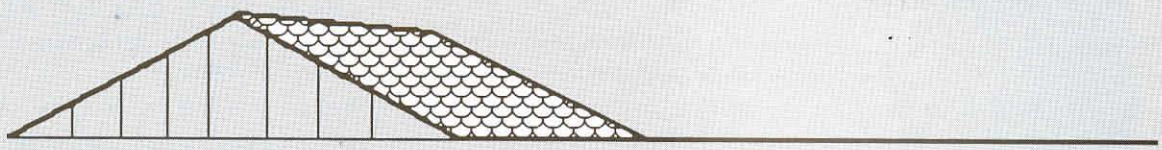
GLEANINGS IN BEE CULTURE NOV. '87



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ROOT PUBLISHING

GLEANINGS IN BEE CULTURE

NOV.'87

114 Years Continuous Publication by the Same Organization

(ISSN 0017-114X) Vol. 115, No. 11

THE A.I. ROOT CO., PUBLISHERS
P.O. BOX 706
MEDINA, OHIO 44258-0706

Subscription Rates: United States, one year, $11.70; two years, $22.22. **Newstand Price: $1.95.** Other countries including Canada, Pan American countries and Spain (U.S. Currency only), $6.00 per year additional for postage. Remittance should be sent by post office money order, bank draft, express money order or check. Published monthly. Discontinuance: Subscription stopped on expiration. Change of Address: Fill out and return form contained inside issue. Articles are solicited. Stamps should be enclosed to insure return of manuscript to author if not printed. *Opinions expressed by the writers in these columns are not necessarily those of the editors.* Advertising rates and conditions will be sent on request. Advertisers' Reliability: While the publishers do not guarantee advertisements in this journal, over the years very few complaints have been received. Microfilm copies available at: University Microfilms, Inc., 300 North Zeeb Road, Ann Arbor, Michigan 48103. Second Class Postage Paid at Medina, Ohio and additional offices.

POSTMASTER: Send Form 3579 to:
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Medina, Ohio 44258-0706
Phone: (216) 725-6677

FEATURES

ARTICLES

COLUMNS

DEPARTMENTS

COVER . . . We offer some of the *Best* Holiday Honey Recipes available this month. Use them, pass them along — for Goodness sakes, ***Cook with Honey***!

Because of the late breaking news on Varroa mite, publication was delayed so we could bring you the latest information. See page 613.

Coming in December

It's the most exciting time of the year here for us, because we're ready to show you the results of our past year's work with new products, old products used in a different way, and other innovations we've looked at this past season. These include honey plants, queen rearing equipment, foundation, extracting equipment and more. ROOT RESEARCH REVIEW will give some recommendations, list some problems and offer suggestions. It'll be an inside look at lots of things you will need to know about, soon.

One of the things we looked at was a fairly unique scale. And, to go along with that we have an excellent article on Scale Management. A good scale, used properly, can tell you much of what's happening inside. Certainly worth reading, and learning from.

Probably the best way to remember "What Happened When" is to keep a good journal of your beekeeping activities. What to write? How to Use? It's all answered next month in "Journaling — The Write Way!"

Is candle making an activity you're interested in? A good look at "How the Pros" work will give you some insight on large scale candle making that you can 'boil down' to your size.

There is more, too! Equipment maintenance is always important, and now is the time of year to soak up some good habits for next year. So take a look at that article to sharpen your skills.

Finally, we'll take a look at bees other than honey bees, to give a feel for other methods of 'bee' keeping.

We've got lots to offer next month — So, remember — Catch *Bee Culture* in December!§

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If you are moving, please fill in the form below so we can process the change without undue delay. ***Also,*** if you have 2 addresses during the year (i.e., winters in Florida and summers in Connecticut) let us know which months you spend where and we can pre-program your address change so you will find ***us waiting*** when ***you move*** — No Delays, No Fuss!

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OLD ADDRESS: Street

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NEW ADDRESS: Street

City State Zip

FOR TEMPORARY CHANGE:

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ADDRESS NO. 1: Street

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Circle Appropriate Months: J F M A M J J A S O N D

ADDRESS NO. 2: Street

City State Zip

Circle Appropriate Months: J F M A M J J A S O N D

Send Form To: Subscription Department, P.O. Box 706, Medina, Ohio 44258

THE INNER COVER

The November pause. Catch your breath, rest a bit. Sit back, relax, and put your feet up. It's wind-down time. Reflect on the season past. Revel in the successes. Some things went right, in spite of what you did — what the heck, gloat a little. Tell a friend — tell a bunch of friends, savor the moment, and enjoy the glow. This is the reward, this is what it's all about. This is why you keep bees. Weeks and weeks, or seasons and seasons of work pay off. It was a little easier this time, a little less scarey, a few less stings, and — yes, there's the queen, they didn't swarm, they made honey!

Simplistic? Yes, a bit perhaps. After all, it's the simple pleasures that bring the greatest joys in life. You can put honey money in the bank, but so far nobody has figured out how to bottle a lazy Sunday afternoon smelling fresh honey, or watching a brand new bee see the world for the first time.

I wish I could measure why people keep bees; even more, I wish I could describe it — and put it in a box. Then I could show it to folks, and let them see just why it is that in November we take a pause, and reflect on the season past.

Serendipity Research. . .

Serendipity. The word has always had a prestigious sound to me. It sort of rolls off the tongue — it's one of those almost melodic words that always sounds good when dropped in conversation. It means making a fortunate discovery entirely by accident.

A good friend, who is an independent marketing consultant, visited recently. He had just finished working for a large corporation out west, trying to find out why sales were down, expenses up and morale low. The corporation deals in Agricultural products — selling farming equipment directly to farmers.

He detected many obvious problems that the company had ignored. Fewer farmers, huge farm debts, reduced incomes, foreign imports, government rules and regulations (does any of this sound familar?). His work was, in his words, incredibly easy and he felt just a bit guilty taking his huge fee. But here is where his serendipity research takes off.

The company is not old — it started 16 years ago with two men, $10,000 and a good idea. Early on, they made huge profits, worked long hours, and loved their jobs. As the company grew, so did their staff. Accountants, order takers, salesmen, factory personnel, support staff, managers, assistant managers, assistant-assistant managers . . .

It also became harder to take risks. Too many people had a say in the process — accountants, production staff, Union reps., sales managers, and of course the two founders.

My friend, in his final report, said that the company's marketing problems were due only in part to the current agricultural situation. The other part was due to the fact that they analyzed each new idea to death. What came out, eventually, was not innovation, but oatmeal.

I listened to all this, and then commented on the similarities between the honey industry and the company he had studied. This was his comment:

Marketing is necessary for growth in any enterprise — whether you are selling 500 lbs. of honey or 100 $70,000 tractors. But too much of a good thing can be just as bad as not enough.

His advice was keep track of costs, profits and FUN. When tracking costs and profits takes all the fun out of your business, it's time to change businesses. Profits are important, in fact necessary. But the minute you start hating the business side of your hobby — it is no longer a hobby.

I'm not sure if this should be chiseled in stone somewhere, but certainly keep it in mind. Keep the fun in your hobby. Life has enough problems.

In the April edition of *The American Fruit Grower*, an article was published entitled *'The 10 Commandments of Fruit Marketing'*. It was written by Forrest Stegelin, Extension Professor at Kentucky. With all due respect to Dr. Stegelin, I have rewritten these Commandments a bit to apply to our industry.

The 10 Commandments of Honey Marketing

I. This is the first commandment. It is the law of the Profits that good markets exist only where Demand goes ahead of supply. Therefore, build demand, and yet more demand, for your honey.

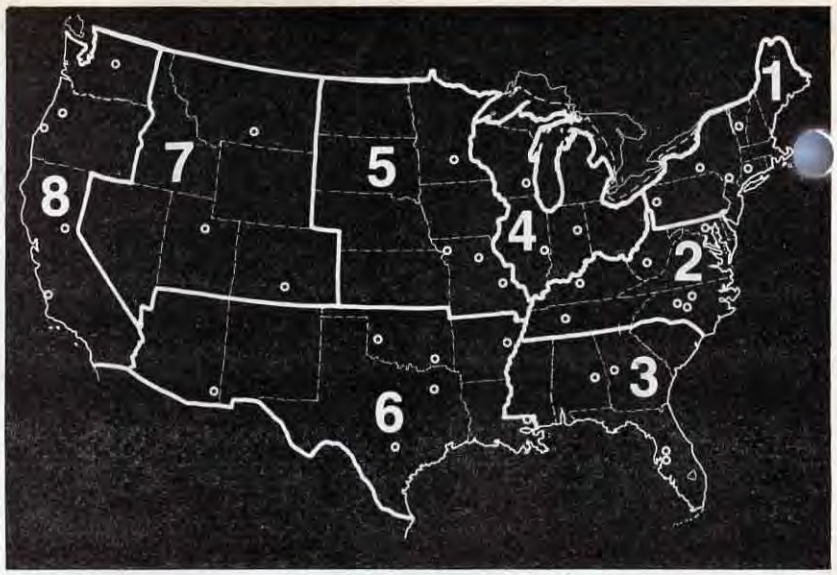
II. The second commandment is like unto the first. Teach your customers diligently the merits of honey, for only a fool buys that for which he knows no use. Prepare the market carefully in advance; for education costs only cents per case; but the price of ignorance is in dollars.

III. A thousand beekeepers shall not attempt to sell their honey to seven buyers, for verily the beekeepers will cut each others' prices to pieces and the buyers will wink and laugh. But seven sellers and seven buyers make a firm market and fatten the pockets of all.

IV. He who sells by undercutting his neighbor's price has

Continued on Page 662

November Honey Report



November 1, 1987

The following figures represent current prices reported by our contributors. They are based on reports from many states averaged out for each region. Where insufficient information is received, no price is shown. The retail prices represent the price of each size jar.

Wholesale Extracted	Reporting Regions									
Sales of extracted, unprocessed honey to Packers, F.O.B. Producer. Containers Exchanged	1	2	3	4	5	6	7	8	R	A
60 lbs. (per can) White	43.50	40.00	30.60	31.20	27.60	35.83	40.07	44.00	24.00-44.00	36.26
60 lbs. (per can) Amber	42.50	34.12	29.10	25.20	23.10	30.00	35.93	33.50	21.00-43.00	32.80
55 gal. drum/lb. White	.58	.53	.61	.52	.52	.60	.56	.52	.52-.63	.56
55 gal. drum/lb. Amber	.57	.50	.55	.42	.42	.50	.52	.42	.42-.63	.49
Case lots -- Wholesale										
1 lb. jar (case of 24)	28.30	23.00	27.20	26.95	25.96	24.12	26.55	24.60	22.80-30.00	25.99
2 lb. jar (case of 12)	28.00	21.50	25.15	24.95	23.82	24.00	25.15	24.75	21.00-32.50	24.88
5 lb. jar (case of 6)	30.50	25.00	23.00	26.95	25.02	24.83	25.95	25.50	23.00-27.00	26.54
Retail Honey Prices										
1/2 lb.	.95	.90	.84	.85	.91	.82	.89	.89	.80-1.10	.98
12 oz. Squeeze Bottle	1.45	1.23	1.49	1.39	1.39	1.21	1.37	1.27	1.17-2.25	1.41
1 lb.	1.58	1.53	1.65	1.55	1.52	1.28	1.69	1.30	1.20-3.00	1.60
2 lb.	2.77	2.68	2.99	2.85	2.60	2.55	2.85	2.25	2.25-2.99	2.69
2-1/2 lb.	3.55	3.35	3.97	--	--	3.23	3.25	--	3.25-3.97	3.82
3 lb.	4.10	4.05	--	3.25	3.35	4.07	3.95	3.25	3.00-4.30	3.76
4 lb.	5.00	4.85	5.89	--	4.99	4.75	4.75	4.72	4.75-5.89	5.04
5 lb.	6.50	5.77	5.50	5.75	6.50	5.19	5.88	5.00	4.75-7.00	5.83
1 lb. Creamed	1.83	1.50	1.72	1.55	1.65	1.60	1.60	1.39	1.39-1.90	1.63
1 lb. Comb	2.37	1.80	2.92	2.50	--	2.00	2.22	2.25	1.75--2.95	2.26
Round Plastic Comb	2.00	1.80	1.75	1.85	2.25	1.75	2.95	1.75	1.50-2.95	2.02
Beeswax (Light)	1.05	.85	1.10	1.10	.92	.87	.90	.95	.85-1.10	1.13
Beeswax (Dark)	.92	.77	.90	.85	.75	.71	.73	.79	.75-1.50	.88
Pollination (Avg/Col)	27.50	15.50	--	27.50	--	20.00	--	25.00	15.50-30.00	24.60

Honey Report Graph Features

On the far right hand side you will see two different columns. The first, labeled "R", is the price range of prices reported from all contributors -- lowest to highest. The second column, labeled "A", is the average price of a particular commodity across all regions. Example: the range in price of a 1 pound jar of honey sold retail is $1.20 - $3.00 and the average price across the country is $1.60.

In the comments section you will see a figure called the "Price Index". This figure is only a descriptive statistic that compares ALL regions to the highest region of the month.

Example: Region 1 has a price index of 1.00 this month and remaining regions are compared to that index.

•Region 1.

Price Index 1.00. Sales steady, prices all over the road. Government give-aways hurting sales in some areas. Crop average to low due to unsettled sum-mer and fall flows. Some areas very poor. Others, mostly coastal areas, average to good. Wintering prospects appear good in most areas, but check for feeding.

•Region 2.

Price Index .85. Sales steady but strong in most areas, as are prices. Colonies in most areas doing well, as fall weather has generally provided moisture for flow for overwintering. Strong goldenrod and aster flows in southern areas have actually caused an increase in populations, requiring extra over-wintering stores or feeding. Check to make sure.

•Region 3.

Price Index .89. Sales steady to slow, prices sagging. Colonies generally in good condition as fall flows developed after enough rains. Some colonies still weak so check, but ample stores generally available.

•Region 4.

Price Index .84. Sales down a bit, as are prices. Giveaway honey hurting sales in many areas. Colony conditions generally not good, but strong in some places. Early flows stopped in mid-summer, and fall flows didn't develop strong enough for good winter sto Check for feeding, especially if harvested early.

•Region 5.

Price Index .81. Sales slow to moderate, prices declining for several reasons. Primarily, government give-aways, but warmer weather and stiff competition have kept sales slow and prices down. Colonies appear strong for winter after good fall flows, but check for feeding, especially if fall flow was weak and weather dry.

•Region 6.

Price Index .89. Sales slow to moderate, with prices steady to lower than normal for this time of year. Colonies in most areas appear strong, with good flows and adequate stores. Fire ants still a major problem in N.E. Texas, with no relief in sight.

•Region 7.

Price index .98. Sales strong, prices increasing, outlook good. More domestic honey showing up in the area, which helps all. Colonies strong due to good fall weather and late flows. Excellent crop for this year in most areas.

•Region 8.

Price Index .95. Sales slower than normal, probably due to warm weather, prices steady to increasing. Warm, dry weather generally, rain required in areas. However, good crops reported most places, except on cotton. Some almond pollination movement started.

Varroa Found in Several States:

OF MITES AND MEN (Again!)

APHIS Caught By Surprise

The Beltsville Bee Lab confirmed, in late September, the finding of Varroa (*Varroa Jacobsonii*) mite in an apiary in Wisconsin. The bees were part of a spring shipment sent to Wisconsin, most of which went to a distributor in Watertown, from Florida. In all, 1145 pounds of bees, shipped in bulk, were sent to Wisconsin, and then repackaged into 2# and 3# packages. From these, at least 39 sales were made, thus distributing the bees nearly statewide.

Although the first found infestation was light (see Sampling Procedure box) the bees were depopulated.

Wisconsin Agriculture Department officials, with the aid of several Wisconsin beekeepers, then backtracked the original shipment of bees to the Florida distributor. Florida officials began sampling all colonies in the immediate vicinity, near Windermere, in Orange County. The particular location is about 10 miles from Disney World.

Initial sampling turned up several infested apiaries, including some package producers and migratory pollinators. Surprisingly, most infestations were found in hobby and sideline beekeeping operations. The center of infestation (at presstime) was near a local airstrip.

However, the package dealers and migratory operations have spread the mite to not only Wisconsin and Florida, but New York, Massachusetts, Pennsylvania, Maine and Ohio have been confirmed as having some levels of infestation. These findings are VERY preliminary as most states were not testing, or had not had test results confirmed as of early October.

Coincidently, the American Association of Professional Apiculturists were holding a meeting in Baton Rouge during the midst of the findings. Also attending were officials from APHIS and the USDA.

APHIS officials were quoted as saying that they were completely unprepared for this sort of problem, and they (and most states) had no plan of action for dealing with the situation. During the course of the meeting, a 10 point plan was formulated (see below) with the assistance of the Professionals attending the meeting.

Because of the urgency of the situation, most APHIS and USDA officials were unable to immediately comment on the situation, other than to "wait and see" the results of the 30 day state sampling.

APHIS RECOMMENDATIONS

1. While individual states will conduct surveys for infestations, there will be no movement of colonies, except by certification or by mutual consent and agreement between states.
2. No depopulation by Federal Programs will take place until the survey is completed. Individual states are not bound by this recommendation.
3. APHIS will participate in these surveys to the greatest extent possible.
4. State surveys will be established based on priorities, the highest being those dealing with migratory or commercial beekeeping operations.
5. After 30 days, and the completion of the state surveys, congress will be asked for sustaining funding for continuation, if needed.
6. Volunteer beekeepers will assist APHIS and/or state officials in the survey.
7. Individual beekeepers are encouraged to sample their own hives (see box).
8. APHIS and Technical Committee will meet again after 30 days to evaluate the results of the survey.
9. ARS, State and Canadian Research officials should put emphasis on chemical and genetic control research.
10. APHIS will continue to screen and prevent further introductions of Varroa into the U.S.

SAMPLING PROCEDURE

The following sampling procedure has been recommended by APHIS officials. It is not 100% foolproof, but it is very good as a preliminary test. This test is best conducted in a clustered colony, while there is NOT an active honey flow in process.

Equipment Needed: 1 quart jar with lid; 1 can ether-based starter fluid aerosol commonly used to start cars during cold weather; 1 bottle rubbing alcohol.

1. Open colony and place 600-1000 bees in the quart jar. These bees should come from the top third of the cluster. This is important, as the mite will naturally move to the warmest part of the cluster.
2. Place cap on jar and tap bottom of jar on solid object to settle bees to bottom of jar.
3. Open lid and spray ether into jar for 1 second.
4. Close jar immediately and gently shake bees for 15-20 seconds. Do not shake vigorously as this will dismember bees.
5. After shaking, turn jar on side and gently roll the bees.
6. The ether will cause the bees to regurgitate, leaving a thin film of liquid on the sides of the jar. It will also kill both bees and mites.
7. After rolling the bees, any dead mites present will adhere to the film on the jar sides.
8. Varroa mites will appear as small, pin head sized medium brown spots stuck in the film. DO NOT mistake pollen grains or wax flakes (often found during a honey flow) for mites.
9. If you suspect mites to be present, remove dead bees carefully. Then using the rubbing alcohol, rinse the sides of the jar with about 1/4 cup of liquid.
10. Place this rinse in a smaller container for submission to appropriate authorities.
11. This process should take about 10-15 minutes and cost about 25 cents per hive. (Do not be discouraged as early detection is the key to control.)
12. If you want to check further and have an active colony, scrape cappings off drone comb. Mites prefer drone larvae as hosts (see Tew article, this issue). Worker larvae should also be checked.

Mailbox

Ox-Born Bees?

Dear Editor,

Steve Taber reported that he earned $50.00 in an hour for removing a colony from a building (September 1987, page 532). Another beekeeper estimated earnings of $25,000 over 10 years picking up swarms and nests of bees, an average of one per week at a $50.00 minimum.

The downside of this fun and profit is when homeowners complain to local authorities and file petitions to exclude beekeepers from whose colonies the swarms originate. The belief that bees reproduce from the decaying flesh of oxen, disputed as early as 1702, would not be given credence in town meetings today. Rather than exclude bees, beekeepers could be given the option of organizing a free removal service. They would then have motivation to learn how to manage their colonies to prevent swarming, and to select a strain of bees adapted to the district honeyflow and inclined to supersede rather than swarm.

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

Letters Appreciated

Dear Editor,

You certainly took me by surprise. Here I was, lying on my back in the hospital, when all your letters arrived requesting the offer for detailed instructions for making the Dr. Miller Queen Cage. What was I to do? I did the best I could. It really is easy to make.

As for why I was in the hospital, I had the other knee fixed with a steel knee joint so arthritis can't torture me anymore!

Your letters left me flabbergasted. I am walking again "on air". I didn't know you cared for my writing. I am 91 now and I will be with you for a long time yet.

Cheerio, Charles Koover

False Advertising?

Dear Editor,

After seeing your ad for Indian Bee Journal, I wrote a letter and sent a bank draft from the Commercial Bank of Andalusia, Alabama, dated April 6, 1987. The bank draft was made payable to All India Beekeepers Association in the amount of $7.00. The Commercial Bank of Andalusia indicated that the draft cleared their bank June 14, 1987.

It has been more than six months since I wrote for the Indian Bee Journal. I have not received any publications or response to my subscription request. I think you should be aware that you have an advertiser in your publication that is not delivering what they say they will.

Jerome Mallory
Andalusia, AL 36420

Exciting Premature Observations

Dear Editor,

Now in my 37th year of beekeeping, this old, tired nuclear physicist decided to continue research by exploring the assets and liabilities of the different stocks and subspecies of bees.

Like all, I started with Italians, later followed by Carniolans (my favorite), much later with Midnites and in June 1986 with Caucasians then now in 1987 with Buckfast.

Our strong Maryland honey flow is over my mid-June and in central Maryland July and August is almost a total zero. Every book clearly indicates that Caucasians are "late bloomers", not up to strength until June. No good for central Maryland, I thought. I started just two Caucasians on all foundation on June 1, 986, planning to use their bees and brood sacrificially to strengthen my other hives as needed. I did just that, by using their brood in September to make strong wintering colonies and fully expected winter loss in the Caucasians.

On March 24, a beautiful 70°F day, Ann Harman and I totally examined 22 colonies of the 4 different bees: Italians, Caucasians, Carniolans and Midnites. Some of these colonies were long established and *every* colony had been requeened in September 1986. We went through the Carniolans, Italians and Midnites and found them all strong and in good shape. The two Caucasians were opened last.

Wow, what a surprise! Those two hives were boiling with bees, brood, nectar and pollen, totally covering 3 Illinois brood chambers! We were amazed! We even found some swarm cups started. Late bloomers?

How are the Caucasians to work? Well, that day Ann got about 10 stings and I got about 8 (good for both of us) *but all from the Italians*. The Caucasians were quite on the frames and very little smoke was needed.

These observations are extremely premature. Maybe some other beekeepers should try Caucasians to compare to their present stocks.

We will to continue to report on our Caucasians.

