White	.54	.45	.51	.40	.38	.60	.60	.59	.38-.66	.52	.53
55 gal. drum/lb. Amber	.52	.35	.45	.38	.38	.50	.55	.49	.35-.62	.47	.48
Case lots — Wholesale											
1 lb. jar (case of 24)	28.55	26.38	25.01	23.15	26.16	24.00	25.00	26.98	23.15-29.95	26.10	26.55
2 lb. jar (case of 12)	26.85	25.13	25.59	19.25	24.09	24.00	31.15	27.90	19.25-31.15	25.58	25.58
5 lb. jar (case of 6)	30.30	24.98	24.91	22.50	27.35	30.00	25.30	25.50	22.50-30.60	26.61	26.58
Retail Honey Prices											
1/2 lb.	.93	.95	.97	.99	1.10	—	.85	.90	.85-1.10	.95	.99
12 oz. Squeeze Bottle	1.50	1.23	1.39	1.25	1.50	—	.99	1.40	.99-1.60	1.34	1.36
1 lb.	1.55	1.53	1.43	1.75	1.50	1.25	1.45	1.55	1.25-1.75	1.51	1.58
2 lb.	2.80	2.68	2.85	2.99	2.75	2.25	2.84	2.75	2.25-2.99	2.73	2.81
2-1/2 lb.	3.45	3.75	3.45	3.99	—	3.00	3.71	—	3.00-4.25	3.59	3.60
3 lb.	4.15	3.58	3.79	3.85	—	3.75	3.68	3.75	2.89-4.20	3.78	3.91
4 lb.	5.50	4.78	4.55	4.25	5.75	4.25	4.50	—	4.25-5.75	4.79	4.78
5 lb.	6.50	5.53	5.92	6.25	6.50	5.00	5.79	5.75	5.00-6.50	5.93	5.69
1 lb. Creamed	2.00	1.25	1.68	1.59	—	—	1.66	1.35	1.25-2.00	1.65	1.73
1 lb. Comb	2.37	1.80	2.20	1.75	—	2.00	2.70	2.25	1.75-2.50	2.14	2.51
Round Plastic Comb	2.00	1.29	1.79	1.50	2.25	—	1.85	1.75	1.29-2.25	1.80	2.24
Beeswax (Light)	1.20	.95	.95	.85	.85	.85	.95	1.10	.85-1.25	.99	1.05
Beeswax (Dark)	1.00	.93	.90	.75	.75	.75	.85	.90	.75-1.00	.88	.94
Pollination (Avg/Col)	27.50	—	25.00	—	—	—	23.00	26.00	23.00-26.00	25.80	22.21

Honey Report *Features*

Summary Column: There are 3 parts. R — Range of *all* prices reported for the month, lowest and highest. A — Average price for each commodity across all regions. L — Average price of each commodity listed *last* month.

Comments Section. Price Index — A descriptive statistic that takes into consideration *all* commodity prices, and compares each region to the others. The region with 1.00 has the highest overall prices for the month. A region with Price Index .90 has prices, overall, at 90% those of the region with 1.00.

Region 1.

Price Index 1.00. Sales better than expected, prices steady to increasing. Mostly an exceptional crop year, with light honey predominating in most areas. Colonies strong going into winter with ample stores.

Region 2.

Price Index .88. Prices steady to dropping a bit as specialty crops run low. Sales steady to increasing though, and market generally strong. Production good to excellent. Fall crop mostly good, but weak in some areas.

Region 3.

Price Index .87. Prices and sales steady to increasing a bit, but demand not rising to usual seasonal heights. Production average to just a little low, with midwinter conditions typical.

Region 4.

Price Index .79. Sales and demand steady to increasing a bit. Crop production excellent, with white predominant. Demand increasing at a steady rate, with national advertising and promotions having a noticeable affect.

Region 5.

Price Index .89. Sales, demand and prices excellent, with only better days ahead. Production exceptional and fall flows followed suit. Colonies strong for winter and bees in good condition.

Region 6.

Price Index .86. Prices decreasing, primarily due to good crop and only steady demand. Sales fair to increasing just a bit due to low prices. Colonies generally in good shape, ready for cold stretch.

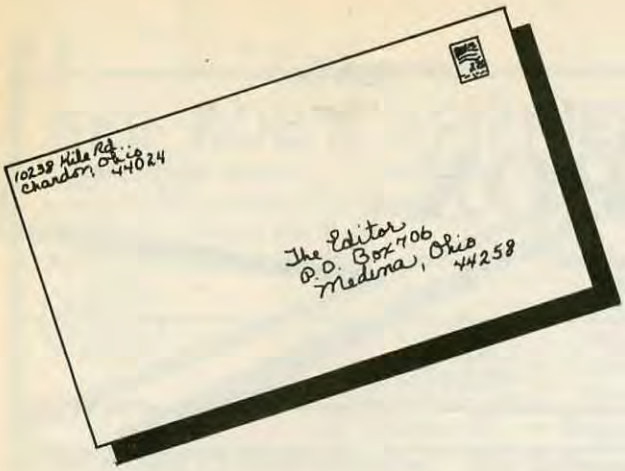
Region 7.

Price Index .90. Sales steady and prices steady to increasing. Crop generally good, with demand steady to increasing. Soil moisture in most western areas low to critical, while central and eastern areas still low, but improving.

Region 8.

Price Index .89. Sales good to excellent, with prices strong. Outlook good for even better prices with promotion programs. Soil moisture low in some areas, but production strong. Cotton crop good but melon crop poor due to drought.

Anyone interested in becoming a "Honey Reporter" should contact the Editor.



MAILBOX

Thanks. . .

I was really pleased to read your article in the recent *Gleanings* on Steve Taber. Dr. Connor has done a good job of painting a portrait of him from my perspective of considerable acquaintance with both him and his work. And because he doesn't mind taking issue with the views of the beekeeping establishment it is wonderful that you have done it so well, emphasizing the validity of his approach.

He has been very generous over the years by appearing at meetings of the San Francisco Hobby Beekeepers, and we have thoroughly enjoyed him every time. I'm sure that they will enjoy the article that you have written.

As far as we're concerned, long live Steve Taber and his valuable work with the honey bee.

Leonore Bravo & Louis V. Dubay
47 Levant St.
San Francisco, CA 94114

Just a quick note to compliment you on the fine job revising the article we sent you dealing with honey fruit spreads. When I got my copy of *Bee Culture*, I noticed that article was in the issue (but didn't look at first). Later, for "vanity's sake", I started to read the article, and I was pleasantly surprised at the changes you had made in it. I know that the article was widely read, for I have had a number of inquiries from both hobbyist and commercial people about the product (fruit and creamed honey) and it's manufacture.

Robert Berthold, Jr.
Associate Dean, Science
Del. Valley College of Sc. & Agr.
Doylestown, PA 18901-2699

Your comment on political inactivity in the October issue of *Gleanings* was timely and appropriate. The timing was good since we need to remind our leadership that several important projects need attention at the annual conventions of the state and national associations. Also, your reminders are certainly appropriate because most of our beekeepers belong to the silent majority, who can give a number of reasons for their political apathy, but none of them make sense to an active leader.

Several of our on-going projects are gradually "slipping through the cracks". Increased political activity is the only way this slippage can be halted. Thanks for calling attention to this.

Glenn Gibson
P.O. Box 368
Minco, OK 73059

Museum Needs Help

In order to make my beekeeping museum more complete, I'm looking for old Root honey extractors. Over the years, the A.I. Root Co. made quite a few different models of extractors. The sizes ranged from two frame nonreversible to a 45 frame radial extractor. Some had "Novice's Honey Extractor" or "Cowan's Rapid Extractor" painted on them. The "Buckeye" extractor had rotating cylinders which held and reversed the frames, which came in two sizes. The small one held four frames, and the large one held eight frames.

While I would be interested in purchasing any old Root extractors, the ones described above would be of particular interest to me. Any help that the readers of *Bee Culture* could provide will be greatly appreciated.

Wyatt Mangum
1014 Gorman St.
Raleigh, N.C. 27606

Yes, More!

I read with interest the letter from Kay Nathanson in your October, 1988 issue.

Yes! I think that articles written by women beekeepers or those who market the honey products would be both timely and interesting. In many of the

MAILBOX

bee Journals, the only females who are mentioned are either the cooks or the Queens. The same men write the articles for every issue. (I'm not saying those men don't write well or interesting papers...) Are there no women who are actively involved in either raising bees or selling honey?

I am certain that some of the techniques I employ in my bee management are different than some men's because of my size — I can not lift a full depth super with honey. I believe that my methods of marketing honey are different from the men's in my area — but then I don't know of too many other women in the business so it's hard to gauge mine versus theirs.

Whether there is a truly "best" way of handling bees and if it's related to gender may ultimately be insignificant. Beekeeping is as unique as the individual who's engaged in the craft. However, some articles by women would be interesting grist for the mill!

Naomi Brown
Creve Coeur Apiaries
13259 Delft Drive
Creve Coeur, MO 63146

Late For Lunch

Steve Taber suggests, in the October issue of *Bee Culture* page 560, that readers do some experimenting with hatching of eggs. An elegant example was reported by R.B. Robbins in 1887, *Gleanings* 15(2): 42-43. He found that eggs hatched 80 minutes after he added brood food, and suggested that differences in time of feeding by nurse bees could account for the discrepancy of time in the hatching of queens from 16 to 18 days.

Toge Johansson
R.D. 1 Box 256A
East Berne, NY 12059

Viva La Differance!

We have a farm operation that sells hand-dipped **Pure Beeswax** candles and also Rolled Foundation Candles. Recently we placed an advertisement in a major "Country" type magazine to sell our **Pure Beeswax Products** at Christmas time. What do we see on the same page as our add? A major beekeeping outfit (A.I. Root Co.) selling paraffin based **Craft Wax**. This undercuts any beekeeper trying to promote a quality **Pure Beeswax** product!

How can the A.I. Root Co. promote beekeepers and the oil industry at the same time?

William C. Schnute
Box 275, 4939 Mill Rd.
Dryden, MI 48428

Reply: Your comments would lead one to believe that craft wax and beeswax foundation are the same product. If you are trying to sell pure beeswax (no coloring added) in a craft wax market (price the major factor) you will have trouble. However, selling craft wax in a beeswax market (quality first, price not nearly as important) is equally ludicrous.

Our craft wax does not compete with your pure product — they are different altogether, sold to different customers. If your pure beeswax products are good quality, reasonably priced and easily obtained, A.I. Root craft wax (or that from any other company) will not be a competitor. However, if your product is of poor quality, or underpriced (a common problem) then you will experience competition from many sources.

The A.I. Root Company

BOOK REVIEW BONANZA

This is the season for reading, for taking a slow, blustery afternoon, or cold, nasty night and settling down in front of the fire with a good book. We have eight books here you should seriously consider. They run from introductory beekeeping in California to queen rearing in New York, to gardening to honey bee biology.

We suggest you try one (or all) of these. You'll learn, you'll enjoy, and in the end, become a better beekeeper.

Skeps.
Their History, Making and Use

1987. Frank Alston, Northern Bee Books, Scout Bottom Farm, Mytholmroyd, Hebden Bridge, West Yorkshire, UK. 105 pp. £6.75. Paper. Illustrated by Richard Alston.

What do nitches, smitting bowls, spleets, and nadirs have to do with beekeeping? These are all terms relating to the production and use of the old-fashioned bee hives we call skeps. This small book, with many lovely illustrations by the author's son, takes you from the early days of skep beekeeping in the British Isles to how they are made and used nowadays.

Although we look upon skep beekeeping as being primitive, skep management often resembled present management. By using skeps with top openings, beekeepers were able to super them with one or two additional straw skeps, called duplets and triplets. They also expanded space for the colony by adding skeps *below* the original. Such skeps were called nadirs. There were also skeps with built-in top bars with wax to get the bees started off straight. In some cases, skeps were wintered inside, both with and without access to the outdoors.

Author Alston turned up some odd practices used by skeppists. One fed his bees brown sugar in a mild ale and said they prospered. Frankincense and cow dung have been used to smoke bees kept in skeps. Not so odd was the practice of being sure that the combs were renewed regularly in skeps. Two seasons or 17 months were the limits for use of combs, according to Alston.

The book includes all aspects of skep beekeeping, including swarming, hive preparation, feeding, protection of the hives, killing and "driving" bees, and adapting skeps for sections and frames. There is a useful glossary that clearly defines the terms I used above. The locations of five museums in the UK with beekeeping items on display are included, along with a bibliography of 21 references.

The book is well-written, nicely printed, free of errors, and interesting reading. An American reader may find the section on shelters and bee boles a little long, but it is an integral part of explaining skep beekeeping. Boles are cavities in walls and buildings where skeps were protected from the weather. If you have ever wanted to make a skep, you will be able to do so with the clear directions and illustrations in this book.

Elbert Jaycox

The Varroa Handbook:
Biology and Control

Wicwas Press, P.O. Box 817, Cheshire, CT 06410. Phone orders for VISA or MasterCard 203-271-0155. 52 pp. $9.95 plus postage & handling. Copies also available at selected bee supply establishments. Written by Bernard Mobus and Larry Connor.

Designed for beekeepers, regulatory officials, and others who are interested in learning more about the varroa mite (*Varroa jacobsoni*), as it affects honey bee colonies in Europe and the United States, *The Varroa Handbook* represents a collaborative effort by two scientists, one in Great Britain and one in America, working to obtain the latest information about this extremely late-breaking story.

Working on separate computer systems, each author prepared copy for the text, which was computer-composed in Brighton, England. The result is a large format (8 x 11.5 inches), softcover book with 52 pages and 42 figures. The text is clear and the photos reproduced in high quality.

Illustrations were collected from Europe (Ciba-Gigy, Mobus), North America (Dr. Harvey Cromroy, University of Florida; Zoecon Corporation, USDA; and Dr. T.P. Liu, Agriculture Canada), and South America (Dr. David Dejong, Brazil).

Mobus emphasizes the biology of varroa, the damage it causes, the population dynamics of the parasite, methods of detection, and various biological, physical and chemical control methods. Connor discusses the entry of varroa into the United States, the spread of the mite, and detection and control methods in the Untied States, with special emphasis on various state quarantine measures and the risk of chemical contamination of honey resulting from varroa treatments.

Bernard Mobus, German by birth, was the beekeeping advisor at the Advisory Centre for Beekeeping in Scotland. He has traveled widely to learn how to cope with varroa mites. He

approaches the problem from the beekeeper's point of view with an informal style. Larry Connor, former University professor and commercial bee breeder, services beekeeping organizations and beekeepers worldwide with a variety of educational activities.

Larry Connor

Plants for Beekeeping in Canada and the Northern USA

J. Ramsey, IBRA. London, 1987. 198 pp. 99 Hurst Park Ave., Cambridge, CB4 2AB, United Kingdom. $10.65 includes surface postage.

Not a fancy book or filled with pretty pictures, this book is packed with useful information on shrubs, trees and herbaceous plants useful to bees. It has both the scientific and common names, hardiness, blooming time and height, and value to bees. Very similar to other IBRA publications on world honey plants, it serves as an excellent reference and updated information on bee plants.

Interspersed throughout the book are helpful tables listing plants for various uses; examples are percent of sugar concentration, flowering times of basswood species, honeydew insects and toxic pesticides to name a few.

The chapters cover such topics as Nectar and Pollen, Description of plants, Planning for Continuous Bloom, and Poisonous plants. Plant descriptions do not include physical characteristics (cut leaves, square stem) and the hardiness temps are in Celsius, but the information is helpful and the cultural notes are also useful.

There is a good summary of poisonous plants as well as pesticides, which is helpful if you are planning your bee garden. So are the lists of most attractive nectar sources in Ch. 13. and the time of bloom for most of the plants listed in the book.

This book is a valuable addition to the beekeeper's library and also if used in conjunction with the other plant books reviewed here. It is heartily recommended.

The New American Landscape Gardener

P. Leighton and S. Simonds. Rodale Press, Emmons, PA. 1987. 344 pp.

The Beekeeper's Garden

T. Hooper & M. Taylor. Alphabooks, ASC Blach, London 1988. 152 pp. Wicwas Press, P.O. Box 817, Cheshire, CT 06410.

It seems appropriate to review these books together, as they can be used together for anyone interested in landscaping their yard with bee plants.

In the *Landscape Gardener*, the authors describe you the designer, knowing your site — to special gardens such as meadow, flower, rock, water, winter and wildlife gardens.

This nicely laid out book has many line drawings of gardens which, though attractive, are difficult to plan *your* garden from. More landscape plans would have been more helpful.

However, they solved these garden problems (what to do with your lawn, etc.) by "case histories" of different people's gardens. At the end of each chapter was a chart of plant names, description and culture, but no drawings or photos of each. It's difficult to design a garden just by a written description.

The book is well written and easily read. The color photos in the center fold are attractive photos of flowers, but would be more useful if each had an accompanying diagram, clarifying plant types, spacing and bedding.

The last chapter discusses design in more detail and is a good summary of how to prepare your own landscape plans. Finally, practical "how to's" finished the book, which included methods of transplanting, fertilizing and pruning your plants.

I recommend this book, however because they do not not stress using a list of insecticides that would also harm your bees. Instead, it gives you some alternatives to try first! And that helps all of us.

The Beekeeper's Garden is an excellent companion to the first book. Starting with you, the beekeeper, it briefly outlines how to get bees, locate hives and how many to obtain. But when it comes to the kind of hive to buy, remember that British beekeepers have other kinds of hives to choose from.

Chapter 2 — *Bee and Beekeeper* goes on basic bee biology, life cycle, and management. It's really too short to be of much value, but the next chapters were more informative. They covered hedges for your apiary (how to clip and what to plant), planning a bee garden, and what kind of beekeeper's garden you should plant. I was a little disappointed that more information on plant pollination and fertilization and important crop plants were not discussed. I thought this would be perfect in such a book. However, this shortcoming was made up for by the remaining 104 pages. It discussed in alphabetical order various bee plants, trees, shrubs and herbs, and gave valuable cultural and physical information. While it did have a few pictures, again you had to rely on written descriptions to make your choices.

The remaining chapter outlined pruning techniques and the uses of safe pesticides. Both books have good in-

Continued on Next Page

REVIEW . . . Cont. from Page 665
dexes which are useful for finding information fast. Used together, you can't miss.

Small Scale Queen Rearing by Beekeepers in the Northeast
Cornell Info. Bulletin 209, Cooperative Extension. by F.L.W. Ratnicks, & R. Nowogrodzki. Write to Cornell University Distribution Center, 7-8 Research Park, Ithaca, NY 14850 for price and catalogs.

This 12 page booklet is perfect for the hobbyist beekeeper interested in raising some new queens by the grafting method. It is clearly laid out and simply written. The first page entitled *General Points About Queen Rearing* covers:

1. Why rear queens?
2. What makes good queens?
3. When do bees rear queens?
4. When can queens be reared?
5. Where can queens be reared?

The next section is entitled *The Process of Queen Rearing* and covers the grafting method of queen rearing in greater detail. The steps are simply explained and have helpful accompanying photos. They even talk about starter colonies, cell builders and mating nucs.

On page 7 are nine color photos which, in my copy at least, were poorly reproduced and difficult to see clearly. It was a shame since the photos were showing sizes of larva, larvae in queen cups and stages of the queen larva.

The pamphlet then went on to cover the transfer of ripe queen cells to colonies, the mating yard, and how to store queens. The last 2 pages have charts and a summary covering the process and steps to follow in queen rearing. I found these helpful in clarifying the written material. All in all, it calls for organizing your time and selecting colonies. You must have breeders, starters, cell builders and nucs ready before you start.

The last page covers troubleshooting, problems, and a quick check list.

I found this to be an extremely helpful pamphlet, but I think it should have been entitled Queen Rearing by Grafting, since the many other ways queens can be reared were *not* discussed.

Well worth the addition into any beekeeper's library.

The Biology of the Honey Bee
Mark Winston, Harvard University Press, 1987. Cambridge, 281 pp.

This book is definitely not for the beginning beekeeper. It is of great interest to those who want to know the latest scientific findings on honey bees and for those who wish to learn more about what bees are doing inside and outside the colony.

It starts, appropriately enough, with the *Origin & Evolutionary History of Bees*. This is quite a good summary of the races of bees, but not so much on the origins and evolution of bees. All of his citations are in the reference section. The *Form and Function* chapter had some good discussions of honey bee anatomy, with clear but simple diagrams. The information is very precise and if you want to read the original work, each paper is referenced in the back.

The *Development & Nutrition* chapter covers the life cycle and has a very good illustration; it also gives plenty of background material. Likewise the section on nutrition includes feeding behavior of larvae, and a discussion on genetics. Quite complete and well done!

Nest Architecture has a good discussion on how bees choose a new nest site, swarms and subsequent new comb construction. I found it extremely helpful in starting to understand the complex actions involved with swarming.

Bee behavior began in Chapter 6 called *Age-Related Activities*, complete with charts and graphs of what workers do. This was quite a good discussion on all the things workers do inside the hive. But it had to be continued into the next Chapter, *Other Worker Activities*. It discussed the many things these tiny insects do to make a colony work. Fascinating.

How these bees manage to do all this is discussed in the *Chemical World*. It will give you more than you need to know, but is a good reference piece. This includes both worker odors and queen pheromones. The other forms of communication are covered in Chapter 9, which discussed dance language, and navigation. The former is self explanatory, but the latter covers visual cues including polarized light, colors, and movement.

The *Collection of Food* talks about where foragers go, their range (in chart

Continued on Page 706

Testing Your Beekeeping Knowledge

By CLARENCE H. COLLISON
Pennsylvania State University • University Park, PA 16802

Dr. Collison has searched the dusty files for us this month to locate the best and brightest of his past articles. This will certainly test your Beekeeping Knowledge, and your patience, and your mettle.

Consider this a learning experience, though, since he has explained all the answers further back. Enjoy!

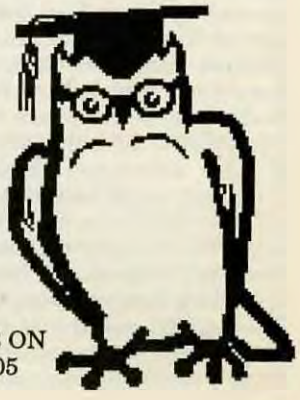
The following 39 questions are true and false. Place a 'T' in front of the statement if entirely true and an 'F' if any part of the statement is incorrect. Each question is worth 1 point.

1. _____ A drone reared from a laying worker's egg is sterile.
2. _____ Eggs unfertilized by the queen honey bee become workers.
3. _____ A queen lays continuously throughout the season.
4. _____ The queen usually begins to lay about 1 week after her final mating flight.
5. _____ The queen honey bee loses her sting in the act of killing a rival queen.
6. _____ Drone flight from a honey bee colony normally occurs during the morning.
7. _____ Drones die after mating with the queen.
8. _____ Egg development takes place in the queen's ovarioles.
9. _____ Sexually mature drones have definite congregation or mating areas away from the hive that are used year after year.
10. _____ Drone honey bees produce no pheromones.
11. _____ Drones are not capable of feeding themselves.
12. _____ Within the hive, young drones are normally found in the central broodnest and older drones are found on the peripheral combs.
13. _____ Colonies with young queens are least apt to swarm.
14. _____ The Demaree Technique is a method of raising large quantities of queens.
15. _____ Worker honey bees frequently destroy unfertilized eggs and drone larvae if rearing conditions are not optimal.
16. _____ Honey bee queens gain weight as a colony prepares to swarm, since brood production is reduced.
17. _____ Removing or destroying drone brood in colonies encourages its production.
18. _____ As a colony population increases, a smaller proportion of bees are required for brood rearing.
19. _____ Queens are capable of laying 2500 eggs per day.
20. _____ All three types of brood-cells found in a honey bee colony are reused for brood production.
21. _____ Both worker size- and drone size- cells are hexagonal in cross-section.
22. _____ Prior to egg deposition, the queen honey bee inspects each cell.
23. _____ The number of drone cells constructed by a honey bee colony is inversely related to the number already present.
24. _____ Royal jelly is fed to queens throughout their life and to early instar worker and queen larvae but not to young drone larvae.
25. _____ In addition to brood production, drone-size cells are used for honey and pollen storage.
26. _____ Workers are produced in cells that measure approximately 5 cells per linear inch.
27. _____ Having colonies headed up by queens with their wings clipped will prevent swarming.
28. _____ Any fertilized egg laid by the queen is capable of becoming a queen.
29. _____ Queens take annual mating flights to replenish their sperm supply.
30. _____ Drone honey bees store their sperm in an organ known as the spermatheca until they mate with the queen.
31. _____ A colony producing queen cells in the presence of a laying queen always results in the colony either superseding their old queen or swarming.
32. _____ Young queens will lay later in the fall and initiate brood rearing earlier in the spring than older queens.
33. _____ Laying workers behave like normal queens; they cease doing typical worker duties and spend all of their time laying eggs.
34. _____ The queen honey bee leads the primary swarm out of the hive during the swarming process.