George Imirie

A New Use for an Old Product

Dear Editor,

At last, I have found the perfect use for those (Honey Master) NO-SWARM CLUSTER FRAMES, advertised back in the 70's and early 80's.

I use them as mouse guards in the winter. I merely take the three tiered frame and saw them into 1/3 the normal size and place in front of the hive on the bottom board. They can be anchored with a simple staple or an eye screw.

I anchor them over the vertical plastic so the frames can be lifted to scrape out dead bees on the bottom board from time to time.

Hope this method proves useful to others who have bought the frames and haven't found them practical for their no-swarm use.

Marian Chandler
85 Deerfield Rd.
W. Caldwell, NJ 07006

Killer Bee Fever: A South African Point of View

Dear Editor,

I know it is easy for me to comment on the subject of the "Killer Bees", I'm thousands of miles away. However, after reading several of the American journals I felt I should.

"Killer Bee Fever" is obviously running high in the States at present. The news hungry press have all the perfect ingredients for a long running horror story — Vicious insects threatening both big business, government and an ignorant public who feel that honey bees aren't really needed.

It was suggested, in one journal, that plans should be implemented in every state, Canadian province, as well as a co-ordinated Federal plan, to control the Africanized honey bee. This only made me wonder "at what cost?". Surely the cost of implementing such a large scale plan to control the bees would be as much (if not more) in the long run, than the acceptance of the bees.

Jim Powers could well be right when he says that over-regulation of your Industry could well do more harm than good.

Education certainly has got a large part to play, but not the sensationalized reporting that seems to be doing the rounds. I would suggest that the term "Killer" be reserved for your more notorious movie type bees. Africanized sounds just fine and is sure to solicit a more favorable reaction from the public.

We in South Africa have for many years worked with the African Bee. Despite it's aggressiveness our Industry is certainly expanding. Our local Department of Agriculture has a 207 page bulletin entitled, "Beekeeping in South Africa". I would suggest that beekeepers wishing to know

STATEMENT OF OWNERSHIP

STATEMENT OF OWNERSHIP MANAGEMENT AND CIRCULATION (Act of August 12, 1970). Section 3685. Title 39, United States Code). 1. Title of publication: GLEANINGS IN BEE CULTURE. 2. Date of Filing: October 1, 1987. 3. Frequency of Issue: Monthly: A. Issues #12. B. Price $11.70. 4. and 5. Location of known office of publication, headquarters or general business offices of the publisher: 623 West Liberty St., Medina, Ohio 44256. 6. Names and addresses of publisher and editor are: Publisher, John Root, 623 West Liberty Street, Medina, Ohio 44256; Kim Flottum, Medina, Ohio. 7. Owner: The A.I. Root Co., Medina, Ohio; Stockholders: Alan Root, Medina, Ohio; John Root, Medina, Ohio; Stuart Root, Medina, Ohio; David Root, Sebring, Florida; Elizabeth Judkins, Silver Bay, Minnesota; Katherine Warner, Kent, Ohio; A. T. Spitzer, Medina, Ohio; Blake & Co., Medina, Ohio; Ethel Calvert, National City, California; Clark Cooper, Medina, Ohio; Donald Demuth, London, England; Mildred Goldthwaite, Urbana, Ill; Warren & Roberta Heyer, San Diego, California; Ruth Packard, Tustin, California; Barbara Tweedle, Limerick, Maine; Mary Williams, Medina, Ohio. 8. The known bondholders, mortgagees, and the security holders owing or holding one percent or more of total amounts of bonds, mortgages or other securities are: None. 9. For completion by nonprofit organization authorized to mail at special rates (Sec. 132-122, Postal Manual); Not applicable. 10A. Total number copies printed (net press run); Average number copies each issue during preceding 12 months, 13,915. Actual number of copies of single issue published nearest to filing date, 13,970. 10B. Paid circulation. 1. Sales through dealers and carriers, street vendors and counter sales. Average number copies each issue during preceding 12 months; 201. Actual number of copies of single issue published nearest to filing date: 145. 2. Mail subscriptions: Average number copies each issue during preceding 12 months: 12,463. Actual number of copies of single issue published nearest to filing date: 11,887. 10C. Total paid circulation: Average number copies each issue during preceding 12 months: 12,664. Actual number of copies of single issue published nearest to filing date: 12,032. 10D. Free distribution (including samples) by mail carrier or other means: Average number copies each issue during preceding 12 months: 110. Actual number of copies of single issue published nearest to filing date: 110. 10E. Total distribution (sum of C and D). Average number copies each issue during preceding 12 months: 12,774. Actual number of copies of single issue published nearest to filing date, 12,142. 10F. Office use leftover, unaccounted, spoiled after printing. Average number copies each issue during preceding 12 months, 1,141. Actual number of copies of single issue published nearest to filing date: 1,828. 10G. Total (sum of E and F should equal net press run shown in A) Average number copies each issue during preceding 12 months: 13,915 Actual number of copies of single issue published nearest to filing date: 13,970. Total paid circulation as of October 1, 1987 GLEANINGS IN BEE CULTURE; 12,032. I certify that the statements made by me above are correct and complete (Signed) Kim Flottum, Editor.

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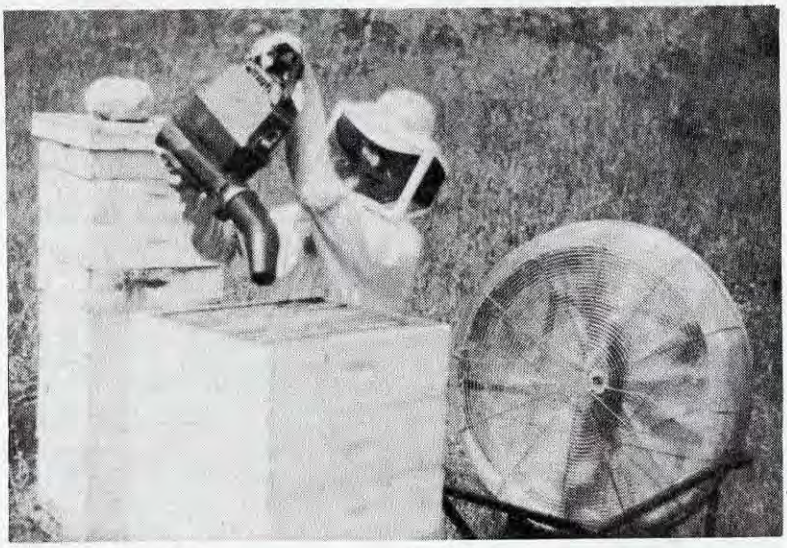
- Most efficient system for removal of bees from honey supers
- Large, rugged portable fan – "The Stingbuster" keeps bees away from operator
- "The Stingbuster" also keeps beekeeper cool
- Lightweight hand-held blower drives bees down into hive — Prevents bees from flying while taking honey supers off
- Blower drives bees out of supers in seconds
- Sturdy screened table holds supers and keeps bees away from operator
- Virtually sting-free operation

See our model on display at
The American Beekeeping Federation Convention
on January 23-26, 1988 in Houston, Texas



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more about the *adansonii* bee contact them at the following address: The Director of Publications, Private Bag X144, Pretoria, 0001, R.S.A. Ask for Department of Agriculture Bulletin No. 394, cost — post free, R3.30.

Maybe knowing what to expect could well stunt some of the adverse publicity these bees and beekeeping in general seem to be getting of late.

Well, like I said, I'm thousands of miles away and we've already got the African bee. I wish you all well.

Neill Le Roux
P. O. Box 14229
Green Point, 8051
Republic of South Africa

American Foulbrood Spores

Dear Editor,

Mel Disselkoen in his letter of September 1987, page 505, blames imported honey as the source of AFB spores. When Germany imported honey from the United States, they traced the source of AFB to dumps around Hamburg where containers from the United States were robbed by honey bees. Since commercial beekeepers in the United States depend upon the use of Terramycin patties to suppress outbreaks of AFB, the switching of combs will insure that spores will be scattered throughout the hives in their apiaries. Any containers that once held honey from such combs will also spread diseases if exposed in dumps.

Toge Johansson
East Berne, NY

Beekeeping is not for Slackers

Dear Editor,

The source of Richard Taylor's epigram (September, p. 519), is Matthew 22:14. I think that Taylor's interpretation is correct: Beekeeping, like the Christian life, is not for slackers.

I have observed the same problem in others and in myself. The romanticism evoked by the buzzing of bees among the apple blossoms on a warm spring day is dampened by the reality of extraction, storing and marketing. Marketing is the key.

A number of times I have asked myself whether I should give it up, but then several things support my continuing: a basic personal parsimony which hates to see all that nectar go to waste; and the customers who have come to depend on me for honey.

Daniel Hertzler
R#1, Box 576
Scottsdale, PA 15683

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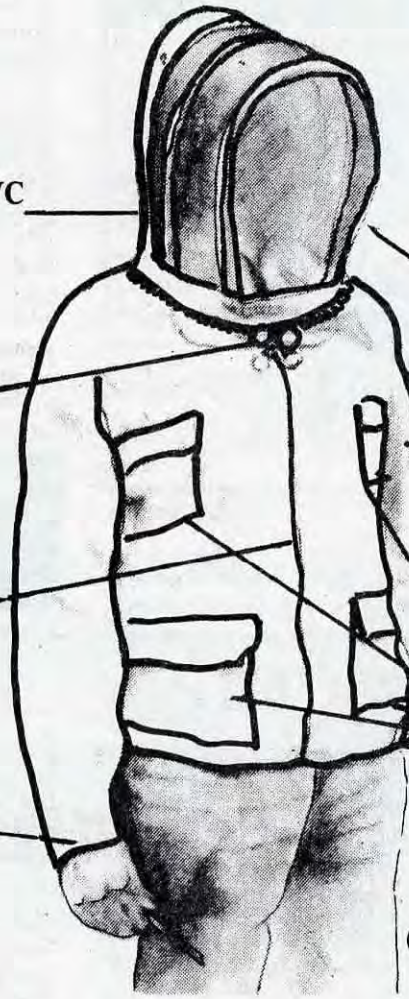

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QUESTIONS?

Q. *Why does goldenrod honey crystallize so fast?*

Frank Lencek
Fairmont, WV

A. Because it is high in glucose. There are other factors, too. Thus, goldenrod honey is usually mingled with aster honey, which, because of its high glucose/fructose ratio, granulates very fast. Also, goldenrod honey comes in the fall and cool temperatures hasten granulation. Honeys which, on the other hand, are high in fructose granulate slowly. This is why many honeys from trees, such as basswood and tupelo, granulate slowly or sometimes not at all.

Q. *I was recently told by our physician not to feed our nine-month old baby any honey until he is a year old. He said that honey, like all foods, contains spores of botulism which a baby's digestion cannot handle. But I had always thought of honey as a pure food. If honey is a pure food, how can it contain spores of botulism?*

Jon Barrett
Glaston, IN

A. To describe a food, such as honey, as being "pure food" is to say that it has not been adulterated, that nothing, such as corn syrup, has been mingled with it. Hence, honey that has been derived from the nectar of flowers that was gathered by bees and stored in their combs is, by definition, pure honey, even though it may contain pollen grains, for example, or even bacterial spores in infinitesimally small traces. As for botulism, the threat that honey poses for infant health is, I am sure, extremely slight, but, as has been recently discovered, the physician's opinion is not entirely without foundation. My own infant son, age eighteen months, loves honey and eats it daily, but he did not during his first year. Quite apart from all this, honey is certainly the best and most healthful and natural sweet on earth, and always will be, but it should not be suggested that it is, in some meaningful sense, more "pure" than other sweets, such as corn syrup.

Q. *We had a good flow from black locust, followed by a dearth, at which time the bees removed much of the light locust honey, eventually replacing it with darker sumac honey. But they did this only in extracting supers, not in comb honey supers. How come?*

Duane Waid
Interlaken, NY

A. In conditions of dearth the bees do invade their stores, naturally, but they begin with the stores closest to their brood nest. Evidently your comb honey supers were above honey stored in brood combs or extracting combs, and the bees just did not get up that far when the sumac flow came on.

Q. *Some of my bees will need to be fed in the spring and I would like to give them some old dark honey I have, but after reading Dr. Morse's article on p. 613 in the December '86* Gleanings, *I want to know how hot I would have to heat the honey to make it safe for the bees?*

Edward Reder
Bay City, MI

A. The article referred to describes some investigations in Denmark in which it was found that most of the imported honey and about a fourth of their domestic honey contained spores of American Foul Brood. Some of the more interesting facts pointed out by Dr. Morse are that such spores are often found in the honey of colonies that have never exhibited any symptoms of disease. In one apiary studied over a period of six years AFB spores were found in increasing numbers, as many as 15 million spores per five grams (less than one-fifth of an ounce) of honey, and yet none of those colonies showed any signs of having American Foul Brood. It is my interpretation of these findings, confirmed in consultation with Dr. Morse, that apiaries that have never had American Foul Brood may nevertheless produce honey year after year in which large numbers of spores of the disease are present. This is an astonishing discovery. Most beekeepers, and most bee inspectors as well, have hitherto assumed that if such spores get into a colony then the disease will surely follow. This appears not to be true, and calls into question what has always been understood to be the pathology of this disease. The data Dr. Morse cities do, however, explain some puzzling facts. I have, for example, known beekeepers who have taken supers of honey from diseased colonies and set them onto healthy colonies, in violation of law, in order to prevent the bee inspector from destroying the supers of honey, and the healthy colonies did not get AFB as a result. It is also known that healthy colonies can be fed sugar syrup that is contaminated with AFB spores and not come down with the disease. Obviously there is much to be learned, and much error to be corrected, concerning how American Foul Brood is spread and the best means of combatting it.

& ANSWERS!

by Richard Taylor

Now, in direct response to the question raised, there is no way AFB spores can be destroyed in honey by heating. The temperatures needed would destroy the honey. If, however, the honey in question came from healthy hives there is no good reason why it should not be fed back to them, assuming, of course, that it is not a quality suitable for table use.

Q. *My hives are all ten-frame size, and I have been given some eight-frame size excluders. Can I use these by adding a strip of masonite to extend the width?*

Lloyd Wehr
Calder, ID

A. Yes, such an excluder, enlarged with a strip on one or both sides, works perfectly well.

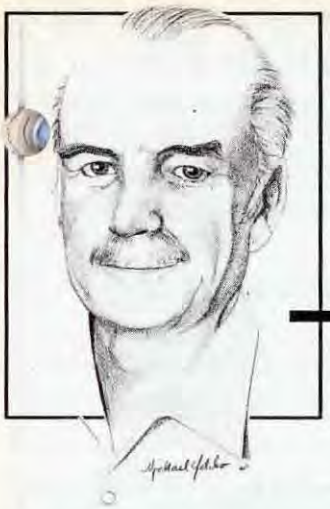
Q. *What is the best cure for cross bees?*

John E. Palmer
Newmarket, NH

A. A good honey flow. Bees become cross when under stress. Common stress conditions are dampness, nocturnal visitation by a skunk, excessive meddling by the beekeeper and, most common of all, a dearth of nectar in the fields.

*(**Ed. Note:** However, don't forget about the queens' genetic makeup. She may produce 'Cross' bees that no amount of management will eliminate. Requeening should then be considered.)*

Questions are welcomed. Send them to: Dr. Richard Taylor, R.D. 3, Trumansburg, NY 14886 and enclose a stamped, self-addressed envelope for prompt reply.§



THE BEE SPECIALIST

By ELBERT R. JAYCOX • 5775 Jornada Road North • Las Cruces, NM 88001

"Insure survival this winter — check BOTH carbohydrate and protein stores in your colonies"

Fall Feeding — Carbohydrates

We feed sugar syrup to honey bees in the fall for a variety of reasons: 1) to increase winter stores, 2) to serve as a carrier for medication, and 3) to reduce the detrimental effects of some honeys and honeydews on the wintering colony. Not all beekeepers agree, but there is good practical and research evidence that bees winter better in severe climates on pure sugars than they do on some fall honeys and honeydews that contain indigestible compounds. These often lead to dysentery and other problems for the wintering colony.

The effect of syrup feeding on the survival of colonies was well demonstrated by the work of A. Imdorf and colleagues at the Federal Beekeeping Laboratory in Liebefeld /Bern, Switzerland, reported in *Alpenlandische Bienenzeitzung* in 1986. They observed that the forest, or honeydew, honey in the vicinity of Bern in 1984 was very difficult or impossible to extract because of its content of lemezitose, a trisaccharide or complex sugar often found in honeydew. When the melezitose content of a honeydew is ten percent or higher it crystallizes solidly in the combs and is known as "cement honey" when this happens. It cannot be extracted and is unsuitable for winter stores as well as for food during spring buildup.

The spring losses of colonies in 1985 were very high in some areas around Bern, so the investigators used the situation to learn more about how fall management affected the wintering of colonies containing stores of cement honey. They also wanted to know more about the reasons for the seeming toxicity of this honeydew collected by the bees. Working with cooperating beekeepers, Imdorf and colleagues found that by mid-May of 1985, 160 of 835 colonies, or 19.2%, had died. Losses varied widely in different apiaries, from none to 86%. In an attempt to learn why, they compared losses with the amount of 1:1 sugar received by the colonies the previous fall. The results were highly significant!

The investigators placed the colonies into three groups, depending on the amount of syrup they had received: 1) 0 to 8 liters, 2) 9 to 16 liters, and 3) more than 16 liters. A liter is 1.06 quarts, and four liters are slightly more than one gallon. There were 244 colonies in the first group and 121, or 50%, died over winter. Of

the 539 colonies in the second group, only 29, or 8%, died. The third group, which received more than 4 gallons of syrup lost only 8 of 210 colonies, or 4%! Overall, when more than two gallons of sugar syrup were fed, losses were at the level expected under normal wintering conditions. Without that level of feeding, losses were extremely high. As a result, the researchers recommend feeding at least 2-1/2 gallons of sugar syrup under such conditions to give the colonies a better chance of wintering successfully. They point out, however, that there were two cases in which colonies were fed about three to four gallons yet one-third of them died over winter.

Samples of the winter stores were analyzed for their content of the sugar melezitose and the fate of colonies in relation to that level. With stores containing up to 10% melezitose, three percent of the colonies died. From 10.1 to 20%, 20% of the colonies did not live over winter. Twenty-eight percent died when their stores had more than 20% melezitose content.

It is not entirely clear why colonies die with stores of honeydew containing melezitose. The high mineral content of the stores is also a factor, as are water relations, *Nosema* infection, and dysentery. These appear to be related to damage of the midgut of the overwintering bee.

We do not have the varied and productive sources of honeydew in the United States that are found in Europe. Best-known here are honeydews from incense cedar, oak, and willow. To my knowledge, we do not have "cement honey", perhaps because the level of melezitose is low in the honeydews collected in greatest quantities in this country.

The experience and research in Switzerland is important for us because it shows so clearly that beekeepers can improve the winter stores of their colonies, even toxic ones, by feeding at least two gallons of sugar syrup in the fall. Winter losses of colonies with stores of fall honey can routinely be reduced by topping off the combs with sugar syrup. In cases where heavy winter reserves are of questionable quality, you may be wise to follow the Swiss recommendations and remove some full combs of the poor stores, replace them with empty combs, and give the bees syrup with which to fill them.

One aspect of the study not discussed is the fact that the feeding undoubtedly brought the *quantity* of stores in all colonies to a high level.

Continued on Next Page

JAYCOX... Cont. from Page 621

Without such feeding, some colonies would have insufficient or poorly-located food reserves. Those colonies that died after being given two to four gallons of feed probably had other problems relating to their queens, number of workers, etc. Routine fall feeding to improve stores and to apply medicaments can pay dividends in more and better colonies surviving the winter.

Fall Feeding — Protein

When we consider feeding bees in the fall, we invariably are concerned only with adding winter stores by feeding some form of sugar as discussed above. Protein feeding is traditional only in the spring to help colonies rear more brood prior to the first nectar flow. But there is good evidence that we should be more concerned about the protein reserves (pollen) and protein consumption of bees heading into winter.

A number of fairly recent incidents of colony losses have pointed to nutritional problems as the cause of colony deaths. One of these is "disappearing disease", a misnamed disorder that could better be called "dwindling". The last word from research on the problem suggests that it probably relates to a protein shortage. Colonies given combs of pollen in January increased in size and produced more honey than those given Fumidil-B (against Nosema), old pollen substitute, or left untreated.

In northern California, colonies that appeared to be in fine shape in August and September dwindled and even died by January and February of the next year. This seems to occur after poor honey seasons with low yields. Dr. Christine Peng studied this phenomenon by giving supplemental feeds, both carbohydrates (sugar) and protein (pollen and torula yeast), to colonies in fall and winter. She found that feeding *always* produced more bees in May than in unfed colonies, and that colonies given one-third pound of pollen supplement every two weeks, October to January, gave strong colonies at the least cost per pound of bees produced.

Steve Taber has seen signs of pollen shortage even at times when as many as three different pollens are being brought into his colonies in July. Evidence for the shortage is the disappearance of drone larvae in the combs. He suspects that pollens from some native plants may not support brood-, queen-, and dronerearing as well as those from plants of European origin where our bees are natives.

The most recent mysterious loss of bees occurred this year in Florida where there is some evidence that it resulted from lack of pollen after a poor summer and fall season. There have been reports also that colonies infested with tracheal mites do not collect normal quantities of pollen and are weakened because of this behavior.

We need additional research and good observations on the levels of stored pollen present in colonies in late summer and fall. Without sufficient pollen intake by adult bees, they do not develop their body stores so that they can survive the winter, resist stresses from diseases, pesticides, and the climate, and rear plenty of brood beginning shortly after the first of the year. "Skinny bees", without sufficient body reserves, may die rearing brood. "Fat bees", with well developed fat bodies and glands, rear young with little loss of adults.

Until professional research can define the effects of tracheal mites on infested colonies and offer some approved controls, beekeepers with mite-infested colonies may be well advised to determine the effect of feeding pollen or pollen supplements to such colonies in the fall. It could be a means of saving and strengthening colonies that otherwise might die.

A protein shortage is not easily recognized. When I was inspecting bees in California, I told a prominent queen breeder that his serious losses of cells and queens were probably due to lack of pollen. He laughed and refused to accept the idea at the time. But the suggestion stayed with him and the next year he told me that he believed his losses were due to a shortage of pollen for his cell builders.

If it is not too late when you read this, try feeding some supplementary protein to a portion of your colonies, half of them or half a yard if you can. Evaluate the results next spring and let us know what you find.

New Forage for Bees?

There are exciting new forage plants now available and others likely to be released according to John Leidner in *Progressive Farmer*, August, 1987. Several are legumes that offer higher yields and more grazing as well as potential nectar for honey bees. 'Nitro' alfalfa is a nondormant, one-year variety that will help farmers to cut back on fertilizer costs. It is grown as an annual and fixes twice as much nitrogen as ordinary varieties. If cut early for hay, 'Nitro' will not help the

Continued on Next Page

JAYCOX... Cont. from Page 622

bees, but it could be an ideal cover crop or one-season planting to prove the soil and provide forage for bees in the drier areas of the United States. Even better selections of nondormant alfalfas should be available in three to five years.

Leidner also mentions Kura clover, which is being grown in Australia and has good potential for the United States. Kura makes most of its growth in late summer and early fall when other clovers are not growing. Together with white Dutch clover, it could provide nearly year-round grazing in the South. Kura clover has also been called Pellett clover and was promoted by the Pelletts as a good nectar plant. Its use was restricted initially by the lack of suitable inoculates, but that problem appears to have been solved.

'Flame' crimson clover is being released by Florida researchers. It begins producing about a week earlier than other crimson strains and reseeds itself well under grazing conditions.

Berseem clover, a Middle East species, is a winter forage or green manure crop in Egypt, where four million acres are cultivated. It has been known for many years but little used in the United States. The variety 'Multicut' looks very promising for meat and milk producers in California and northern Mexico. It may replace large acreages of annual ryegrass planted annually to fatten steers. Late bloom on these pastures or acreage grown for seed should provide forage for honey bees.

Protect the Spectators

When we have an outdoor, hands-on beekeeping meeting, we expect everyone to have his own protective clothing. But what about the person newly interested in bees but without any equipment? He/she must hope to borrow a veil or risk being stung on the face without one. The alternative, probably common, is for the visitor to stay away from the opened hives and other demonstrations that could stimulate interest and help to get him started with bees.

The Huntingdonshire Bee Keepers Association in England has a better idea as reported in their newsletter by Arthur Golder. Two association members designed and made a portable spectators' tent. The details of its construction were not given, but it apparently has screened areas so that people without protective dress can watch in safety. It is available for use at any outdoor meeting where it can be set up in the apiary.

This is a fine idea for getting people used to the idea of working with bees. First, they can feel secure while watching hive manipulations and can observe nearly everything if the demonstrators work close to the tent or bring bees and equipment close to the viewing area. They can graduate from the tent to the apiary when their confidence increases — somewhat like wearing everything including gloves and then, later, taking off the gloves to work with the colonies.

In some cases, spectators at a beekeeping event may see strange dances and carryings-on. Norman Schofield told in the *Wight Bee* about a meeting in Botswana where one of the ladies retired hurriedly when bees got under her skirt. On another occasion in Gaborone, the capitol city where he kept bees for three years, his wife had to flee from his agitated African bees. She chose to leave with her skirt pulled over her head to protect her face, much to the astonished amusement of the neighbors.

Tunomas Honey

When you face a monthly deadline to write a column about beekeeping, you keep your eye peeled for interesting items to add to the file. Not all of them are what they seem. A good example is a 1983 book by Jim Sagel called *Tunomas Honey*. After seeing a reference to it, I pursued it to the rare book room of the University library. And, although I read and speak Spanish, I was not sure what kind of honey would be called "You, no more".

The book is a bilingual collection of tales about the people of northern New Mexico and includes some of the archaic Spanish still used in the area. The title comes from the lead story in which an elderly lothario always murmured to each of the women he pursued, "You're the only one, honey!"

Africanized bees, Mexico

I just received the 1987 annual honey report for Mexico distributed by the Foreign Agricultural Service of the U. S. Department of Agriculture. In it, they note that the Mexico-U.S. agreement "to delay Africanized bee movements" will begin operations during the last quarter of this year. Mexican beekeepers do not expect significant results from the new "control" agreement, according to the report. There are now many Africanized swarms in the Oaxaca-Tehuantepec region. What a shame to waste so much money in order to be able to say that the U.S. Department of Agriculture tried to do *something* about the movement of the bees toward our border. There are so many worthwhile things that could be done with those millions of dollars.§

Book Review

By Larry Connor

Southwestern England's world-famous beekeeper bee breeder, Brother Adam OBE, has recently released two books based upon his life-long work at Buckfast Abbey. Developer of the Buckfast strain of bee, Br. Adam is well-known by American beekeepers.

The first book is *Breeding the Honeybee*, a long awaited book on basic bee breeding as written from a beekeepers view. In this book, Br. Adam distills 70 years of study, experimentation and observation, and offers a rare opportunity for the average beekeeper to extend his knowledge of the subject. The book is highly recommended for all beekeepers, not just those interested in bee breeding. The book contains many illustrations and photographs, and includes a color photo of Bro. Adam on the flyleaf. The book contains 118 pages.

The second book is a new edition of *Beekeeping at Buckfast Abbey*. The monks of Buckfast Abbey are famou for obtaining maximum yields of honey with a minimum of time and effort. Their secrets of apiculture are explained in this book. This popular book has been published in no less than five languages. This new edition, the fourth, contains changes by the author, contains many photographs and is printed on 122 pages. The type has been completely reset for this edition, which represents a new publisher.

In the preface to the new edition, Brother Adam writes: " . . . in the case of this edition a few particular aspects of our beekeeping apparently call for an emphasis. Their far-reaching importance has not always been fully appreciated."

"Even in Europe, averages of up to 182 kg and an individual yield of 253 kg (equalling 558 lb.) have been recorded. However, we must, at the same time, accept that the best of strains, skill and equipment are of little avail when in seasons of adverse climatic condition every source of nectar fails," Adam continues.

Both books are available from leading beekeeping suppliers and book sellers.

Testing Your Beekeeping Knowledge

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

Strong, productive colonies are essential to successful beekeeping. Since brood rearing is the basis of colony development, management practices must be aimed toward fully utilizing the reproductive capacity of the colony. Basic requirements include: a young productive queen from good stock, large food reserves of both honey and pollen, ample room for food reserves and brood rearing, and a large supporting worker population. Since it is impossible to determine the quality of the queen by just looking at her, beekeepers are forced to evaluate her on the basis of colony characteristics and her brood pattern.

Please take a few minutes and answer the following questions to find out how familiar you are with brood production, and metamorphosis in the honey bee colony. The first eleven 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. ___ Newly emerged larvae resemble adult honey bees in appearance.
2. ___ During the pupal stage, the larval tissues break down and are transformed into adult tissues.
3. ___ The honey bee larva undergoes 5 stages of growth during its development.
4. ___ Approximately 1 day prior to emergence, the pupa undergoes a final molt.
5. ___ Eggs are attached to the bottom of the cell at the head end.
6. ___ Newly mated queens do not lay unfertilized eggs until they are at least 3 months old.
7. ___ The material that is used by the larvae in the construction of the cocoon is produced by the mandibular glands.
8. ___ Honey bee eggs are white in color and spherical in shape.
9. ___ Drone eggs are larger in size than eggs destined to become workers.
10. ___ House bees normally assist new adults as they emerge from their cells.
11. ___ A developing honey bee larvae lays on its side on the cell floor within a pool of semi-fluid food supplied by nurse bees.
12. Name two conditions that will produce a spotty brood pattern other than a poor queen. (2 points)

13. Regardless of the queen-rearing technique being used, list the basic colony conditions necessary for the rearing of good queens. (7 points).

EXTRA CREDIT QUESTIONS

14. Please give the name of the thin protective shell that covers the honeybee egg and the name of the pore through which sperm enter the egg. (2 points)

15. ___ A high level of Juvenile hormone in the blood during the pupal period is responsible for regulating the transformation of larval tissues into adult tissues. (True or False, 1 point).
16. ___ Ecdysone, the hormone regulating molting is produced by the corpora allata. (True or False, 1 point).
17. ___ Juvenile hormone is produced by the corpora cardiaca and is present in all stages of its life cycle. (True or False, 1 point).

ANSWERS ON PAGE 652

AMERICAN BEEKEEPING FEDERATION CONVENES IN HOUSTON

The Wyndham Hotel Greenspoint, 4 miles west of Houston International Airport, is the site of the ABF 1988 convention, to be held January 23-26, 1988.

Keynote speaker will be E. (Kika) de la Garza, Chairman of the House Agriculture Committee and the rest of the program theme will center on "100 years of Progress, a Challenging Future".

On the agenda will be the National Honey Board — Advertising and Promotion Information; A series of panel discussions, getting audience participation; and finally, a trip to Weaver Apiaries Inc., and Howard Weaver and Sons. The Weavers are having a 100 year anniversary party and you're all invited.

All these are great reasons to attend, but ABF President Randy Johnson has a few more:

- Meetings provide the opportunity to find out what other beekeepers are doing to solve their problems.
- Able to get technical information not available elsewhere.
- Updating current and future government programs.
- The opportunity to get acquainted with and chat with the bee supply dealers and suppliers at the exhibits.
- A different environment from everyday beekeeping — new ideas are more accessible and absorbed and you return home refreshed and ready.

Plan now on attending this once a year event. Travel arrangements are being made through Caravelle Travel, at 1-800-222-6664 in the U. S. Illinois and Canada call 1-312-860-8325. Reservations at the hotel can be made by calling 1-800-822-4200 U.S.A., 1-800-631-4200 Canada or (713) 875-2222. For more information on the ABF Convention contact the American Beekeeping Federation, 13637 NW 39th Avenue, Gainesville, FL 32606, (904) 332-0012 or see the December *Bee Culture*.§

The Wyndham Hotel Greenspoint, Houston, Texas. Site of the American Beekeepers Federation Meeting in January, 1988.

BEE TALK

By RICHARD TAYLOR • R. D. 3 • Trumansburg, NY 14886

"It's really quite simple. Next year I'm going to increase comb honey production, and get most of my colonies requeened. I'm very optimistic!"

Ruminating on bees takes up quite a bit of my time, and every now and then my thoughts get going in the direction of some grand new idea. I've cooked up quite a few ideas over the years and I know that a lot of them have turned out hair-brained. For that reason it is probably a wise rule never to advocate or even describe any new idea for beekeeping until it has been thoroughly tested. But that is a rule I find almost impossible to heed, especially around this time of year, when I look back and note how I might have done a few things better. Then things start to fall into place in my thinking and, before long, behold! A great new scheme has taken shape there, and I just can't wait to talk about it.

So that's what I'm going to do now. I'm going to describe the plan I've come up with for accomplishing two things next year in my apiaries: 1) increasing my comb honey crop and 2) getting most of my colonies requeened. It's really quite simple. I don't see how it can go wrong, and I'm going to be brooding on it quite a lot now until spring comes around again. Here is how it goes.

Some of my beekeeper friends get great crops of honey by what we call the 'Lou Cranson method', named after one of our club members who worked it up with stunning success. What it involves, basically, is splitting each two-story colony into two one-story colonies in the spring, requeening the queenless half, supering up both splits, then later reuniting them into a single powerful colony. The trouble for me is that my colonies are all one and a half stories. Two or three years ago I had the brilliant idea of splitting them anyway, leaving the shallow part on the original stand with the queen and supering over that, requeening the full-depth part, then reuniting. It was a fizzle. There was too much swarming, as I should have expected, and worse yet, I got lots of pollen in my comb honey. That's the main problem with putting comb honey supers over a shallow, half-story brood nest, as is standard with the so-called shook swarm method, which I have used many times: You get pollen in the comb honey. You think you have a super full of beautiful, white comb honey, then when you take it out of the super you find almost every section has dark, bad-tasting plugs of pollen in it.

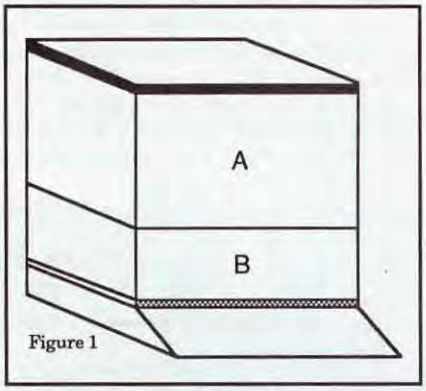


Figure 1. Early in spring a standard 1-1/2 story hive is arranged so that deep hive body is on top.

Early in the spring I'll make sure that all my colonies have the shallow story on the *bottom*, and the full-depth story on top. About half of them are that way anyway; it doesn't make a bit of difference to the bee which part is on top. Then in May, when the colonies are building up fast, I'll split them, leaving the *deep* story on the original stand, with the old queen, and set the shallow story up on top of the other, with a double screen in between and the entrance hole to the back. And right then and there I'll add comb honey supers to the full-depth part that is left on the original stand, without any queen excluder. Those supers will, of course, go underneath the double screen and shallow story.

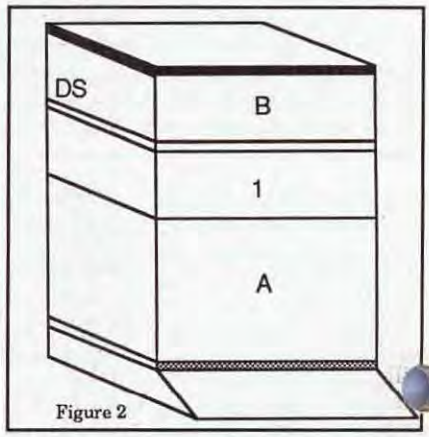


Figure 2. In May, as colony is building up fast, the shallow brood chamber (B) is set over a double screen (DS) having entrance to the back, and the first comb honey super (1) is added over the deep brood chamber. Old queen is left with (A) and new queen is introduced to (B). Field bees all return to (A). Combs of brood are removed from (A) every ten days or so to maintain a clear brood chamber there, being replaced with empty combs or foundation.

Then I'll requeen the shallow story and I'll keep a clear brood nest down below in the deep story, same as I did this year. That is, I'll check every ten days or so, and if that brood nest is getting congested with brood, not with bees, since I want lots and lots of bees there, then I'll remove two or three combs of brood and adhering bees and replace them with empty combs or foundation. That will discourage swarming. The combs of brood and bees I remove will all be put together to make new colonies, used to make nucs to sell to my friends who have suffered winter losses. Then I'll watch the comb

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TAYLOR... Cont. from Page 626

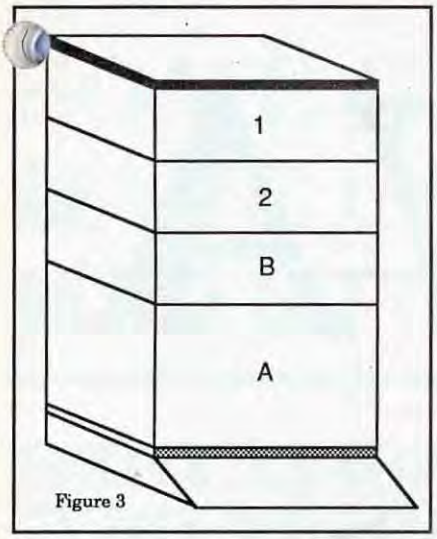


Figure 3

Figure 3. In early July, (B) is reunited to (A) and comb honey super no. 2 is added. More supers will be added as needed.

honey supers fill up with pollen-free honey, and around the fourth of July, when the swarming fever begins to taper off but just when the basswoods are starting to bloom, I'll reunite the colonies, putting the shallow split on top this time. By then the new queen will have made lots of brood in the shallow, and chances are she'll be the queen to survive when the two queens meet. And I'll have powerful colonies to go to work on the basswoods, and a bit later, the alfalfa.

What do I think are the advantages to this great idea? I'll list them.

1. It is simple. I don't have to find any queens. I just have to be reasonably sure she is not on any of the combs I remove to keep the open brood nest, nor on the combs of the shallow super when I split the colonies early in the spring. I will need double screens, but ordinary inner covers having screen on both sides of the hole will work fine.

2. No pollen in the comb honey. Since it is the *top* story that stays on the original stand, and it is a deep one, it should have honey in the top to serve as a barrier to pollen. That same honey will act as a queen excluder, too.

3. No robbing. The deep hive body, which has most of the stored honey, stays on the original hive stand. That is important, because if you move the honey, then the bees will rob it out and take it back to the original stand where they think it belongs.

4. Almost certain acceptance of the new queen. She is introduced to the moved part, while the field and guard bees, which would be hostile to her, remain at their original stand down below. Whether she is the queen that will survive later, when the two parts are united, is less certain, but I can guarantee that, too, if I have time, by destroying the old queen down below. I very much doubt that I will, however. I'll probably leave the choice of queen to the bees.

5. Minimum swarming. Splitting the colony will have a temporary inhibiting effect on swarming. After that I'll control it by periodic brood removal, as described below.

6. Maximum comb honey production. The bees will have been crowded down to a single hive body, to begin with, tending to force them into the comb honey supers. And that part of the colony will have retained all the field bees, the ones who bring in the nectar. And they'll have less brood to provide for at first, since part of it will have been moved away. And then, when the two parts are reunited, the colony will be overwhelmingly strong, the result of continuous brood rearing from two queens.

At least, that's how it all *should* work out. I'm optimistic.§

Questions and comments are always welcomed. Use Trumansburg address and please enclose a stamped, self-addressed envelope.

IOWA:

APIARY INSPECTORS: AT THE HEART OF IT

by Glen Stanley

Since it's beginning in 1912, each state apiarist has been involved in beekeeping of varying degrees. The concerns and goals of all were to keep bee diseases under control and to induce better beekeeping.

The Apiary inspection service of and for the State of Iowa was developed by Frank C. Pellett who lived most of his life on a farm near Atlantic, Iowa. Mr. Pellett was a man of slight build, extremely friendly and he dedicated his life to the things he loved so much . . . nature, wildlife, birds, plants and bees.

On his farm near Atlantic he set aside ten acres as a wildlife preserve. In later years he developed a honey plant test garden in search of plants most beneficial to honey bees.

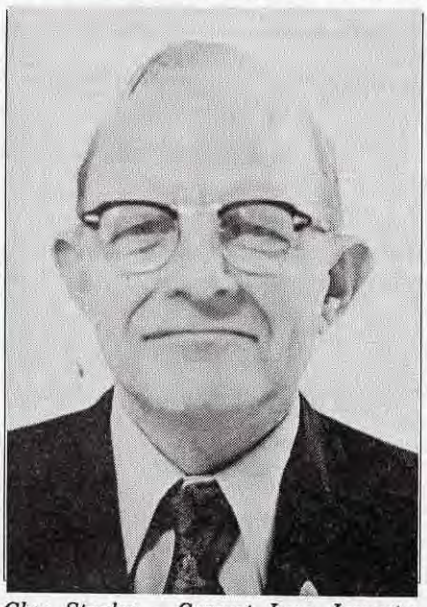
Pellett was appointed by the governor of Iowa as the first state inspector in 1912. He held the office from 1912 until 1917 during which time, or part of that time, he was also president of the newly organized Iowa Beekeepers Association. Each year during his terms as state inspector he edited a booklet known as *Report of the State Apiarist*.

As a field editor he traveled to many different parts of the United States, Canada and Mexico. This provided him with an opportunity to write about conditions in various sections. Frank was always observing honey plants wherever he traveled. He promoted field meetings and helped establish the Department of Apiculture at Iowa State College.

In cooperation with several agencies he established an apiary of 45 colonies to determine the possibility of developing honey bees resistant to American Foulbrood disease. This they did prove and later the work was turned over to the Division of Bee Culture at Iowa State.

Those who knew Frank Pellett will remember his enthusiasm, his philosophy of life and his fullness of purpose which made him a great man. He wrote several books and was co-author of others. His most outstanding work was his book, *American Honey Plants*.

Mr. Pellett's years as state inspector were followed by a man named F. Eric Millen. Mr. Millen was a graduate of a beekeeping course of the Ontario Agricultural College, under Morley Pettit. Millen was perhaps the first man to specialize in beekeeping during his college career and follow up this special training in charge of similar work in another institution. Soon after his graduation he was selected to take charge of beekeeping work at the Michigan Agricultural College. His work there was just beginning to come to public attention when he resigned to take the position of assistant professor of beekeeping at the Iowa Agricultural College in Ames. At about the same time the new law creating the office of state apiarist went into effect and Millen was selected for that position also.



Glen Stanley - Current Iowa Inspector (1973 photo).

Millen began teaching beekeeping at Iowa State and within a short time over one-hundred students and faculty members were attending these sessions. Millen had the ability of inoculating others with his contagious enthusiasm. He taught the practical side of beekeeping. He was careful not to leave any impression that everybody could get rich through beekeeping. He did give the impression that beekeeping is a dignified calling worthy of serious attention, and makes one think he must master the thing or get out of the game. He was elected president of the Iowa Beekeepers Association in 1918.

Millen maintained colonies in Michigan and Iowa for honey production. In this way he kept in touch with the practical work which adding to his income. While at Iowa State Millen prepared a correspond-

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SOME GRAND PEOPLE HAVE COME FROM THIS HEARTLAND STATE

DON'T COUNT OUT THE INDIVIDUALS . . . JOHN G. JESSUP

by Richard F. Trump

I wonder what sort of person John G. Jessup would be today if he *had* accepted the job culling chickens. This question interests me because I suspect that a lifetime with bees has some special effect on their keeper. The sweetness of honey, the burning pain of venom, the pleasant odor of warm wax, the uncertainties of nectar flow and honey market — such perceptions must have effects different from those of checking whether a chicken is prepared to lay an egg!

Before I comment on what John is doing with retirement, however, you should know more about his past. When he approached graduation at Iowa State University in 1921, after a brief interruption in the Army, he decided that the family farm in Illinois could not support another family, even with the advantage of a degree in agriculture.

"I had three openings in Ames," he recalls. "There was one in poultry for a person who could cull chickens, another in corn breeding, covering tassels with paper bags, and Prof. needed help in apiculture." (John still refers to his mentor, F. B. Paddock, as Prof.)

During the first summer, while helping with extension work, he recovered three swarms and kept the hives in the back yard of the Lambda Tau Alpha fraternity. "It was easy," John laughs, "to eliminate corn and chickens from my future."

By the time the fruit trees were blooming in 1924, Jessup had 50 colonies of bees, a masters degree in entomology, a wife named Sadie, a baby daughter named Margaret, and the offer of a job as Apiarist with The A. I. Root Company at Council Bluffs.

"I packed my colonies in one end of a freight car," John explained, "our furniture in the other end, and I rode in the middle." In his 17 years with Root, he answered countless questions for customers, along with other duties in the crunch of the depres-

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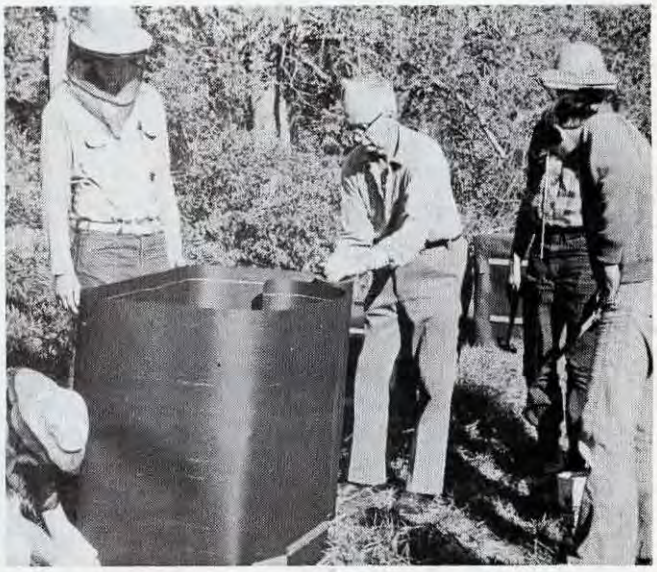
John G. Jessup (left) and the author, photo by one of our students.