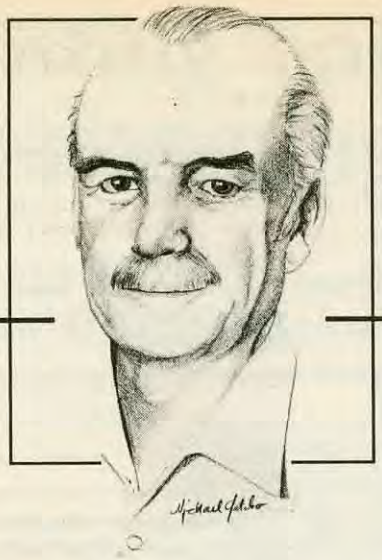
35. _____ The presence of queen cells in a colony will increase the chances of successfully introducing a new mated laying queen with a Benton mailing cage.
36. _____ Colonies typically produce more queen cells when they are superseding their old queen than when they are preparing to swarm.
37. _____ Queen honey bees normally live longer than either the drone or worker caste.
38. _____ Virgin queens and drones are attracted to each other within the broodnest of a colony.
39. _____ Development of laying workers is inhibited by the queen's pheromones and the presence of worker brood.

Multiple Choice Questions (1 point each)

40. _____ Drone honey bees normally become sexually mature at the age of: A) 6 days; B) 12 days; C) 3 days; D) 15 days; E) 9 days.
41. _____ If a virgin queen is prevented from going on her mating flight, she will lose the urge to mate in approximately: A) 3 weeks; B) 5 weeks; C) 2 weeks; D) 4 weeks; E) 1 week.
42. _____ Average life span of the drone during the summer is: A) 10 weeks; B) 6 weeks; C) 2 weeks; D) 4 weeks; E) 8 weeks.
43. _____ Drones are produced in cells that measure approximately _____ cells per linear inch. A) 6; B) 2; C) 3; D) 4; E) 5.
44. _____ During mating, drones are attracted to the queen after she enters the mating altitude which is over _____ feet above the ground. A) 8; B) 12; C) 20; D) 15; E) 5.
45. _____ Larvae used for grafting in the production of queens should be ___ hours of age: A) 30-36; B) 24-30; C) 36-42; D) 12-18; E) 6-12
46. _____ During the summer worker honey bees live approximately: A) 3 weeks; B) 6 weeks; C) 20 weeks; D) 26 weeks; E) 12 weeks
47. _____ In an emergency, the shortest possible time that a colony could successfully replace a queen would be: A) 8 days; B) 14 days; C) 16 days; D) 10 days; E) 12 days
48. _____ Worker honey bees normally produce wax and build combs when they are ____ days old. A) 12-18; B) 6-12; C) 18-24; D) 24-30; E) 1-6
49. _____ The central broodnest during the summer is normally maintained at temperatures of: A) 89°-91°F; B) 97°-99°F; C) 86°-88°F; D) 92°-94°F; E) 95°-97°F
50. Listed below are four phenomena associated with the queen. Please describe what is meant by each phrase. (Each response is worth 1 point).
    A. Queen piping _____
    B. Mating sign _____
    C. Drone layer _____
    D. Balling the queen _____
51. What is the primary function of drones in the honey bee colony? (Question is worth 1 point).
52. Queen honey bees have two major functions in the honey bee colony; please list them. (Question is worth 2 points).
53. Rate of development (egg to adult) in the honey bee colony varies with caste and temperature. Please indicate total average developmental time for the three castes. (1 point each)
    Worker _____ days
    Drone _____ days
    Queen _____ days
54. List three characteristics you would expect to observe in a colony with laying workers. (3 points).
55. Many factors are believed to influence the queen's egg laying rate; please name three. (3 points).
56. Under what condition will you possibly find two laying queens in a colony? (1 point).
57. Name the four developmental stages in the life cycle of a honey bee (4 points).
58. What two factors determine "division of labor" within the honey bee colony? (2 points).
59. What will a newly emerged virgin queen do when she:
    A. Encounters another virgin queen (1 point)
    B. Discovers capped queen cells (2 points)
    C. Finds open queen cells containing developing larvae (1 point)
60. Compare the life span of worker honey bees in the summer and winter in the northern regions of the United States. (2 points).
61. If you have reached this question and have answered the previous 60, give yourself 2 points.



ANSWERS ON PAGE 705



THE BEE SPECIALIST

ELBERT R. JAYCOX

5775 Jornada Road North • Las Cruces, NM 88001

"Read these this year . . . you'll be glad you did!"

Since 1983, an attractive yellow volume, *The Beekeeper's Annual*, has been published each year by Jeremy Burbidge of Northern Bee Books in Hebden Bridge, England. It is a pleasing mixture of several types of information for British beekeepers, and a record book for the year. For each month, the reader is provided with a calendar to write in and space for observations of daily foraging and weather. There is also a chart for individual colony records and a summary sheet for an inventory of equipment and supplies.

The directory of beekeeping organizations and the statistics for bee health and beekeeping in the British Isles provide a complete and accurate picture of the extent of beekeeping in England, Wales, Scotland, Northern Ireland, and the Republic of Ireland. The bee disease insurance scheme is laid out in detail as are the governmental services provided to beekeepers.

Between the directory and the calendar sections of the Annual are useful and interesting articles relating to bees and beekeeping. The 1989 volume, edited by Mary Fisher, includes stories about humidity in the bee hive, Africanized bees and the United States, "fringe" beekeeping, the life and activities of Cecil Tonsley — Bee Master, honey recipes for the microwave, and protecting honey bees from spray poisoning. In many cases, the stories are of interest and value to American beekeepers; in others, they show us what beekeeping is like where it is often difficult just to keep the bees alive.

We sometimes think we suffer from poor conditions for keeping bees. Consider then what Ken Stevens has to say in the calendar for July in the 1989 *Beekeeper's Annual*: "The number of first class foraging days in some summers can be counted on the fingers of one hand. To open them on one of those days would sizably reduce their potential. Manipulations by evening or in the rain may not be nice for you, but do less harm to the colonies." The climate of the British Isles causes more than a few modifications in bee management.

If you like to read about beekeeping in other countries, I think you will enjoy the 1989 edition of *The Beekeeper's Annual*. It is available for about $9.75 (£5.75) from Northern Bee Books, Scout Bottom Farm, Mytholmroyd, Hebden Bridge, England HX7 5JS.

Bee Stings And Animals

When Africanized bees take over an area it is not just humans who suffer more stings. Many animals are affected as well. Apiaries of Africanized bees must be kept a considerable distance, the farther the better, from penned and caged animals of all kinds to prevent their being stung, especially during periods immediately after the bees have been inspected or honey removed.

There are big differences in responses to bee stings among the different animals according to Dr. Laurie Croft writing in *The Beekeepers Quarterly*, August, 1988, another publication of Northern Bee Books. Croft relates that even elephants have been known to die from being stung by bees. Dogs are one of the most sensitive species, and many have died after a single sting. They are more vulnerable if they have smooth and thin coats of hair. The sensitivity appears to be related to the ready damage by venom to the dog's blood, causing hemolysis, or breakdown of the erythrocytes, according to Croft. Also, after a bee sting, the dog's blood pressure drops, much more so than in rabbits, which are less sensitive. In laboratory studies, rabbits recovered quickly from the effects of venom from as many as 150 to 200 bees.

Cats (and feline species in general) and pigs are less sensitive to the effects of venom than those other animals, perhaps in part because of the fat layer beneath pigs' skin. Dr. Croft states that horses are very sensitive to bee venom and are always in jeopardy because bees have a strong aversion to horses, probably because of their peculiar odor. Even Aristotle reported deaths of horses as a result of being stung, and such reports have been common since that time. A farmer in England reported good results from wiping his horses with a weak carbolic acid solution to prevent them from being stung.

Geese and chickens are very sensitive to bee stings according to Dr. Croft. Some smaller birds such as sparrows may die from a single sting. A report in *Animal Kingdom* in 1987 noted that the extremely rare Spix's macaw in NE Brazil has suffered from the entry of African bees into its range. The bee's sting can kill an adult bird.

With the advent of the Africanized bees into the United States we will have to be as concerned about their effects on livestock and other animals as on humans. This is necessary not only from a humanitarian standpoint but also from the economic one. People who may lose favorite pets and livestock can be expected to sue anyone who owns the bees nearby.

More On Using Detergent To Kill Swarms

After I wrote in September, 1987, about killing swarms with a detergent/water mixture, a beekeeper in Missouri told me that he tried without success to kill a colony, or the remains of a colony, in a felled tree. I told him that it worked well on hanging swarms, but perhaps not on established colonies. Since then I have wanted to test it out, and got my chance in September this year. A swarm of bees set up housekeeping hanging from the upper door frame of an old doorless garage at the Plant Science Farm of New Mexico State University. Although it was a well lighted area with a northern exposure, the bees built five large combs. They were in a bad spot for the people who had to work near them and no one was interested in transferring the colony to a hive. It was a good chance to see how a detergent spray works on an established colony and to demonstrate to the farm crew how they can kill African swarms in the future.

I used one-half cup of concentrated ALL® detergent in about a gallon and a half of cold water. Wearing a veil, I began to spray the colony in the early morning when it was tightly clustered with few bees flying. Many wet bees fell from the cluster and died quickly. I tried to get the spray to penetrate between the combs, but it was not sufficiently powerful to do so through the clustered bees. When little activity remained externally, I cut the combs from the door frame by pulling a wire through them near their point of attachment.

At this point many of the undampened bees came out to greet me and I was stung several times on my bare arms. By continuing to spray, I quickly put down the rest of the active bees. When all activity had ceased, we buried the dead bees and combs to avoid problems with robbing bees.

The detergent spray works well for killing hanging swarms, and I expect to use and recommend it when there is no way to save "problem" swarms. It kills the bees quickly and humanely without resorting to pesticides. If I were to try it again on an established colony I would like to have a powerful jet spray to penetrate all areas within the combs. The ordinary hand sprayer does not have sufficient force.

Wisdom From Old Bee Books

Whenever I look through old beekeeping books for ideas on a topic of current interest, I end up reading far more than I planned. This happened with Langstroth's *Hive and Honey Bee* of 1899. In his chapter on queen rearing, Langstroth talked about queenless colonies and how a husband is similarly affected when his wife is away. He said ". . . there is no place like the cheerful home where his chosen wife and companion presides as its happy and honored Queen." In a footnote, Langstroth quotes Spectator, No. 209: "The tenth and last species of women were made out of a bee: and happy is the man who gets such a one for his wife. She is full of virtue and prudence, and is the best wife that Jupiter can bestow."Δ

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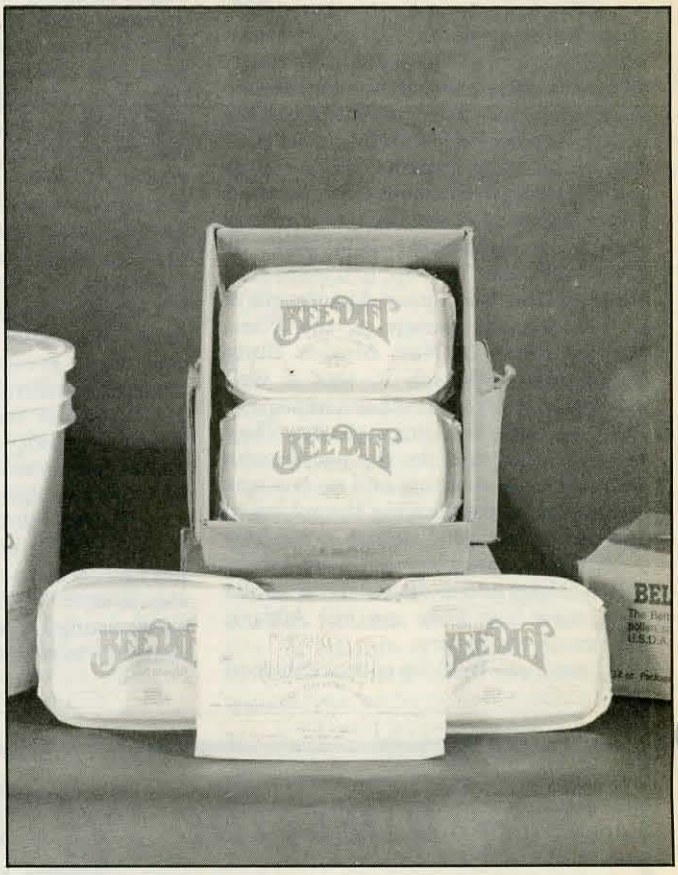

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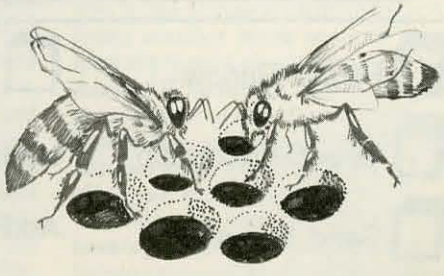

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RESEARCH REVIEW

DR. ROGER A. MORSE

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"Computer Chips; Chalkbrood and Queen Rearing"

Following Flying Bees

The July 11, 1988 issue of *Time* Magazine and the October, 1988 issue of *Popular Science* both pictured drone honey bees carrying prototypes of solar-powered microchip transmitters. I have been hearing about these for some time so was pleased to attend a USDA sponsored seminar in Beltsville, Maryland on September 29 at which time this subject and others were covered. The four lecturers, headed by Howard T. Kerr, who has had a long-time interest in honey bees, were from the Oak Ridge National Laboratory in Tennessee. The laboratory is managed for the U.S. government by the Martin Marietta Corporation.

Both magazine reports emphasized the importance of these chips in tracking the "killer bees". The American press certainly enjoys mentioning these bees any time they have an opportunity. Quite frankly, I'm tired of hearing these tales of gloom and doom. The fact of the matter is that when these chips are fully developed they will have far-reaching applications for studying all honey bees and a host of other animals. We will be able to track swarm movements, mating flights, and foraging flights in ways not previously possible.

The real question is, how practical are these chips at present and what is their future? The chip, as it is being developed, weighs 35 milligrams. A European honey bee weighs about 80 milligrams and an Africanized bee is a little less when they are carrying no food. Thus, the chips weigh about half as much as the bee. Professor Karl von Frisch (see "Weighted Bees" in the index of the reference below) reported that bees each carrying a piece of lead weighing up to 55 milligrams and glued to the top of their thorax could fly and forage. The extra weight caused the bees to gather less food, to fly more slowly, but to dance more enthusiastically. Frisch also reports that these bees were more likely to perform "trembling dances", a sign of old age. Some other reports I have read recently indicate bees carrying weights may live for shorter periods of time. However, the important point is that the bees can carry such a heavy load and therefore these chips will be very important in bee research. I wonder if bees with chips can fly long distances and keep pace with bees in a flying swarm; it is certainly worth trying.

The first field testing of these chips will be this upcoming spring. There are still some questions about what type of glue to use to fix the chips in place; this question is also addressed by von Frisch. Another question is how the bee is to be kept quiet (anesthetized) while the chip is being fixed in place. It is now clear that carbon dioxide anesthesia has some problems and some of the research I have been doing recently causes me to question if cold chilling causes changes in behavior. It may be best to attach the chip when the bees first emerge as adults from their cells, at which time they are easy to handle, need no anesthesia to be marked, and are not inclined to sting. However, it is usually several weeks before an emerging bee becomes a forager. Yet another question is the distance over which one will be able to detect a bee carrying a chip. One report indicated the distance could be as much as a mile so long as the bee was in sight of a detector.

I congratulate those who have developed this great piece of hardware. This is a good example of some of the advanced technology that was developed for other purposes rubbing off onto another field (classic serendipity). I hope that in time the weight of the chip can be reduced. I'd really like to see a chip that would weight five milligrams or less but I guess we should be grateful for what we have.

Reference

Frisch, Karl von. *The Dance Language and Orientation of Bees.* The Belknap Press of Harvard University Press, Cambridge. 566 pages, 1967.

Testing for Chalkbrood Resistance

One method of checking for honey bee resistance to chalkbrood, the fungus that kills larval honey bees, is to look for hygienic behavior. This behavior can be determined by killing capped brood by freezing, and then observing the number of days required for bees to uncap the cells and remove the dead pupae. The dead brood used in this study was obtained by wrapping a piece of comb, containing 300-400 sealed brood cells, in plastic and placing it in a freezer for 20-28 hours. A colony that is strongly resistant will uncap and remove the dead brood in 24 hours.

In the paper cited below, it was

found that good hygienic behavior usually indicated good resistance to chalkbrood. However, the emphasis should be on the word usually because this was not always the case.

Queen breeders, and other beekeepers who raise their own queens, should use the hygienic behavior test as one part of their stock-testing procedures, in my opinion. This paper indicates that while the method is good it is not perfect. However, that doesn't mean it shouldn't be used, for obviously it is a good tool.

There is another interesting point in this paper. It was found that there were molds present in bee bread (stored pollen) that inhibited the growth of the chalkbrood fungus. Colonies of bees that were resistant to chalkbrood had more of these molds which may have been introduced by the bees. It is suggested by these authors that bee bread may play a role in chalkbrood resistance. Of course, any practical application of that knowledge is a long ways away, at least in beekeeping. We are reminded that in our own lives the mold Penicillium plays an important role because of the antibiotic effect of the penicillin it produces.

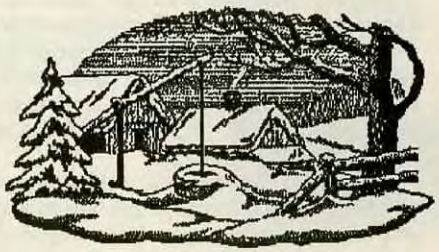
Reference

Gilliam, M., S. Taber III, B. J. Lorenz and D. P. Prest. *Factors affecting development of chalkbrood disease in colonies of honey bees fed pollen contaminated with* Ascosphaera apis. Journal of Invertebrate Pathology. 52:314-25. 1988.

The Importance of Good Queen Rearing Techniques

Most beekeepers requeen every year, or every other year, in part because they feel queens may run out of sperm. In the paper cited below, it was shown that queens reared under the best of conditions continued to have abundant sperm, even after several years. At the start of egg laying, the queens in this test had, on average, over nine million sperm. After one year, a queen averaged 7.6 million sperm; after two years, 5.6 million; and after three, 2.0 million.

No data on honey production are cited in this paper. However, that was not the emphasis. What is demonstrated here is that under good conditions, queens can live a long while and continue to be productive. This confirms the importance of good queen rearing techniques and rearing them under optimum conditions.



Reference

Szabo, T. I. and D. T. Heikel. *Numbers of spermatozoa in spermathecae of queens aged 0 to 3 years raised in Beaverlodge, Alberta.* Journal of Apicultural Research 26: 79-82. 1987.

EVERYTHING You've Ever Wanted To Know About N • U • C • S

MICHAEL FERRACANE

Nucleus colonies, or nucs, as they are commonly called, are small colonies of bees consisting of a queen, a few thousand workers and one or more frames of brood, and stores. As the word nucleus implies these colonies are often used as the start of new full-size colonies. However, nucs have a number of other uses that make them practical. These miniature colonies should be an integral part of every serious beekeeper's management system.

Nucs are sometimes kept in standard ten-frame equipment, particularly if they going to be built up into full-size colonies. Occasionally, hive bodies are subdivided using wooden partitions to accommodate two or more nucs. Usually though, nucs are kept in small miniature hives or "nuc boxes" that hold from three to six standard size frames. Nuc boxes take up less space than standard hives, use fewer frames, and are easier to transport.

Construction

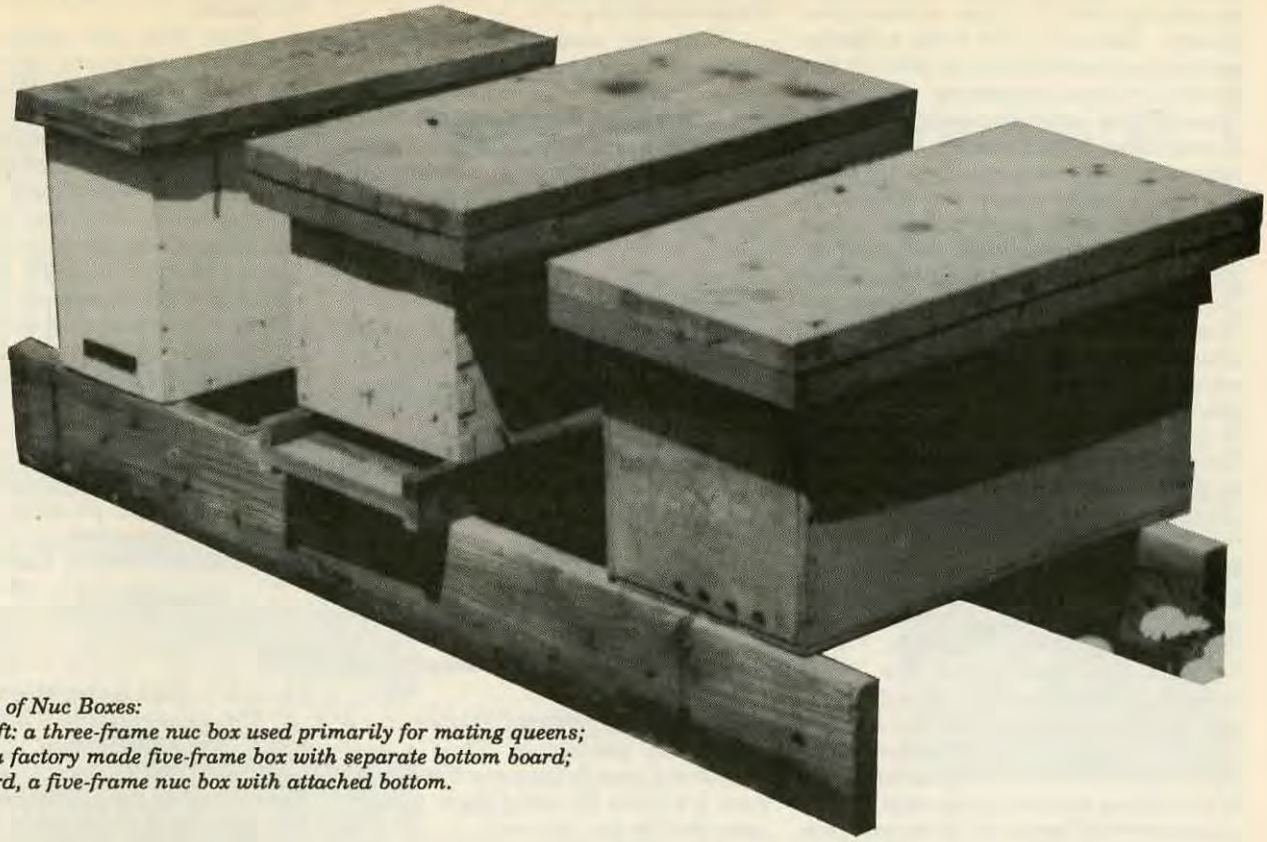
Most beekeepers buy manufactured hives because of the time and difficulty involved in making them themselves. However, nuc boxes are quick and fairly easy to build. Whereas hive bodies are open at the top and bottom and must depend on elaborate dovetailed joints for strength and rigidity, nuc boxes are usually constructed with attached bottoms and thus do not need complicated joints. Nuc boxes are subject to much less physical stress than hive bodies and most of the nuc box can thus be constructed from thinner and cheaper materials such as plywood. However, it is still necessary to cut rabbets into the end pieces of the nuc box for the frames to rest in which means they they should be made from 3/4" thick stock. Rabbets are cut most quickly with a router but can also be cut with a hand saw. Nuc boxes can be designed to accommodate as many frames as is desired. While three-frame nuc boxes are adequate for queen rearing, larger sizes are preferable for most other purposes. When building nuc boxes, it is important to maintain a bee space of 1/4" to 3/8" between the walls of the hive and the frames and between the cover and the frames. The nuc box should be slightly deeper than a standard hive body to allow a minimum of a 1/2" space under the frames. The entrance to the nuc box can be a long slot at one end of the box regulated by an entrance block or it can simply consist of one or more holes that can be closed with corks when necessary. A plywood inner cover and a telescopic outer cover protected by an aluminum or sheet metal top should be constructed to cover the nuc box. In place of hand holds short blocks of wood can be nailed to the sides.

" . . . used for swarm control, queen rearing, comb repair and even income . . . "

Establishing A Nuc

Nucs are typically started with from one to three frames of brood and bees. These frames can be taken from different colonies if necessary. Most of the brood that is used should be capped because it requires little care from the bees in the nuc, and quickly increases the nuc's population. The frames of brood are placed in the center of the nuc box such that any uncapped larvae are sandwiched between the other brood combs for added warmth. The nuc should be given either a frame of honey and/or fed a gallon or so of 50% sugar syrup. At least one frame with plenty of pollen should also be provided. The remaining space in the nuc is filled with empty combs or frames with foundation. Unless the nuc is to be moved more than three miles away from the apiary in which it is established bees from an additional one or two frames should be shaken into the nuc to compensate for the older bees that will return to their original hive. The best time to make up a nuc is just before dark. This reduces the chances of it being robbed out before it can defend itself as well as increasing the proportion of older bees that remain with the nuc when it is left in the apiary with the parent colony. The entrance to the nuc should also be reduced for a few days as well.

Nucs should be placed several



Three styles of Nuc Boxes:
From the left: a three-frame nuc box used primarily for mating queens; the second a factory made five-frame box with separate bottom board; and the third, a five-frame nuc box with attached bottom.

inches off the ground so that they remain dry and are less accessible to hungry skunks, which seem to favor nucs as targets for their nighttime marauding. Indications that a skunk has been feeding on a nuc are muddy claw marks around the entrance and torn-up turf in front of it. Should skunks become a nuisance the nuc must be moved to another location or raised off the ground a couple of feet.

Management

Generally, nucs are managed in the same way as full-size colonies but there are some differences. Nucs have a harder time maintaining brood rearing temperatures during cool weather than do full-size colonies and are more susceptible to stress diseases such as European Foulbrood, chalkbrood and sacbrood. These diseases usually clear up as the colony increases in size and outside temperatures moderate. *Nosema* can be a problem in the early spring causing retarded colony growth or even queen-failure. As a precaution against *Nosema* one or two quarts of sugar syrup containing Fumadil-B® can be fed to each nuc.

During hot weather nucs often have a difficult time keeping cool if they are placed in direct sunlight. Consequently, they should be kept partially shaded or provided with artificial shading during the summer.

Because of their small foraging force, limited stores, and high brood to adult ratio, nucs are more prone to running low on food than are full-size colonies, especially during long stretches of bad weather. Consequently, the food supply of a nuc needs to be checked regularly until there is an adequate honeyflow in progress. Nucs should always have one frame of honey as a reserve.

When feeding is required the best method is to borrow a frame of honey for it from a strong colony. If this is impractical sugar syrup may be fed using either a division board feeder or an inverted jar placed on top of the frames and covered with another empty nuc box. Care should be taken to prevent robbers from gaining access to the syrup. When feeding nucs the size of their entrances should always be reduced.

The most common problem with nucs is that they outgrow their nuc box in a few weeks unless frames of brood are periodically exchanged for empty combs or frames of foundation. If left unchecked this overcrowding can result in swarming or absconding. The brood that is removed from a nuc can be used to bolster other colonies or to establish additional nucs. As the nuc grows the entrance should be enlarged to increase ventilation.

At the end of the summer nucs are usually combined with either full-size colonies or with other nucs in order to create hives that are strong enough to winter. Combining nucs with full-size colonies enhances wintering by insuring that the colony has ample bees as well as a young queen. Nucs can sometimes be successfully wintered on top of a strong colony over a division board or screened inner cover. To winter nucs in this manner they must be very strong and have a large surplus of stores.

Using Nucs

During Swarm Season . . .

The primary cause of swarming is believed to be congestion of the brood nest. The measures taken to prevent swarming are designed to alleviate this congestion and often involve removing brood and bees from the brood chamber. For this reason using some of the bees and brood from a populous colony to make up a nuc is an ideal swarm prevention technique. To work best, frames should be taken from the center of the brood nest and replaced with empty combs or frames with foundation.

The nuc can be reunited with its parent hive later in the season when the swarming urge has passed using the newspaper method. Alternatively, the two units can be combined using

Continued on next page

queen excluders to create a two-queen colony. Making a nuc from a strong colony and recombining it later in the season reduces swarming while still providing a large population for the honey flow. In the process it provides the colony with a vigorous young queen.

Nucs can be used to stop swarming in colonies that have already made preparations to do so, as evidenced by the presence of ripe queen cells. Such colonies usually need more drastic action than is taken in swarm prevention. Removing one or two frames of brood at this point is not likely to dissuade the colony from swarming. Such colonies are best broken up into several nucs. This in effect simulates swarming but gives the beekeeper complete control over the process and allows him to reunite the nucs later on.

The ripe queen cells produced by a swarming colony can be used to stock the nucs. Queens produced under the swarming impulse are reared under ideal conditions and are usually of the highest quality. However, some beekeepers feel that using such queens perpetuates the swarming urge. While there is no real evidence to support this claim one can replace the queens reared by swarming colonies later on with queens produced from a more desirable colony if this is a concern.

. . . And Queen Production

Nucs are an essential part of queen rearing, serving as the colonies in which new queens emerge, fly from to mate, and begin egg laying. Commercial queen rearers use tiny mating nucs for this purpose because they are economical. However, the larger multipurpose nucs discussed in this article serve as well if not better than commercial mating nucs for mating and evaluating queens.

Nucs may also be used to hatch ripe queen cells or to store purchased queens to be used later on for replacing old or failing queens. Many commercial beekeepers routinely keep enough extra queens in nucs to requeen 10% of their colonies.

Strong colonies are often difficult to requeen especially with caged mail-order queens. Nucs, however, usually accept such queens readily because of their small populations and high proportions of young bees. Therefore, one can greatly increase the chances of acceptance of a foreign queen by a strong colony by first introducing her to a nuc and then after she is established and laying combining the nuc with the colony. Before uniting the two the old queen should first be removed to reduce the chances of injury to the new queen.

Comb Building . . .

Nucs can also be used to repair combs that have been damaged by rodents or neglect. Whereas a strong colony will often fill the damaged areas with drone cells, nucs seldom build drone comb or rear drones because of their small populations. They will almost always repair a frame as good as new.

. . . And Income Producers

Studies have shown that strong colonies can often spare the bees and resources necessary to establish a single nuc without significantly cutting into honey production. Thus a beekeeper can greatly increase the income from his hives by using them to start nucs that he can then sell.

"Can you afford NOT to use nucs?"

Nucs offer several advantages over package bees or secondhand hives that can be used as selling-points. Unlike package bees, which take a long time to build up and need a large amount of feeding, nucs can usually be turned into productive populous colonies in a couple months with much less feeding. When the main honey flow comes later in the season, colonies started from nucs can produce honey crops the first season. While buying full-size colonies usually guarantees a crop the first season they are always more expensive, are difficult to transport, and are often in short supply in the spring. In addition, full-size colonies are often intimidating to a beginner. In contrast the initial population of a nuc is relatively small, allowing a beginner to handle them quite readily. It is also easier for a beginner to learn how to find the queen in a nuc than in a large colony which is an important skill for a new beekeeper to master.

Nucs that are offered for sale should contain a young vigorous queen, at least two to three frames of bees and brood, and one or more frames of honey and pollen. The nuc should be fed sugar syrup containing Fumadil-B® to prevent problems from *Nosema*.

Normally, only the frames and bees from a nuc are actually sold; the nuc box itself is returned. The price of such a unit will depend on local supply and demand but should sell for around $30.00 Disposable nuc boxes made from cardboard that can be sold with the bees are available commercially.

Many states require that honey bee colonies offered for sale first be inspected for diseases and parasites. Beekeepers interested in selling nucs should consult their state apiary inspector's office for the particular regulations in their state.

. . . And Even More

Empty nuc boxes themselves are handy for a number of things. They make ideal hives for collecting swarms. Because of their small size they are easy to position under a swarm clustered on a low limb and easy to carry home afterwards.

A nuc box is also very handy when inspecting colonies. It is ideal for holding all the assorted small paraphernalia (e.g., hive tool, smoker, fuel, matches, marking pen, duct tape, etc.) that you may need in an apiary. While some beekeepers carry their box of equipment from bee yard to bee yard others leave nucs of equipment in each of their yards. This insures that everything they need while working their hives is always in the yard. Another use for a nuc box is as a convenient holder for the frames removed from a hive during inspection This protects the frames from being stepped on, prevents exposed brood from being chilled or overheated, and reduces the chances of robbing.

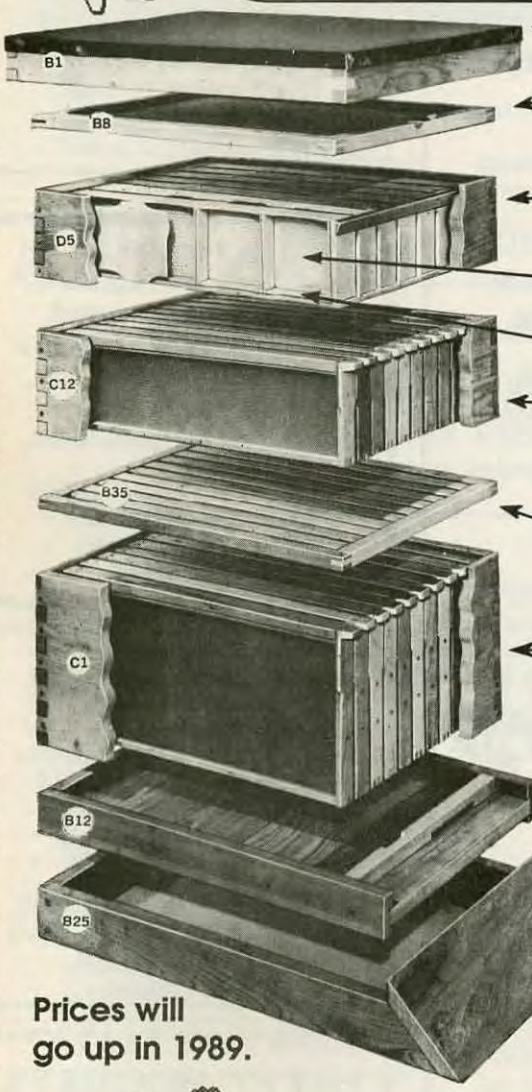
It is easy to see that using nucs can increase your efficiency and income as a beekeeper. Construction is relatively simple, the number of uses is only limited by your imagination, and they can add significantly to your income in the spring when cash flow can be a problem.

With the increased awareness that exists concerning africanized honey bees, varroa and tracheal mites — buying bees from a distant source is a risk many beekeepers aren't willing (or able) to take. Nucs can help with this, and reduce the chances of problems. Nucs can, and will, work for you. With a little time and effort, the rewards far outweight the costs.Δ

Are you TIRED of sitting around?

Now is the time to assemble your equipment for spring!
Don't put it off . . . you know you're always in a rush by April.
Here are some projects you could be working on right now!

We can ship foundation *only* during warm weather.



Metal Clad Cover telescopes over the supers below. — B1 Cover

Inner Cover helps insulate bees from heat and cold and adds to convenience in handling bees. — B8 Inner Cover

Section Super for comb honey. In it surplus honey is stored in individual section boxes. — D5 Super

Thin Super beeswax comb foundation. — J6 Foundation

Comb Section Box — F4 Sections } D4

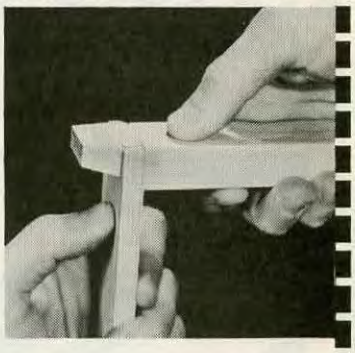
Shallow Super with frames for storage of honey. There may be several of these to a hive. Surplus honey can be extracted from the combs or chunk honey may be cut out of the combs. — C12 Super, G24 Frames } C17; J27 Thin Super Fdn., H50 Wired Fdn.

Excluder Placed over the deep super to keep the queen in the brood nest. — B35 Seven Wire

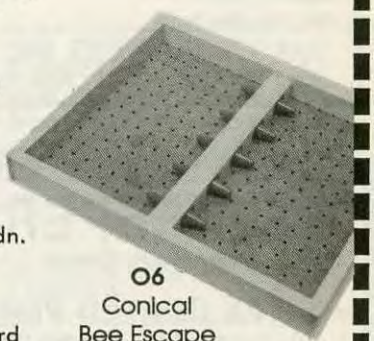
Deep Super with frames and beeswax comb foundation. This is used for the brood nest when next to the bottom of the hive or for surplus honey if another deep super is placed on above this. — C1 Super, G14 Frame, H8B Wire-ply Fdn.

Bottom Board It is equipped with an entrance-contracting cleat that can be changed as conditions warrant. — B12 Bottom Board, B18 Entrance Reducer

Hive Stand This is extra equipment that may be used to keep the hive from the ground. — B25 Hive Stand



Frame Construction



O6 Conical Bee Escape

B14 Slatted Rack

Prices will go up in 1989.

Don't forget the beekeeper on your Christmas List.

See your nearest Root Dealer or call 1-800-BUY-ROOT

Building A Better Beekeeper

DR. JAMES TEW and KIM FLOTTUM

PART 2: The Workshop

The planning and announcing are over. The workshop date is within a few days and all arrangements should have been covered. Much like a space flight that requires a lot of preparation for a short flight, a workshop requires a great deal of planning, but only a short time to conduct.

Registration

This is the first encounter participants will have with the meeting. It really should be well organized. There are several aspects of registration that should be considered. Budgets vary considerably, and will certainly play a role in how much of these can be used. If possible, provide a registration kit or folder which would include some or all of the following:

- Name Tag
- Tablet and pen/pencil
- Recent issue of your groups newsletter
- Recent issues of industry publications (magazines, newsletters of local, regional or state associations, etc.)
- Appropriate reprints of topics to be covered, if possible
- Schedule of workshop and maps, if different buildings or rooms are used, along with locations of dining, restroom, smoking, parking, breaks, displays and anything else people should know
- Short introduction of speakers or teachers
- Receipt of payment, if pre-registered
- Meal ticket, if required
- Evaluation form

A well-organized registration cannot be over emphasized. Pre-registration of participants is ideal, since you have time to get their kits ready in advance. Registration at the door is usually hectic, but do *not* make it difficult.

Have a minimum of two people (three is better) working the table. Have it well marked, inside and outside, and keep the traffic moving. Be sure you have lots of kits ready for last minute shows. Also, make sure you have plenty of change (cash and coin) available.

If possible, have a congregating area with coffee and donuts available, away from the registration table.

Registration workers should be courteous, knowledgeable, and helpful as the participants register for the session. Be organized. Don't allow a bottle neck to develop at this point.

Timing

Start on time and stay on time. It sounds simple, but it will become one of the greatest challenges that the program coordinator will have to face. If weather, or any other situation arises, timing changes may have to be made, but otherwise — start, and stay, on time.

Be flexible. In fact, build some flexibility into your program, but don't tell anybody. If the weather is terrible, be able to allow time to start late, without losing a session. Not an easy task, but preparation is the key here.

Have an announcer who will go to break rooms, outside, display areas, the dining room and wherever else needed to announce that breaks, lunch, etc., are over, and the meeting is starting, NOW! A big, loud person, who's not bashful, is best.

Speakers

Usually, speakers are a major part of the program. As was discussed in the first section, the speakers should have been contracted (in writing) and arrangements made to greet them at the airport, if necessary. Naturally, the distance from the airport and the ease of finding the meeting site are considerations that may justify the speakers transporting themselves.

The visual devices required by the speakers should have been arranged in advance. Even so, they should be quickly tested after the speakers arrive. For instance, does the slide tray fit the slide projector? If a video tape is used, is it rewound and cued to the beginning? Do all the visual machines have electrical power? Are all the props ready, in place, and working? There is nothing more disconcerting than to find one necessary piece of equipment missing. If you have a large crowd, it pays to keep these things in a safe place. Enthusiasm and forgetfulness occasionally leave with necessary items.

Introductions

At some time before the meeting begins, get background on the speakers to use during their introductions. Normally, such questions as: (1) where the speaker works (2) where "home" is and (3) what the topic is, are used to introduce speakers. Don't make introductions too long and be careful about using humor during introductions.

One of the most difficult tasks the program chairman has is (to try) to control the flow of the program. Some speakers run over their allowed time occasionally. It happens. There is no "best way" to tell a speaker that he has gone overtime. I feel that a quick comment ("try to finish in a couple of minutes") over the speaker's shoulder should be enough.

It is often suggested that all good programs have a "slack speaker" scheduled. Such a speaker would be responsible for stretching or shortening a scheduled session in order to get back on schedule (or simply stay on schedule if everything has gone along well). This concept may be too much of a luxury for some programs.

For outside demonstrations allow at least twice as long as you think it should take. Remember all the questions you had when you were a beginner, and then multiply that by the number of people standing around the hive. Encourage questions, no matter how simple they may seem to you. In fact, having a good beekeeper in the crowd to ask the question many are too shy to ask is a great idea.

If a speaker seems to go too fast, ask to see it again. Never assume that everybody understood everything they saw. Twice is often not enough, but the major constraint is time.

Also, never assume that everybody knows the basics. Starting a queen-finding demonstration with a smoker already going misses the chance to talk about smoker fuel, lighting, keeping it lit, maintenance and using.

If the entire workshop is set up inside, allow for the same kinds of involvement. If the session is about building equipment, let people look at well constructed frames, supers and the like. Touching, looking at, holding and DOING are always better than just watching. This can be noisy, expensive and time consuming — but it is always worth the effort and cost.

Don't hesitate to break the group into several small groups to try some of these tasks, either inside or outside. Small groups are easier to teach, and shy students will be less inhibited to ask what they think is a stupid question in front of a small group. Remember — there are NO stupid questions, only stupid answers.This goes without saying. Make sure your teachers know their stuff.

If time really gets away, a desperation technique is to shorten the break session, but this is never a real popular move with the participants.

Display Areas, Breaks, Lunch

Everybody needs a break from this sort of adventure. Don't get stingy with time here. Allow a half hour for a mid-morning and mid-afternoon break. This gives people a

The One and Only

EDWARD A. WEISS

Workshops aren't always run by a group. Often they are the vision, and work, of a single person. Of course the scope, timing, and budget are different for these. So too is the planning and execution. But they can be successful, and profitable from the stand point of both the teacher and the student.

Edward Weiss has been teaching workshops by himself and with assistance for years, and offers these thoughts for when you are "The One and Only".

When the last stalks of goldenrod are gone and the final tiny Aster disappears, I begin to think of Winter. During that mostly indoor time of the year, I start planning my Beekeeping Class. Since I teach it almost every year, planning is fairly easy.

I have learned not to teach the class before the New Year begins. In the past, when schedules were established for the period between October 1st and January 1st, the holidays always broke the continuity of lessons. Then too, and most important, the student's fire and enthusiasm to be a beekeeper frequently waned by the time Spring arrived. So I usually hold classes during late January, into February, and finish in March.

Gathering the 'visuals' is my next project. I usually rack my brain during the Summer trying to find the best teaching aids possible. Over the years I have come up with some that have caused excitement, enthusiasm, interest and even consternation. For instance —

- A frame of comb from a winter-killed colony showing the cluster with the Queen in the center; silent soldiers perfectly aligned, surrounded by honey. But not enough of them to maintain enough heat to sustain life. The message, of course, is that there must be enough *young* bees going into winter to form a cluster large enough to generate the heat required. Spray the frame with any kind of clear coating (lacquer, polyurethane, etc.) to maintain the model.
- A frame with a large hole in the bottom corner, filled with the bits and stuff of debris gathered by a mouse for a nest. "Remember", I say, "to sweep the bottom of the hive with a coathanger *before* you put in an entrance reducer or mouse guard."
- A wax moth chewed comb covered with webbing — and a similar message to thwart that happening.

These visuals excite students and truly bring home a definite impression of the subject.

Other plans begin to shape up as I visualize the lessons ahead: I like to use a complete hive — bottom board, 2 deep hive bodies, inner and outer covers, all on a hive stand, as my podium or lectern. Constant reference and pointing to the parts develops the vocabulary of the participants in the class, preparing them for the world of beekeeping.

My other visuals, being in the flat, do not have

the dimensions of combs and models but are still very effective. I refer to many charts, diagrams and pictures used to describe the countless mysteries inside the colony. One chart I use has pictures of a large worker bee, shows the three main characters — queen, drone and worker, all with anatomical parts defined. Finally, at the bottom, stretched into three parallel lines is the development period for queen, drone and worker. It clearly shows the egg, larval, and capped pupal stages. I had this chart mounted by a map company and it has withstood the rigors of classes for over 15 years.

Another diagram I have found helpful is one I created to suit my own purpose. It depicts the course of events over the first six weeks in a colony started from a 3 lb. package of bees with a new queen. Understanding what occurs during that critical period could save a new beekeeper from disaster. It clearly shows that at the end of those six weeks, nearly every bee has reached the end of her life span, except for the queen. If qualified by the beekeeper as competent, she will have by then produced eggs and all stages of brood amounting to about 40,000 bees. There are other similar "Blackboards of Instruction" that I use, and all are helpful.

Most course participants are in this to make honey. Therefore, what kind of class would it be without some information relative to the harvesting and hobby-processing? Everyone's inner eyes sparkle when they think of the shiney stainless steel equipment they will master once they gather their liquid gold.

Toward this end I sometimes surprise a class in the opening session, by starting at the end. They are greeted by an extractor, uncapping tank, electric uncapping knife, and of course, a full super of capped honey.

Each of the students takes their turn at wielding the knife, turning the extractor crank and licking their sticky fingers. At the end of that evening, we are all good friends, totally relaxed and ready for the sessions ahead.Δ

Edward Weiss is the author of 'The Queen and I', sells bee supplies from his Wilton, CT home, and is active in local and regional associations.