When Jessup supervised wrapping for winter, the hives looked like Christmas packages.

STANLEY... Cont. from Page 628

ence course on managing colonies for honey production. In 1916 Millen was secretary-treasurer of what was known then as the National Beekeepers Association.

Following his tour of duty in Iowa he returned to Ontario, back to the Ontario Agriculture College in 1919 to head up the department from which he had graduated.

In 1919 Floyd B. Paddock came to Iowa and joined the Department of Entomology at Iowa State College. Among his other duties, he was elected to direct the apiary inspection work in Iowa. Mr. Paddock was a native of Michigan and attended Ohio State University and the University of Colorado where he received his degree in entomology.

Throughout his career as state apiarist he was also elected as secretary of the Iowa Beekeepers Association. He retained this status throughout the 40 years he remained on full-time at Iowa State. He was also assigned to other entomological duties during these years.

Professor Paddock also retained a number of colonies of bees which he used to observe on a regular basis in order to keep himself informed of general conditions. For a time he cared for the bees himself but eventually his beekeeping enterprise outgrew the time he had so he hired someone with beekeeping experience to care for them.

From the very start of the inspection service the State of Iowa published an annual report edited by the state apiarist entitled *Report of the State Apiarist*. This continued until 1955 when the state decided to cut off funds for the publication. During these years and with these reports Professor Floyd B. Paddock and the apiary inspection service became known nationally and internationally. He was a member and once president of the National Apiary Inspectors of America. Professor Paddock taught beekeeping at Iowa State for many years. During that time he was fortunate to have a man by the name of O. W. Park conducting research on honey bees at Iowa State. Such research programs received national attention.

Professor Paddock became semi-retired in 1957 which allowed him to be free of duty during the summer break at Iowa State.

Glen Stanley joined the inspection staff in 1949 and since his home-base was near the college he was appointed to direct inspection work during the three summer months.

Glen grew up with beekeeping. His great-grandparents and grandparents on both sides of the family kept bees. Finally, his father made it a business with the major portion of his work being production of queens. His home was in Decatur County in extreme Southern Iowa.

During the dust bowl days of the early 1930's, Southern Iowa suffered an extreme drought. So, Glen's father moved the bees from there to Central Iowa just north of Iowa State in Gilbert, Iowa. The queen rearing program was discontinued and all colonies were managed for honey production. In 1938 Glen joined his father in the beekeeping enterprise and in 1938 his brother Lloyd also joined the company and they became one of Iowa's major honey producing companies. This continued until 1942 when Glen joined the United States Armed Forces.

During that time the elder Mr. Stanley had given up beekeeping. Upon Glen's return, he and Lloyd took up a partnership in beekeeping. In the summer of 1949 Glen joined the apiary inspection staff. During that same period they also operated the colonies belonging to Professor Paddock. They were also engaged in the testing of some of the disease resistant bees that were being developed at Iowa State.

During the year of 1961, the dean of agriculture at Iowa State decided against all beekeeping projects so no funds were made available to further conduct research on bees or the continuation of teaching beekeeping. At the time, Dr. Walter Rothenbuehler was in charge of research so he acquired the bees and moved to Ohio State. This action left the apiary inspection service without a ho... Members of the Iowa beekeep... association moved quickly and made the necessary changes to move the inspection service into the Iowa Department of Agriculture. In June of 1961 Glen Stanley was appointed by the secretary of agriculture to fill the position as state apiarist and has continued as secretary of the Iowa Beekeepers Association since that time.

Over the years, he and his brother have maintained a number of colonies of bees where they can make investigations and have developed a number of good management practices by the field research and experiments conducted. Glen has also supervised classes conducted throughout the state as well as symposiums and has edited a monthly newsletter since the state apiarist report was discontinued in 1955.

Currently, Glen is a member of the Apiary Inspectors of America and served as the president of that group in 1963. That provided him with the opportunity to speak before the group assembled at Beltsville, Maryland, at the only international apiculture congress ever held in the Uni... States. He has retained members... in the American Beekeeping Federation for over 20 years and is currently a member of the American Honey Producers Association.§

TRUMP... Cont. from Page 629

sion. He also put some of his honey production ideas on paper. Readers of *Bee Culture* became familiar with the J. G. Jessup byline. During one period he contributed a column, "Just a Day's Work." Here are a few excerpts from his articles and columns:

•**October, 1926.** (Concerning a less expensive alternative to the wooden cases for wintering.) *Our constantly growing apiary has been successfully wintered in the tarred felt case for the past four years. In the fall of 1925 we packed 428 colonies by this method, with quite satisfactory results.*

•**December, 1934.** (Concerning the Caucasian race of bees.) *What a satisfaction it is to be able to work without stings! What a relief in the extreme heat of summer to lay aside veils and shirts! Little smoke is needed, and in fact, they can be handled without smoke if care is used. A little smoke, however, makes more rapid work possible.*

•**June, 1935.** *When asked many years ago, "What goes best with bees to increase the income?" Doolittle's reply was, "More bees." They do not require the close attention that chickens, cows and other live stock do. You can plan a weekend trip in the busiest season without loss, as the bees feed themselves and work whether you are there or not.* (He had 500 colonies at that time.)

•**April, 1941.** *They were flying from the top entrance when ice and snow covered the lower one. It may be that some of our winter loss in the past has been due to frozen entrances. Certainly the top entrance is going to take care of that.*

•**June, 1941.** (Concerning making nucs above strong colonies in spring, giving the nuc a young queen.) *With the queen rests the success or failure of the colony. With surplus young queens in the yard no colonies will fail to produce a crop because the queen is superseded during the build up period. Whenever queen needs to be replaced, she is killed and one of the nucs is placed on top of the colony.*

Tragedy came to the Jessup household in 1932 with the death of Sadie from a strep throat infection. John's comment in a family history was, "Unthinkable . . . unbelievable." Shortly before this, tragedy struck in the home of another Iowa State couple, taking the life of the husband. John's account states, "On Thanksgiving Day, 1933, Frances Lieberknecht and I united our broken families. This gave us five children, ages 3 to 9! Margaret, Mary Beth, Eleanor, Jack and Jane." It is a real joy to hear John and Frances recount the rearing of this double family — an illustrious group. John summarized with a characteristic twinkle, "They are all alive, and no one is in jail!"

There were good years and bad: an average of 13-1/2 pounds per colony in 1937 (the hot dry one); 152 pounds in 1940; 181 in 1955; and 208 in 1959.

1941, the year when John resigned the Root job and moved the family to Perry, Iowa, was one of the worst — a 15 pound average. To help cover the losses, he sold tickets at the Milwaukee Railway station and loaded hog carcasses on trucks bound for Armour in Chicago. Through good years as well as lean ones, the entire family was involved in the basement chores. "Honey production means togetherness," Frances declares — "nailing equipment, extracting, bottling, labeling." Preparing for emergencies, Frances donned a veil and learned how to manage the colonies. She often supervised in the basement, and occasionally filled in for speaking engagements about bees and honey.

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From his expression here, it appears that the "retired" beekeeper has just seen a student place a frame of honey in the middle of the brood nest.

UNIQUE BEE HIVES: A PICTORIAL ESSAY

Beekeepers are an inventive lot, not only in the U.S. but worldwide. These photos were taken at The Skansen — The Museum of Apiculture in Swarzedz, Poland.

With some inspiration, perhaps we'll be seeing similar colonies in this country — The Statue of Liberty perhaps, or even a lifelike statue of L. L. Langstroth.

Main entrance to the Museum.

A typical folk character, with traditional dress of the period.

Another folk figure.

A rather stern figure.

A fairytale figure.

Photos by Piotr Jurga Poznan, Poland

A lifelike folk figure.

St. Ambrose, Patron Saint of Beekeepers.

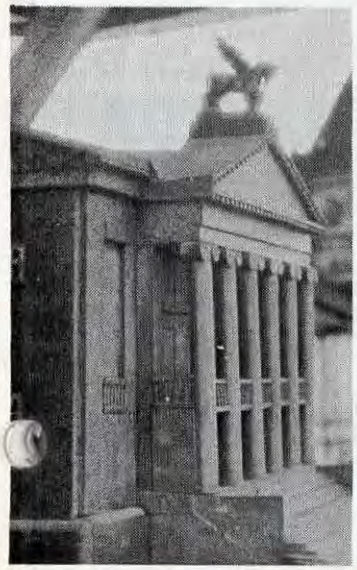
A typical Polish nobelman.

The Chinese were always considered a symbol of wisdom and mystery.

A rather scary folk figure.

Jankiel — A character of "Pan Tadeusz", by Adam Mickiewicz, one of the greatest Polish romantic poets.

A knight was a symbol of courage and honesty, as was the beekeeper.



The Opera House in Poznan, Poland.

A Report on our Two Courses in July

By STEVE TABER of Honey Bee Genetics • P. O. Box 1672 • Vacaville, CA 95688

"The Goal of any learning enterprise is to have both *teacher and student leave a better person."*

HONEY BEE GENETICS sponsored two courses in July, one on queen rearing (QR) and the other on artificial insemination (AI). Attendance was twenty-two for the first and sixteen for the second, with participants coming from four different countries and states other than California. This surprised us, but the participants enjoyed talking and visiting with beekeepers from far away as much as they enjoyed the material presented during the course.

In both courses, Dr. H. H. Laidlaw spent several hours with us, visiting and talking with the participants, assisting them in their learning of AI. He brought with him a West German scientist named Dustman who studies bees at a laboratory in Celle, a small village in the north of Germany.

AI...

For the course in AI, the Zeiss Optical firm loaned us three different stereomicroscopes as demonstration models. One of the participants also brought a microscope; so, we were able to have four AI devices and six microscopes in use.

The course was set up as follows: The sixteen participants were divided into two groups of eight, who would divide their time of one and a half hours each, either downstairs working with the microscopes or upstairs listening to lectures on insemination of queens, genetics in general, bee genetics in particular, breeding programs for bees and our breeding program here at Honey Bee Genetics.

Of the sixteen participants in the AI course, only two were grounded in genetics and the use of a dissecting microscope. Because of this, instruction had to be very elementary and had to progress rapidly to a very advanced level, leaving some of the participants a bit confused at times. Since all microscopes were different, four people were assigned to each. The first work they did was to find their hands and learn to manipulate their fingers. The second stage was to collect semen from the drone; collected semen was then expelled and more semen was collected. The third stage was to learn to insert the syringe into the queen; but instead of injecting semen, they used only saline water.

The reason for injecting water instead of semen into the queen is that if you can inject water with no leakage, you certainly can inject semen. I had previously determined that students learning AI would become too tired and nervous after spending an hour or longer collecting semen to go into another learning period of syringe insertion. Of course, after much practice and experience, a load of semen can be collected in from six to eight minutes, while it takes only another minute to position the queen, insert the syringe and discharge the semen into her.

Friday evening of the first day I showed slides of our testing and queen rearing programs here and, of course, answered many questions. Some of the queen rearing slides were sent to me from a Swedish beekeeper showing the development of a queen larvae in her cell. The cells were glass tubes of about half an inch long. On the second evening, Dr. Laidlaw and his wife Ruth joined us for dinner and to watch a video tape of that great beekeeper naturalist in England, Brother Adam, describe his efforts to improve his Buckfast breed of bees. Following the tape, Dr. Laidlaw took the stand and answered questions from the participants.

The last day, Sunday, was a repeat of the previous day, practicing collection of semen and insertion of the syringe into the queen. About three-fourths of the participants were successful, which does not mean that they now knew how to inseminate a queen; it means that they were ready to go home and practice effectively.

A certain change for next year, suggested by all participants, is that more microscope time be provided each participant. We will do that by increasing the course length to three full days and by assigning three participants to each microscope instead of four.

Continued on Page 639

VARROA MITES: An Introduction

By DR. JAMES TEW • The Agricultural Technical Institute • Wooster, OH 44691

"There is far more information available on Varroa *than there was with the Tracheal Mite."*

The report of a new Varroa mite infestation is not good news to areas that were previously uninfested. Steadily, throughout recent years, the areas of the world *not* inhabited by Varroa mites are declining. Today, the mite is found on every continent except Australia (Nixon, 1983). There never has been a reason to think that it will not spread to other areas; the U.S. included (Ruttner, 1983).

History

Ritter (1981) described the Varroa mite as a recent pest of honey bees (*Apis mellifera*), that seemingly has broadened its host range from the Indian Honey Bee, (*Apis cerana*) to include our honey bee. *A. cerana* seems to have had a long association with Varroa and the two seemed to have developed a tolerable relationship. This has not been the case with *A. mellifera*. It is not uncommon for the mite infestation to be so severe that the honey bee colony dies. Ritter (1981) and Ruttner (1983) felt that this indicated that the relationship between honey bees and Varroa mites was still developing.

Description

Varroa is a large mite (1.2 mm wide x 1.6 mm long). It can be seen with unassisted eyesight appearing somewhat like a small brown tortoise on the back of the bee or on developing brood. The mite is ideally suited to grasp the bee. Stiff hairs and suction cups on the bee's tarsi (feet) make it difficult to dislodge the mite from its host.

Biology

The mite ingests blood that it sucks from the host bee. Normally the mite takes its meals between the head and thorax or between the thorax and abdomen. Additionally, they are frequently found on the first abdominal segments. At any of these locations, the mite punctures the intersegmental membrane to get its blood meal. Ritter (1981) felt that the actual loss of blood from the developing bee was not the cause of death, but rather subsequent infections that entered through the wounds that resulted from feeding sessions. Ball (1983) reported, from Germany, that dead brood and adult bees from Varroa infested colonies had large incidences of Acute Paralysis virus and summarized that the apparent effect of Varroa on bee colonies in part may be related to the invasion of honey bee virus entering through feeding wounds. Adult bees are mainly vehicles of transport that carry mites to developing larvae but also serve as a blood donor during winter months when there are no open brood cells. Older larvae in the developmental stage are affected the worst and drone larvae are preferred to worker larvae. Queen larvae are affected only in heavy infestations.

After entering a brood cell, the female Varroa mite is enclosed with the larvae and within a short time, has a blood meal from the bee larva. The bee larva enters the prepupae stage and begins to spin its cocoon. Shortly after the larva has finished its cocoon, the mite will lay 2-5 eggs on the larva (Ritter, 1981). The eggs hatch into young mites (mite larvae) about 24 hours later and, in this stage, have six legs. The mites reach maturity in about three days, but require 8-10 days to complete development. The males are smaller and in the adult stage, don't eat; therefore, they die soon after mating.

The young mites mate within the enclosed cell. As the bee emerges, so do the newly mated mites. After about 4-13 days, they will seek a brood cell (normally eggs are laid in only one cell) for mite egg deposition. The adult mite lives about 2 months in the summer and 5-8 months during the winter (Ritter, 1981).

Infestation

Varratosis develops slowly during the first one to two years on infestation. Ritter (1981) reported that an initial population may be no larger than 1 - 10 mites, but increases to 1,000 mites by the third year. During these early years, the beekeeper may not see any obvious signs of infestation. By the time the mite population has reached a high level — enough for the beekeeper to notice deformed bees — there is a good chance that the mite has spread to other colonies. At this stage, mite control within the infected colony is dubious.

Ruttner (1983) reported that migratory beekeeping was a major way to spread the mite. Once the mite is in a particular area, the rate of spread seems to be about 1.6 miles per year (2.5 km). Swarms, drifting foragers, and drones can also spread

Continued on Next Page

TEW... Cont. from Page 635
the parasite. Grobov (1976) observed Varroa migrating from one initial infested colony to other colonies at the rate of:

100 m away - 32 days
500 m away - 73 days
6-7 km away - 3 months

That the initial infestation is known is important for these figures to mean much, but at least it shows that the spread can be surprisingly fast under some conditions.

Normally, under heavy infestation, Varroa mites can easily be seen on larvae. By this time, the colony has a high infection rate and little can be done to salvage the weakened colony. Examining bottom board residue for dead mites is an easy process for an initial investigation; especially during spring manipulations.

Control

The mite has been in Europe for many years. Consequently, many research projects have been conducted to determine control techniques. Ritter (1983) reported that some known materials when applied as dusts, smoke, aerosol, sprays or systemics were effective as control agents. Bounias and Popeskovic (1987) reported that Varroa requires copper in its diet to affect protein synthesis. Suggestions were made to inhibit copper in the diet of the honey bee thereby affecting protein synthesis in Varroa. Van Laere and Ifantidis (1983) suggested a technique to use a smoke device and dicofol to treat infested colonies. Applying 10 mg of dicofol for 4 minutes (minimum) gave 100% mortality after 24 hours. Tobacco smoke gave good results when used to control Varroa in studies conducted in Greece and Germany (Ruijter, 1983). Other chemical control agents have also shown promise. It seems reasonable to think that a satisfactory chemical control agent can be developed.

Khin Maung Aye (1982) and Soe Thein (1983) described procedures for controlling mites without the use of chemical controls. In a presentation by Soe Thein, a description was presented on the process of confining the queen in an infested colony on 21 day cycles. The procedure was developed by Mg Nyein in Burma.

Varroatosis is not a pleasant situation. However, all is not lost. Chemical control agents are in advanced stages of development. Apparently, some managerial procedures can, at least, lessen the impact of the pest. Additionally, everyone seems to agree that Varroa is an undesirable pest and control should be implemented immediately. This was not the case with the recent introduction of the tracheal mite. The debate on how damaging the tracheal mite really is to its host hive, still lingers. Certainly, more information is forthcoming on the Varroa mite and its effects on bee colonies.§

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TRUMP... Cont. from Page 631

The laughs about the year when John announced that if the bees averaged a hundred pounds, there would be a vacation in the west. The bees did it. And the family did it — all seven in a Plymouth to Salt Lake, Yellowstone, the Tetons and Mt. Rushmore.

By the mid 60's, with the children grown and dispersed in various directions, John began transferring more responsibility to Ron Bronnenberg, who had been helping with the business for several years. Ron rented some of the colonies on a share basis and bought others. The shift was completed in 1970 and the Jessup couple moved to Ames.

For a few years, while John was 'hiding out' and working on family history, I was not aware that a retired beekeeper was living only a few blocks away. I had maintained a few colonies since 1959, mainly as an aid in teaching biology at Ames High.

The honey bee is a superb biological specimen, and I had learned about bee behavior from work with Walter Rothenbuhler. When chance brought J. G. Jessup into my life, however, I began to see the distinction between merely *keeping* bees and producing honey.

Before selling his business, Jessup had become deeply committed to community affairs — chairman of the hospital board for 15 years, an elder in the Presbyterian church, an officer in Rotary, a member of the Dallas County Museum board, while Frances had her own commitments such as P.E.O., the YWCA state board, and teaching in the church school on Sundays. John's business connections included organizing a packing plant (Iowa Pork) and reorganizing a faltering building and loan association. How this couple managed to travel so much, including trips to England and the continent, is difficult for me to interpret.

In Ames, along with tutoring beekeepers, John invests time with Kiwanis projects, helps an organization that provides used furniture to foreign students at Iowa State, delivers for Meals on Wheels, and spends one morning each week as a volunteer in the hospital's hospitality shop.

In 1975 Jessup helped Iowa State's Entomology Department revive a course in beekeeping. (There had been none since Rothenbuhler left for Ohio State 15 years earlier.) When the instructor left abruptly for Texas, John assumed responsibility with the help of a graduate student, back to much the same assignment that he had more than 50 years before.

By the time I reached retirement age in 1977 at Ames High, Entomology 222 was going strong, and John recommended I take over. He remained available, however, helping with many of the labs, no doubt reducing the frequency of blunders that I would have made without his guidance. His contagious good humor made frustrating moments in the bee yard pleasant for the students as well as for me. Once when we were puzzled about a swarm-destined colony, he remarked, "Isn't it strange how easy it is to tell others how to keep bees but how difficult it is to tell yourself what to do!"

And when I had failed to notice the need for a fresh queen, John mentioned one of his own problems: "It was a good colony, a big one. I decided to split it and sell the nuc. I guess I did something wrong. The man who bought the nuc got three supers of honey from it. The part I kept barely made enough to get it through the winter."

My notes of July 26 indicate that we opened a colony and found that the bees had not worked in the super, and when we got down into the brood nest, John remarked that the colony sounded queenless. Puzzled by his interpretation, I asked, "What do you mean — *sounding* queenless? To me it just sounds like bees buzzing." And John replied, "It sounds queenless because we haven't found any brood!"

In 1981 he once more attempted to resign. The Entomology Department honored him at a reception; and in 1982 the College of Agriculture cited him with an Exceptional Meritorious Award. I say "attempted" to resign because I am not sure he can accomplish that. He still attends three exercise sessions per week and regularly assists an engineering professor and a retired minister who are into bees, along with his community projects.

What next? My guess is that it will have something to do with honey. Once while we were working bees together, John remarked, "If I collapse out here some day, wait a half hour before you call for an ambulance." But now that Entomology 222 has been discontinued for lack of funds, someone will have to revive it. Don't count John G. Jessup out. He is *only* 88.§

Richard Trump, author of this article, has also recently written a new book, 'Bees and Their Keepers'. *It is published by Iowa State University Press and will be available from The A. I. Root Co. in January, 1988. Excerpts of this article were taken from the book.*

Growing Up Growing Bees

By JOHN J. MC KELVEY, JR.
Route 1, Box 144-A, Richfield Springs, New York 13439

Dad was a New York City lawyer and a weekend farmer on our 50 acre farm in Columbia County, New York. The farm was really an experimental farm in the sense that he tried out many types of farming — a little bit of this and a little bit of that but nothing that paid. We lived in the city during the winters and on the farm in summertime, but Dad never seemed to be able to tear himself away from his office for more than weekends whether during the summers or the winters.

If Dad ever kept bees successfully, it was before my time. But he had three hives on the farm. One Sunday afternoon he moved them by wheelbarrow. Bees don't like to be moved. Worse, the barrow upset and broke up one of the hives. I was not at the scene of action so I do not know how he got the hive back together again. But he came racing into the house with thousands of angry bees pursuing him. That evening he left for New York and the entire week that he was gone, confused, angry bees stormed every screen door and window of that house looking for him. To get by the bee barrier we had to take a running start every time we wanted to go in or out of the door.

That episode of moving bees ended my father's association with them. Sometime later I asked him if I could have his abandoned hives. When he said yes, he presented me with just the opportunity I needed to succeed at something where he had failed. So, armed with a bee suit, gloves, veil and a smoker with billows of smoke pouring from its snout, I went to open up the hives to have a look inside. What a mess! Honey, wax, gum and bees all stuck together. To pry the frames of honey comb apart made the bees angry, of course. But the smoke acted as a fire alarm and sent them to the broken combs to gorge themselves in preparation to abscond in the event of a real fire. Satiated with honey and therefore somewhat placated, the bees allowed me to take away some of their stores.