Ed's Checklist of Workshop Materials

___ Complete beehive
___ Charts and diagrams
___ Real life models
___ Processing equipment
___ Buckets and strainers
___ Extension cords
___ Queen excluders
___ Bee escapes
___ Easels and pointer
___ Lesson plan and notes
___ Refreshment plan
___ Projector & slides
___ Rental movies and projector
___ Attendance chart
___ Mid-course test
___ Literature hand-outs
___ Solar wax melter
___ Candles and molds
___ Checklist

chance to stretch, to get a cup of coffee or soda (plan on having something available), to have a smoke, use the restrooms, chat with speakers, old friends, new friends, visit displays (if you have them) and just plain relax.

This is a good time to make your pitch for members (if that wasn't part of the registration fee, which it should have been) and wander around, getting a feel for how the participants are doing.

Lunch should be an hour, maybe a bit longer, if you don't have facilities close by. Occasionally, workshops have a speaker during lunch. This tends to **not** be a hardcore how-to talk, but rather something on the entertaining side. Maybe even somebody who doesn't talk about bees — it depends on availability and budget, but don't rule it out.

End of Day One, Second Day

If you are sponsoring a two day event, try not to kill everybody the first day just to keep the second shorter. Leave some time in the afternoon to get away early so local folks can take care of home and family. For stay-overs, this will be the chance to check out local sights, or just relax after a trip and full day of activity.

Planning an evening's entertainment is expensive and can be tricky, but should not be ruled out if you have a large crowd staying overnight. This is the sort of event which should be strictly informal and gives people a chance to enjoy themselves with or without talking about bees.

Finale

When the workshop is over, after all the talks have been given, most of the questions answered and everybody is just a bit glassy-eyed from all the information you have presented — make them do one more thing. Have them fill out an evaluation form.

We'll talk about the how's and why's, next month.Δ

Second in a series of News Releases to be used to promote your workshop. This is the meat of your information — the contact person, time, location and what's happening.

News Release

Beekeeping Workshop To Be Held

The Brown County Beekeepers' Association will hold their annual Beekeeping workshop on Saturday, March 10, 1989, from 9:00 A.M. to 4:00 P.M. at the local high school in Fairview City, 123 Maple Street.

The workshop will cover topics for people who are thinking about keeping bees, beginning and intermediate beekeepers and even some advance skills.

Featured instructors include Tom Jones, popular author, noted speaker and researcher on honey bees and beekeeping. Dr. Jones has published several books on beginning beekeeping as well as being a full time professor at Brown College. Also, our own President Mike Kelly, will handle several sessions, along with John Thomas, biology teacher here at Brown High School and an active member.

Registration is $25.00 for the session, including a hot lunch, note book, pamphlets and handouts, a hive tool and a Certificate of Completion.

For registration information, call Peter Davis at 555-1212 days, or 555-1010 evenings. Peter will send a pre-registration package which will speed up registration at the door.

HOME HARMONY

By ANN HARMAN
6511 Griffith Road
Laytonsville, MD 20879

The Holiday Season is a time to decorate. Christmas cards tumble across the mantle as a new one is added, doorways gleam with lights and wreaths, candles twinkle and ribbons and bows are everywhere. Everything gets decorated. My dogs sport their green and red ribbons. However, the horse pasture gate has been bare ever since one of my horses ate a beautiful, large red plastic bow (no damage to the horse but there's no point in feeding him one each year).

This recipe is for a beautiful bread wreath. One advantage to this is that you can bake the wreath ahead of time, freeze it, then let the children decorate it. Although it makes a nice centerpiece, it just might get nibbled away before you really wanted to serve it.

Julebrod (Norwegian Christmas Wreath)

1-1/4 cups milk
1/3 cup honey
4 Tbls. butter
1-1/2 tsp. salt
1/3 cup warm water
1-1/2 Tbls. dry yeast
1/2 tsp. honey
1 egg
1-1/2 tsp. ground cinnamon
1/2 tsp. mace
1/4 tsp. ground ginger
2 tsp. grated orange peel
4 - 5 cups flour
3/4 cup mixed candied fruits and peels (optional)
1/2 cup gold raisins
egg for glaze

Scald the milk. Add the honey, butter and salt and let sit until lukewarm. In a large mixing bowl combine the yeast, the 1/3 cup warm water and the 1/2 teaspoon honey. When bubbly, add the cooled milk mixture, the spices and orange peel. Beat well to mix. Add 2-1/2 cups of the flour and beat at least 200 strokes by hand or 2 minutes with an electric mixer. Stir in the fruits and raisins. Gradually add more flour until the dough clings together and leaves the sides of the bowl. Turn out onto a floured board and knead until smooth and elastic, adding a little more flour as necessary but keep a soft dough. Put the dough in a buttered bowl, turn to coat all sides, cover with a towel and let rise until doubled in bulk. Punch down, turn out on a slightly floured board, knead a few times to press out air bubbles and cut into three equal pieces. Cover and let rest about 10 minutes. Work the pieces one at a time with your hands into long ropes. This takes some strenuous rolling with your palms. It also helps if you have a large surface to work on. The ropes should be skinny, of equal thickness and about 30 to 36 inches long. Pinch the three ropes together at one end and braid them, not too tightly. When you have finished, the braid should form a circle. If not, roll ropes longer or braid more loosely. Curl the braid into a circle on a buttered baking sheet. Be sure there is room for expansion on the sheet. Try to join the ends of the wreath together neatly by tucking them in and pinching together on the underside.

For a nicely shaped wreath, grease a jar and the hole of the wreath. Put the jar *inside* the hole to maintain the shape. A buttered springform collar can be put around the outside if desired. Brush the wreath with melted butter, getting some into the nooks and crannies. Cover with a light cloth and let rise until not quite double.

Remove the jar and springform collar before baking. Bake at 350°F for about 30 minutes. Remove from oven and brush all over with a glaze of whole egg beaten with 2 Tablespoons of milk. Return to the oven for about 10 minutes or until it tests done.

Carefully slide or lift the wreath to a large rack to cool. If you don't want to bother making a wreath, simply make two round loaves and bake until the bottoms sound hollow when tapped.

Make an icing of powdered sugar and water and put on as you wish. Nut halves, candied cherries, sprigs of real holly, and any other holiday decorations you might have.

The Garden Way Bread Book
Ellen Foscue Johnson

Honey cookies are generally soft and chewy, which is really very nice. However, a soft cookie cannot be made into a Christmas tree decoration. Try this recipe and if your honey produces a crisp cookie (all honeys do not behave the same way), you can decorate the cookie. . . then decorate the tree with them.

Crisp Honey Cookies

1/2 cup butter
1/2 cup honey
1-3/4 cup flour
1 tsp. soda
1/2 tsp. cinnamon
1/4 tsp. ground cloves
1/3 cup wheat germ

Sift together flour, soda and spices; mix in wheat germ. Cream butter in a large mixing bowl. Continue creaming while adding honey in a fine stream. Combine dry ingredients with creamed mixture. Chill for about an hour. Roll out on lightly floured board to about 1/8-inch thickness. Cut with floured cookie cutter. Place on greased cookie sheet. Make a hole in each cookie near the edge, but not too close. You will use this hole for ribbon or string to hang the cookie. Decorate the cookies either before or after baking with your choices of

decoration and icing. Yield: 3 dozen

Nature's Golden Treasure Honey Cookbook, Joe M. Parkhill

The problem with commercial fruitcakes is that most of them do not use honey. Therefore, they can be somewhat dry and will get rather dry when kept very long. Every *good* fruitcake should be made with honey. This recipe, which uses orange juice for its liquid, is delicious. And put a nice decoration of candied fruits on top, where you are giving it as a present or using the cake at home.

Golden Honey Fruitcake

3 ounces candied lemon peel
3 ounces candied orange peel
1/4 pound preserved citron
1/4 pound candied cherries
1/2 pound pitted dates
1/4 pound walnut meats
1/2 pound pecan meats
1/2 pound candied pineapple
1/2 pound raisins (either dark, golden or a combination)
1/2 cup flour
1 cup butter or margarine
1 cup honey
5 eggs
1-1/2 tsp. salt
1 tsp. baking powder
1 tsp. allspice
1/2 tsp. nutmeg
1/2 tsp. ground cloves
1/4 cup orange juice

Prepare fruit. Cut peels and citron. Long, thin strips are fine. Halve cherries and dates. Cut nuts in quarters. If the pineapple is in slices, cut them in eighths. Dredge combined fruits and nuts in the 1/2 cup flour. Cream butter; add honey, gradually, creaming thoroughly. Add eggs, beating well. Sift dry ingredients together. Add to creamed mixture, alternating with orange juice, beating well after each addition. Then fold in fruit. Turn into two loaf pans which have been lined with greased brown paper or with cooking parchment. Bake in slow oven, 250°F, for 3 to 3-1/2 hours.

Honey Recipes From the Covered Bridge Country
Compiled by Mrs. Wesley Collings, Mrs. Herschel Penry, and Mrs. Floyd Green

Gift selection is so easy when you have honey. The obvious is, of course, cookies and candies, as well as a nice fruitcake. However, you might give some thought to giving a bottle of this spiced vinegar. It is quickly made and is a nice change from the herb vinegars. I have found it very popular at the "bring a gift under $5 parties".

Spiced Vinegar

1 quart vinegar
1 cup honey
5 inches of stick cinnamon
1 tsp. allspice
1 Tbls. mustard seed
1 tsp. whole cloves
1 tsp. salt

Tie whole spices in a cheesecloth. Mix all the ingredients together, heating gently to dissolve the honey. Allow to cool. Remove the spice bag and bottle the vinegar.

Putting It Up With Honey
Susan Geiskopf

Do you know an ice cream lover? How about giving them a jar of chocolate sauce for an extra-special sundae.

Chocolate Sauce

2 squares unsweetened chocolate
1/4 cup water
1/2 cup honey
1/4 tsp. salt
3 Tbls. butter or margarine
1/2 tsp. vanilla

Combine chocolate, water, honey and salt in small saucepan. Stir over low heat until chocolate is melted. Increase heat to medium and cook until sauce is smooth and slightly thickened. Remove from heat. Stir in butter and vanilla. Serve warm or cold. Makes 1 cup.

The Honey Kitchen
edited by Dadant

The National Honey Board has been doing an outstanding job of promoting honey with excellent recipes. Within minutes of reading this recipe for nuts, I had assembled the ingredients and in a short time the nuts were ready to eat. They are irresistible! Make several batches (they are quick to make!) and put in jars for gifts. Please give credit to the National Honey Board when your friends thank you.

Honey Roasted Nuts

3 cups nuts (walnuts, pecans, unsalted peanuts, etc.)
1/2 cup honey
2 Tbls. butter or margarine
1/2 tsp. grated orange peel
1/2 tsp. cinnamon

Melt the butter. Add honey, peel and cinnamon and mix well. Pour over nuts and gently blend until nuts are completely coated. Put into microwave-safe bowl and cook on HIGH (100%) for 4 to 7 minutes, stirring halfway through cooking time. Remove from microwave and turn out on foil or cookie sheet to cool.

National Honey Board

Everyone runs out of time at holiday season. I think we are supposed to. Could you imagine having *everything* cooked, wrapped, baked and decorated well in advance? Here is a delicious cookie recipe that does not have to be rolled, cut, decorated but will be thoroughly appreciated.

Pecan Honeyballs

1 cup butter or margarine
1/4 cup honey
2 cups sifted flour
1/2 tsp. salt
2 tsp. vanilla
2 cups finely chopped pecans
confectioners' sugar

Cream shortening and honey until light and fluffy. Combine flour and salt and add to creamed mixture gradually, mixing well after each addition. Mix in vanilla and pecans. Chill in refrigerator. Shape by 1/2 teaspoonfuls into small balls. Place on greased cookie sheet. Bake at 300°F for 30 to 45 minutes or until light brown. Roll in confectioners' sugar. Yields 10-1/2 dozen.

The Glory of Cooking
National Grange

Small children love to "cook" and make something they and their friends can enjoy. Although this recipe is not especially a holiday recipe, it is easy and quick. Since it is baked in the oven, get Dad to help if the children are young.

Popcorn Crunch

1/2 cup butter, melted
1/2 cup honey
3 quarts popped corn
1 cup nuts

Mix butter and honey in a saucepan until well blended. Pour over popcorn-nut mixture. Mix well. Spread in thin layer in jellyroll pan. Bake at 350°F for 7 to 10 minutes or until crisp. Cut in squares.

Honey Recipes
North Carolina State Beekeepers Association

All this Christmas food needs eggnog or punch. Honey is the perfect sweetener for any party drink.

Party Eggnog

12 egg yolks
3/4 cup honey
4-6 cups dark rum, brandy, bourbon or rye
2 quarts whipping cream
8-12 egg whites
nutmeg, freshly grated

Beat egg yolks until light in color. Beat in honey gradually. Add very slowly 2 cups of the liquor chosen, beating constantly. Let mixture stand covered for 1 hour to dispel "eggy" taste. Beating constantly, add 2-4 cups of liquor and 2 quarts of whipping cream. Refrigerate covered for 3 hours. Beat egg whites until stiff, but not dry. Fold them lightly into other ingredients. Serve sprinkled with nutmeg.
Variation: When you add the second quantity of liquor, also add 1 cup of peach brandy.

Cooking With Honey
Judy Powers

If you live in a cold part of the country you will appreciate a hot, spiced cider.

Christmas Punch (Wassail)

6 cups apple cider or juice
1 cinnamon stick
1/4 tsp. nutmeg
1/4 cup flavorful honey
3 Tbls. lemon juice
1 tsp. grated lemon peel
1 can (18 ounces) unsweetened pineapple juice (2-1/4 cups)
cinnamon sticks for stirrers

In large saucepan, heat cider and one cinnamon stick to boiling; reduce heat. Cover and simmer 5 minutes. Uncover and stir in remaining ingredients except cinnamon sticks. Simmer 5 minutes longer. Serve in punch bowl. Use cinnamon sticks as individual stirrers. Makes 16 servings of about 1/2 cup each.

Cookin' With Honey
Minnesota Beekeepers Association

However, not all of us live in a climate that produces a "white Christmas". The warm and sunny areas would appreciate a chilled Christmas punch.

Holiday Punch

1-1/2 cups honey
2 cups boiling water
4 cups cranberry juice cocktail
1 cup lemon juice
2 cups orange juice
1 quart ginger ale

Dissolve honey in boiling water. Chill. Combine all ingredients except ginger ale. Chill. Just before serving add ginger ale. Makes 20 punch glass servings.

Favorite Recipes From Our Best Cooks, Essex County (MA) Beekeepers Assoc.

Above all, enjoy the holiday season and make cooking the holiday treats a family occasion. From all of us at the Home Harmony Kitchen —

Bad Laws!

STEVE TABER of Honey Bee Genetics

P. O. Box 1672 • Vacaville, CA 95688

"The laws we have are not just; compensation is non-existent; and beekeepers are reacting the only way they can!"

Every now and then I stop thinking about bees, and I think about the people who keep them — and what a bunch of outlaws they can be sometimes. I had several visitors here recently, one was from Australia and another from Germany. My partner and I were extolling the tremendous differences that exist in the publics' attitude in the USA and Australia, and any of the other industrialized nations. We decided that because England exported all her outlaws, first to the American colonies, then to Australia, that all later immigrants adopted some of this outlaw behavior, so these nations grew the way they did. But that doesn't touch on why beekeepers are such a bunch of outlaws.

I've been in this business for 47 years, with two out during the war, which means I have been around beekeepers for 45 years. Even during the war I was visiting beekeepers near the navy bases where I was stationed. It didn't really dawn on me until a few years ago that beekeepers, (and I hate to say it like this, without a formal poll taken by a Gallup organization or something), are as a group, and individually, *outlaws*. It's hard to find anyone that wants to obey *all* the rules and regulations put out by federal, state and county governments that have been put enacted to help beekeepers succeed.

I remember when I was in Louisiana, back in the '50's, when the state beekeepers would have their meetings. At that time LA was the major queen and package producing state in the nation. The primary reason for the meeting wasn't to listen to the invited speakers, but rather, so the producers could get together before the shipping season started and set prices for the coming season. Then, just as soon as the price was set, they would begin accusing each other, (with no exceptions) of cutting the price they had agreed on at the meeting. I came to the conclusion, after hearing this for several years, that the only reason they all agreed on the price to charge for a package of bees was to have a *price ceiling* that none would exceed!

They had another argument going on too, that was getting more heated every year. This was to use, or not to use drugs in the treatment of American foulbrood (AFB). Then there was a law forbidding the use of any drugs to prevent or cure AFB. Of course this didn't stop the beekeepers from feeding drugs to their colonies. At the time all colonies had to be inspected and inspectors would flood into LA from all over the country for that early money inspection in February and March.

The way the law was *interpreted* was that any yard where drugs were found had to be quarantined for a whole year, and infected colonies destroyed. To a beekeeper this meant losing 40 to 60 colonies for 12 months. How was he going to feed his family, much less pay his help, if he were to lose 2 or 3 yards of bees? To combat that law, beekeepers furiously inspected all their bees just days or weeks before the inspectors arrived. They also would pick up, and move, AFB infected colonies out into hidden places which were called "hospital yards".

The inspectors weren't stupid though, and they knew this was going on. So they would prowl the bayous and backroads, hunting for these hospital yards so they could have their fire and their fun destroying AFB infected colonies. Every year they found a few, but I know that most were not.

There is a similar tale being told now, at nearly every beekeeper's meeting I attend. In the past 4 or 5 years the situation has grown so bad that state and federal officials are coming back to the beekeepers with the line "just leave us alone, you go solve your own problems".

This was emphasized recently in the GA "B Keepers" Newsletter. In it was a story about a beekeeper in that state who had bees that inspectors found a mite (one mite, the story goes) in a hive. The inspectors then sent the mite off to USDA headquarters for positive ID. Meanwhile, the beekeeper picked up all his hives (about 400) and hid them. Now he refuses to tell anybody where they are.

Migratory beekeepers, those who go from Wisconsin to Florida, or California to North Dakota, know that if they are not allowed to move bees, this action will significantly reduce their income (or put them out of business).

How do all these rules and regulations come about anyway? Almost every state has them. Some are more lenient than others, while some are rigidly enforced. Have you ever been to your state beekeepers' convention? What percent of the states beekeepers were present? 10%? Less? Did you attend the business meeting? In CA for example, perhaps 200 will attend the state convention, and nearly all are commercial beekeepers. But, at the business meeting there are usually less than 50 in attendance, and it is during the business meeting that resolutions are voted on requesting state and federal agencies to enact these regulations.

California is pretty typical, since perhaps 5% of the states beekeepers request the state to enact regulations. Any beekeepers *not* present, but affected by the regulations, can either object strenuously, violate, or ignore the new laws if they object.

The trouble, as I see it, is that

things will get much worse before they start getting better. When varroa mites, internal parasitic mites, and the AHB (africanized bees) are found in bees that are *not* migratory, and officials start killing those bees (euphemistically called "depopulating" by some) then we are going to have real trouble. This is the time that many will have their livelihoods threatened. But now it is going to be by federal mandate.

How can we break this cycle of lawlessness? I've thought about it (as I hope you have), and the only logical solution it seems, is to have logical laws and regulations. These must benefit all, and I mean *ALL* beekeepers, not just a few. If bees are killed because they have a mite, or the AHB, there will have to be *just* compensation to the owner. Likewise, if bees have to be moved for some regulatory edict, there should also be *just* compensation.

The reason we have varroa mites here now is because of a bad federal regulation that prohibits importing bees into the US from Europe. So for at least 50 years bees have been smuggled in from Europe, and the mite was smuggled in too. If the regulation had been that bees could be brought in legally (as it used to be back in the 30's and 40's), we probably wouldn't have varroa mite now.

During the past few months I have spent considerable time in Poland visiting beekeepers. Everybody tells the same story — every colony in Poland is infested with varroa. To keep their bees alive they treat them one, two or three times each season — or they die. Few hives are moved around Poland, since they have no migratory beekeeping. They don't have a package or queen producing industry, but some beekeepers raise a few queens for sale.

What this tells me, and should tell you, is that we are all going to get varroa mite. It's not fair, but who ever said that life was supposed to be fair? But let's see to it that the enforcement of rules and regulations doesn't put another beekeeper out of business. The next time it might be you.Δ

HONEYSTIX

A SUCCESS STORY

MARSHALL DUNHAM

"I've always loved honey," says Glen Peters, 32, of Salem, Oregon, inventor of the honey stick, a heat-sealed, biodegradable plastic micro-package of cold-processed, full flavor honey.

After seven years of independent research and development, Glenn has packed 112 tons of honey into 15 million clear plastic drinking straws. If all the Honeystix sold were laid end-to-end, they would form a line 1600 miles long. To date, Honeystix have brought the honey industry over one and a half million dollars in additional revenue.

Honeystix have been enthusiastically received everywhere they have been marketed. On some candy counters in convenience stores, Honeystix have outsold chewing gum. Honeystix are being sold in health food stores, supermarkets, restaurants, roadside produce stands, high school and college bookstores, snack bars in ski lodges, resort stores, and health clubs. Honeystix proved to be so popular in Yellowstone Park that the vendors there are having them packed under their own label.

Honeystix have been called "The Candy of the Future" by the 1986 World Trade Exposition in Vancouver, B.C. The National Aeronautics and Space Administration has called Honeystix "Zero-Gravity Candy" and may be stocking them on future space flights. Honeystix were taken on the 1988 Mount Everest Expedition and they are being considered as the official "Candy of the Special Olympics" by the National Special Olympic Committee.

The popularity of Honeystix is growing rapidly as the product receives national and international exposure. Honey producers from the Pennsylvania Dutch to the New Zealand kiwis want to have their honey micro-packaged in Honeystix. When honey producers find that Honeystix sell quickly at 10-15 cents each, they realize that claims of $100 per gallon of honey are not exaggerated, and they want more of their produce packed in these clear plastic drinking straws.

The success of Honeystix has been neither quick nor easy. Back in 1980, Glenn Peters was a 25 year old bachelor beekeeper with a few thousand pounds of prize winning, Oregon gourmet honey. He wanted to start a delivery route in a local neighborhood and he knew from direct marketing experiences at fair booths that if he could get people to taste his honey, they'd buy it. Even people who said they didn't like honey changed their minds after sampling his delicious, cold-processed, all-natural Oregon gourmet honey.

Glenn knew he could start a honey route in the area he wanted if he could just find a way to give everyone a free sample of his honey.

"The smallest commercially available container was the honey bear," he recalls. He couldn't give everybody a honey bear and he didn't want to go door-to-door offering tastes out of a honey bear.

"Nobody was making a micro-package for small amounts of honey," Glenn says. Seeing the need for such an invention, he began trying to think up a good, new idea. One day in 1980, he thought of putting a taste of honey in a clear plastic drinking straw and sealing the ends.

The search for the right kind of straw lasted into the next year. Glenn looked everywhere for a straw that met his needs and couldn't find what he wanted. He had almost forgotten the idea when he ordered a soft drink in a Salem, OR theater, took an individually wrapped straw from a dispenser, and was delighted to find exactly the kind of straw that he'd searched so long for. When he left the theater, he took a handful of straws and the supplier's name. A week later, working with simple tools and crude techniques, Glenn filled and sealed his first few Honeystix.

"Honey is hard to work with. Stickiness is the most difficult thing," Glenn says. But he stuck to the job, turning out 500 by hand after getting his first carton of straws.

Glenn put his 500 Honeystix in plastic bags with a flyer he had designed and written, then hung a bag on every doorknob in the target neighborhood. Soon his phone was ringing and he had his honey route, right where he wanted it.

Several customers asked for more of those straws with the honey in them because they were so convenient and fun to eat. Glenn realized that his free samples might be a product. He made up another 250 by hand and took them to a holiday gift fair, calling them "Nummy Nectars." His supply sold out in eight

hours. Most customers turned out to be children who, after their first Nummy Nectar, kept dragging their parents back to the booth and begging for another "honey stick." Glenn tried at first to explain that these were Nummy Nectars, but several small-fry pointed out that any fool could plainly see that it was honey in those sticks. Glenn realized his customers were right and the product has been **Honeystix** ever since.

When Glenn figured up the proceeds from the sales, he found that he had sold a quart of honey in Honeystix for $25.00. His first reaction was that it might be immoral to make so much money from a quart of honey, but decided he was selling convenience to the customer, which he earned through the inconvenience of making the package.

The spare bedroom of his apartment became a research and development lab as Glenn began building a machine to fill Honeystix.

"I had to build the machine from the ground up. Nobody anywhere made the kinds of parts I needed, so I had to make everything from scratch, and a vivid imagination. Most of the things I've tried *haven't* worked. It is a simple idea but it gets very complex in practice and even more difficult when you attempt mass production."

On Dec. 23, 1982, Glenn was delivering honey on his route when a customer invited him for a cup of tea and introduced him to her daughter.

"We talked a long time and I was late finishing my route that day," Glenn recalls, "but it was almost like in the movies. When I went home that night, I worked late on the prototype and got something to work. The first machine was assembled the same day I met my wife."

When the prototype experimental machine became operational, Glenn had to get it and his spare bedroom licensed as a food processing facility. The inspector had never seen anything like it and was reluctant to set any precedents, but was apparently impressed with the ingenious contraption and the determination and enthusiasm of the young inventor, and granted the license. There were a few distractions in the years ahead when the inventor had to find time to get married, move to a mobile home, get the spare bedroom of the mobile home licensed, and somehow earn a living at the same time.

"It was like in the movie 'Close Encounters' when the guy made the mountain in the living room, only I was building a Honeystix machine in the bedroom. I was terrified that some big corporation would see what a good idea it was and steal it. I didn't have time to work my bees so I sold everything and put the money into paying bills and producing Honeystix for test marketing. There were times when we almost went on welfare and times when I wanted to quit, but by then, I had invested too much to be able to give up."

"Over 15 million sold . . . and more on the way!"

In 1984, the second generation Honeystix machine went on line and mass production began at a rate of 2,000 per hour. Glenn began test-marketing with candy distributors, who seemed to think that honey could sell only in health food stores. When candy vendors were persuaded to try Honeystix in convenience markets, they found that Honeystix outsold chewing gum in some locations.

Mass production required larger facilities and help in packaging the finished Honeystix for retail sales. Honeystix moved from the spare bedroom of the family home to the Rockwest Training Center in the industrial area of Salem. Glenn set up, licensed, and ran the Honeystix-II machine while handicapped workers were trained to do the retail packaging. Honeystix soon became the largest and most popular employer in the workshop, partly because the handicapped helpers were so proud to see their product on the shelves of local stores, and partly because they were rewarded with Honeystix when they did well.

By 1985, Glenn didn't have to convince candy brokers that Honeystix was a candy product. Customers everywhere were asking for more Honeystix. Glenn worked hard to meet the demand and worked overtime building the Super Honeystix third generation machine.

In 1986, the Honeystix-III machine was licensed and went on line, filling and sealing 10,000 Honeystix an

The Peters family, Glenn, Brandon, Kim and Ryan, after a hard days work.

hour. The one-millionth honey stick was sold that year and the enterprise outgrew the facilities at Rockwest. With a machine requiring at least 500 square feet of floor space, and plans for more than one machine, Glenn realized he was going to have to build a factory.

The world's first Honeystix factory is a modest wood frame and metal, slab floored structure that stands next to the family mobile home, where two young sons now inhabit the spare bedroom.

By late 1987, the factory had turned out the ten-millionth honey stick and Glenn Peters had stopped worrying about the competition. With patents pending and another machine in the works, Glenn is clearly the world leader in micro-packaged liquid honey.

The most significant advance in product enhancement was made by another Oregonian, Dick Turanski of Glorybee Natural Sweeteners in Eugene. Dick had the idea of adding natural flavors to turn the basic honey stick into several new and different products. By adding lemon, cinnamon, licorice, or mint flavoring to drums of honey, and packing in color-striped coded straws (yellow, red, black, green), Mr. Turanski has created a product that is even more competitive on the candy counters of convenience stores where only countless tons of flavored refined sugar were once sold.

Glenn has received some tempting offers for his marvelous machines, "but it would be like selling a dream." Looking back over seven years of living the Honeystix dream, Glenn says, "I don't think I'll sell machines until they are perfected and affordable."Δ

Marshall Dunham, among other activities, keeps bees and edits the *Oregon Beeline*, in Blodgett, Oregon.

Anyone interested in purchasing Honeystix for resale or having their honey custom packaged in Honeystix can call Glenn at (503) 581-5805, or write to him at:
Nature's Kick
1443 45th Ave. NE
Salem, Oregon 97301

World's first Honeystix factory and research lab in Salem, Oregon.

Thoughts on Gardens, and Bees

GWEN EISENMANN

A garden is a sanctuary and a delight. Tended carefully, as one tends a living being, it will respond with more than food and flowers.

In spring and early summer our senses are so overwhelmed with natural events occurring outdoors that we find it difficult to do any constructive thinking. In the middle of August, halfway between summer solstice and autumn equinox, something happens to slow summer's rush and to start the return of thinking. Perhaps it has to do with light. The longest days provide us with enough light; as the days shorten we start turning inward to produce our own light — the light of thinking which sustains us through fall and winter while plant life dies or is dormant.

Perhaps it has to do with heat which drives us indoors where we might read the book *In Partnership With Nature*, by Jochen Bockemuhl, a Biodynamic gardener and scientist. In the Foreword these statements are made:

> There is no dearth of books dealing with environmental problems... We must seek to widen our methods of thinking and observation, and this entails the transformation of the whole human being in his capacity to think, feel and will... Only from this source can responsible action arise.

The book is one outcome of the teachings of Dr. Rudolf Steiner, Austrian philosopher and scientist around the turn of the century, and the father of Biodynamic agriculture.* Dr. Steiner's goal was "... to nurture the life of the human soul, both in the individual and in human society . . ." — a goal that seems to me worth pursuing. However, this was much too lofty a thought for summertime, so I left it for later and went out to the garden — where the pursuit *and* the goal were thereby accomplished!

I had thought birds were the connection between seen and unseen, higher and lower worlds, and I envied ornithologists and birdwatchers who traveled the world, on "winged thoughts" as it were. Then I thought bees are the connection, with their mystery and alchemy, living in an astral world between earth and sky. Next I thought poets, painters and musicians are the connection because they translate everything into human language — they "confer authority on what is unbelievable, and make it believed". (Vachel Lindsay)

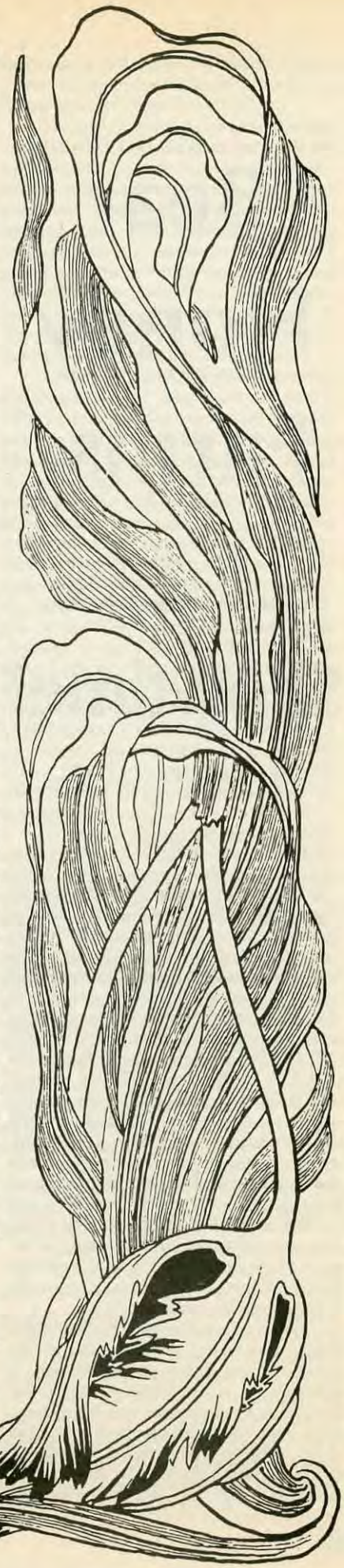
Today in the Autumn olive grove — where in spring insects and blossoms bemuse humans with singing and fragrance — today the birds and I picked buckets full of berries in the airy plant world of bees, birds *and* poets. Gardens are the least common denominator between cabbages and kings, literally, and between the human soul and the spiritual world. There one begins to get an inkling of what this Earth is all about.

It is not simply thinking the connection; it is feeling, unconsciously losing oneself in the activities of gardening, and later realizing that joy and satisfaction come from the fact that it is Natural for us to be there along with plants, insects and birds. The rhythms of human lives correspond with cosmic and earthly rhythms, and a garden displays it all. Infinitely intertwined, infinitely interesting, a garden and its gardener are a microcosm of the macrocosm.

Therefore there must be a reason for the worm in the tomato, the nightly raid on the beans, and the immoral attacks of ticks and chiggers on us all. I'll think about it when my will is stronger, this winter, while eating waffles with Autumn olive berry syrup sweetened with honey and bee alchemy. Want a recipe? Simmer and strain Autumn olive berries, add honey to taste. It nurtures the life of the human soul.Δ

*Dr. Rudolf's Biodynamic lectures on Beekeeping are available from Biodynamic Literature, P.O. Box 253, Wyoming, RI 02898

Gwen Eisenmann and her husband contemplate, write about and practice, Biodynamic gardening in Brixey, MO.



Bear Honey Farms:

Showtime!

Lois

"Well, it's time to load the van for this weekend's show." About fifteen weekends out of the year, mostly in late summer and fall, we go through this Friday afternoon ritual. The farm help have finished their day's work of bottling and labeling honey or pouring ornaments and candles. As a result, Cliff and I and the four children usually form the loading train. For a normal two day historical festival or craft show the list reads something like this: 2 or 3 kinds of honey, each in 7 sizes; comb honey, chunk honey and our newest product, creamed honey; bee pollen in three sizes; 9 varieties of pure beeswax candles and 10 different colored foundation candles, 26 pure beeswax ornament varieties; three sizes of beeswax blocks and carpenter's wax in two sizes to finish out the product list.

"We also need to load tables, tablecloths, a candle-making display simulating all the steps in production, a foundation mill, display racks for candles and ornaments, candle holders, price tags, pens and markers, two cash boxes with coin and dollar change, a small Christmas tree to be trimmed at the show, a manual four-frame extractor, a display hive, an observation hive, a skep, hive-tool and veil, photos and posters, tarps for shade and rain, bottom boards to protect the boxes from dampness, a large encaustic painting (beeswax and pigments melted into the wood with a torch) of course our logo, and last, but not least, Ms. Bee, a three foot sculpture of a worker bee made entirely of beeswax that Cliff's brother Tom made for me a few years ago as a birthday present.

"Loading the van is a job that I used to hate, but now I like it more because I have changed my attitude and the efficiency of the operation. Each of the items on this list has a special home in the shop or the shed, so it is fairly easy to locate everything. We also, after a few years of forgetting this or that, have devised a loading check-off list. Because we have created a close inventory check system, and because we have learned what people at different shows want, it is easier to prepare the right inventory and be ready. Thus, my attitude can be more one of anticipation of a good show because I know we have done well getting ready. Seeing so much diversified inventory all packed up and ready to go, and knowing that it is all made on our farm makes it hard not to feel proud and prepared. It is also exhausting, so I am glad that we have limited the number of festivals and created a mail-order business advertising in national publications like *Americana, Early American Life* and *Bee Culture*. Twelve or fifteen shows is enough!

"We usually leave for a festival early enough to allow for 2 hours to set up. At least two people make the trip, but usually three, which affords us the opportunity to have two people up and talking all of the time. Setting up is an arduous, but creative, affair. With taut nerves and only a little sleep, it isn't always the most pleasant task . . . *I think the tables look better in an L-shape. But, that won't accommodate the traffic flow. Look! We are wasting time! Don't you want it to be right?*

"Luckily, because set up time is limited, compromise is reached rather quickly, and then it's *action* time. The tables get set, the bottom boards are laid out under the tables and the stock is unloaded and placed under the tables roughly beneath its proposed location on the table, to facilitate restocking. The honey goes up fast because we usually use the same display of lots of lines, one of each flavor in each size. With small frontage we combine the flavors, but not the sizes. We have found that this does not decrease sales

Cliff selling, Lois creating and the customers two deep at the table — a typical weekend show.

at all. Most sales are made because the customer has a chance to taste each flavor. Once they taste, it is usually a matter of which they like, and not whether they leave the table with or without a jar. Setting up the wax display is a different story. First, we evaluate the type of market. Are they utilitarian or fancy? Are the locals interested in consummable goods like candles and carpenters wax, or are they city people and collectors? (Yes, believe it or not, I have collectors of beeswax figurines buying our work.)

"Determining the market determines my display. For example, at a country or farm oriented festival, with city-oriented advertising I know that I can sell lots of skep candles because they represent the more pastoral view of agriculture. Thus the skeps would be prominently displayed. At a local show with only local advertising I know that I will see lots of return customers, who happen to usually be more utilitarian. At this kind of show I put the wax sewing blocks and plain candles in the prime spots. All the ornaments are hung in multiples and the small evergreen tree is trimmed (if any of the kids are along, this is one of their jobs). I learned from Bob Berthold to have description cards of each item. People tend to stand around and read them all, and sooner or later they ask us a question. This question of course often leads to a sale. Subterfuge, you say? Cliff and I call it 'Marketing through Education'. After the description cards are up, we price one of each item and are ready to go. At this time we usually get together for a little pep talk and a reminder of our show rules.

1. Two people up and talking *all the time.*
2. *No* eating in the stand.
3. If things aren't going too well, don't get into the negative energy. Do your job and we will do okay.
4. *Never* talk business at the stand.
5. Don't count the $ until we pack up and go home.

These rules remind us all that the main reason we are at this show is to educate people about honey bees, pollination, honey and beeswax. If they happen to buy something in the process, that's great because then we can pay our bills. If they don't buy something at least they have learned something new about the natural world and our interdependence with it. Luckily for us, a lot of people have been learning and buying. What makes **Bear Honey Farms** unique, though, and what is the major aspect of our marketing success, is our secret ingredient . . . Cliff, the **Beekeeper.** But, he can tell you about his special place in our 'Marketing Through Education' scheme."

Cliff

"Over Here Folks! Honeybear and I are going to do a show called 'Dancin' with the Honey Bees'; a show for youngins' of all ages from 0 to 99; once you reach the age of 99 you hit adolescence. This is a show about how honey bees dance on the farm and pollinate the flowers for their food supply, and ours.

"People love to be entertained. They love adventure. They love to learn something interesting. There is gold in their pockets. Give them a taste of adventure, educate them in an interesting way, and offer a good quality product and they will trade you their gold for your gold every time. It didn't take me very long as a beekeeper to find out that people were interested, scared, attracted and repulsed. Most of them just plain thought I was nuts to keep bees. I get their attention just by the nature of my profession. Now if I can educate them, they can make their own choices about honey and candles, but also about honey bees in their backyard.

"So, the educational process begins with BEARS. Bears: Honeybear puppet to be exact. I show how a bear would climb up and get into a natural honey bee tree. After a full meal and some singing, harmonica music and dancing with the whole audience Honeybear and I ask for a volunteer. 'My young helper and I will show you all out there how a beekeeper would go into a hive on the farm to work the bees.' My first volunteer becomes the beekeeper.

"BROOD CHAMBER!' everyone repeats after me, and the next young volunteer and those circled around her are the QUEEN AND HER COURT. The queen begins laying eggs. I pick more people to be other worker bees in the hive. The hive unfolds until everyone in the audience is either a honey bee or flower. Each has learned their part and I set it into motion. Field bees fly to the flowers, dancin' when they return. Nurse bees feed the brood. Comb builders to the honeycomb. Guards guard! Drones, these BIG GUYS with their kids, have the best buzzes every time. Flowers wave in the wind. . . 'HEY, YOU FLOWERS OVER THERE; YOU'RE WILTING' . . . Arms go back up. 'POLLINATION!! Anybody out there like APPLES! HOW ABOUT APPLE PIE! If not for honey bees we wouldn't have either!'

"After the show, everyone has the opportunity to come and get a taste of honey. The children can make their own honeycomb beeswax candle for fifty cents. While the kids make their candle, the parents come over to the stand, and learn more about the products. They are usually so overwhelmed by what they have just learned that they purchase something to remind them of the miracle of the honey bee.

"Parents, if you would like to have me come to your child's school or your organization, please ask me for a brochure describing my program, 'The Bees and Me'.

"I usually do a condensed version of 'Dancin", two or three times during the festival day. People learn, and people have fun . . . and people buy.

"We market on all levels by educating. The people at fairs, festivals and schools recommended me to over 100 programs for over 20,000 children and adults last year. Every child and adult went home with a honey recipe sheet. Although the sheet has our address on it, it also says "Buy honey from a local beekeeper". If the program is in my area I always make sure the customer knows what stores and gift shops handle our products. The store owners and I ar-

Continued on Next Page

Both Cliff and Lois wear traditional attire when attending folk festivals. It adds another point of authenticity to the crafts they practice — making candles, ornaments and blocks from beeswax and certainly honey.

range to do seasonal promotions. I spend a day at the store giving free samples, handing out samples of bake goods using honey, and passing out recipe sheets using lots of store goodies and my honey.

"The twelve year old that was the queen bee in my school program five years ago will soon have a family of her own. If she enjoyed my program and sees me at festivals over the years, as an adult she recommends my show to her school and church, and she uses honey and beeswax products in her home.

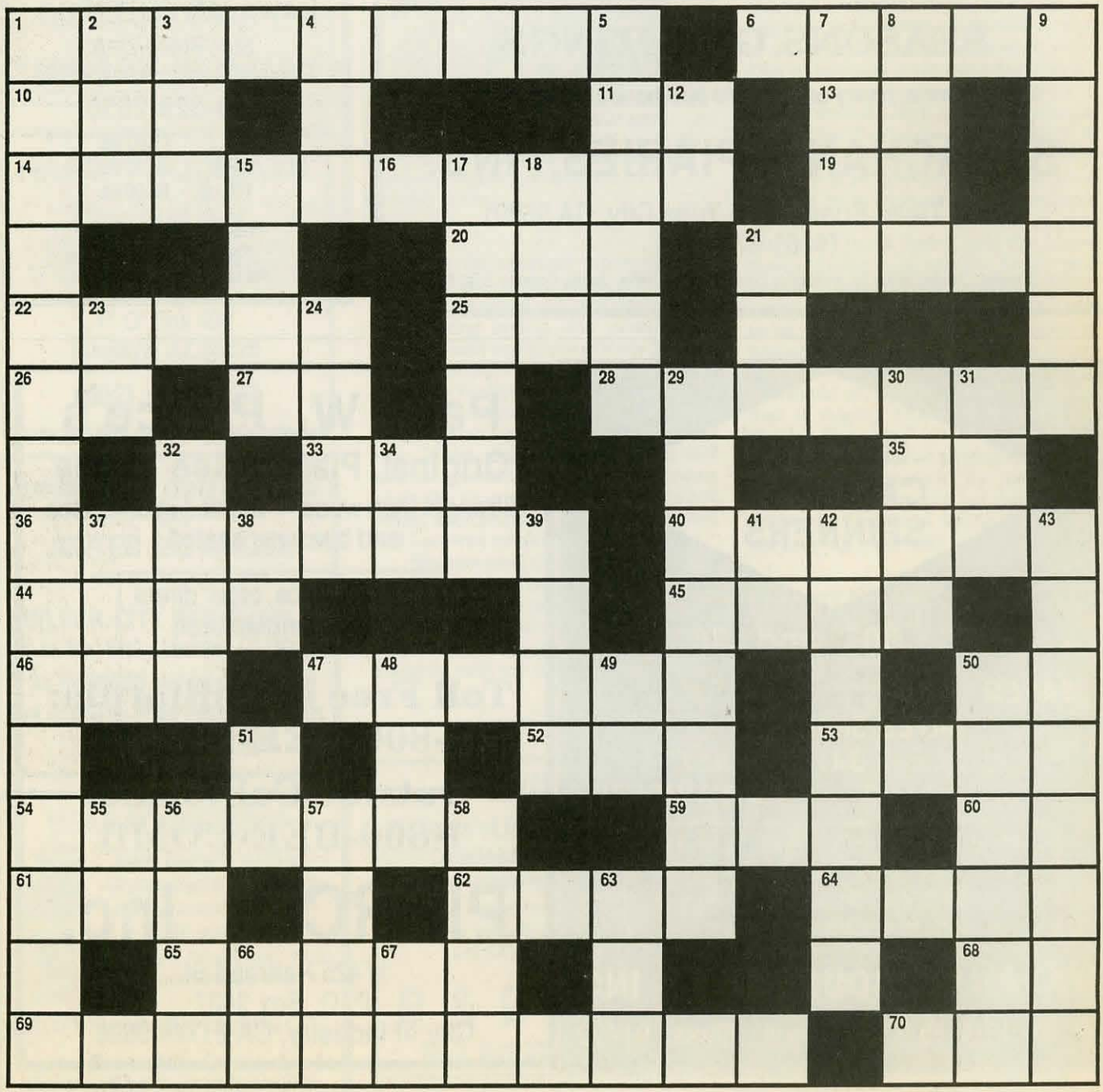
"So how can I do this and keep bees too? I have school bookings three to four days a week. I am paid a fee comparable to most quality school program educators. While I know some beekeepers disagree with my taking money for my program I feel differently. First of all, I am losing a day's work by going into the school. I have to earn that money somewhere. Second, schools have money for programming, and are willing to pay for a quality assembly. I feel that my program is top-notch, and part of what has made it this way is the fact that I have taken the time to work on making it better. If I was only deriving my living from bee products, I would not have time to refine my educational work. Finally — it's what I most like to do, I am proud that I can make a living at something I like to do.

"I take a month out each spring, fall, and winter to work on product production on the farm; supering, extracting, summer checks and wintering, etc. Our festivals are booked a year in advance. I'm purchasing more colonies to increase production because in order to meet my current demand I must purchase high quality products from other beekeepers. Our living is made not only by marketing and selling the diversified products from the hive, but also by marketing the educational process itself. With the work of the National Honey Board, and the high-profile media coverage the honey bee industry has right now, beekeepers and our products are in demand. If you want to be successful in business, create a demand and then fill it. We at **Bear Honey Farms** feel that we have been successful at doing just that, and we find it mighty fulfilling. When most people find out how important the honey bee is in food production, their support is incredible. By marketing through education you too can build a future of long-term success for your beekeeping business.

"HEY CLIFF!!! . . . Stop talking to your beekeeper friends over there and come give us a hand at the honey bee stand. We've got a LOT of customers."Δ

A Beekeeper's Crossword Puzzle

DIANA SAMMATARO

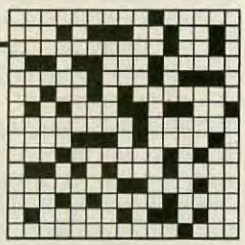


Across

1. males before females
6. hexagons
10. tune
11. each (abbr.)
13. copper (Chem.)
14. regal diet
19. nurse (abbr.)
20. Nellie (abbr.)
21. endearing term
22. German for honey
25. animal collection
26. prefix for in
27. señor (abbr.)
28. labor force (pl)
33. ommatid___
35. smallest state (abbr.)
36. adjusted
40. startles
44. cotton machines
45. steals
46. to incite, ___ on
47. wing hook
50. opposite DC
52. biography (abbr.)
53. rake
54. devour greedily
59. w.c.
60. Argon (Chem.)
61. petition, woo
62. clever, competent
64. international alliance
65. _____ ark
68. Hawaiian bird
69. male gamete dorm
70. stale

Down

1. virgin birth
2. ___ de Janeiro
3. noun forming suffix, meaning a place or thing for (refect_ _ _)
4. entire
5. ochre
7. beige
8. breather
9. teems
12. yes, aye
15. bee
16. 10th letter of the alphabet
17. glucose oxidase
18. lion
21. Big ___
23. covering
24. beam
29. egg carton
30. bungles
31. edge
32. monarch
34. Utah (abbr.)
37. tackle
38. esker
39. blot
41. hark
42. like swarm
43. viral brood disease
48. aggregate (abbr.)
49. Lithium (Chem.)
50. TNT
51. move
55. Nevada University (Abbr.)
56. your ___ decides, blue eyes or green
57. drift
58. not west
63. shelter
66. otherwise
67. laugh



ANSWERS ON PAGE 702

BEE TALK

RICHARD TAYLOR

9374 Route 89, Trumansburg, NY 14886

"The 'Taylor Principle' stands firm for another year."