Time, patience and practice brought the bees and me into an acceptable working relationship. When the bee inspector came by a year or so later to look for disease in my colonies, he wore a veil, but no gloves or other protective clothing, an open-necked shortsleeve shirt - his hairy forearms bare. If he could manage bees that way, why couldn't I? And I, too, became ever more casual and the bees correspondingly more gentle. Beekeeping then began to develop from thievery into an art.

One can become too casual with bees. I once tried to move a hive, too. It was heavy, so I straddled it while lifting it, and the side of the hive broke away from the bottom. Bees poured out, clustered around my ankles and stung them profusely. Many of the bees crawled up inside my trousers. By that time I had learned the most important lesson in beekeeping: ***Don't panic.*** When bees are confined they always go up; they seek freedom outward and lose the impulse to sting. Given a bit of luck, if I stood perfectly still, did not crush the bees inside and antagonize them, they ought to rise and exit at belt level. So I loosened my belt. They did not sting, and they all came out.

I keep bees today for reasons the same as when I opened my first beehive — for the fascinating challenge they afford not only in dealing with them but also in taking advantage of them as enemies. You may get hurt, but you probably won't get killed. And if you understand bees as enemies, you may not even get hurt.

The sentimental slush written about bees may have its place in literature and elsewhere, but really bees are neat, industrious creatures only by accident, and then, in a haphazard way. One must learn their habits and idiosyncrasies for his own protection. Accepting them for what they are — enemies — he will be most successful if he is least conspicuous in what he does with them — on their terms and in accordance with their way of life.§

TABER... Cont. from Page 634

QR...

The QR course was very different, of course, with different type people attending Some were commercial or semi-commercial beekeepers who had much experience raising queens. They said that the reason they were here was to learn more about what they were doing so they would make fewer mistakes. We covered and discussed at great length the different methods used by people who raise queens, showing the tremendous diversity in methods. We also discussed and tried to dispel the many myths in the business of queen rearing and showed demonstrated scientific references to dispel these myths.

Myth 1. Queen larvae transferred into queen cell cups have to be returned to the bees immediately. **False.** Dr. M. V. Smith showed that he could hand feed larvae in the laboratory incubator and raise queens from them. He fed them once every twenty-four hours. He found that it was necessary to keep the incubated larvae at 95% humidity. Two important points to keep in mind: 1) the transferred larvae, twelve hours old, do not need or require immediate attention; and 2) what they do need is to be kept from drying out with a wet towel covering them immediately after graft.

Myth 2. There is one method of raising the best queens. **False.** In experiments, Dr. Roger Hoopingarner, testing three different methods of queen rearing, found no difference. The important thing to realize is that excellent, good, poor and very poor queens can be reared by any method or scheme. The queen rearer has to continually make subjective evaluations about the potential quality of each queen.

Myth 3. In order to raise good queens, you have to have a super colony with a tremendous population of bees. **False.** In work that Dr. Christine Peng did in Canada, it was shown that a good queen could be reared by just 250 bees of the *right age.* These right age bees were shown to be between five and ten days old. Older foraging bees contribute to the developing queen only as they bring pollen and nectar into the hive and distribute it throughout the hive. In fact, if the honey flow is very heavy, the participants were told they would not get good queen cells and they should move the queen cell building colony ten or twenty feet to lose the field bees so that the house bees would concentrate on rearing queens.

Myth 4. Keep the grafting house like a bee hive, warm and moist, 90% humidity and 93°F. **False.** Keep the grafting area humid but as cool as possible, but not freezing. When the grafting frame is out of the hive, wrap it in a wet blanket. After the cells were grafted, wrap them in a wet blanket. Place all of them into the refrigerator overnight; then place them into your colonies. Examine in seven days to see what has been killed by the cold. Each and everyone of you has a refrigerator — try it. Let me warn you that the grafted cells and the comb of all age larvae has to be wrapped tightly in a wet towel to maintain 95% humidity at all times around the little darlings.

The participants of both courses maintained that they had all learned more about their bees and had enjoyed the learning experience and the companionship. That was the purpose of the two courses; so, Tom Parisian and I have to declare them a success. Others will be prepared and given next year.§

HOME HARMONY

By ANN HARMAN
6511 Griffith Road
Laytonsville, MD 20879

Do you use an ax to cut your holiday fruitcake? I am sure some people do. I have been served quite an assortment of fruitcakes; those made of chunks of rubber surrounded by sawdust, some that resembled well-troweled concrete, and tasteless others made of a few bits of candied fruits lost in what seems to be stale bread.

Recipes for fruitcakes indicate that it is best to bake the fruitcake several weeks ahead of time to let the flavors blend. Unfortunately, during this time the cake frequently dries out. Using a fruitcake recipe with honey will certainly help prevent that from happening. Besides, the honey contributes its own flavor, as well as an enhancement of the fruit flavors.

Try this recipe for a fruitcake made with honey. Bake it during the month of November (before life gets hectic) for December festivities. A good, homemade fruitcake makes an excellent gift, so make several, in different sizes and shapes, too.

Fruit Cake Confection

1-1/2 cups walnut halves
1-1/2 cups whole Brazil nuts
1/2 cup seedless raisins
1 cup halved, pitted dates
3/4 cup whole candied red cherries
1/2 cup whole candied green cherries
1/2 cup diced candied pineapple
1/2 cup diced citron
1 cup sifted all-purpose flour
1 teaspoon baking powder
1 teaspoon salt
3 eggs
1 cup honey
1 teaspoon vanilla

Reserve 1/4 red cherries. In a large bowl, combine nuts and fruits. Sift dry ingredients together and shake over fruit. Mix lightly. Beat eggs well and gradually add honey in a fine stream. Continue beating. Add vanilla. Blend thoroughly into nut-fruit mixture. Grease bottom and sides of 9-inch tube pan. Line bottom with brown paper. Grease paper. (If you use Kitchen Parchment you will not have to grease the bottom liner.) Spoon cake mixture into pan and press batter down on nuts and fruits. Bake at 300° for 1-1/2 hours. Then, if top is brown, cover loosely with foil and continue baking another 30 minutes or until done. Cool cake in pan 10 minutes. Loosen around edges. Turn out on wire rack. Remove paper. TO DECORATE: Cover top of cake lightly with honey. Arrange halves of candied red cherries over top. Cool completely before wrapping for storage. Makes approximately one 4-lb. cake.

THE HONEY KITCHEN
ed by Dadant

Honey candies also make a welcome gift, as well as an elegant display for the holidays. Make an assortment of types and your gift box of candy will be both attractive and fun. These recipes can be tackled by children of all ages. Children do appreciate being able to contribute to holiday preparations and will definitely take pride in making homemade candy for gifts. The important thing to keep in mind is — make the candies "bite size". A candy that is too large just gets fingers sticky. Candies can be made in advance and kept in a container with a tightly fitting lid.

Coconut Bites

1/2 cup butter
2 tablespoons milk
1 cup flour
3/4 cup honey
1/4 teaspoon salt
1 cup grated coconut
1 teaspoon vanilla
2 cups Rice Krispies

Combine all ingredients except vanilla and rice krispies in saucepan. Cook over medium heat, stirring constantly, until dough leaves side of pan and forms ball. Remove from heat and cool. Add vanilla and rice krispies. Shape into balls. May be rolled in additional coconut. Chill thoroughly. Makes about 42 bites.

MORE HONEY RECIPES FROM MARYLAND KITCHENS
Maryland State Beekeepers Assn.

Honey Balls

1 cup peanut butter
1 cup honey
2 cups nonfat dry milk powder
1 teaspoon vanilla extract
1/2 cup wheat germ

Mix peanut butter and honey in bowl. Add milk powder; mix thoroughly. Stir in vanilla and wheat germ. Shape into small balls. Roll in additional wheat germ, if desired. Chill thoroughly. Makes 50 balls.

NATURE'S GOLDEN TREASURE HONEY COOKBOOK
Joe M. Parkhill

Chocolate Honey Chews

6 ounces semi-sweet chocolate bits
1/2 cup peanut butter
1/4 cup honey
1/2 cup chopped raisins
1/2 cup chopped nuts
1/4 cup wheat germ
wheat germ or coconut

Melt chocolate, peanut butter and honey together in double boiler. Remove from heat, add raisins, nuts and wheat germ. Roll into balls and roll in wheat germ or coconut.

ESSEX COUNTY (Mass.) BEEKEEPERS ASSOCIATION
compiled by Doreen Turner and Beverly Wiley

This next recipe makes a very spectacular gift. You see, most people are amazed that candied peel can be homemade. I never give the secret away — that it is *very* easy to do. Use the candied peels as an addition to your gift candy box but be sure to

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HARMONY... Cont. from Page 640

make enough to serve at home to family and friends.

Candied Grapefruit, Orange or Lemon Peel

4 oranges OR
2 grapefruits OR
8 lemons
1-1/3 cups honey OR
one 1-lb. jar honey

Cut the fruit into quarters. Peel each quarter (it's easier this way.) Cut peel into narrow strips. Place peel into saucepan (cook each type of fruit separately) and cover with cold water. Bring to a boil and simmer a few minutes. Drain. Repeat this 4 to 6 times. This process removes the bitter taste. Heat the honey in a saucepan and add peel. Stir to coat well. Cook slowly on low heat and simmer about 45 minutes, stirring occasionally. Remove from heat and allow to cool. Then put the cooled peels on a wire rack and allow to air dry, at least 12 hours. The dried peel can be rolled in finely granulated sugar, if desired, and if the weather is not humid. Store in container with tightly fitting lid.

adapted from THE HONEY BOOK
by Lucille Pennerl

The "Holiday Season" has the traditional meals of the year. I have found that if you introduce a completely new recipe at this time, the family may well think it delicious, but everyone always asks "where's the *regular* one you always serve?" So, I fix the "regular one" AND a new recipe. Strangely enough, the new recipe sometimes becomes the favorite and turns into the "regular one" — but it does take a year or two. Go ahead and fix your traditional cranberry sauce and then also fix this cranberry sauce. Fortunately, the quantity made is large enough for all the relatives to sample.

Cranberry-Apple-Pear Sauce

2 lbs. fresh cranberries
3 apples, pared, cored, 1/2" diced
2 pears, pared, cored, 1/2" diced
1 cup golden raisins
1 cup currants
2 cups honey
1 cup fresh orange juice
2 teaspoons cinnamon
1/2 teaspoon nutmeg
1-1/2 cups walnuts, coarsely chpd.
2/3 cup orange flavored liqueur

In large saucepan add all ingredients except walnuts and liqueur and bring to a boil. Reduce heat. Simmer uncovered, stirring frequently about 45 minutes. Stir in the walnuts and liqueur. Refrigerate 4 hours or overnight before serving.

The holiday season is not complete without filling the cookie jars. Making cookies can be a family production with *everyone* joining in to stir, decorate, bake . . . and sample. Make plenty, well in advance, to serve at a moment's notice. Keep the cookies in a container with tightly fitting lid.

Crisp Honey Cookies

1/2 cup butter or margarine
1/2 cup honey
1-3/4 cups flour
1 teaspoon soda
1/2 teaspoon cinnamon
1/4 teaspoon ground cloves
1/3 cup wheat germ

Cream butter and honey. Sift dry ingredients together, mix in wheat germ. Combine dry ingredients with creamed mixture. Chill about 1 hour. Roll on lightly floured board to about 1/8 inch thickness. Cut with floured cookie cutter. Bake in 130° oven, 8-10 minutes. Makes about 3 dozen.

MY FAVORITE HONEY RECIPES
compiled by Mrs. Walter T. Kelley

Breads and rolls freeze very well. Since both you and the oven are going to be busy Thanksgiving and Christmas mornings, you can bake some breads now, put them away in the freezer, and then serve a treat for the holiday breakfasts.

Whole Wheat Raisin Bread

2 cups milk
1 cup raisins
2 envelopes dry yeast
1/3 cup warm water
2 teaspoons salt
2 tablespoons butter, melted
1/4 cup honey
about 3 cups all-purpose flour
about 3 cups whole wheat flour

Scald milk then cool to lukewarm. Plump raisins in hot water for 5 minutes. Drain raisins and let dry. Dissolve yeast in the 1/3 cup warm water in large mixing bowl. Stir in salt, butter, honey and milk. Add raisins. Beat in 2 cups all purpose flour until smooth. Cover with towel. Let rise in warm, draft-free place for 15 minutes. Mixture should begin to bubble. Set aside 1 cup all purpose flour for kneading. Gradually beat in the whole wheat flour to make a smooth sticky dough. Sprinkle the reserved all-purpose flour on clean surface. Turn dough onto flour, cover with bowl. Let rest 15 minutes. Knead dough about 10 minutes working in only enough flour for a smooth and elastic dough. Place dough in greased bowl, turn to grease top. Cover with towel; let rise in warm, draft-free place for about 1 hour or until doubled in bulk. Punch down. Turn out on lightly floured surface. Divide in half; shape into two loaves. Place in greased loaf pans. Cover loaves with towel. Let rise for about 30 minutes or until doubled in bulk. Bake in 375° oven for 35 to 45 minutes or until loaves sound hollow when tapped with a finger. Remove from pans; brush tops with melted butter. Cool.

NATURE'S GOLDEN TREASURE HONEY COOKBOOK
Joe M. Parkhill

Now that the raisin bread is in the freezer awaiting toasting and a drizzle of honey, you can make some quick rolls for another special breakfast. These will also go in the freezer — provided, of course, that you are still "ahead of the game".

Honey Nut Rolls

2 cups sifted flour
3 teaspoons baking powder
1 teaspoon salt
1/4 cup shortening
3/4 cup milk
2 tablespoons butter
1 teaspoon cinnamon
1/4 cup raisins
2/3 cup honey
1/2 cup pecans

Sift together flour, baking powder and salt. Cut in shortening. Stir in milk to make a soft dough. Knead lightly. Roll out dough to 1/2" thick. Dot with 1 tablespoon butter and sprinkle with cinnamon and raisins. Roll up, jelly-roll fashion and cut in 1" slices. Heat remaining butter and honey in baking pan. Sprinkle pecans over bottom of pan. Place rolls cut-side up in pan. Bake at 425° for 30 minutes. Serve rolls hot, with glazed side up. Makes 1 dozen rolls.

THE HONEY KITCHEN
ed by Dadant

Vegetables should not be overlooked. A nicely prepared vegetable enhances the turkey and stuffing. The following recipe is colorful and adds a light, fresh taste that is welcome with a rich dinner.

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Wintering

WINTERING

"22% of established feral colonies perish during the winter — yet some beekeepers lose far more. Why?

By MICHAEL FERRACANE
Cornell University • Ithaca, NY 14853

Introduction

Wintering colonies is an integral part of keeping bees in temperate areas. While migratory beekeepers move their bees to warmer climes to avoid the ravages of winter, the rest of us must see to it that our colonies are adequately prepared. This means understanding the wintering biology of the honey bee and making sure that our management facilitates the process.

As every beekeeper knows, honey bees do not become dormant during the winter, as do many insects, but instead form a compact cluster inside the hive to conserve heat. Bees at the center of this cluster generate heat through contraction of their flight muscles using honey as fuel. When brood rearing starts in early January the temperature at the center of the cluster is maintained around 93°F. It is during brood rearing that the bulk of the honey stores is consumed. The temperature at the edge of the cluster is typically around 50°F and bees are constantly moving from the outside of the cluster to the inside to avoid becoming chilled and immobile. A few inches from the edge of the cluster the temperature may approach that of the outside. Thus, a colony heats just the cluster and not the whole interior of the hive.

Although inside the hive bees are well protected from the elements they must occasionally venture out on days that are sufficiently warm to rid themselves of the feces that have accumulated in their bodies. At this time the air may be full of flying bees and the surrounding snow dotted with their wastes. Many of the older bees become chilled and do not make it back from these cleansing flights. Thus, it is important that the cluster be comprised mostly of young bees. By the time spring has arrived the colony has exhausted most of its pollen and honey and must begin the entire collecting process once again.

Research has shown that on average approximately 22% of established *feral* colonies perish during the winter, yet in some apiaries beekeepers routinely lose a much higher proportion of their colonies. Though such losses may occasionally be the result of an unusually severe winter, in general, they indicate that these beekeepers are either ignorant of the fundamentals of sound wintering or have chosen to ignore one or more of the basic tenets. There are several factors one needs to be concerned with in preparing colonies for winter. Each one is important and needs proper attention.

Condition of Colonies

All colonies should be inspected in the fall to check for adequate population size, the condition of the queen, the presence of disease, and to make sure that all queen excluders have been removed. Only healthy, populous colonies should be wintered. An axiom of beekeeping states that a successful beekeeper takes his winter losses in the fall. This means that one should not attempt to winter colonies that are below standard, since they will probably die, but should instead use their resources in bees and stores to bolster other colonies. Healthy colonies with less than 30,000 bees (this number of bees should occupy between 15-20 frames at 50°F) should be united with one or more other weak colonies to make suitable size colonies for wintering. The easiest way to unite colonies, after first having removed the less desirable queen, is to place the weaker colony on top of the stronger colony separated by a single sheet of newspaper with several cuts in it. In chewing through and removing the newspaper the bees will unite peacefully.

It is important that every colony is headed by a vigorous queen going into winter because brood rearing begins in the dead of winter. Old or failing queens may not survive or may be unable to produce enough brood to maintain the colony and allow it to build up properly in the spring. Many beekeepers practice late summer or early fall requeening since this ensures a large number of young bees for the winter cluster as well as maximum brood production the following season. If it is too late to requeen, the colony should be dequeened and united with a colony that has a young queen but needs

WINTERING

additional bees.

Diseased colonies should be treated or destroyed depending upon the particular disease. Colonies showing heavy infections of the so called stress diseases (i.e., chalkbrood, sacbrood) should be requeened if there is time or else dequeened and united with a healthy colony. Any suffering from EFB should be treated with Terramycin® and requeened or united. Colonies seriously infected with any disease should probably be destroyed since they are unlikely to survive the winter and might serve as a source of infection for other colonies.

Although the initial panic over the discovery of the tracheal mite *Acarapis woodi* in the U. S. has died down, there is some circumstantial evidence to suggest that colonies heavily infested with the mites may not winter as well as uninfested colonies. At present there is no approved method of control. One method being investigated that looks promising is the use of menthol crystals as a fumigant. Beekeepers should be aware of the possible wintering problems caused by this mite and report suspicious incidents of high winter losses to their state apiculturalist as soon as possible.

Wintering Locations

Choosing a suitable location for wintering is very important. A good location reduces the amount of stores consumed, enables the cluster to move freely to new frames of honey, and allows a maximum number of cleansing flights. Ideally a site should have the following attributes. Firstly, it should have maximum southern exposure to obtain as much sunshine as possible. Secondly, it should have enough of a slope to be dry and have good air drainage. Thirdly, it should be sheltered against prevailing winds by a hedge, a thick stand of trees, or a sturdy snow fence. Finally, the site should be accessible so that colonies can be checked occasionally during the winter to make sure they are alive and have enough stores, to clear entrances of snow, and to check for vandalism or other forms of damage. While a good apiary location for the summer months will often be suitable for the winter months, this is not necessarily the case. Therefore, a beekeeper should not hesitate to move to a better location for wintering.

Winter Provisions

Colonies in most of the northern states need a minimum of 60 lbs. of stores and several frames worth of pollen to keep them until new food becomes available the following spring. Colonies in more southern states can make do with less stores. If you're new, or new in the area, check with a local experienced beekeeper or county agent to find out the amount of stores needed in your particular area. It does *no* harm to provide surplus stores since they are good insurance against abnormally harsh winters. Stores should consist of honey, well-ripened sugar syrup or high fructose corn syrup.

To determine if a colony has adequate stores one may inspect all the frames in a hive after the fall honey flow has ended. A well-filled deep frame contains about five pounds of honey. This means that a hive consisting of two deep Langstroth hive bodies should have all of the frames in the upper hive body as well as two or more of the frames in the lower hive body *solidly packed* with honey. An easier way to determine the amount of stores present is to weigh the hive. A colony with 60 lbs. of stores will weigh about 130 lbs. To accurately weigh a hive one needs a good set of scales, preferably mounted on a stand or tripod. The quick and dirty method of hefting a hive from the back is not very accurate. While one is able to judge which hives have a large surplus of food and those that are far under weight, one is most likely to encounter hives with weights between these two extremes. The most frustrating hive to lose is the one that was five pounds *under* weight.

Hives that are not heavy enough will need feeding with sugar syrup. Syrup for fall feeding should be made from two parts sugar dissolved in one part hot water. Seven pounds of sugar will make about one gallon of syrup. Each gallon of syrup fed will yield approximately seven and three quarters pounds of ripened stores. Syrup may be fed in division board feeders that take the place of one or two deep frames, in gallon jars or pails placed on top of the hive, or in hive top feeders that are about the size of a shallow super and hold several gallons of syrup. Whichever feeding method is used, the bees should be fed early enough to allow adequate time for them to ripen and arrange their stores before cold weather sets in. When the temperature falls below 43°F bees will no longer take syrup. Inadequately ripened stores, stores that are partly fermented, or stores high in indigestible materials (such as honeydew) can cause dysentery in bees and may lead to a colony's death.

Normally colonies are able to store adequate amounts of pollen for the winter. However, in some areas colonies may need supple-

Continued on Next Page

"A good location reduces the amount of stores consumed, enables the cluster to move freely, and allows a maximum number of mid-winter flights."

mental feeding of a good quality pollen supplement or pollen substitute in the late winter and early spring.

Whether or not colonies need additional stores, they should each receive a gallon of syrup treated with Fumidil to protect them against Nosema disease both in the fall and first thing in the spring. Although Fumidil is expensive, colonies treated have been shown to be healthier and to produce more than enough additional honey to offset the cost of the treatment.

Protecting Colonies

At the turn of the century colonies where often placed in wooden packing cases and surrounded by a thick layer of insulation in the mistaken belief that they needed help in keeping warm. Today we realize that bees need little in the way of additional insulating protection. Some beekeepers protect their colonies by wrapping them with a single layer of roofing paper. Normally two colonies are pushed together on a hive stand and wrapped together. Such a wrapping is waterproof, protects the colony against the wind, reduces the amount of stores consumed, helps to melt snow around the hive and keep the entrance unobstructed, and may help to warm the hive on sunny days and encourage cleansing flights. While there are several benefits to wrapping hives it is a somewhat laborious and time consuming procedure. Few beekeepers these days, other than those with a small number of hives, bother to wrap their hives. Still, those beekeepers in particularly harsh regions would probably find it worthwhile.

Upper Entrances

An important consideration in preparing colonies for winter is *adequate ventilation.* As colonies consume honey and generate heat they respire carbon dioxide and water vapor. Both substances need to be eliminated from the hive. The best way to facilitate this is by providing an upper entrance. This may be done by boring a 1/2" - 3/4" hole in the upper hive body next to the hand hold or in the rim of the inner cover (which is then reversed to provide a ventilation port) or by propping up the inner cover 1/4" or so with wedges. Unless a hive is properly ventilated, moisture can condense and drip back onto the cluster making it more difficult to keep warm. An indication of improper ventilation is the presence of greenish mold on the surface of combs and frames in the spring.

A second important function of an upper entrance is to provide the bees with an additional exit from the hive to take cleansing flights in the event that the bottom entrance becomes clogged with dead bees or ice. Placing your ear (the faint of heart can use an empty can or inexpensive stethoscope) next to the upper entrance and gently rapping on the side of the hive is a good way to determine if the colony is still alive without having to remove the inner cover.

BOTH WATER VAPOR AND CARBON DIOXIDE NEED TO BE ELIMINATED

ADEQUATE VENTILATION IS ABSOLUTELY REQUIRED

Preventing Damage by Mice

During the summer months no mouse would dare enter an active beehive. However, during the winter when bees are clustered they are unable to adequately defend their hive. Well-protected against the elements with a bounty of stored food, a beehive offers an ideal environment for a mouse to live out the winter. In constructing its nest a mouse usually does considerable damage chewing through numerous frames of comb. Consequently, beekeepers must take special precautions to prevent mice from entering the hive. This is accomplished by constricting the entrance or by excluding the mouse with hardware cloth. The entrance reducer supplied with the bottom board is the most commonly used device for preventing the entrance of mice. It constricts the entrance down to a slit 4" by 5/16". While this is usually effective, I have had mice enlarge the slit until they were able to enter. In order to prevent this, a piece of sheet metal may be cut and nailed around the slit. If a reversible bottom board is used, the shallow 3/8" side can used for the entrance. Again, a determined mouse would probably be able to enlarge the entrance enough to gain entry. Quarter inch hardware cloth may also be used to exclude mice. A piece of hardware cloth the length of the entrance is usually cut and folded lengthwise and then inserted into the entrance.

It is also a good idea to place mouse poison around the apiary as well as in any areas where used supers will be stored. Poison should not be placed where it may be eaten by birds or other wildlife. A well-protected location in the apiary, such as inside an empty hive, should be found.

Winter Examinations

Traditionally, beekeepers packed their hives in the fall and did not look at them again until after they were unpacked in the spring. Thus a beekeeper had little control over the hive during the winter. It was assumed that a winter cluster of bees was a very fragile thing and that disturbing it was courting disaster. However, most experts would agree that careful and judicious monthly examinations of hives during the late winter do no harm but in fact are valuable in assessing the condition of colonies. Colonies should be checked only on relatively warm sunny days and only for a short time. The primary reasons for opening a colony are to determine if sufficient stores are still present and in the correct location; that proper ventilation is provided; and that the colony appears to be doing well. Usually one needs only to remove the inner cover to determine these things. Under no

Continued on Next Page

circumstances should frames with bees or brood be removed since this may chill them and lead to death. Early in the winter the cluster should be located in the *lower* brood chamber and most of the frames of honey in the upper food chamber should be untouched. As the colony consumes its stores it will move upward and occupy the upper chamber. The presence of the cluster against the inner cover in early or mid winter usually means that the colony has consumed most of its stores and will probably need emergency feeding. If frames of honey are available they should be substituted for empty frames next to the cluster. In a pinch, combs may be filled with heavy sugar syrup by dribbling a fine stream into the empty cells. When weather conditions allow bees to gather water, sugar may also be fed dry or in the form of candy placed inside the inner cover.

If appreciable condensation is present on the underside of the inner cover or on the tops of the frames, additional ventilation should be provided. A thin stick placed under one back corner of the inner cover should increase ventilation sufficiently.

Dealing with Winter-Killed Hives

Regardless of how well a beekeeper prepares hives, some may still die. Dead hives should be examined and cleaned up as soon as possible to prevent the possible spread of disease to other colonies and to prevent combs from becoming damaged by moisture and pests. The cause of death should be determined if possible so that any mistake made can be corrected next time. The most common, and sadly the most preventable, cause of colony death is starvation. This is usually easy to detect. The telltale signs are the lack of stores, and the presence of many cells filled with dead bees. Often there will be capped brood present. Occasionally, a colony may die because the queen has failed or died during the winter and the colony population dwindled. The presence of only a small cluster of dead bees with little or no brood present suggests that this was the likely cause. Sometimes bees may contract dysentery as a result of poor stores. This is indicated by the presence of fecal matter inside the hive as well as severe spotting of the outside of the hive and the surrounding area. However, don't forget that a hive suffering from Nosema may show very similar symptoms.

Once it has been determined that the combs are not heavily diseased those still containing honey may be given to colonies that are short of stores or they may be used to establish a new colony in the same hive in the spring. §

"Most experts agree that careful and judicious monthly examinations of hives during late winter do no harm, but in fact are valuable."

HARMONY... Cont. from Page 641

Honey-Orange Glazed Beets

2 tablespoons butter or margarine
2 teaspoons cornstarch
1/2 cup orange juice
1/2 cup honey
1 tablespoon lemon juice
1/4 teaspoon salt
1-16 oz. can sliced beets OR
1-16 oz. can small whole beets OR
the equivalent in fresh, cooked beets

Melt butter in saucepan. Blend in cornstarch. Gradually stir in orange juice, honey, lemon juice and salt. Stir and cook over medium heat until mixture thickens. Add drained beets. Reduce temperature to low and heat thoroughly. Serve hot. Makes 4-5 servings.

COOKIN' WITH HONEY
Minnesota Beekeepers Association

If you fill a squeeze bottle with your own honey, guests and relatives can sample "this year's crop". If you produced some round section honey this year, that will be just fantastic on a piece of the raisin bread, toasted. If a friend has never tried comb honey before, that will make a great introductory sample. And do remember that when you are a guest during the holiday season your gift to the host and hostess is a jar of your honey, presented with pride.§

MAKING YOUR OWN

Constructing Beekeeping Equipment is not for everyone, but with these easy to follow guides, nearly anyone can make their own frames, or build a unique observation hive.

Building a Regular or Observation Kenya Top Bar Hive

By WYATT A. MANGUM
120 Forestwood Drive • Durham, NC 27707

Introduction

The Kenya hive was originally developed by African beekeepers for use in Africa; however, I have adopted this type of hive for my style of beekeeping. This season I am managing about fifty Kenya beehives in Raleigh, North Carolina. Upon learning this fact most beekeepers will immediately ask why I keep bees in this type of hive. I tell them that my goal in beekeeping is not to produce honey; but rather to study honey bee biology. For my studies the Kenya hive provides me with a low cost beehive that approximates a natural cavity in which a feral colony could reside. In addition, since the combs are movable, I can perform routine management operations with only small modifications. Thus the Kenya hive suits my requirements quite well.

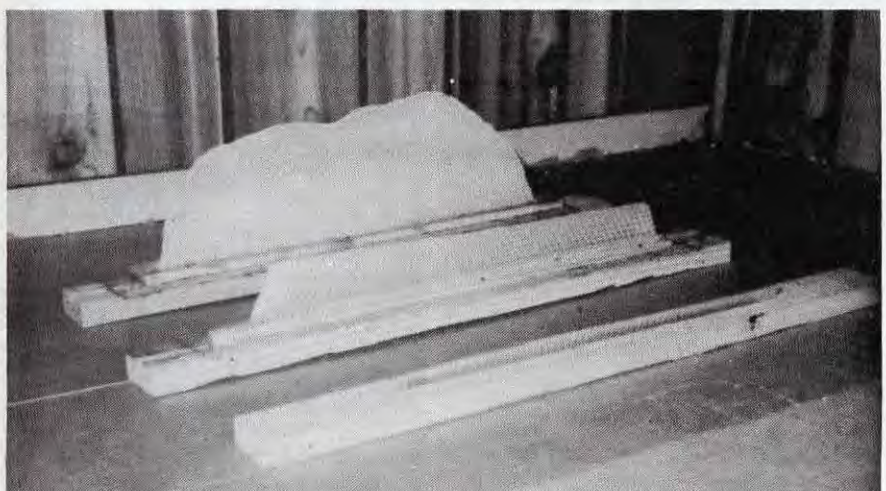
For my studies I have modified mating nucs, queen cages, cell holders for queen rearing and observation hives. A description of this equipment, the twenty-four stick hive and the procedure I use to examine the hive follows.

The Sticks

The combs of the Kenya hive are built from top bars. By attaching strips of foundation to these top bars, one can guide comb placement in the hive. The top bars, or sticks as I prefer to call them, are 19 x 1-1/2 x 7/8 inches. Most dimensions in the Kenya hive are variable; however, the width of the stick is fairly critical. Using a width of 1-1/2 inches, the bees can preserve the proper working space between the combs.

A groove 1/8" wide and about 1/8" deep is cut down the center of the stick. Foundation strips approximately 1-3/4" are secured in this strip with molten wax.. This is held in the groove by two small wooden strips.

After securing the wax strips, the sticks are placed across the hive without any spacing between them. The resulting combs will be built parallel to the ends of the hive.



Two types of wax attachment. The first stick has the 1/2" wax strip attached with molten wax. The second stick has the wider wax strip attached with wooden strips. The third stick has the beginning of comb construction.

The Kenya Hive

The cross section of the Kenya hive that I use has a top width 17-3/4", bottom width 9-1/8", height 11-1/2", and inclined sides of 12-1/2". The hive has an interior length of 3', thus accommodating twenty-four sticks. The area of the combs in this size Kenya hive is roughly equivalent to a Langstroth hive consisting of two deep supers.

The entrances consist of six holes with diameters of one inch drilled in the front of the hive. A narrow board nailed just below the upper three entrances serves as a small landing area and a handgrip. The lower three entrances have a larger alighting board attached at the bottom of the hive.

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KENYA... Continued from Page 646

The front of the Kenya hive showing the six entrances and alighting boards.

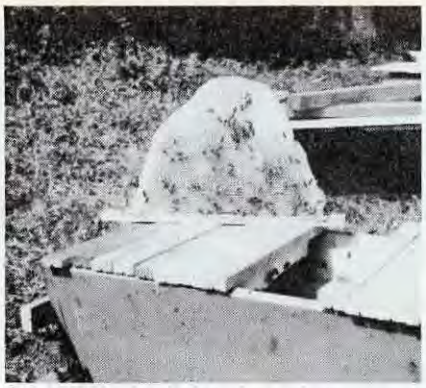
To keep the sticks dry and cool, a variety of materials are used to cover the Kenya hive, including roofing tin painted white, scrap exterior plywood, and interior plywood with corrugated plastic. Exposing the sticks to intense sunlight for an extended period of time can weaken the comb-stick attachments. For this reason it is imperative that the roof protect the sticks from sunlight. Small scraps of wood are placed between the roof and sticks to increase the amount of air circulation under the roof and to reduce the heat transferred from the roof to the sticks. To secure the roof from high wind, heavy scraps of wood such as two-by-fours are put on the roof.

Examining the Kenya Hive

If you examine both a Kenya hive and a Langstroth hive you'll find they are similar; however, there are some important differences. Compared to a Langstroth hive, the combs of a Kenya hive are very fragile. Before lifting the stick with its comb from the hive, one must sever all wax attachments between the inclined walls and the comb. The inclined walls reduce the attachments, but do not completely eliminate them. The bees will rarely attach the combs to the floor of the hive.

When the comb is lifted from the hive, it must remain perpendicular to the ground at all times. Tilting the comb to one side, as is commonly done with Langstroth frames, will result in the comb separating from the stick. (The comb with bees will probably land on your foot!) To free one's hands to remove a queen cell for example, the comb can be turned up-side-down and rested on its stick or leaned against the hive.

In both cases, the comb is perpendicular to the ground. After



A stick with comb resting on the hive.

replacing the comb, a bee space should exist between both the inclined walls and the combs. If the comb touches or is less than a bee space away from the inclined wall, the bees will probably secure the comb firmly to the hive. These precautions are really not that restrictive. With a little practice, this type of comb manipulation becomes quite natural.

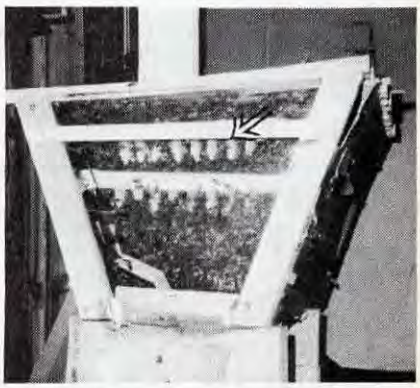
In a typical Kenya hive examination, the entrances are first lightly smoked. After removing the roof, pry off the stick farthest from the entrances. There should be no comb attached to this stick since it is used for the purpose of gaining access to the hive interior without breaking any comb. (By manipulating the colony to start growing on the sticks near the entrances, one can tell the hive is full when comb construction begins on this last stick. In this situation, one can replace four or five sticks of comb with sticks of foundation strips.) After blowing a little smoke into this gap, the combs are carefully removed and examined without violating the previously discussed restrictions. Thus, the examination progresses from the back of the hive towards its front.

In a typical Kenya hive, one first encounters the colony's honey stores. These combs, which have been newly built and are full of honey are the most fragile. Proceeding towards the front of the hive one finds most of the pollen and brood. These combs are the least fragile. Once the combs are inspected, they should be replaced in their original order. Examining a Kenya hive in the manner just described requires patience. If the work proceeds too quickly, one is apt to damage combs.

Queen Rearing Equipment

Queen rearing in Kenya hives follows the same principles as with Langstroth hives; however, there are some equipment modifications. First, I have chosen not to rear queen cells on a special (trapezoidal) frame as with Langstroth hives, but rather on a "stick" with an adjustable length. The wooden part of this queen rearing stick has dimensions 10-1/2 x 1-1/2 x 7/8". Two 2-1/2" lag bolts are inserted into each end of the stick. By turning the bolts, one can adjust the total length of the stick-bolt combination. After warming these queen rearing sticks on a hot plate, wax queen cell cups are attached to them.

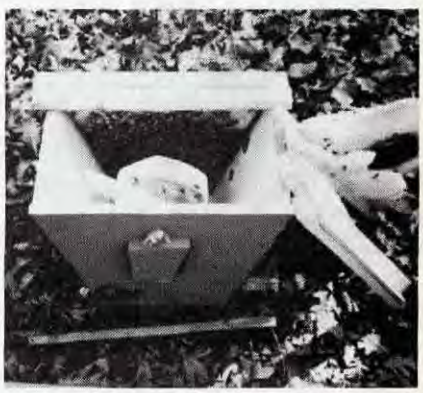
One of these special sticks can hold two rows of eight queen cell cups. Typically, two queen rearing sticks are placed in the swarm box



The ten stick glass Kenya hive functioning as a cell builder colony. The curtain of bees was smoked to expose the queen cells (see arrow). While the queen cells were growing, the queen remained in a cage at the lower left corner of the hive.

with one above the other. The bottom stick is obviously shorter than the top one. This is accomplished by adjusting the lag bolts.

Once the larvae have been transferred to the queen cell cups, the queen rearing sticks are placed in the swarm box. The swarm box is another Kenya hive which contains a large bee population, honey, pollen and emerging brood. By leaving a small space between the queen rear-



Kenya hive mating nuc with combs leaning against the hive.

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KENYA... Cont. from Page 647

ing sticks and the adjacent combs, the bees are encouraged to cluster around the queen cells. For this graft I used my ten stick glass Kenya hive as the cell builder colony.

Eleven days after the grafting, the queen cells are distributed among the mating nucs. Mating nucs have the same cross section as described above; however, they only hold eight sticks. With an entrance drilled in each end and a divider in the middle, one small Kenya hive can function as two mating nucs. Larger mating nucs are housed one per hive.

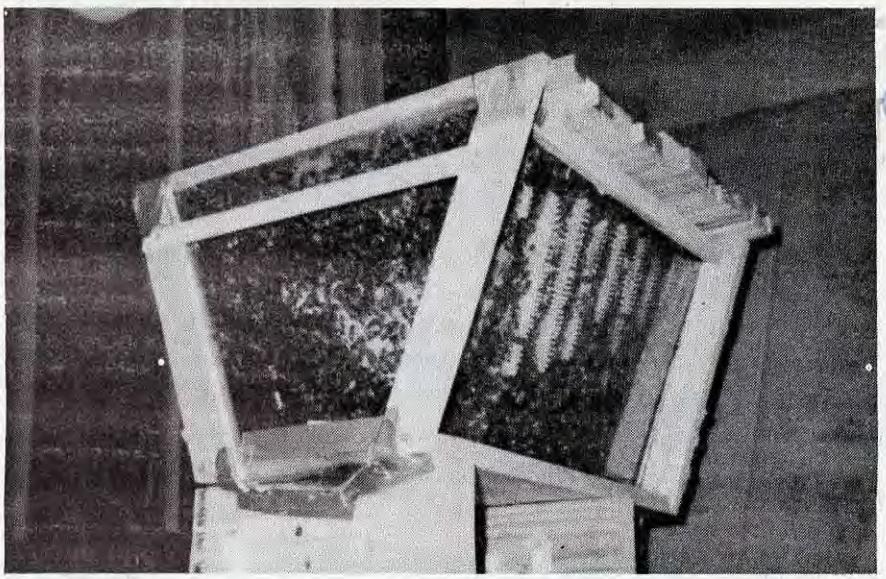
Queen Introduction Equipment

The standard Benton Queen Introduction cage cannot be easily placed in the Kenya hive. Therefore, it was necessary to modify the cage. The modified cage is made from a piece of 2-1/2 x 3" hardware cloth. (The hardware cloth has eight holes per inch.) To form the cage, the hardware cloth is folded and nailed to a 2-1/2" x 3/8" x 5/8" piece of wood. One end of the cage has a permanently fixed wooden plug; the other end has a removable plug. This procedure results in a thin rectangular box with a wire grid on three sides. After attaching a wire to the cage, it can be suspended between two combs in the Kenya hive.

With this cage, the traditional methods of queen introduction can be used in Kenya hives. When in use, initially the cage will be balled since it contains a foreign queen. Gradually this behavior will disappear. Once the bees have ceased balling the cage, one releases the queen by removing the wooden plug.

Observation Hives

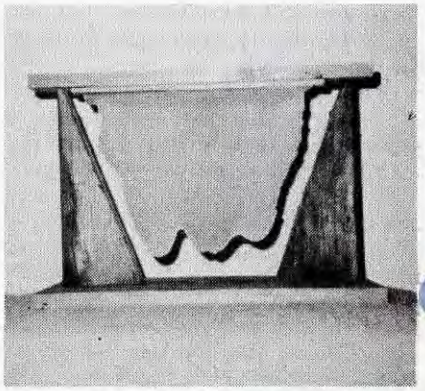
To observe a variety of bee behavior, I have constructed two types of Kenya observation hives. At first a ten stick glass hive was constructed allowing one to observe comb construction within the Kenya hive. The inclined walls and ends of this hive are glass. This permits viewing from four sides.



The ten stick glass Kenya hive.

Two plastic tubes enter the hive through its floor allowing the bees access outside. In addition, a number of single stick observation hives have been constructed. The single stick observation hive permits full viewing of one comb.

I have found Kenya hive beekeeping to be a simple and rewarding way to keep bees. It is possible for me to work through about forty hives with very minimal back strain. When conversing with other beekeepers, I sometimes amuse myself by telling them I own about fifty hives of bees, and I do not use any frames. At first people think I am a box hive beekeeper. After explaining that I keep by bees my Kenya hives, those who have not read this article will begin to ask all sorts of questions!§



The single stick glass hive with glass panels removed. This hive can be built from scrap wood.

Acknowledgements

The author wishes to thank Suzanne Sumner for editing and typing the manuscript, Homer Powers for introducing me to the Kenya hive, and John Ambrose and Stephen Bambara for their advice and support.

Making Frames

By JAMES L. TABOR
RR1, Box 441 • Naples, ME 04055

Although some beekeepers are not at all reluctant to tackle construction of hive bodies, they are intimidated by the prospects of making frames. This is too bad because once familiar with the procedure, it is really quite simple.

Although I will give you detailed instructions for making Hoffman frames, you will be better oriented for the task if you buy or borrow the components of a commercially manufactured frame so you will have a pattern to work from.

Before you start making your frames, however, I want to emphasize a very important consideration: ***exact*** measurements in cutting out components are ***critical***. Careless use of your table saw's rip guide or imprecise cuts will result in frame parts that won't interlock, are canted or loose.

The old carpenter's admonition to "measure twice and cut once" is good advice here! If you must err it is far better to cut off too little rather than too much. At least when a piece of wood is too big or the dado cut is not deep enough or too narrow, the problem can be corrected.

Side Pieces

This is the component that can utilize those beautiful, clear, short pieces of kiln dried pine or spruce 2 x 4's you have stashed away in your workshop. You know what I mean — they're the scraps that have been too short to use but are too good to burn.

For deep super frames, a 3-1/2" wide billet that has been cut to 9-1/8" and ripped to a thickness of 1-3/8" will yield 8 side pieces. If your blade's kerf is under 3/32" you might squeak out 9 pieces. The billets for frames for the 5-3/4" shallow supers should be 5-3/8" long and also 3-1/2" wide by 1-3/8" thick.

After cutting out the billets make a 7/8" wide by 3/8" deep slot in the middle of one end and a 3/4" by 3/8" slot in the other end (Figure 1).

These cuts can best be made with a dado blade, however, they can be cut out by making repeated passes over the blade as the rip guide is advanced. A hand saw and wood chisel can, of course, accomplish the job, too.

As you are making the slots it is a good idea to compare the width and depth with those of the commercially manufactured side pieces to be sure your dimensions are accurate.

The 1/8" indentations on both sides of the slotted billets (Figure 1) can also be made with a dado blade. But I find I can do the job more easily and accurately with a draw shave, wood chisel or even a sharp jack knife after the individual pieces have been ripped off the billet.

To insure uniformity in indenting your side pieces, you'll want to use your pattern piece for tracing the contour of the scribe line.

The next step — if you have a drill press, is to make the holes for the foundation support pins. (See Figure 1 for positions in deep super frame side pieces.)