It's mid-October, and I've started putting my apiaries to bed for the winter. I need a reasonably warm fall day for that. There is no real reason why, except for my mood. I like to be in my apiaries when there's life there, and even though the fall flowers have dried up and there is not much for the bees to do, I like to have bees in the air when I'm working there. I suppose it is some strange sense of companionship I have with them. Once in awhile I see one going into the hive with golden pollen, gathered from a few of the heads of goldenrod that have escaped the frost. Putting the bees to bed is not much of a job — a wedge of heavy-gauge screen in each entrance to keep the mice out, a scrap of tar paper across the front to keep the wind out, and a scrap of wood at the back to give the hive a forward tilt. That's all it takes.

My hives were all heavy as lead when I raised up the rear end to slip the scraps of wood underneath, giving them that forward tilt. Anyone who knows my special management system knows why. They haven't had any supers on them since early August, and the honey they have made since then has all gone into winter stores. That means they're not *only* going to get through the winter, no matter what; they're going to start off in the early spring *strong*, so I'll get good big crops of comb honey on the early flows.

That is the Taylor principle, basic to my system of management, and the apicultural principle upon which I rest my hope for immortal fame in the annals of beekeeping. I did get to wondering about that principle this year, however. It was a marvellous year for getting comb honey, the best I have ever seen. The bees seemed never to tire of filling up supers, and this in spite of a very discouraging start last spring, when I was afraid I was going to get only a minimal crop at best. So when September came, and the fall flowers began to bloom, I couldn't help wondering whether I shouldn't still have some supers on the hives. Then came the scent of goldenrod in the apiaries. They must be getting lots of nectar, I thought, and maybe if there were supers on the hives they would fill these, and *still* be heavy with stores when the time came to put them to bed. With these reflections and doubts I had in fact called into question the Taylor principle, of which I have been so proud, and which I have for years been going around promoting.

So I decided to put it to the test. I fixed up a comb honey super and, just as the fall flowers, the goldenrods and asters, began to appear, and even before there was any scent of autumn nectar in the apiaries, I put that super on what seemed to me to be the strongest and most industrious hive in the apiary. If the bees were to fill that with honey, I thought, then I would henceforth revise my system of management, and starting next year I would plan on getting a crop of goldenrod comb honey to add to my crop from earlier sources. This would go completely against everything I have for years been preaching, but I had to put it to the test.

Well, the fall flowers bloomed wonderfully, the apiaries were filled with the scent of their nectar, and then the season came to an end I went to see what had happened. I felt sure that super would be filled with gorgeous golden comb honey, and I was pretty excited about the prospect, in spite of what it was going to do to all my theories of management. And what did I find? *Not a drop of honey in that super.* The bees had not even made the slightest beginning at drawing out the foundation. So my principle was vindicated after all. My system of management is sound, at least for this area, so far as getting comb honey is concerned. The bees are not going to make good comb honey in late summer and fall. So let them keep whatever they get, and hold it in their hives as an investment in the next year's crop.

•

I closed down my honey stand about the same time I put the bees to bed. The comb honey crop is all sold, and I wish I had more, for the demand is still there. And one satisfaction I have is this: An awful lot of people got

introduced to comb honey this summer, at my stand. Now they'll be wanting to buy it again. Many have even indicated a desire to buy it from me by mail.

I ended up the season with a large question in my mind. Maybe some readers of this page know the answer. The question is: What fall flower is responsible for that yeasty fragrance in the apiaries in the autumn? I have always thought it is goldenrod. All the beekeepers around here assume this. And yet the asters bloom at the same time, so how do we know that this fragrance does not come from the asters? Some beekeepers, I am told, believe it does come from the ripening, in the hives, of the aster nectar. It doesn't make much practical difference, but I would like to see this matter settled. Back in New England the apiaries start to give off a really bad odor in the fall, and that was always referred to there as the odor of goldenrod. Here it is a very pleasant, though pungent, odor; so maybe it is not goldenrod at all.

I won't be seeing my bees for a long time now, after I get the last apiary put to bed, but I know they are in wonderful shape for winter, and next year ought to be a dandy. I've got quite a lot of used equipment stacked in the barn, and next spring I'm going to start up still another apiary. That's something I can be looking forward to.Δ

[Questions and comments are welcomed. Enclose a stamped envelope for early response, and use Trumansburg address above.]

Crossword Puzzle Answers

From Page 698

1 P	2 R	3 O	T	4 A	N	D	R	5 Y	■	6 C	7 E	8 L	L	9 S
10 A	I	R	■	L	■	■	■	11 E	12 A	■	13 C	U	■	W
14 R	O	Y	15 A	L	16 J	17 E	18 L	L	Y	■	19 R	N	■	A
T	■	■	P	■	■	20 N	E	L	■	21 S	U	G	A	R
22 H	23 O	N	I	24 G	■	25 Z	O	O	■	U	■	■	■	M
26 E	N	■	27 S	R	■	Y	■	28 W	29 O	R	K	30 E	31 R	S
N	■	32 K	■	33 I	34 U	M	■	■	V	■	■	35 R	I	■
36 O	37 R	I	38 E	N	T	E	39 D	■	40 A	41 L	42 A	R	M	43 S
44 G	I	N	S	■	■	■	A	■	45 R	O	B	S	■	A
46 E	G	G	■	47 H	48 A	M	U	49 L	I	■	S	■	50 A	C
N	■	■	51 G	■	G	■	52 B	I	O	■	53 C	O	M	B
54 E	55 N	56 G	O	57 R	G	58 E	■	■	59 L	O	O	■	60 A	R
61 S	U	E	■	O	■	62 A	B	63 L	E	■	64 N	A	T	O
I	■	65 N	66 O	A	67 H	S	■	E	■	■	D	■	68 O	O
69 S	P	E	R	M	A	T	H	E	C	A	■	70 O	L	D

TESTING ANSWERS

1. **False.** Drones produced in worker-sized cells from eggs of laying workers are perfectly capable of producing viable sperm. These drones, however, are smaller in size and bee breeders try to eliminate the possibility of using them for instrumental insemination.
2. **False.** When an egg is fertilized, it will develop into a female bee (worker or queen depending on nutrition and care), but if it is not fertilized it becomes a male or drone.
3. **False.** Brood production in a honey bee colony is determined to a large degree by local weather conditions, geographical location, local honey and pollen flows. As temperatures drop in the fall along with a reduction in pollen and nectar coming into the hive, brood rearing decreases rapidly. Egg laying tapers off and then stops completely in October, November and December even if pollen is stored in the combs. Under subtropical, tropical and mild winter conditions, egg laying and brood rearing usually never stop.
4. False. After mating with 7 to 15 drones, the queen returns to the hive and begins to lay in 2 to 5 days time.
5. **False.** The stinger of the queen is curved and longer than that of the worker, but it has fewer and shorter barbs. As a result the queen is capable of stinging a rival queen without losing it.
6. **False.** Under normal conditions, drones start flying about noon and continue until 4:30-5:00 pm. Several studies have shown that peak flight normally occurs between 2:00 and 4:00 pm, however, drone flight is affected by temperature, cloud cover, shade, race and direction the colony entrance faces.
7. **True.** During mating, drones are paralyzed at the onset of genital eversion into the queen's sting chamber. As the drone falls backwards, the mating act is terminated by an audible snap and the drone falls to the ground and subsequently dies.
8. **True.** The ovaries of the queen bee are two huge, pear-shaped masses of slender, closely packed tubules, called ovarioles. Individual egg cells start developing in the tips of the ovarioles and continue development as they pass down the tubules. They reach the oviduct in 2 to 3 days, at which time they are ready to be laid.
9. **True.** Drone congregation areas are visited by drones from almost every apiary in the neighborhood throughout the season and remain virtually unchanged from year to year. As drones leave the colony, they seem to fly toward depressions in the horizon. These congregation areas vary greatly in size, shape, and surface conditions. However, they are similar in that their boundaries are marked by some form of vertical relief.
10. **True.** The controlling forces in a honey bee colony are pheromones secreted from glands in the bodies of workers and queens. To date, no pheromones have been isolated from drones.
11. **False.** While drones normally rely on workers for food, they can feed themselves within the hive after they are four days old. As they mature they are fed by workers less often and finally feed only on honey that they remove directly from honey cells.

12. **True.** Many factors are believed to be involved in determining the spatial distribution of drones within the hive. Young drones are normally found in the central broodnest, since they rely on nurse bees for food and the higher broodnest temperatures accelerates the maturation of spermatozoa. Older drones are found on peripheral combs, since they feed themselves and prefer cooler temperatures.
13. **True.** Researchers have found that swarm preparations are less frequent among colonies with queens reared in the current year than among those with queens of the previous year. Queens either produce less queen substance as they age or enter a cycle of production with periods of lowered secretion that are more conducive to swarming.
14. **False.** The Demaree Technique is a method of swarm control that separates the queen from most of the brood within the same hive.
15. **True.** Cannibalism by worker honey bees is one mechanism by which colonies control the number of drones produced. Even though normal colonies consume both worker and drone brood throughout the season, significantly more drone brood is eaten. As a result, drone production is often used as an indicator of the nutritional condition of a colony.
16. **False.** During swarming preparations, the honey bee queen is placed on a strict diet and loses approximately 1/3 of her weight. Since the workers feed the queen less royal jelly during this period, egg laying declines and the queen's abdomen shrinks, enabling her to fly with the primary swarm when it leaves the hive.
17. **True.** Drone comb construction and brood production are related to the amount of drone comb and brood already present. Removing drone brood from colonies encourages its production and adding drone brood to colonies diminishes its production.
18. **True.** As the size of a colony increases, the efficiency of the colony improves. The ratio between sealed brood and colony populations decreases 10 to 14% for each increase of 10,000 bees.
19. **False.** Estimates as to the number of eggs that a queen can lay in a day are highly variable; ranging between 1500 and 2000.
20. **False.** Both worker size-and drone size-cells are reused for brood pro-

Continued on Next Page

duction in the honey bee colony. Queen cells, however, are destroyed by the workers after the queen emerges or is killed by rival queens prior to emergence.

21. **True.** Combs are composed of two different types of horizontal cells; drone and worker. While they differ in size, both are hexagonal in cross-section. Irregularly shaped cells are constructed where worker and drone cells adjoin and where combs are attached to their supports.
22. **True.** When laying, a queen moves over the comb searching for empty cells that the workers have cleaned out. Upon locating a suitable cell, she stop and puts her head and forelegs into the opening. This cell inspection usually lasts around 3 seconds. If the condition of the cell meets her approval, she inserts her abdomen and lays an egg.
23. **True.** Drone comb production is related to the amount of drone comb already present in the hive. Colonies without drone comb build a higher proportion of drone-size cells and more drone cells per bee than colonies with drone comb.
24. **False.** Royal jelly is fed to queens throughout their larval and adult lives and also to young worker and drone larvae. Differences in the composition and quantity of royal jelly fed to larvae originating from a fertilized egg are believed to be responsible for queen and worker differentiation.
25. **False.** Honey bees will store honey in both worker- and drone-size cells even though they prefer worker cells. Little or no pollen is stored in drone combs.
26. **True.** Workers are reared in cells measuring about 5 cells per linear inch.
27. **False.** Clipping the queen's wings is done to prevent her from leaving the colony with a swarm. This practice, however, does not prevent a colony from swarming. Since the clipped queen is unable to fly, the swarm cluster quickly senses her absence and returns to the hive. As soon as a new virgin queen emerges, the colony swarms.
28. **True.** Any fertilized egg laid by a queen is capable of becoming a queen; whether an egg develops into a queen or a worker depends upon the food received during its larval life.
29. **False.** About one week after emerging from a queen cell, the queen is ready to leave the hive and mate with several drones in flight. She may go on two or three mating flights in a period of one or two days. Queens start to lay eggs about 2 to 3 days after the last mating flight. Once egg laying has commenced, she will never mate again and only leaves the hive to accompany a swarm.
30. **False.** The spermatheca is the organ in the queen in which the spermatozoa are stored and kept alive after mating has occurred.
31. **False.** Queen rearing is normally the first noticeable step in preparation for queen supersedure and swarming. Neither swarming nor supersedure necessarily follow maturation of queen cells. One or more queens may be reared and rejected before swarming or supersedure occurs, if it does at all.
32. **True.** In areas where winter conditions cause a break in the brood rearing cycle, young queens lay later in the fall and initiate brood rearing earlier in the spring than older queens.

33. **False.** Laying workers behave like normal worker bees, participating in all other hive activities in addition to laying eggs.
34. **False.** Prior to the emergence of a swarm, a small number of bees become highly excited and nervous and appear to initiate emergence from the hive. These bees force their way among the other bees in the colony in zigzag running steps, vibrating their abdomens and producing a perceptible whir with their wings. As more and more bees become involved, the queen is aggressively pushed towards the hive entrance by the worker bees and forced to become part of the impending swarm.
35. **False.** Colonies with queen cells have a lower acceptance rate of caged queens than those colonies that do not have any cells.
36. **False.** A colony that is making preparations to swarm normally has more occupied queen cells than a colony of the same size and strain that is preparing to supersede its queen.
37. **True.** Queens typically live much longer than the other members of the colony. If they have not been superseded earlier, queens usually die of old age when 3 or 4 years old, though a few have been reported to live as long as 5, 6, or 7 years.
38. **False.** Virgin queens and drone honey bees pay no attention to one another either in the hive or at the hive entrance when leaving on their nuptial flights in spite of the fact the virgin queen begins producing sex attractant when she is 5 or 6 days old. Not until a queen reaches a minimum height above the ground do the drones pay attention to her. This height depends on the speed of the wind at any given time.
39. **True.** With removal or loss of the queen from the colony, the ovaries of some of the workers begin to develop. The presence of laying workers in a colony usually means the colony has been queenless for approximately two weeks. Pheromones from the queen contribute toward the inhibition of worker ovary development. The presence of worker brood will also inhibit ovary development. Therefore, the brood remaining in a colony after the queen is lost temporarily suppresses ovary development until a new queen is reared.
40. B) 12 days
41. A) 3 weeks
42. E) 8 weeks
43. D) 4 cells per linear inch
44. C) 20 feet above ground
45. D) 12-18 hours of age
46. B) 6 weeks
47. D) 10 days
48. A) 12-18 days old
49. D) 92°-94°F
50. **Queen piping.** A series of shrill sounds made by a queen, frequently before she emerges from her cell. Piping is considered to be a challenge between rival queens.
    Mating sign. When a queen returns to the hive from her mating flight, sometimes she still retains a portion of the male genitalia and coagulated mucus from the last drone. Workers then assist the queen in removing the mating sign.
    Drone layer. An unmated laying queen or one without the ability to lay fertilized eggs (sperm supply has been depleted).
    Balling the queen. Worker bees occasionally kill their queen. More frequently, they will kill a newly introduced or virgin queen. To do this 15 or 20 workers collect about her in a tight ball until she starves or is killed.
51. To mate with virgin queens.
52. Egg laying and pheromone production.
53. Worker 21 days, Drone 24 days, Queen 16 days
54. 1) Only drones are reared in worker-sized cells. 2) Usually find multiple eggs per cell (2-15). 3) Eggs are usually laid on the sides of the cell instead of at the base, where they are placed by a queen. 4) No evidence of a queen present. 5) Large population of under-sized drones.
55. 1) Quantity and quality of the food fed the queen. 2) Number of nurse bees in the colony. 3) Availability of fresh pollen and nectar. 4) Temperature of the hive or in the brood area.
56. There is normally only one queen in a colony, although under conditions of supersedure an old queen and her daughter may be present and laying. Both may be present for many days or weeks without any show of animosity toward each other. The old queen, however, usually disappears within a week or so after the young queen begins to lay.
57. Egg, Larva, Pupa, Adult or Imago
58. Age of the worker bee; Needs of the colony
59. A) Virgin queens will fight with each other until only one survives; B) When capped queen cells are found, the virgin chews a hole in the side of the cell and usually stings the developing queen; C) Virgin queens pay no attention to open queen cells containing developing larvae.
60. In the summer the worker typically lives 5-6 weeks and during the winter 5-6 months.
61. Two free points just for trying.

Scoring

There were a possible 80 points in our extended test. Check below to see how well you did. If you've scored less than 50, do not be discouraged. Keep studying — you can do better!

Number of Correct Points

70-80 — Excellent
60-70 Good
50-60 Fair

REVIEW . . . Continued from Page 666
form), how colony conditions control foraging and activities.

If you thought that you're finished, you're wrong. Chapter 11 is entitled *Reproduction: Swarming & Supersedure*. It examines swarming in more detail, as it relates to reproduction, and what goes on inside a colony preparing to swarm. It continues on with factors leading to swarming, such as colony size, congestion, reduced queen substance and resource abundance. Quite a complete chapter.

Drones, Queens and Mating discusses their biology, mating sites, and multiple mating. Included are some clean drawings of what happens during mating.

The last chapter is one of the shortest, but summarizes the *Biology of Temperate and Tropical Honey Bees*.

This book is definitely not a "photo essay" of bees; nor did it try to impress you with charts and graphs. I found it a happy medium between scientific and popular writing — there's something for everyone here.

Beekeeping in California, 1987
Cooperative Extension — University of California, Dir. Agr. S N Resources. Pub. #21422 ISBN#0-931876-79-6. Co-authored by E. Mussen. L. Foote, N. Gay, H. Laidlaw, R. Thorp and L. Watkins.

A 68 page booklet specifically written for California beekeepers.

It starts with *Becoming a Beekeeper* with a side bar on state laws. Then came the Colony, Choosing Bees and Choosing Equipment. The latter had a helpful check list, plans, and details of a beehive. Each piece of equipment is briefly discussed.

Managing Bees goes through the bee seasons (spring, summer, fall and winter) with side bars on preventing swarming and another on robbing. I found this chapter a little too brief for my liking, but later chapters were more complete. *Feeding Bees,* for example has an excellent description of the different supplemental foods for bees.

However, I was a bit disappointed in the next section called *Maintaining Genetic Stock*. It was far too brief. About the only way to maintain stock was to requeen — hardly an illuminating concept. The same for the next chapter on *Pollinating Crops*. While it did outline 8 points that a written contract between beekeeper and grower should cover, it assumes that all California beekeepers know *which* plants need pollinating. A list of such wouldn't have taken up that much room.

The *Producing and Marketing Honey* chapter was better, discussing honey types (called products) — comb or creamed honey, with a side bar on honeydew. *Commercial Queen Rearing* was next, which briefly outlined the grafting process and a little on package bees. But again, it wasn't enough.

The chapter *Other Enterprises*, briefly covered beeswax, but did better with royal jelly and pollen. In fact they explained in great detail how to induce colonies to manufacture royal jelly, but didn't include any diagrams or photos.

The *Sources of Nectar and Pollen* section has a quite complete listing of local wild flowers valuable to bees which was very helpful.

Bee Diseases while including the brood and adult diseases, as well as the mites (treated here as diseases, not pests) placed the color photos on the back cover (mites were not pictured). The basic chemical controls of Terramycin and fumagillon were covered. *Other Disorders* gave a short account on pesticide poisoning, poisonous plants, and larvae brood disorders (chilled brood, overheated, etc.) No list of poisonous sprays was given.

Pests of Bees talked about the wax moth, ants, bear, skunk, livestock, mice and vandalism. It had a good sidebar on wax moth control.

An Observation Beehive was very helpful, giving a plan, and some valuable information on problems and solutions.

The glossary at the end is small but adequate as was the reference section.

By the end I was a little confused just who this booklet was written for — beekeepers or those thinking about becoming one? It has some good points, though, and should be a good reference for those living in the area.Δ

Diana Sammataro

INNER . . . Cont. from Page 659
just those that make an interesting story.

Obviously these sorts of stories won't be about alfalfa. They'll be about far more volatile subjects, the kind that you don't want to guess at. Nor will you want to be caught in the middle of a debate between two sides of a question — one at a time.

The solution here, obviously, is to not get caught. Don't be badgered to make a response until you have all the "other sides" stories, know exactly what you are being asked, and know what you are going to respond with. It pays to contact the other side. Your concern for a well balanced story *should* be appreciated (as I'm sure you would), and there will be no surprises — by anybody.

It goes back to what we said awhile back. Be prepared, know your facts, develop and maintain good relations with the press, be honest — and you and the media will do just fine.

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You and The Media

Recently the National Honey Board held an industry round table on how to handle an industry-wide crisis. Among other things, they discussed issues that could be potentially threatening to our industry. The topics covered infant botulism, africanized honey bees, issues potentially affecting the wholesomeness of honey, and the like. They also discussed how these disasters should be handled, who would take the lead as spokesperson(s), and what the next step would be if and when any of these events occurred. This is a master stroke of planning, the ultimate in common sense.

Let me tell you a story about what can happen when you don't make these kinds of plans. Several years ago, the CEO of a large oil refining company decided to take a short vacation. He left on a Friday morning, planning to return to work on the following Monday. He didn't tell anyone where he was going to be — he wanted a long, private weekend "away from it all". The weekend went well, and he returned home Sunday evening refreshed, revived, and ready for Monday.

As an afterthought, just before turning in he switched on the T.V. There, *live*, was his second in command, his back to a chainlink fence, fire trucks zooming by, police running all over the place, twenty-five microphones in his face, explosions all around and 50 reporters asking "What about the fire?" The response — "What fire?"

The CEO, and his company for that matter, hadn't made provisions to handle this kind of emergency. No plan of action was made on 1) Who was the official spokesperson for the company; 2) Who was second in command; 3)What expert employees should be called in to help explain the situations (i.e. chief engineers, financial analyst, personnel managers); 4) What to do next (i.e. who calls news conferences the next day; who takes care of press releases; who handles the phone interviews and what do they say); and of course what do you tell the employees.

You can see the results of *not* planning for an emergency. If the worst happens (pick your own disaster here), it's good to see the Honey Board, and their crisis management associates are preparing for the worst, and, in the best interests of the industry, planning to avoid them beforehand.

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The past several articles on "You and the Media' have generated some interest from the beekeeping community. I caution you, however, that the information presented is of necessity somewhat simplified and idealistic. Nothing is ever as easy at it first appears. To be proficient at any one-to-one interaction requires practice, honesty and a certain amount of courage. Courage, of course, is required because you are placing trust in another person (or persons) who in turn are doing the same for you. Be honest, be sincere, be prepared.

•

Holiday Time

This is the time of year that's fun to watch. People get just a bit crazy about now. Shopping reaches manic proportions, families gather more often and in greater numbers, vacations get a little longer, and the pressures of the everyday world take a backseat to a more hectic, but short lived schedule.

When I was living in the big city this wasn't quite as evident, but the small town I grew up in, and the medium sized towns I've lived in recently epitomize the "holiday spirit".