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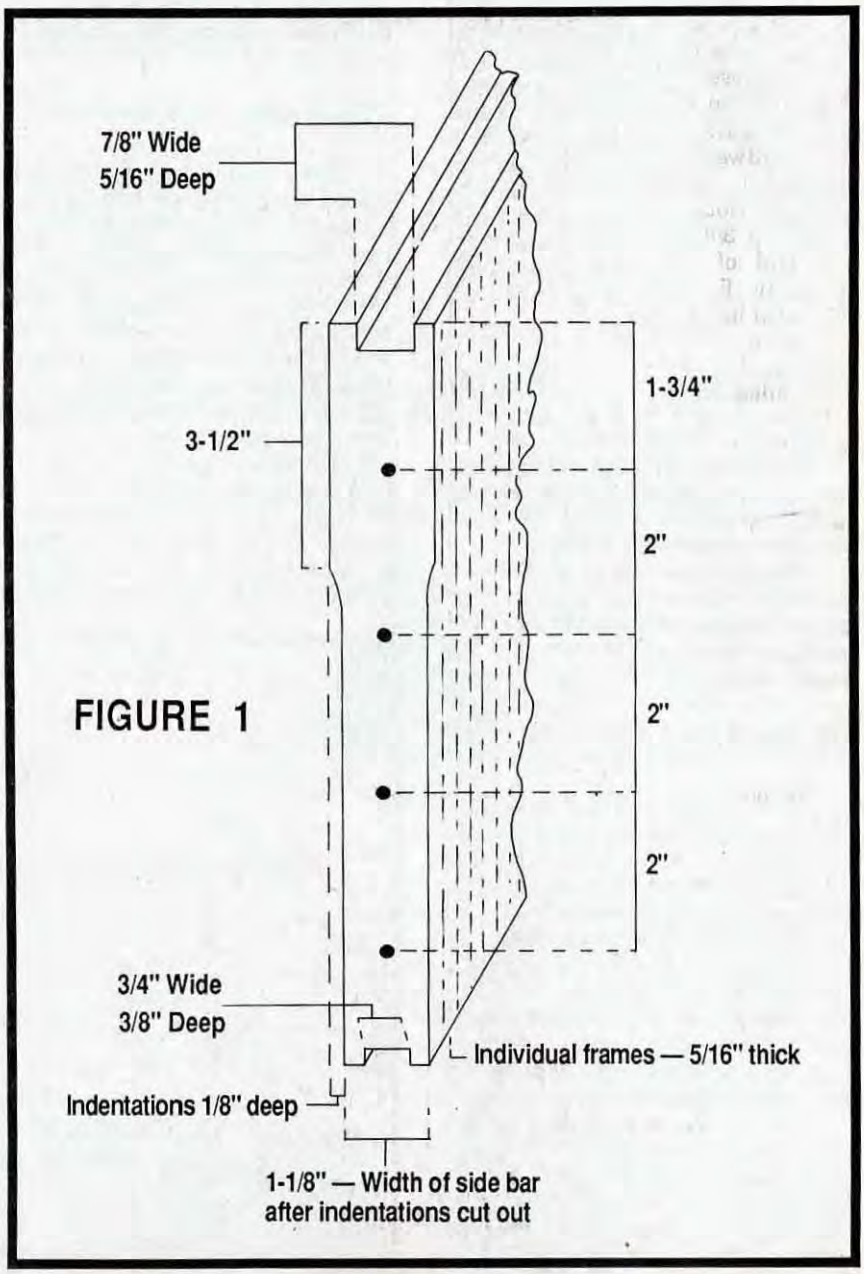

FIGURE 1

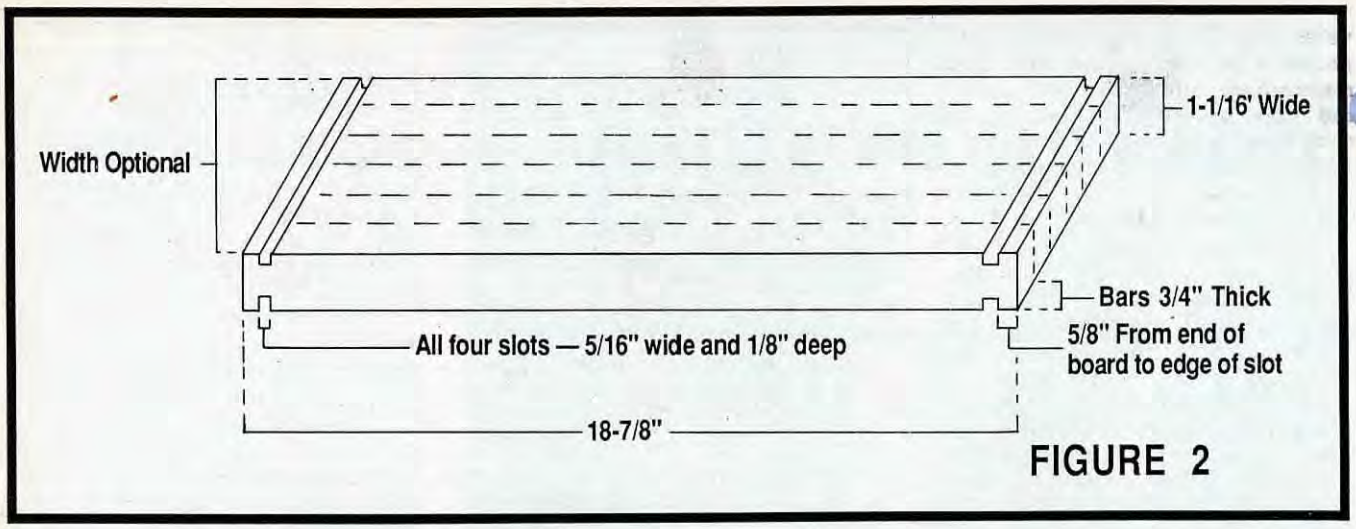

FIGURE 2

The two holes in the side pieces for shallow frames are located 1-5/8" down from the top and an equal distance up from the bottom.

Without a drill press it is difficult to drill precisely perpendicular holes. If the holes are canted it's obvious that the end pieces cut from the underside of the billet will have holes that are off-center. Consequently, in the absence of a drill press, it is advisable to make holes individually in each piece after they have been sliced from the billet.

Top Bars

Top bar measurements are 18-7/8" x 1-1/16" wide x 3/4" thick. If you don't have any scrap lumber that can be cut to these dimensions, five quarter pine or spruce will be ideal.

When this stock is used, slot a 18-7/8" billet as shown in Figure 2. Then, before ripping off individual bars, check to make sure your slots are the correct width and depth. If they have been accurately cut the top of your side bar pattern piece will snugly straddle the parallel slots *on all four corners*.

After ripping off the individual 3/4" thick bars you are ready to make the final 7/16" deep x 5/16" wide slots on the underside of each end to match up with the two side slots.

The bevelling of the ends of the bars (Figure 3) can be done with a fine tooth table saw blade or a hand saw. I have used the latter but most of the time I employ a table saw mitre gage with a jig that positions the bar at the correct angle for the side cuts.

The bevelled underside is cut out with the blade tilted to the appropriate angle (check your pattern piece) with the rip guide positioned 3/8" from the point where the saw blade emerges through the table. Then the bar, held in a vertical position with its underside facing left, is held firmly against the rip guide and pushed by the blade to make the cut.

The Wedge and Bottom Bar

The making of the removable wedge used to secure the foundation to the frame (Figure 3) is made with two passes over a table saw blade. With Cut A, the blade (fine toothed) is raised 3/8" and the rip guide adjusted so that it is about 3/16" from the point where the blade emerges through the table. The blade is slightly tilted to the left. Here too, to get the correct angle, check your pattern bar.

Cut B is made with the blade (preferably one which makes a 1/8" kerf) up 1/4", and 1/2" from the rip guide. Don't make the mistake of positioning this cut in the exact middle of the bar. If you do, your foundation, when in place, will be a little off-center. The wider your blade's kerf the more off-center the foundation will be.

Finally, there is the bottom bar, a piece cut from clear 3/4" stock that measures 17-3/4" long and 3/8" thick. It should be grooved to hold the bottom of the sheet of wired foundation in place in brood and extracting frames.

Using a table saw blade with a 1/8" kerf that has been raised a quarter of an inch, run the bar along the saw with the rip guide set 5/16" from the blade.

Assembling Frames

There, you have it. The job is complete and, by dint of precise measurements and careful cutting, all your pieces fit and the assembled frames are straight and true!? Not

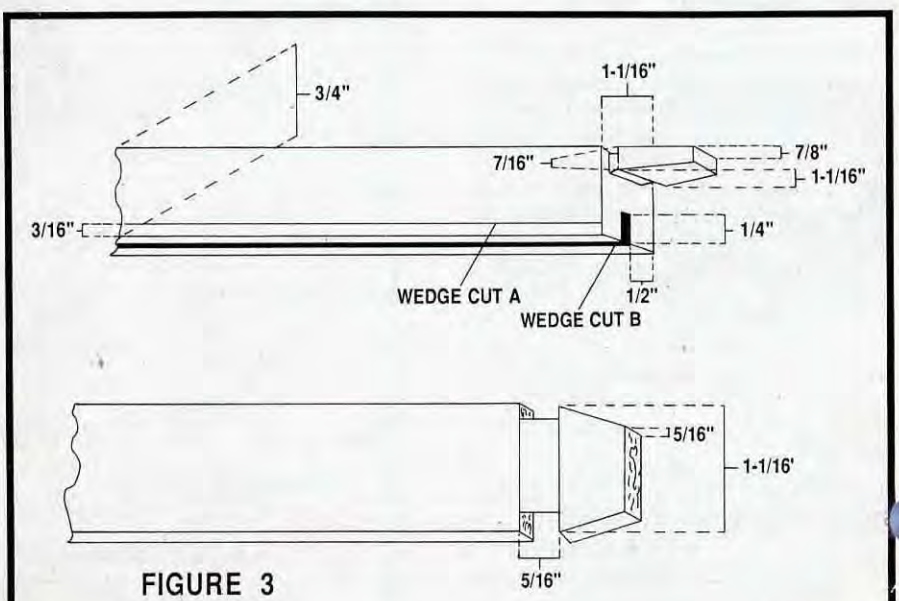

FIGURE 3

necessarily. Try as you will, there will probably be some pieces that won't measure up. But when a slot is just a tad too narrow or shallow the condition can be rectified quite easily with a sharp jack knife, wood file or a piece of sandpaper wrapped around a thin, square edged stick of wood.

And what happens if a slot is a whisker too wide? My recommendation is to apply carpenter's glue to the joints of *all* top and bottom bars before nailing in place whether they fit snugly or not. There was a time when I thought that beekeepers who glued the components of their frames were being overly fastidious. However, after a few rather unpleasant episodes in which I pried the top bar away from the side bars and comb while trying to remove a stubborn frame from the hive, I decided it wasn't such a bad idea after all.

Manley Frames

Invented by a British beekeeper R. O. B. Manley, this simplified frame is gaining popularity for use in shallow supers (it is not suitable for deep supers). It is touted for being easy to make and easier to uncap than the Hoffman frame.

Plans for this piece of hive equipment which does not have indented side pieces, or top bars with bevelled ends, can be obtained from Sunbeam Bee Supply Center, P. O. Box 484, Pittsburgh, PA 15230.§

Answers to Testing Your Beekeeping Knowledge

1. **False.** While some types of insects resemble their parents in appearance, this is not true with honey bees. The newly hatched larva is a white, segmented, legless grub which lies on the bottom of the wax cell.
2. **True.** During the pupal period, the larval body is reorganized to form that of the adult, using the stores of the fat body and larval tissues to provide the materials and energy required for the change. During this change, all of the larval tissues are replaced by those of the adult.
3. **True.** Growth in the honey bee larva involves a series of stages in which the exoskeleton is shed and replaced with a larger one. This process of shedding and renewing the exoskeleton is called molting. Prior to the actual shedding process, a new exoskeleton begins to form under the old one. During its life, the honey bee larva goes through five stages of growth, shedding its skin approximately every 24 hours. During the last growth stage which begins at about the time the cell is sealed, the individual is called a prepupa. After the final larval molt, the pupal stage is reached.
4. **True.** Within several hours of emergence, the pupa sheds its sixth and final skin. After the pupal molt, the adult bee begins to remove the cell cap. Usually this process is completed in 12 to 24 hours with the young bee crawling out of its cell.
5. **False.** The queen deposits her egg in the center of the cell bottom. There is a small amount of adhesive on the posterior, not head end of the egg, which sticks it firmly in place. It remains in a position perpendicular to the midrib of the comb until it hatches.
6. **False.** A newly mated queen is able to lay fertilized and unfertilized eggs at will, regardless of age. In time, however, there will be a gradual deterioration in the quality of the queen; she will begin to lay a higher proportion of unfertilized eggs and may get to the point when she lays only unfertilized eggs.
7. **False.** After the larva stretches itself out along the cell on its back, with its head toward the cap of the cell, it spins a thin cocoon. This secretion is produced by the silk glands.
8. **False.** Honey bee eggs are white in color and cylindrical in shape; having the appearance of a tiny white sausage.
9. **True.** Measurements have shown that drone eggs are longer and wider than worker eggs.
10. **True.** An adult bee ready to emerge from its cell begins by perforating the capping with small holes as it rotates within the cell. The antennae often protrude through these holes as they attempt to release themselves. Other bees often help the emerging bee, by thinning down the capping before emergence, or by removing pieces of it during emergence.
11. **True.** A developing honey bee larva lies on its side on the floor of the cell, in a pool of brood-food supplied to it by nurse bees.
12. Factors that can cause a spotty brood pattern other than an old or failing queen include: Colonies lacking sufficient storage space (honey supers) during a major honey flow; Brood diseases; Lack of food or food of poor quality; Too few bees to keep brood area warm; Pesticide poisoning; Too much inbreeding.
13. The basic colony conditions necessary for the rearing of good queens are: Large population of nurse bees; Presence of well-fed larvae 24 hours old or less; Strong, disease free colony (2 points); Abundant supplies of honey and pollen (2 points); Colony impulse to raise a queen (Queenless); Minimize the number of 0-3 day old larvae in the hive; A large number of mature drones in the immediate area of the queen-mating yard.

ANSWERS TO EXTRA CREDIT QUESTIONS

14. The thin protective shell of the egg is the chorion and the pore through which sperm enters the egg is called the micropyle.
15. **False.** During the larval period, the concentration of juvenile hormone is reduced, eventually reaching a concentration where a new set of genes is triggered to act upon the developing body and produce the pupal stage. A very low level or absence of juvenile hormone during the pupal period allows metamorphosis to proceed, with the reorganization of the body into the adult form.
16. **False.** Ecdysone is produced by the prothoracic gland.
17. **False.** Juvenile hormone is present in all stages of the life cycle and is produced by the corpora allata.

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

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

RESEARCH REVIEW

By DR. ROGER A. MORSE • Cornell University • Ithaca, NY 14853

"Very few beekeepers and researchers in the U.S. have any experience with, or have ever seen, any of the Asian honey bee mites."

The International Bee Meetings in Poland

Apimondia, the International Beekeepers Organization, holds a worldwide Congress every other year. This year the sessions were held in Warsaw, August 19-25. Over 5,000 beekeepers and other people interested in bees from 70 countries attended. Following the Warsaw meeting over 60 researchers and extensionists from 31 countries spent five days in Pulawy, Poland, discussing mites that infest honey bees. The Polish people were wonderful hosts and we also enjoyed ourselves a great deal. I don't know how many people from the U. S. and Canada attended the meeting but I think it was between 40 and 50. Here I can cover only some of the highlights of these meetings.

At least a dozen beekeepers and researchers from Europe, questioned me about tracheal mites in North America. People told me repeatedly that they could not understand our great concern over these mites. In Europe they are considered a minor problem.

A chief concern at both meetings was another mite, *Varroa jacobsoni*, that has devastated beekeeping in most countries in Europe. At present there is no alternative to chemical control of this mite in northern climates. I could scarcely count the number of chemicals that were being tested and recommended for control of *Varroa* — the number approached 100. If the queen is caged and brood rearing is stopped for about three weeks, many materials will work to reduce the number of mites in a colony. However, most agreed that the chemical Amitraz in the best, though it is far from perfect. There was great concern over residues this and other materials might leave in honey. Amitraz is not yet approved for use in Germany, where the *Varroa* problem is severe and much of the *Varroa* research has been carried out. Some new materials being tested, especially synthetic pyrethroids, show good promise and do not leave residues.

Varroa mites will probably enter the U. S. from South America. We need to know more about control methods for this disease. Even though it has been carefully pointed out that some races of honey bees, especially those from Africa, are naturally resistant to *Varroa* disease there have been few people who have been interested in searching for natural resistance in European honey bees. During the past few years it has been shown repeatedly, especially by the former USDA researcher Steve Taber of California, that honey bees can be selected for resistance to many of the common diseases. This, at least to my mind, is the route we should follow; however, in this country and abroad there has been little effort in this direction.

There is an increasing awareness, at least by American researchers that since a queen mates many times, say 18, a colony of bees is a collection of 18 subfamilies all with the same mother but different fathers. Some of these subfamilies may be more resistant to a disease than others. This makes the search for resistance to that disease more difficult, since a weakness in only one subfamily group out of the 18 may make all of them look bad.

Dr. Woyke from Poland described a method of controlling *Varroa* mites without chemicals that was effective but horribly time-consuming. The system he described would work only in warm climates. Adult *Varroa* mites can live away from brood for months but most stay out of brood cells for only 10 to 14 days. This method involves caging the queen for 21 days to rid the colony of brood. At the end of this time the queen is confined on a comb in a queen excluder cage where she will lay eggs. The adult female mites that are ready to lay eggs will flock to this single brood comb to deposit their eggs when the honey bee larvae are fully developed. After much of the brood in this comb is capped the frame is removed and destroyed; a great number of the mites and their eggs and offspring are killed at the same time. For best results, the queen should be confined a second time, on a new comb, which is also destroyed after the remaining mites have moved to it and deposited their eggs. Dr. Akrantanakul of Thailand pointed out that this was very harsh treatment and will work well only if there is a good supply of natural pollen available at the end of the treatment so that the colony can rear brood and recover.

From time to time I have mentioned another Asian honey bee mite that devastates European honey bees in tropical Asia; it is *Tropilaelaps clareae*. This mite, like *Varroa*, develops on capped brood only. However, adult female *Tropilaelaps* can live away from the brood for only a few days. This mite is the most serious of all honey bee mites in tropical areas; however, in temperate areas where there is a long break in brood rearing in the fall, it is no problem since it cannot survive these brood breaks. We still know little about the biology of these mites but it does appear that should they be accidentally introduced here they would not be a problem in North America except perhaps for some of the most southern states and Mexico.

One of the more interesting papers at the meetings in Warsaw was by Dr. Siriwat Wongsiri of Thailand. He observed that *Apis*

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RESEARCH... Cont. from Page 653

cerana, the so-called Indian honey bee that is smaller than but much like our own *Apis mellifera*, has a special ability to search out and destroy *Tropilaelaps clareae*. This work was based on earlier studies by Dr. Peng of the University of California at Davis and her associates in China, who had found *Apis cerana* could eliminate many *Varroa jacobsoni* from a colony in the same way.

A last point, and one that comes to mind over and over again at these meetings, is that very few beekeepers and researchers in the U. S. have any experience with, or have even seen, any of the Asian honey bee mites. Recently, our lack of experience with tracheal mites has cost beekeepers, researchers and regulatory people millions of dollars; thousands of colonies were destroyed needlessly. Hopefully, more people will become acquainted with the Asian mites before they appear in North America. Today there is little action in this direction.

I fear I may be boring some readers by mentioning mites so many times in this column, but they pose problems that worry me very much.§

Honey Range Plants

The Catclaws

There are not as many kinds of catclaws in West Texas as there are breeds of cats. Nevertheless it's probably as difficult to tell the catclaws apart as it is the cats. In both cases, perhaps, the differences between varieties are not worth five minutes of worry, that is, unless you enjoy keeping your catclaws or cats straight. This article is for the catclaw people.

Catclaws are shrubby plants that range from knee-high to 10-feet-tall, from stems no bigger than a pencil to some bigger than your leg. The thing they all have in common, with some variation in size and abundance, is a curved sticker like a miniature rose thorn. If you drag a tow sack, or your leg for that matter, through a catclaw bush the claws take hold, and you understand the reason for one of the other common names: Wait-a-minute bush. The claws hang on and some bushes make you wait longer than others until you can untangle. For a weak Angora goat the wait may be for a lifetime. Squanto taught the Pilgrims in New England to plant a dead fish as fertilizer in each hill of corn to make the corn grow. Maybe catclaw plants in Central Texas have decided to fertilize themselves with a dead goat.

We have two catclaws that go scientifically by the names of *Mimosa borealis* and *Mimosa biuncifera*. These two are called catclaw mimosa. They are the smaller bushes in the catclaw group, usually from knee high to chest high. Both have marble sized clusters of flowers with pink (borealis) and yellow (biuncifera) blooms. By early summer, pods have developed which are somewhat flat, twisted and bearing a few weak spines on the edge. The pods are not very noticeable unless the whole bush is covered.

The more difficult group of catclaws to keep straight belongs to the genus *Acacia* to which some of our heavily-spined plants belong, like huisache and blackbrush. These are usually called catclaw acacias. They get bigger than the catclaw mimosas with some approaching small tree size. As the limbs grow the catclaw stickers fall off and a finely-grooved bark appears. One named *Acacia roemeriana* after the German geologist, Ferdinand Roemer, who visited the early German colonies in Texas, has round flower clusters like catclaw mimosas. *Acacia berlandieri* also has round flower clusters, but its spines are weak and it's usually easily recognized by its fernlike leaves. It's really not in the catclaw group. It's called Guajillo.

In contrast, *Acacia greggii* and *Acacia wrightii* have long clusters of flowers like a mesquite. But the pods of all the catclaw acacias are rather similar: wide, thin, yet slightly bulging at the seeds, leathery, sometimes twisted, and the seeds are the size of a snap-button on a western shirt. *Acacia greggii* has smaller leaflets and narrower, more contorted pods than *Acacia wrightii*. But the experts have trouble telling them apart.

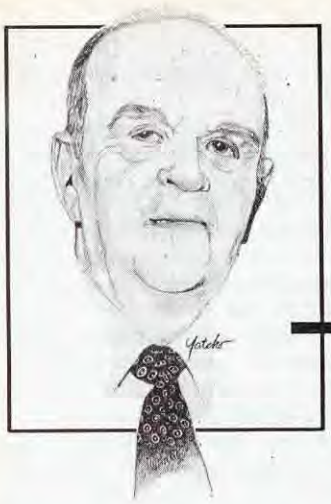
Catclaws are members of the legume family, same as mesquite. The leaves and wood have some similarities to mesquite. The catclaw mimosas seldom get big enough to talk about, but some of the catclaw acacias grow to firewood size. One piece of wood I sanded and polished is deep red-brown and weighs like fine mahogany in your hands. Mother calls it worry-wood, to rub in your hands while you are worrying about something.

The densest catclaw mimosa stands I've seen are in an all-cattle ranch in McCulloch County. Rated fair browse for goats and deer, catclaws are probably all right in small numbers, but trouble when they're crowded. Individual goats may sometimes get tangled up in catclaws, but a heard of strong goats, given enough time, will browse them out of a pasture or browse them up too high to reach. A lot of catclaw mimosa was top-killed in the winter of '83-'84 by the low temperatures. They re-sprout vigorously following top removal, as do the acacias. Soil applied herbicides, tebuthiuron (Spike) and hexazinone (Velpar RP), can effectively control all the catclaws if you run out of goats.

The blooms smell sweet and the honey from the catclaws is light colored and excellent flavored. Once I was photographing a huge gnarled catclaw acacia just outside the yard fence of a ranch headquarters west of San Angelo. The owner noticed my curiosity and said as a kid she used to climb around the lower branches. They never cleared it away with the rest of the brush because it was part of the family, just like the pecan, live oak and mesquite trees in the yard. Ranch people can get attached to some strange things.§

Reprinted with permission from Ranch Magazine, Jake Landers, author, April, 1987.