No matter where you live though, all of us here hope all of you have a happy and safe holiday, and a prosperous and wonderful New Year.Δ

UNITED WE STAND

Comments from the Southern States Beekeeping Federation

JOHN T. AMBROSE

Most people tend to view the national beekeeping industry as being composed of a rather small number of people with similar opinions. This is not necessarily accurate. Even though the U. S. bee industry is rather small compared to many other industries, it is actually composed of even smaller interest groups which often disagree on specific issues. An understanding of those differences is important and the **Southern States Beekeepers Federation** attempted to deal with one of those differences at its 1988 convention in Kissimmee, Florida.

An issue which currently divides some states and state beekeeping associations is the question of the *Varroa* mite since the federal quarantine was removed in May. There is now considerable variation in how individual states regulate the spread of the mite. Some states, such as Florida, allow movement of bees into or within the state if the colonies have been treated for *Varroa* control; other states, such as North Carolina, have closed their borders to the entry of most bees, including packages and queens. These variations in approach to the *Varroa* problem are a good example of a situation that can create misunderstandings and divisiveness between beekeepers and beekeeper groups, and the SSBF used its recent convention to resolve some of those misunderstandings.

One of the highlights of the recent SSBF convention was a panel discussion entitled, *Affects of* Varroa *Mites and National/State* Varroa *Policies on Beekeeping*. Representatives of a number of different interest groups were invited to participate and the panel consisted of the following:

Dr. James Tew, U. S. Dept. of Agriculture
Mr. Lawrence Cutts, State Dept. of Agriculture, Florida
Mr. Logan Williams, State Dept. of Agriculture, North Carolina
Mr. Ray Chancey, State Bee Association, Texas
Mr. Kim Flottum, Industry Representative, Bee Magazine and Manufacturer
Mr. Fred Rossman, Industry Representative, Package & Queen Dealer

The hodgepodge of state regulations that have developed since the cancellation of the federal quarantine on *Varroa* mites has severely restricted the movement of honey bees in U. S. interstate commerce, and the SSBF panel was constituted to represent most of the bee industry interests involved. It should be noted that no special effort was made to consider the interests of those grower groups which rely on honey bees for crop pollination except as those interests were represented by the panel members.

Each member of the panel gave a brief (two-three minute) summary of his evaluation of the current situation and then they were presented with both prepared questions and questions from the audience. It soon became evident that there are indeed real differences in how various members of the bee industry regard efforts by the various states and state bee organizations to control the spread of *Varroa* mites. The interests of a migratory beekeeper or a package and queen dealer are obviously different than those of a hobby beekeeper, particularly if the hobby beekeeper lives in a state that is still apparently mite-free. However, in spite of these differences, the discussions never became acrimonious and there was a general understanding of the different needs of the various segments of the bee industry.

It is not possible here to review all of the points raised, but it is worthwhile to summarize some of the highlights of that preceding:

1. There was general consent for the re-establishment of some sort of federal *Varroa* mite quarantine. The consensus was that a federal quarantine would be superior to the present situation where each state is setting its own rules with little uniformity among the states.
2. There was some concern that the federal government's introduction and subsequent cancellation of the tracheal mite and the *Varroa* mite quarantines might affect the industry's compliance with future quarantines. This could be a real danger if a federal quarantine was initiated upon the arrival of "Africanized" bees into the U. S. and some members of the bee industry did not comply with the regulations.
3. There are real and valid differences between states which have primarily commercial beekeeping operations and those states which have primarily hobby and/or sideline operations. The needs of one type of state bee operation is neither more important nor more "correct" than the other and the needs of both are deserving of attention and understanding.
4. The establishment of 50 different sets of regulations concerning the movement of honey bees in interstate commerce would and is having the effect of imposing a financial burden on many commercial beekeepers, queen and package dealers, and migratory beekeepers who move bees for pollination.
5. The point was also made that "no one" supports a quarantine after the problem becomes locally established. The alternative to this is that beekeepers who do not have the problem would like to delay the problem's establishment in their own operations as long as possible and that a delay might provide time for the discovery of a cure (treatment).
6. A panel discussion does not *resolve* the underlying problems regarding the control fo the *Varroa* mite, but it does permit the various members of the bee industry to understand the viewpoints of others.

The need for the members of the bee industry to understand different perspectives is crucial to an industry such as ours. Needs vary from region to region of the country, between

Continued on Page 716

NEWS . . .

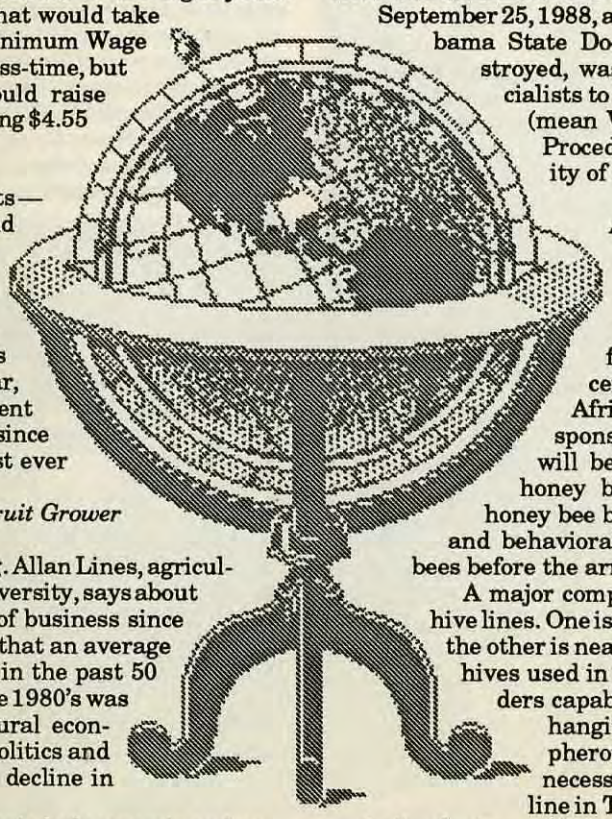
News Tidbits

KEEP FOREIGN BUGS OUT. That is the aim of proposed legislation that would allow Agricultural Inspectors to open and inspect first-class packages. Authorities feel several outbreaks of non-native fruit flies in recent years may be due to pest-infested fruit mailed to mainland U.S. Current law prohibits opening a first-class package — even if it is drippy, smelly, and obviously contains contraband produce — without a warrant. Bill, H. R. 5199, is being fought by U. S. Postal Service. Only hope of passage is for growers to contact representatives and push for approval. This includes bees too.

LEGISLATION UPDATE. Revised FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) has been passed by House, but still has to clear Senate. Dubbed "FIFRA Lite" (because it does not address groundwater, liability, and other controversial issues that were sticking points in past revision attempts), new act would require EPA to complete safety reviews of hundreds of older pesticides within eight years. EPA has been working at pace that would take 35 years to complete reviews. Minimum Wage proposal was still in Senate at press-time, but passage seemed likely. Bill would raise current $3.35 rate in steps, reaching $4.55 by 1991.

NUTS TO RUSSIANS. Lots of nuts — 15 million pounds of Blue Diamond almonds — were recently shipped to USSR. Reported value of this largest-ever shipment to Soviets was over $20 million. USSR was Blue Diamond's fourth-largest customer last year, taking 28 million pounds. Current order is good news, especially since 1988 almond crop is third largest ever produced in California.

Reprinted from *American Fruit Grower*



FARM NUMBERS keep dropping. Allan Lines, agricultural economist at Ohio State University, says about 100 farms a day have gone out of business since 1980. But that's low considering that an average of 250 farms were lost each day in the past 50 years. Much of the drop during the 1980's was influenced by the poor agricultural economy. Increased farm efficiency, politics and social change contributed to the decline in the past.

Between 1935 and 1950, a period of economic and political turmoil, the loss was 219 farms per day. Between 1950 and 1965, a period of relative economic calm and prosperity, the loss was 437 per day. Between 1965 and 1980, a period of mixed social, economic and political activity, the loss was 217 per day. It seems that neither economic conditions nor billions of dollars of public funds have had or are likely to have much impact on declining farm numbers.

Reprinted from *Econograms,* Ohio State University

DR. ANITA COLLINS ASSIGNED TO WESLACO, TEXAS. Dr. Anita M. Collins has been assigned the position of Research Leader of the Honey Bee Research Unit, Subtropical Agricultural Research Laboratory (SARL), Weslaco, Texas (effective 9/25/88). Dr. Collins had been a Research Geneticist at the USDA ARS Honey Bee Breeding, Genetics, and Physiology Research Unit, Baton Rouge, Louisiana. Having conducted research on the Africanized bee in Venezuela and Africa, Dr. Collins is a leading authority on the behavior and genetics of the Africanized bee.

Dr. Collins replaces Dr. William "Bill" Wilson, formerly Research Leader of the SARL Honey Bee Research Unit. Dr. Wilson requested additional time to devote to his research on tracheal mites. He will continue this mite research as a member of the Honey Bee Research Unit.

AWARD PRESENTED TO DR. THOMAS RINDERER. Tom Rinderer was awarded the 1988 AIA research award for his leadership in Africanized honey bee research. Dr. Rinderer is the director of the ARS Honey Bee Breeding, Genetics & Physiology Research Laboratory in Baton Rouge, Louisiana. For several years, the Baton Rouge Lab was involved in Africanized honey bee research project in Venezuela. Additionally, other involvement in international AHB research projects have resulted in the lab, under Dr. Rinderer's direction, developing an excellent reputation in Africanized honey bee research.

AFRICANIZED HONEY BEES FOUND IN ALABAMA. On September 25, 1988, a small swarm was found at the Alabama State Docks. The swarm, which was destroyed, was determined by USDA ARS specialists to be Africanized honey bees. FABIS (mean W. L. = 8.8); Daley Morphometric Procedure (Disc. score = 2.255, Probability of sample being Africanized = .994).

AFRICANIZED HONEY BEE PROGRAM AT WESLACO. For several years, the USDA ARS Honey Bee Laboratory at Weslaco, Texas, has been noted for research on Tracheal mites. Recently, the lab began to assume more Africanized honey bee research responsibilities. A major investigation will be the establishment of European honey bee base line studies. European honey bee base line data are a morphological and behavioral description of European honey bees before the arrival of Africanized honey bees.

A major component of the project are two bait hive lines. One is near Weslaco in south Texas while the other is near Cidudad Victoria in Mexico. Bait hives used in the project are duplex pulp cylinders capable of housing two swarms. Traps, hanging by "S" hooks, are baited with a pheromone and can be moved quickly if necessary. During the past year, the bait line in Texas caught 127 swarms from 144 bait colonies, while the 252 Mexican bait hives yielded 233 swarms (Mexico has a 6 month swarming season). The swarms were small, averaging 4500 bees/swarm. Also, drones were in about 45% of the swarms. Other on-going research projects have included tracheal mite tests and colony defense evaluations.

Reprinted from *Apiculture Awareness*

ABF Plans Program Addressing Beekeeper's Concerns In Indianapolis

When it meets in Indianapolis for its 45th annual convention, the **American Beekeeping Federation** plans to look back at the progress it has made and look forward at the tasks before the organization and the U. S. Beekeeping industry. A varied program has been proposed to fulfill the theme of the convention: "Pride in our Past — Progress in our Future."

The meeting is set for Jan. 20-25 at the Westin Hotel, scheduled to open just two weeks prior to the Federation convention.

The program itself will cover the gamut of beekeeping topics — from honey promotions to varroa mites, from wintering to fair exhibits. The American Honey Show and the convention trade show will be included as usual. On the social side there will be the excitement of the crowning of the 1989 American Honey Queen and Princess and a tour of the Conner Prairie Pioneer Village is set for Sunday.

On Saturday afternoon, a special program is being organized. In a first for Federation conventions, four concurrent sessions are planned. One will feature general beekeeping topics to benefit the new beekeeper; wintering options, mites, and fairs will be the subjects of the other three sessions. To help local beekeepers take advantage of the Saturday program, a special, reduced-rate registration fee has been established for the weekend.

Information on all phases of the convention — registration, honey show, commercial exhibits — is available from Troy Fore, secretary, American Beekeeping Federation, P. O. Box 1038, Jesup, GA 31545-1038, ph. 912-427-8447

Bee Spill In GA

No, this isn't a "grainy" photo — all those spots are bees. The spill, which happened in Marietta GA, involved 200 hives, spread over 250 yards which came off a tractor-trailer truck. As you can see, it was a mess.

State workers and beekeepers worked to clean up the site. The bees, owned by Horace Bell in Deland, FL were, for the most part, destroyed. Some were recovered, as was much of the equipment.

The story was picked up by the major T.V. network and newspaper wire services, and for the most part they did a credible job of *not* exploiting what could have been a real horror story.

Kentucky Names First State Apiculturist

The Kentucky Bee Line announces: Dr. Tom Webster has been named State Apiculturist for Kentucky. He began his duties Sept. 6, 1988. *This is the first State Apiculturist in Kentucky History.*

Dr. J. W. Stocker, Richmond, President KY State Beekeepers, (1986-1987) led an effort to get a professional position established. He was joined by many others, including present State President, O. W. Landon, and beekeepers across the state. The effort went beyond expectations. Kentucky State University, Frankfort, also aided tremendously. A professional position was created in their Community Research Services Department to meet the need. We commend President Dr. Raymond Burse and his staff, including Dr./ Harold Benson and Dr. Robert Barney for taking this giant step forward.

Dr. Webster received his Masters and PhD degrees from UC, Davis, which has a dynamic honey bee program, with project in both basic research and applied beekeeping. In 1986 and early 1987 Dr. Webster traveled to South America to meet with bee scientists in Brazil and Argentina, and got first hand information on Africanized Bees. From Jan. to March 1988 he worked in Belize, Central America, as consultant to their beekeeping industry.

His Kentucky Apiculturist position is half Extension and half Research, his address is: Dr. Tom Webster, Apiarist, Community Research Service, Atwood Hall, KY State Univ., Frankfort KY. 40601 Phone: (502) 227-6178.

Editor's Note; Congratulations to the Beekeepers of KY, the folks responsible for this addition to U. S. beekeeping specialists, and to Dr. Webster.

Bread Making Discovered

TUCSON, AZ. — Honey bees appear to be master chefs at making bee bread, their daily meal. A scientist says she has identified for the first time more than 200 microbes that bees use to make this food.

"It was almost like uncovering a chef's secret recipe," said Dr. Martha Gilliam. While studying honey bee diets, she found that 107 molds, 81 yeasts and 39 bacteria go into a bee's bread making.

Gilliam, a U. S. Department of Agriculture microbiologist, said bees know the proportions and correct sequences in which the microorganisms must be added to bee pollen. Inside honey comb cells, the microbe-pollen mixture is converted into bee bread.

"It's mind boggling to think how they can mix and keep alive all these microbes," said Gilliam of USDA's Agricultural Research Service. She said breads that humans eat have only a half dozen ingredients.

"If we had a recipe for the bread that honey bees eat, we could keep them alive after their own food was used up," she said. Bees may need extra food in spring, especially if the winter was colder than normal or their hives became diseased.

"The rather astounding number of microorganisms that were found gives us new insight into what bees must eat to survive and be active," said Dr. Ralph A. Bram, the research agency's national program leader for insects affecting man and animals, Beltsville, MD.

"Farmers and gardeners rely on honey bees to pollinate crops worth $20 billion every year," he said. "We need to be sure honey bees stay healthy."

Gilliam said the next step, after her discovery of the bee bread ingredients, will be to seek to duplicate what only bees have so far succeeded in doing. She will use, for the bread recipe, samples of each microorganism that is stored in her laboratory at the agency's Carl Hayden Bee Research Center, Tucson, AZ.

"Honey bees are microbial farmers," she said. "First they get rid of any naturally-occurring but unwanted microbes on plant pollen and inoculate it with some the bees keep in their hives."

She said the inoculation starts a chain reaction, in which pollen is gradually converted into bee bread.

"Honey bees store their food much like farmers store livestock feed," she said. Farmers harvest green forage and put it into silos where microorganisms help ferment it into a digestible feed that stores well. Honey bees collect pollen from plants, secrete saliva-like juices and add microorganisms back to their hives.

"Instead of silos, bees store pollen in honeycomb cells where it continues to ferment," she added. "This is how they preserve pollen until it is needed by hungry bees."

Bees can survive as long as two weeks on just sugar dissolved in water, she said. But, they really need the full nutrition found in bee bread in order to rear more bees to keep colonies going, according to Gilliam.

Some beekeepers feed pollen other honey bees collected, Gilliam said. But, there is always a risk that disease organisms are present, she added, plus bees must expend energy breaking down the pollen into digestible food and storing it.

Sunset Ad *Heats Up* Honey Sales

Western consumers will be reminded that 'there is nothing else like honey'.

In a four-color spread advertisement in *Sunset* magazine, the National Honey Board shows western consumers a variety of uses of honey and offers them a free honey recipe brochure, "Honey. The Golden Touch".

The ad, placed in the January and February issues of *Sunset*, will reach 6.4 million current and potential honey buyers in 14 western states.

"Advertising in *Sunset* magazine is supported at the retail level," said Dan Hall, manager of the National Honey Board. *Sunset* merchandisers will be sending a special notice to western retailers and will highlight the ad in its publication to retailers, *Western Grocery News*.

The board will be monitoring the results of the *Sunset* ad and may expand the program to other regional publications in future years, Hall said. Results will be judged based on the response to our free honey recipe brochure offer, Hall explained.

The *Sunset* ad will build on the Honey Board's cooperative ads and retail contest with Lipton herbal Tea as well as the winter coupon programs.

NATIONAL HONEY BOARD
9595 Nelson Road, Box C, Longmont, CO 80501-6351
Phone (303) 776-2337

U. S. Imports of Honey by Country
Quantity and Value through July 1988

Country	Quantity(Lbs.)	Value ($)
Canada	6,141,291	2,563,050
Mexico	1,181,398	443,664
Guatemala	178,237	73,434
El Salvador	175,847	52,387
Dominican Rep.	189,201	62,847
Argentina	7,191,770	2,207,525
Germany	396,940	103,340
Hungary	2,055,567	567,959
USSR	122,550	32,371
Mainland China	8,556,033	2,440,395
Hong Kong	161,856	55,372
Totals	**26,350,690**	**$8,602,344**

U. S. Exports of Honey By Country
Quantity and Value — July 1988

Region / Country	Quantity Pounds	Value Dollars	Average Cents / lb.
Canada	3,277	1.950	59.50
Mexico	2,565	1,526	59.49
Angella (Carib.)	8,156	5,991	73.46
Denmark	19,574	12,249	62.58
Germany (F.R.)	417,053	207,431	49.74
Spain	42,612	19,753	46.36
United Kingdom	88,872	46,754	52.61
Kuwait	80,408	61,274	76.20
Lebanon	2,625	2,400	91.43
Saudi Arabia	166,214	149,664	90.04
Hong Kong	7,200	4,000	55.56
Japan	14,361	8,545	59.59
Singapore	54,567	34,146	62.58
Thailand	1,200	1,677	139.75
Totals	**908,684**	**557,360**	**61.34**

Reprinted from *National Honey Market News*

Other Import and Foreign Market News

MEXICO. For 1988, honey production is estimated to decline as a result of severe drought which affected the main producing states of Yucatan, Campeche, Jalisco, and Michoacan. In addition, production is lower due to some africanization of bee hives in Yucatan. In this state, beekeeper associations indicated that at least 30-40% of bee hives are africanized.

According to the Secretariat of Agriculture and Hydraulic Resources (SARH), africanized bee swarms have been identified in seven Mexico states; Chiapas, Ozxaca, Quintana Roo, Tabasco, Yucatan, Campeche, and Veracruz. The africanized bee program between USDA and SARH has focused its control measures to slow movements by putting out traps, by giving technical assistance to beekeeper associations, and by providing European queen bees to limit africanization of bee hives. Nonetheless, honey production is estimated to fall dramatically in the next two years in the main producing states of Yucatan and Campeche.

The Govt. of Mexico has continued to limit its budget in order to reduce the public deficit. Consequently, the Mexico-U.S. joint program to control africanized bees have relied more heavily upon USDA financing than expected. Even though SARH has tried to disseminate information and organize training courses by producer associations, there are many beekeepers who do not know much about the magnitude of this problem in infested areas. Although SARH technical recommendations appear to be good ones, most of the small honey producers lack economic resources to implement them. The SARH has continued massive TV and radio campaigns to warn the general public about the effects of the africanized bee. In infested areas like Yucatan, Quintana Roo, Campeche, Tabasco, and Chiapas, the local authorities have asked the civil population to alert SARH technicians or beekeepers about presence of africanized swarms.

CANADA. Canadian honey output in 1988 is expected to be sharply lower than a year earlier reflecting a dramatic decline in the number of colonies in Western Canada as a result of a Government of Canada action to implement a varroa mite embargo on imports of live bees from the United States. Early indications are that the decline in colonies in Western Canada has been partially offset by an increase in the average yield per colony and that the East's yield prospects are near normal, but on balance the total Canadian honey crop in 1988 could fall to about 36,000 metric tons, about 12% below the 1987 level.

To help offset low market returns, the government included honey producers under its Special Canadian Grains Program, a major subsidy vehicle to crop producers. Under the honey portion of the program announced in December 1987, honey producers were guaranteed a payment of Cdn. 6.0 cents per pound times the average provincial yield minus a producer's first 25 hives. The 25 hive deductible is expected to exclude nearly half of all beekeepers, mostly in Eastern Canada, and ensure that the bulk of payments go to commercial producers who rely on honey for a significant share of total income. The cost of the program to the federal government is estimated at between C$3.0-C$3.5 million. In early 1988, the Alberta government announced a per hive one-time payout of C$10 to help offset the added cost of importing offshore bees, establishing more breeding hives, and costs associated with increased overwintering. Producers were expected to apply for about C$1.5-C$1.9 million before the program expired in October, 1988.

. . . & EVENTS

☆ INTERNATIONAL ☆

The Ontario Beekeepers Association announces their Annual Convention to be held on November 30 and December 1, 1988 at the Royal York Hotel in Toronto, Ontario, Canada. Guest speakers include Dr. Don Nelson, Alberta and Dwight Stoller, National Honey Board.

For more information contact Pat Westlake, Business Co-Ordinator, (519) 565-2622.

☆ ARKANSAS ☆

The **1989 AHP CONVENTION** will be held at the beautiful Camelot Hotel in downtown Little Rock, AR on January 10-14. Free shuttle service is provided by the hotel to and from the airport. Rates are $40.00 per night for 1 to 4 people per room. For more information and reservations call 1-800-643-6938.

The official airline for the 1989 American Honey Producers Association Meeting is United Airlines. We are guaranteed 40% off the regular coach rates or 5% off on any other special rates, including weekend rates. For tickets or information call 1-800-521-4041 and give them the account number 412KP. (Schedule follows.)

January 10-14, 1989

Jan. 11 Registration, set up and reception

Jan. 12 Speakers include: Richard Adee, AHPA Pres.; James Tew; Laurence Cutts; Dr. Bill Wilson; Roger Stark; Kim Flottum; Steve Taber; Dr. John Harbo and Jack Cahi

Jan. 13 Speakers include: Dr. Fred Hoff; Jane Phillips; Lois Willet; Dan Hall; Bill Helms; Lou Brice; Dr. Larry Connor; Dr. Al Dietz; and Dr. Tom Rinderer

Jan. 14 Speakers include: Dr. Eric Erickson; Carole Booth; Rod Little and Jack Meyer

Friday evening, the banquet speaker is Senator David Pryor, AR.

Plan now to come south in January. For more information regarding displays, etc., call Darrell Jester, (501) 563-5701 or Ray Chancey, (409) 258-3034.

☆ ARIZONA ☆

The **ARIZONA BEEKEEPERS ASSOCIATION** invites all members and non-members, both in-state and out-of-state, to join us this year on December 10-11, 1988 in Tucson, Arizona at our annual meeting. The meeting will be held at the Days Inn, downtown Tucson, 88 East Broadway, formerly called the Santa Rita Hotel.

A dinner party on Friday, December 9, will be for early arriving participants to honor Dr. Harry Laidlaw. It will start the convention and have door prizes. Equipment displays and outstanding Arizona hospitality throughout the rest of the meeting will spice up the program.

Friday, December 9

7:00 Dinner honoring Dr. Harry Laidlaw

Saturday, December 10

7:00 Registration

8:00 Call to Order followed by Invocation. Welcome address by Dr. Marshall Levin, Research Collaborator, USDA/ARS, Tucson, AZ. Presidents address by Dee A. Lusby, ABA.

9:00 Dr. Barbara Erickson

9:45 Paul Baker, St. Pesticide Coordinator

10:30 Les Davis, Div. Director, Ag. Chemical and Envir. Svcs. Div.

11:00 Pennwalt Chemical, speaker

11:30 Panel Discussion

12:30 Buffet Lunch

2:00 M. Delfinado-Baker, Beneficial Insects Lab., Beltsville. A special pre-taped video taken at the USDA/ARS Tucson Lab during a seminar with additional comments by Dr. Eric Erickson.

2:45 Dr Marilyn Houck, Dept. of Ecology and Evolutionary Biology

3:30 Speaker to be announced

4:00 Panel Discussion

6:00 Honey Queen Auction

7:00 Buffet Supper

8:00 Honey Queen Night

Sunday, December 11

7:00 Registration

9:25 Call to Order followed by Invocation

9:30 Dr. Harry Laidlaw, Univ. of CA, Davis

10:45 Dr. Eric Erickson, Director, Carl Hayden Bee Research Center

12:00 Buffet Lunch

1:30 Dr. Elbert Jaycox, The Bee Specialist

2:15 Dr. Gerald Loper, Research Plant Physiologist, Carl Hayden Bee Research Center, Tucson

2:45 Panel Discussion

4:00 Business Meeting

For those beekeepers who wish to stay at the convention site at the Days Inn, reservations should be made by November 15th to obtain reduced rates.

For more information call or write: Dee A. Lusby, Pres., Arizona Beekeepers Assoc., 3832 E. Golflinks Road, Tucson, AZ 85713, 1-602-748-0542 or Lynn Bushnell, Editor Newsletter, Arizona Beekeepers Assoc., 321 E. Cornell, Tempe, AZ 85283, 1-602-839-9891 or Days Inn Tucson - Downtown, Olivia Gonzalez, Exec. Hotel Coordinator, 88 East Broadway, Tucson, AZ 85701, 1-602-791-7581.

☆ COLORADO ☆ ☆ and WYOMING ☆

The Colorado and Wyoming Beekeepers will conduct a joint meeting of their associations on December 3rd and 4th, at the Holiday Inn at the intersections of I-25 and Hwy. 14 in Fort Collins, CO. A joint meeting Saturday will include Dr. Bill Wilson of the Texas Bee Lab and Mr. Dan Hall of the National Honey Board as guest speakers.

A banquet will be held Saturday evening where displays and commercial exhibits will be included. Separate business meetings of the two associations will be conducted Sunday, December 4th. All beekeepers are invited to attend. Questions may be addressed to Guy Lee, Colorado Springs, CO., Telephone (719) 634-5188.

☆ INDIANA ☆

The **AMERICAN BEEKEEPING FEDERATION** will hold it's 1989 convention at the Westin Hotel in Indianapolis, IN, January 20-25th. The following is the currently proposed convention program:

Saturday, January 21

8:30 Registration and opening remarks (till 12:00)

12:00 Explanation of Workshops and Adjourn (exhibits and honey show open)

(Room No.) Concurrent Workshops

1:30 (A) A Honey bee Slide Show
(B) Indoor Wintering
(C) Varroa - An APHIS Program?
(D) Six Presentations to be announced

2:00 (A) Practical Bee Management for the Smaller Beekeeper
(B) Indoor Wintering
(C) The California Approach to Varroa

2:30 (A) Small Scale Honey Handling
(B) Outdoor Wintering in the North
(C) The Florida Approach to Varroa

3:00 Break

3:30 (A) Turn Your Bee Glue Into Profit
(B) Outdoor Wintering in Canada
(C) Mite Control Chemicals
(D) Six Presentations to be announced

4:00 (A) Breed Local Bees for Local Success
(B) Wintering on Permanent Southern Locations
(C) Bee Management with Varroa

4:30 (A) A Look at Large Scale Migratory Beekeeping
(B) Equipment for Outdoor Northern Wintering
(C) Bee Management with Tracheal Mites

5:00 Adjourn

Sunday, January 22

Bus tour to Conner Prairie Pioneer Settlement with a stop at the Indianapolis Motor Speedway, home of the 'Greatest Spectacle In Racing'.

7:30 Bullshooter's Competition — tales so tall that boots are proper attire

Monday, January 23

8:00 Registration Desk Open

8:30 National Honey Board - Progress, Problems, TEA Grants, and Future

10:00 Break

10:20 Competition in the Marketplace

10:50 Effects of Imports Study

11:10 Practical Marketing by a Producer-Packer

11:30 Reading of the Resolutions

12:00 Adjourn

1:30 Tri-Country Committee Reports and Asessment

2:30 APHIS Plan for Africanized Honey Bees

2:50 Texas Plan for Africanized Honey Bees

3:30 Panel Discussion on Breeding and Genetics - Our Ace in the Hole?

4:30 Africanized Honey Bees and the Migratory Beekeeper

Tuesday, January 24

8:30 Registration Desk Open

8:30 CCC Honey Loan Program

8:50 American Farm Bureau and the AHB Issue

9:10 Public Information on AHB

9:30 50 Years of Inspection Service

10:35 Contaminants in Honey

11:00 Panel Discussion, Economics of Scale in Beekeeping Operations

7:00 Annual Banquet and Coronation Ball

For more information contact Troy Fore, secretary, American Beekeeping Federation, P. O. Box 1038, Jesup, GA 31545-1038, Phone (912) 427-8447.

☆ MASSACHUSETTS ☆

The Holiday Banquet of the **MIDDLESEX COUNTY BEEKEEPERS ASSOCIATION** is Saturday, December 3, 1988 at 7:00 p.m. at the Colonial Inn, Monument Square, Concord.

Remember there is no November meeting but reserve the December date for a fun evening of socializing and entertainment.

All are welcome at our meetings. Contact Linda Boucher, 276 Salem Street, Wakefield, MA 01880, 245-8443.

☆ MINNESOTA ☆

The **MINNESOTA HONEY PRODUCERS ASSOCIATION** will hold their annual meeting on December 2 and 3, 1988, at the American Inn in St. Cloud, MN. Speakers include Gary Honl, The MN Honey Queen, Art Mason and Said Aboulyarage. Featured guest is Dr. M. Sanford, from FL.

For more information contact Darrel Rufer, R1, Box 408R, Waverly, MN (612) 658-4645.

☆ NEW MEXICO ☆

All beekeepers are invited to attend the **New Mexico Beekeepers Association's** annual convention on December 2 and 3 at the Radisson Inn located at 1901 University SE, Albuquerque, NM. An impressive list of speakers including Dr. William Rubink, Weslaco Honey Bee Research Lab; Dr. Elbert Jaycox, the *Bee Specialist*; Marla Spivak, University of Kansas; John Milam, member of the National Honey Board will talk on the Africanized bee, bee management, and marketing honey.

A fine banquet, door prizes, equipment displays and outstanding New Mexico hospitality will also spice up the program. For further information contact Rick or Betty Cole at 600 N. Bosque Loop, Bosque Farms, NM 87068 or call (505) 869-2841.

☆ NEW YORK ☆

All are welcome to the 120th Annual Winter Meeting of the **EMPIRE STATE HONEY PRODUCERS**, December 2 and 3, 1988, at the Quality Inn North, 1308 Buckley Road, North Syracuse, NY (just off NY Thruway exit 36 or Interstate 81 exit 7th St. North). Registration starts at 9:15 a.m., Friday, December 2.

The program will include speakers on the honey market, pollination and migratory beekeeping, tracheal mites and wintering, and other aspects of beekeeping. In addition, there will be a honey show, a banquet featuring the presentation of the NY Beekeeper of the Year award, and exhibits and displays. For more information call the Cornell University Office of Apiculture, (607) 255-5443.

☆ UTAH ☆

The Utah Beekeepers Annual Convention will be held on December 2nd and 3rd, at the Utah Agricultural building, Salt Lake City, Utah. Featured speakers will be Eric Mussen, Extension Agent, University of California at Davis, as well as speakers from the National Honey Board and the Utah Agriculture Department. A banquet will be held Friday evening at 7:00 followed by entertainment.

For further information contact William R. Jones, Secretary/Treasurer at #10 West 300 North, Salt Lake City, Utah 84103 or phone 1 (801) 262-6079.

OBITUARY

EVERETT OERTEL died Saturday, October 15, in Baton Rouge, LA.

He was born on a farm near Prairie du Sac, Wisconsin, May 30, 1897, graduated from public school in Prairie du Sac in 1915, and enlisted in the Army in 1917. He served with the U.S. 32nd Div. in the A.E.F. in France in World War I. He was wounded while serving as a courier and received the Croix de Guerre with silver star, the Purple Heart, and a Presidential Citation.

Dr. Oertel graduated from the College of Agriculture, University of Wisconsin in 1924. After marriage to Ruth Henika, he attended graduate school at Cornell University, receiving his PhD in 1928. His major professor was Dr. E. F. Phillips. The subject of Oertel's dissertation was "Metamorphosis in the Honey Bee". He was a bee inspector in Wisconsin and New York State during several summers.

After graduating from Cornell, Dr. Oertel joined the Div. of Bee Culture at Baton Rouge, LA (now the USDA, ARS, Honey Bee Breeding, Genetics & Physiology Lab). He remained with the laboratory until his retirement in 1967. He then spent three summers as a consultant at the Oak Ridge National Laboratory in Tennessee, studying the effect of nuclear radiation on all stages of the honey bee.

Dr. Oertel was the author and co-author of bulletins, scientific papers, and popular articles on bee culture, pollen and nectar plants, and sugar concentrations of some import southern honey plants. His later papers were concerned with Nosema disease, effects of radiation on honey bees, and early history of beekeeping in the United States. The bulletin "Beginning with Bees", written in cooperation with E. A. Cancienne and D. K. Pollet, Louisiana Cooperative Extension Service, has had a wide distribution. Several editions have been printed.

Before and after retirement, Dr. and Mrs. Oertel traveled in Europe, Central and South America, and in the United States and Canada.

He was a member of Sigma Xi, Entomological Society of America, Louisiana Entomological Society, Louisiana Academy of Science and the Boyd-Ewing Post of the American Legion.

Survivors include his wife Ruth, son James (Rockville, MD) and daughter Catherine Braun (Richmond, VA).

The Food Chamber

If you are sending honey cookies through the mail for a Christmas gift, be certain the cookies are in a tin with tight-fitting cover. Colorful cookie tins are sold at Christmas time. Honey cookies, and other baked goods, will absorb moisture from the air. Therefore, cookies, in particular, may get sticky and arrive as a gooey mess instead of a beautiful gift if they are not in a closed tin. Jars of honey, honeyed nuts, jellies and preserves should be completely wrapped in "bubble plastic" and cradled in "plastic popcorn". Be certain lids are on tight! If you feel the pretty ribbon bows will get squashed, buy some colorful, fuzzy "pipe cleaners" and fashion bows from that. The "pipe cleaners" can also be used to hang Christmas cookies on the tree.

☆ Classified Corner ☆

Classified rates: 55¢ per word, each insertion payable in cash in advance. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it) counts as one word. Copy or cancellation orders **MUST** be in by the 1st of the month preceding publication (Example: January 1 for February publication). If your order has missed the cut-off date, your ad will appear in the following issue. Proof sheets available on request for an additional 2-word charge.

Send classified ads to:
The A.I. Root Co., Attention: Cyndi Stephens, Class. Ad. Mgr., P. O. Box 706, Medina, Ohio 44258-0706.
For more information call (216) 725-6677, ext. 213.

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ALMOND POLLINATION NEEDS YOUR BEES — If you can provide strong colonies, **Pollination Contracting** now arranging contracts. Offering reliable service in central CA for 1989 season. L. Hicken (209) 823-5141 or C. Carroll (209) 823-1386. (12/88)

OLD STYLES OF HIVES, smokers, extractors, comb honey equipment or home-made items. Wyatt Mangum, 1014 Gorman St., Raleigh, NC 27606. (12/88)

WOODMAN VERTICAL steam uncapping knife. (503) 688-6339. (12/88)

RECENT CORNELL UNIVERSITY GRADUATE, 23, experienced beekeeper, seeks position assisting large bee farm. Interested in queen rearing, nucs or honey production. Available January 1989. Please write to: Alfredo Telley, 7 Yardley Green, Ithaca, NY 14850 (607) 257-3442. (12/88)

FOR SALE

20 FRAME EXTRACTOR, 5, 20, 30 and 60 gallon containers, sink. All stainless steel. (216) 676-8924 after 6. (12/88)

INSEMINATION DEVICES AVAILABLE from *Honey Bee Genetics*. Made by 3 different craftsmen in E. Europe and priced from $680 to $750. Replacement parts available for Mackensen devices including plastic and glass tips. Used AI equipment bought if in good condition. Steve Taber, P. O. Box 1672, Vacaville, CA 95696. (707) 449-0440. (2/89)

SEVERAL HUNDRED USED O.A.C. and California type pollen traps. Scaling down operation due to border closure. Call North Peace Apiaries, Ltd., RR1, Fort St. John, BC, V1J 4M6 (604) 785-4808. (1/89)

QUEEN AND HONEY OPERATION in central Texas with 275 hives plus supers, 800 mating nucs, Datsun flat-bed, mobile home and more. Land and honey house for lease. An ideal arrangement. Call Bruce, (812) 376-8973. (12/88)

150 5-gallon buckets of clear honey for sale. (219) 932-6200. (12/88)

HONEY MOISTURE TESTER. Hydrometer 15-21%. $21.95 airmail. AMBROSIUS, Svanvagen 50, 83162 Ostersund, Sweden. Checks Accepted. (12/88)

SUPPLIES / EQUIPMENT

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FOR TOP QUALITY BEE SUPPLIES and advice on beekeeping problems, visit your nearest Root dealer and send for your FREE 1988 Root catalog. The A. I. Root Co., P. O. Box 706, Medina, OH 44258.

COMMERCIAL QUALITY SUPERS — 9-5/8 @ $2.85, 7-5/8 @ $2.75, tops & bottoms @ $1.70. Satisfaction guaranteed. Orders less than 50 add 50¢ each. For prices or to order, write: North Idaho Woodcrafters, Box 201, Spirit Lake, ID, 83869 (208) 667-3963. (12/88)

RADIAL HONEY EXTRACTORS, stainless, 5 and 10 frames, patented. Also complete line of equipment. Write or call: GAMBLE'S Bee Supply & Candle Co., (919) 299-3973 after 5 PM weekdays, anytime Sat., P. O. Box 7997, Greensboro, NC 27417. (TF)

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MISCELLANEOUS

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ONE POUND POLLEN $9 ppd; five pounds $22.50 FOB; Chaparral, 1655 W. Ajo, Tucson, AZ 85713-6619. (11/89)

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DELIGHTFUL GIFT. Dick Trump's *Bees and Their Keepers.* $17.95 plus $2 postage. Dept. GIBC, ISU Press, 2121 State Avenue, Ames, IA 50010. (515) 292-0140 (12/88)

HONEY BEE GENETICS NEWSLETTER. Focused on our mite problems and the AHB. The latest news and what the regulators are doing. Sent 50 to 7 times a year, $5.00. P. O. Box 1672, Vacaville, CA 95696. (2/89)

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BEE BOOKS, WIDE RANGE OF TITLES. Free lists from Scout Bottom Farm, Hebden Bridge, England. (TF)

BROTHER ADAM BOOKS: Breeding the Honeybee ($21.95); In Search of the Best Strains of Bees ($16.95); Beekeeping at Buckfast Abbey ($16.95); Beeswax (Coggshall/Morse) $10.95; Making Mead (Morse) $10.95. WICWAS PRESS, Box 817, Cheshire, CT 06410. Visa/MasterCard. (12/88)

NEWCOMERS. Unhappy with last year's honey crop? Poor production from a package? *There IS an answer.* **A New Direction in Bee Colony Management.** Send $5.95 for this booklet to Fairfax Engineering, 295 Pumpkin Hill Rd., New Milford, CT 06776. (6/89)

HONEY FOR SALE

PREMIUM CLOVER, BUCKWHEAT, WILDFLOWER or ORANGE BLOSSOM in bottles, 60 lb. tins, 30 lb. jugs or drums. STEWART HONEYBEE PRODUCTS, 60 Council Avenue, P. O. Box 429, Wheatland, PA 16161. (412) 346-4664. (TF)

CLOVER, ALFALFA, Buckwheat, Tulip Poplar, Wildflower or Orange in 60's. Dutch Gold Honey Inc., 2220 Dutch Gold Dr., Lancaster, PA 17604. (TF)

PERIODICALS

BUSY BEEKEEPER? Easy management guide and time-saving newsletter tells what, when, why, how to do it. Marketing ideas, more. For sample copy and details, send $1 and stamp to **BETTER BEEKEEPING**, Dept. G, Box 66, Westerville, OH 43081.

THE SCOTTISH BEEKEEPER Magazine of The Scottish Beekeepers' Association, International in appeal. Scottish in character. Membership terms from D. B. N. Blair, 44 Dalhousie Rd., Kilbarchan, Renfrewshire, Scotland PA10 2AT. Sample copy sent, $1 or equivalent.

MISSOURI FARM. A 48+ page, bi-monthly magazine for you about small farming, gardening, alternative crops, direct marketing and rural living in the Midwest. $18 a year. Write to Missouri Farm, Ridge Top Ranch, Rt. 1, Box 237, Clark, MO 65243.

DIE NEUE BIENENZUCHT the monthly magazine for beekeepers interested in all aspects of German beekeeping. Hamburger Str. 109-D, 2360 Bad Segeberg, West Germany.

What do you know about the INTERNATIONAL BEE RESEARCH ASSOCIATION? The many books and other publications available from IBRA will deepen your understanding of bees and beekeeping: an IBRA membership subscription — inclusive of *Bee World*, a truly international magazine published quarterly in the English language — will broaden your beekeeping horizons. Details from IBRA voluntary representative H. Kolb, P. O. Box 183, 737 West Main, Edmond, OK 73034 (phone 405-341-90984); or from IBRA, 18 North Road, Cardiff CF1 3DY, UK.

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BEEKEEPING. The West of England bee journal but read all over the world. Annual subscription £7.50 (payable in £Sterling) (or £10.50 air mail) for 10 issues. Editor, P. P. Rosenfeld, Clifford Cottage, 42a Clifford St., Chualeigh, Devon, England TQ13 OLE.

BEE CRAFT — Official (monthly) magazine of the British Beekeepers Association. Contains interesting and informative articles. Annual Subscription $5.10 (Surface mail) and $7.10 (Airmail). The Secretary, 15 West Way, Copthorne Bank, Crawley, Sussex, RH10 3DS.

THE AMERICAN BEEKEEPING FEDERATION needs your support! Join in supporting efforts to stop adulteration, to improve marketing conditions and to encourage the continued research on African Bees and Varroa and Acarine Mites. Please send for information, membership application and sample copy of bi-monthly News Letter! Write To: THE AMERICAN BEEKEEPING FEDERATION, INC., 13637 N. W. 39th Avenue, Gainesville, FL 32606.

INDIAN BEE JOURNAL. Official organ of the All India Beekeepers' Association, 1325 Sadashiv Peth, Pune 411030, India. The only bee journal of India published in English, issued quarterly. Furnishes information on Indian bees and articles of interest to beekeepers and bee scientists. Annual subscription postpaid in foreign countries: For individuals US $7.00; for institutions, companies and corporate bodies US $10.00 or it's equivalent, to be received in advance by IMO or bank draft, payable in Poona (India).

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HEARTHSTONE. Beekeepers Quarterly. $6.50 per year — Canada; $7.00 U.S. — U. S. A. & Foreign; Box 58-Colinton, Alberta Canada, TOG ORO.

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THE AUSTRALASIAN BEEKEEPER. The senior beekeeping journal of the Southern hemisphere provides a complete cover of all beekeeping topics in one of the world's largest honey producing countries. Published monthly by Pender Beekeeping Supplies Pty. Ltd., 19 Gardiner St. Rutherford. N.S.W. 2320 Australia. Subscription $US 13.00 per annum (in advance). Payment by Bank Draft. Sample copy free on request.

CANADIAN BEEKEEPING. The news media of the Canadian Honey Industry. Send $15.00 for one year subscription to: CANADIAN BEEKEEPING, Box 128, Orono, Ontario, Canada LOB 1MO.

CORNUCOPIA. Quarterly newsletter for developmental beekeepers. Articles on low technology beekeeping, honey trees for agroforestry and marketing bee products. Rates $10/year to IAAD, D. Sammataro editor, 7011 Spieth Rd., Medina, OH 44245. (216) 722-2021.

BRITISH BEE JOURNAL. Monthly. Single copies .33p plus postage. INLAND - £5.50; OVERSEAS - £11.00 or $15.00 U.S.; EIRE - £7.00pp. Annual subscription post paid. Keep up-to-date by taking out a subscription now either direct from us or through our agent: The A. I. Root. Co., P. O. Box 706, Medina, OH 44258, U.S.A.

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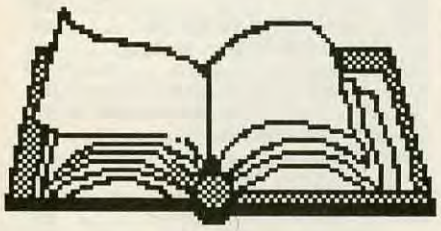
THE SPEEDY BEE. Monthly beekeepers newspaper. The happenings of the beekeeping industry, plus how-to-articles. $12.50 per year (12 issues) in U. S., Canada and Mexico add $2.50 postage. $20.00 per year all other countries mailed first class. Write for Airmail rates anywhere. Sample copy free. The Speedy Bee, P. O. Box 998, Jesup, GA 31545.

THE NEW ZEALAND BEEKEEPER. Quarterly magazine published by the National Beekeeper's Association of New Zealand. Editorial policy emphasizes practical beekeeping, latest research and feature articles with large format and many illustrations. Australia and South Pacific - US$12 Airmail, US$10 Surface; North America & Asia, excluding Middle East - US$14 Airmail, US$10 Surface; South America & Europe and Middle East - US$15 Airmail, US$10 Surface. Magazine produced March, June, September & December. Subscribers should indicate whether they wish airmail or surface mail. N Z BEEKEEPER, P. O. Box 4048, Wellington, New Zealand.

FARMING UNCLE. Magazine for Homesteaders! Covers gardening, small stock health, bees and much, much more. Free Information. 1 year $12.00; 2 years $22.00; 3 years $30.00. Money Back Guarantee. Farming Uncle. P. O. Box 91-B4, Liberty, New York 12754.



UNITED . . . Cont. from Page 708

commercial and hobby beekeepers, and among the various components that support beekeeping such as package producers, manufacturing industries and growers who use bees for pollination. There are few right and wrong answers, but there can be general consensus on most issues if different opinions are treated with understanding and respect.

For the last several years, the SSBF has attempted to promote understanding among the various members of the industry. For two years it sponsored a "Leadership Conference" in Washington, D. C. involving most of the national and regional beekeeping groups, such as the American Beekeeping Federation, the American Honey Producers, the Eastern Apiculture Society, the Southern States Beekeepers Federation and the Western Apiculture Society. This year a similar conference, but on a more limited scale, is being sponsored by the National Honey Board. The SSBF applauds this effort and similar efforts at the national, regional and state level to improve understanding and, eventually, cooperation among various members of the beekeeping industry.Δ

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