The small spiny pods of a catclaw mimosa.



KOOVER'S KORNER

By CHARLES KOOVER • 1434 Punahou St. #709 • Honolulu, Hawaii 96822

"You can easily make a double-duty moving screen with scrap lumber and, it also stops those robbers cold!"

Many years ago I spotted this moving screen at my beekeeping supplies dealer. Someone had made a bunch and was selling them as a specialty item. To me they are *not* a specialty item but a very useful tool — not only in safely moving your bees in hot weather but also to prevent and stop robbing a hive.

You can easily make one yourself. Get some wood scraps and nail them together. Keep the height down just below the handhold of the super. There are many ways of attaching it to a hive but I attach it with strings and a spring so that it fits any hive. I don't like to hammer on a hive as it causes too much disturbance. The bees may panic and ball the queen. If you have a brad driver you can attach it with some long thin brads driven in on an angle.

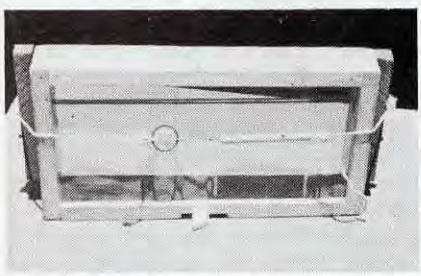
To convert this moving screen to a "stop robbing screen", drill a hole in the center of the bottom bar. On each side of the hole, with a hack saw, make a cut. Then rasp out enough wood to accommodate a little door that rotates on a screw you fit into the hole you drilled. Look at the picture and you can get the idea.

After you have put the screen in front of the hive you can swing open the door with a stick. Any would-be robbers find a reception committee in back of the screen to *pull their hairs out*! This screen is great to stop that silent robbing of nucs too weak to defend themselves. Those "oily looking hairless robbers" dancing up and down in front of a nuc don't like to enter a small opening. I once found a weak nuc completely robbed out by those sneaky thieves.

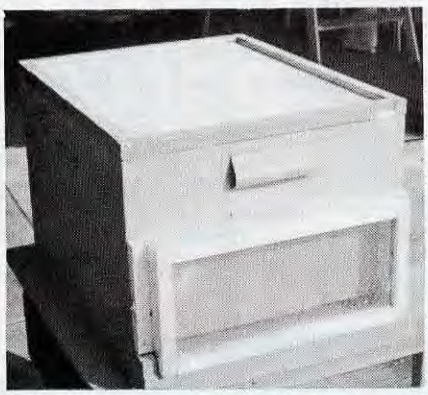
I have another use for my moving screen. When I make up a nuc I plug the hive entrance with some grass and attach the screen. Do not plug too tightly, though. When they removed the grass they could come out but the closed screen door was there to keep them confined for a day or two. Even the old fielders would stick with the nuc.

Amateur beekeepers can indulge in making special equipment that commercial beekeepers can't afford the time on making or using out on location. Personally, I have found more pleasure in making these specialties. Compared to a knot hole in a big tree in the forest, a man-made hive with its thin walls and hot roof is a far cry to what a good bee hive should be like.

Have fun and thanks for all the nice things you said in the letters you wrote to me when I was in the hospital§



Instead of attaching by shoving in a nail at each end into permanent cleat I used a string held on by a strong spring. Now it fits any hive. Great protection for a small nuc against being robbed out. An ounce of prevention is worth a pound of cure.



Moving screen can be quickly removed by pulling out nail at each end. Also excellent to stop robbing. Turn center closure to allow only a single entrance at the time. Guard bees can take care of robbers. No overheating of hive.

WAX MOTH
Timely Notes on Why & How

By HENRI J. DELANGE • 1301 Spring St. 30J • Seattle, WA 98104

Overwintering frames is a subject all by itself. And it can be pretty tricky, unless you happen to live in the right climate, as we do out here. After your honey is harvested and out of the combs, you are left with a load of "wet", sticky frames. Personally, I never store them that way.

Maybe in spring the bees would run faster into the supers if they were supered up with sticky combs. Or so the story goes. But this, as in many stories, may not be true. Besides, a lot of other unwanted insects and pests are attracted to those combs, and the wetter they are, the more this is so. Once they get access they have a lot of time to do their damage — all winter long. Besides, there are other methods that make the bees run fast into the supers in spring. A strong hive and a strong honey flow will do it every time.

No, storing frames wet and drippy makes for a lot of honey puddles and a big mess. It also makes it very difficult, if not impossible, to clean up the frames, make repairs or replace old comb.

So I have made it a habit to have the bees clean out leftover honey from frames after extracting them. Each hive gets their own extracted frames back in front of their entrance. Being all busy at the same time with their own cleanup job gives little incentive for robbing or fighting at the next-door hive. Unless you are a large commercial outfit (I wish some of them would write occasionally on how they go about these things) and the amount of work would stop you, a hobbyist should be able to do this.

So after extracting, the empty and sticky frames go back in the box they came out of. A top is put on, but I'll bet that in a bind one could do without a top. Then the super is placed obliquely over and across the entrance. If the weather is good, they dry them out in a day or two. This is another good reason not to wait with extracting till too late in the season. This way you can take your frames inside dry. Now you can clean them of burr comb, repair frames with a nail here and there or replace old comb with new foundation. Also there are always a few partially capped, unripe frames, or frames with very dark honey you don't want. Those I feed back to them also. They can use all this for their own winter supplies.

All right, now that we have dry combs and clean sturdy frames, are we safe yet? By no means!

I don't think anyone can keep bees anywhere in the world without having to take into account wax moths — and how to combat them. Towards fall you will notice, on occasion, how some seemingly brazen moths will fly or sneak in. This happens before and after the honey harvest. An amazing thing is that the bees are not always successful in preventing the moths from getting in. Strangely (at least to me), the bees do not always seem to pay them a whole lot of attention as they enter. This happens even with strong populous hives. Once inside, they will lay their eggs in lost nooks and crannies, and these eggs hatch towards spring. Small silk spinning "worms" will hatch from them, and feed on the wax and left-over pollen. Eventually they become a new generation of moths. Darker combs with some pollen deposits and old cocoons (protein supply) are what they are looking for.

Plain foundation is not as attractive, although they will eat it if pressed. There are quite a variety of species in different parts of the world and all of them have beautiful latin names, which doesn't prevent them from being any less ugly pests to us. In the wild, of course, they are Mother Nature's technique of making old or sick and abandoned waxcomb biodegradable, and they fulfill a very useful cleanup job.

The Worst Disaster

The worst storage disaster happened to me once. As a beginner I thought I would protect my empty combs particularly well from these attackers. Namely inside, in a dry, room temperature basement. The wax moth became a plague. Due to the mild temperature they had a field day. Every egg they had managed to smuggle past the guards the previous summer must have hatched. The clumsy moths were literally flying me in the face and around my ears halfway through winter. Have you ever noticed how moths have this clumsy way of flying, hitting things squarely or broadside without rhyme or reason? Something with the steering mechanism, surely. If you think that was a bizarre spectacle, wait till I opened my first super and looked inside. That year I had to replace my entire stock of comb. One big sickening mess of worms and webbing.

No, I don't think we can prevent a few moths from sneaking in here and there, but we better prevent those moth eggs from hatching.

If you live in a cool climate, this is pretty simple. As I learned the hard way, the best storage is in a small tight locker or shed outside the house. The wintercold prevents the eggs from hatching. It is even better if you have a freezer as that will kill the eggs too. We don't have more than a week or ten days of freezing weather in this part of the country. But thanks to even this little bit of respite, I haven't had another wax moth problem since. They cannot hatch in cold temperatures and that is what you want. Now, there are other ways of controlling moths. And in warm or tropical climates that I am not familiar with, I would guess one has to put harvested supers back on. Bees may not prevent each and every moth from coming in, they certainly will prevent them from hatching or getting a foothold.

Perfect Protection

Undoubtedly, the easiest way to protect a small number of combs is to fumigate with Paradichlorobenzine (PDB). This is a fairly simple procedure.

Stack five supers full of emp comb to be protected and place on the floor. A newspaper underneath will

Continued on Page 661

THE AHPA CONVENTION

The nineteenth annual convention of the American Honey Producers Association will be held in Albuquerque, New Mexico, January 6 through 10, 1988 at the Albuquerque Hilton. This meeting in Albuquerque will be our third. Plans are in the mill for a few days of business and pleasure in one of the most scenic areas of our great country.

The Albuquerque Hilton is conveniently located at the "Crossroads of the Southwest" (I-25 and I-40), just minutes from points of interest such as Old Town, the Rio Grande Zoological Park and the Albuquerque Museum. This hotel is well-equipped to handle our meeting needs.

The Convention Schedule

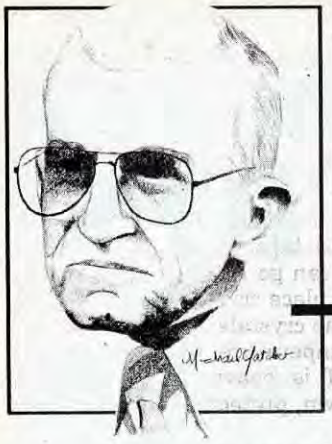
As in the past, our meetings will consume the better part of 4 days. The registration desk will be open January 6th and 7th. The Executive Committee will meet during the morning of the 6th and the Board of Directors will meet during the afternoon. The following three days (January 7, 8 and 9) are scheduled for the General Assembly. The business meeting of the General Assembly and Board of Directors are scheduled for the afternoon of January 9 and the banquet is scheduled for 7:00 p.m. The 1988 Executive Committee will meet during the morning of January 10.

The Convention Program

The general program will be designed to address the industry's present and future problems. Speakers include a mixture of industry leaders and government officials. Senator Larry Pressler's aide, Mel Ustad, will be our banquet speaker. He will discuss the need to be highly visible in Washington.

Mr. Fred Hoff, Economic Research Service, will discuss the industry's research needs as seen from the economist's viewpoint. Mr. Steve Censky, Assistant to the Administrator, Agricultural Marketing Service, will discuss the promotional options that are available for the Honey Marketing Board (Steve was an agricultural aide for former Senator Jim Abdnor.) Bee Lab directors have been invited to update their work. Well-known industry leaders will join President Richard Adee to make up a well-rounded program.

Additional information will be published in the December issue of *Bee Culture*. Please make your reservations by contacting: The Albuquerque Hilton, 1901 University Boulevard, N.E., Albuquerque, New Mexico 87102. Phone (505) 884-2500. Room rates are; $37.50 for one or four. Be sure to identify yourself as an AHPA attendee. For further information contact: Glenn Gibson, Box 368, Minco, Oklahoma 73059, Phone (405) 352-4126 or Richard Adee, Box 368, Bruce, South Dakota 57220, Phone (605) 327-5621.§



WASHINGTON SCENE

By GLENN GIBSON • Minco, Oklahoma 73059

"If we fail to exercise our perogatives in rule making processes, we have little reason to complain."

The Priorities

Establishing priorities and timing concerted action ain't one of our long suits. We do a fair job of recognizing the industry's problems by adopting a batch of resolutions at our meetings. Occasionally we label a few of them as top-priority items and appoint committees to implement, but unfortunately very little is said about how to follow through. A silent majority of beekeepers fail to be concerned. The folly of being late in lobbying Congress is fairly well understood among the tiny minority of those who attend the conventions, but few consider contacts with officials in the Administration as lobbying. Laws govern the contacts with Members of Congress; but, to my knowledge, no rules exist for dealing with the Bureaucracy where regulations are made that have the force of law.

I bring this matter of regulations up in hopes that serious attention will be given to regulations that may be adopted in the future by the U. S. Department of Agriculture and the Boards of Agriculture at the state level. Our recent experience with Tracheal Mites should have taught us to make plans for the Africanized Honey Bee, AHB, and the Varroa Mites, VM. Too many of us feel that adopting a resolution at our state and national meetings is all we need to do. Resolutions are necessary to give our elected officials authority to proceed, by they are a very weak first step that will mean little without follow-up work.

From our experience with Tracheal Mites, we know that the Animal and Plant Health Inspection Service, APHIS, Agricultural Research Service, ARS, the State Apiary Inspectors and the bee industry will be deeply involved in any program involving AHB/VM. Officials from these agencies will respond to our questions and attend our meetings and give us an opportunity to voice our opinion before any final rules are adopted. They may ask for our help in getting funds for research and additional personnel.

If we fail to fully exercise our prerogative in the rule making process, we have little reason to complain. Please remember that producers are the experts on the subject of honey production while government officials are expert laboratory technicians and regulators. We are the ones that need to evaluate the physical effects of any regulatory authority by word and deed and then advise one and all. Our evaluation may dictate more research and this may call for work with Congressional Appropriations Committee for additional funds. Or, it may call for new regulatory authority and a change in the basic regulations relative to our classification. Whatever needs to be done, I feel that the tiny minority of beekeepers who are active in national affairs will accept the responsibility.

Extension Should Play a Leading Role

Our recent recommendations to the Department of Agriculture includes a plea to establish a permanent position of a Federal Extension Apiarist. The need for this office has been brought forcibly to our attention these last few years when the industry has been subjected to adverse publicity by the news media. Journalists are noted for their ability to stress the sensational and in a number of cases use very little factual information. Their objectives on the AHB are to scare. Seemingly we have been powerless to counteract this adverse attention. The Department's feeble attempts to publicize the truth has met with little success. We feel that a national Extension Apiarist, who will have access to technical information and authority to distribute, can lessen the public's concern about Africanized bees and be a source of good technical information for beekeepers. Establishing this position should be a top-priority item.

A Consensus on AHB?

A consensus of opinion about AHB *does not exist* in the beekeeping industry and it is not likely to develop in the foreseeable future. Everyone agrees that the bee will eventually arrive. So — in a year or so we will learn first hand from the bee. For more than a decade we have discussed the AHB problem at our

Continued on Next Page

GIBSON... Cont. from Page 660

conventions and regularly articles have appeared in the journals. These were written by the concerned and the unconcerned. I have studied the arguments of both groups (personally, I agree with Jaycox, Morse and Taber). The AHPA took no position on the Bee Barrier at our Corpus Christi convention (1987) simply because no agreement could be forged. Critics labeled this as opposition. We do not agree. If we had lobbied against funding, the criticism would have been appropriate. I doubt that our upcoming convention in Albuquerque will actively oppose funding of the Bee Barrier.

If opponents of funding a Bee Barrier in Mexico want a piece of the action, my previous columns about contacting your congressional delegation will apply. ***Have at it!!*** The same advice will serve the proponents. Each side of the issue needs to realize that congressmen do not read the bee journals and pay very little attention to sensational news stories.

What You Need To Do

- Come to the Albuquerque convention and help with resolutions
- Carefully study what the scientists say about the AHB
- Share your ideas about the AHB with your congressional delegation
- Contact local news media and give them *correct* information on the AHB.§

WAX MOTH... Cont. from Page 658

protect the floor. On top of the fifth super place a piece of cardboard about 8 inches square. On it place about a cup of crystals. Then put an empty super above this, place a tight-fitting cover over the whole stack. All cracks, holes or other leaks should be sealed with tape.

You can go 12 or even 18 supers high but place crystals on every fifth super. The crystals evaporate at near room temperature and as the gas given off is heavier than air, will settle down, protecting all the supers beneath.

It is important that all leaks are sealed for several reasons. First, this keeps the combs better protected and second, there are no 'vacant' spots in the stack where eggs can hatch. Also, there are no hiding places for critters looking for a good place to nest. Finally, it keeps the smell in, and not in the basement.

The crystals need to be checked periodically, and replaced when the pile is nearly depleted.

Come spring, the supers MUST be aired out for at least 2 days, — 5 is better — before placing back on your bees.§

INNER COVER... Cont. from Page 611

thrown a boomerang that will return to smite him. His neighbor shall cut in his turn and both will be sorely wounded in the hip pocket.

V. You shall not attempt to market a puny volume of honey on credit, for the seller of a million lbs. attracts the hard cash buyers, but the push cart peddler must hunt the byways and alleys for a bad debt.

VI. Unless you are a professional salesman as well as beekeeper, hire yourself a salesman, for the amateur cannot compete equally with the professional, and the buyers of honey today are surely professionals.

VII. Guard diligently against overfilling the nearby markets, for a glut ruins the price level and the blight speeds over the land and sea. Offer your honey to many cities for many honeys grow only in certain spots of this terrestrial ball, but all the people of all nations hunger for it.

VIII. Strive mightily for a stable market, for therein the merchant buys tomorrow's needs freely and with confidence. But, when the price cutters enter, the merchant withholds buying lest his competitor buys cheaper or tomorrow's honey be lower. And the unsold honey piles up like a dammed river, unto the bursting thereof.

IX. An honest grade is a delight to all merchants and brings reorders, but a deceitful or sloppy pack induces wrath and rejection.

X. Forget not that the eye controls the purse strings, that sticky jars are repulsive, unfiltered honey shabby, crooked labels unprofessional, and burned honey a sin; and that your honey must sell itself alongside other honeys.

By now, I hope, the CBS television program *West 57th Street* has shown their segment on the Africanized honey bee, and it's potential ramifications on this country. I played a part in the filming, but it may have ended up on the cutting room floor. Or, and this is the worst part, it may have been edited and only the 'good' parts shown. As an editor I realize the needs of a producer — time constraints, newsworthiness and showmanship. I have also hated the waiting. I talked to the reporter in New York way last summer, and to date (Oct. 1) I have no idea of show date or any other information. I have seen the promo's on commercials — and wasn't pleased. It appears to be another scare story, not an honest analysis of the situation. However, that wasn't the impression I got when talking to the producer and reporter. It will be interesting to see, which is why I started all of this.

If you saw the show, and I hope you did, I'd like to know your reaction. I am certainly going to forward my opinions to the producer once aired, and I'd like to share our readers opinions too. So, if you saw it, (or when you see it), drop me a note. I'd also like to publish some of the opinions in the Mailbox.

Meanwhile, I hope it was good.

A Global Perspective on Beekeeping

About 200 years ago, the colonists brought bees to this continent for as many reasons as there were people who brought them.

The ramifications of this act on the North American continent, and the biology of the flora already here, has been well-documented. What hasn't been as well addressed is the 'isolation' factor involved with the introduction of a new insect species into a previously virgin environment.

It makes little difference how the *Varroa* mite arrived in this country. The possibilities are nearly infinite, and of no consequence. It is here. Like all other things that mankind has considered harmful, it will run a fairly predictable course. Massive efforts to control it will be implemented and will eventually fail. Then, a great research effort to counteract it will be put in place and initially be partially successful. Finally, a balance will be reached where the new introduction will become established at a level man can live with — because there is no other choice. This scenario has been played and replayed thousands of times. Chestnut Blight, Dutch Elm Disease, Lamperys, American Foulbrood, Aids, European Corn Borer — the list goes on and on.

We, as a species have seldom admitted defeat, but compromise has always been the answer. For those pests that we manage to keep 'under control' the pact reads something like: "We'll, (we humans) spend lots and lots of time, energy and dollars trying to keep you (a pest) out of an area, and you (the pest) will keep trying to move in." Depending on the time, energy and dollars put into a project, humans are moderately successful. (Chestnut Blight won, the Screw Worm lost).

The irony of this is that mankind is undoubtedly his own worst enemy. I know *Varroa* didn't fly here, by itself. Neither did the dandelion or a multitude of other pests. They were brought here by the actions of man.

We, as a country, expect the world at our feet. We have foreign cars, electronic equipment, wine, foods, and tourists. Likewise, the world has our exports on demand. It is true. The world is shrinking. Each time it shrinks a bit, a lot of dust is raised — that eventually resettles on a somewhat changed planet. Whether *Varroa* becomes established now or later is not the question, nor is it worth our while trying to discover how it came. In the contest between man and Mother Nature we are out of our league. It's not even close. So we, like those bees brought here 200 years ago, must adapt, accept, and continue. For we are a *part* of Mother Nature, not an enemy.§

Hint of the Month

If you are sending a gift jar of honey through the mail, be certain that you wrap the jar COMPLETELY in plastic "bubble wrap", as you would wrap a package. Secure the bubble wrap with tape wrapped *all the way around* — one strip around the middle, another strip around top and the bottom. When you finish, the jar should be TOTALLY encased in taped bubble wrap. Then you can select a box that leaves enough space for plastic "noodles" around the jar. Both of the plastic protections are lightweight and do not contribute significantly to the cost of shipping. What they *do* contribute is insurance that your precious jar of honey will arrive safely. Are you sending more than one jar of honey? Wrap each one individually! I know my neighbors thought I was quite insane when they saw me washing out my rural mailbox one day. I can assure you that one pound of honey from a broken jar is a *large* quantity of honey on the bottom of a mailbox.§

—Ann Harman

News & Events

☆ NEWS ☆

Industry Sales Seminar

The National Honey Board is sponsoring an Industry Sales Seminar, November 18th in Houston, to inform honey handlers how they can tie into upcoming national promotions.

The seminar will feature presentations on Honey Board retail merchandising promotional materials, commercial/industrial manufacturing marketing plans and a review of research on retail distribution and the attitudes of honey buyers.

The seminar will also include a question and answer session regarding NHB compliance procedures.

"The National Honey Board is about to launch a national retail 'merchandising promotion," Dan Hall, manager of the National Honey Board, said. "This seminar will show handlers how they can tie into this and other National Honey Board promotions to increase honey sales. Working together we will see tremendous results."

The seminar will be held at the Hotel Sofitel near Houston's Intercontinental Airport from 8 a.m. to 4 p.m.

To register for the seminar, call the National Honey Board office at (303) 776-2337. Seminar registration is $12.00 (including lunch, breaks and registration materials).

Attendees are responsible for travel and accommodation fees. Special discounted airline and hotel room rates, however, have been secured. Call 1-800-468-7022 for air reservations of from 30-70%. Give access code EZ-11DP29.

Public Relations for Bees

We would like to buzz a bit about two accomplishments in Public Relations for bees and hive products which we were privileged to be involved in in Calaveras County, CA.

First, under the sponsorship of Farm Bureau Women, Christine Clark-Thom, District Director, Wright Apiaries (Joe and Phyllis) of Mokelumne Hill, CA, produced a feature booth for the Fair featuring BEES. The booth contained a 3 frame observation hive illustrating brood, honey and undrawn comb; a female manikin (equal rights) in appropriate attire; a display of hive products including comb and bottled honey; bees wax products; cosmetics and literature. The booth won a BLUE RIBBON, First Prize!

Second, the California State Fair in Sacramento, features a building devoted to County Fair Booths. Our county produced a Bronze Medal Winner featuring the products and industries of our county including honey and queen bees!

We are proud to have been a small part of these productions; we are pleased to see that others are participating, too, and we encourage all of you who are interested in the bee industry to get out there and give a few hours of time or products to promote the industry.

Illinois Amends "Bees and Apiaries Act"

Senate Bill #25 sponsored by Senator Harry "Babe" Woodyard, was signed into law by Governor James R. Thompson, Tuesday, August 18, 1987, during the Illinois State Fair.

S.B #25 amends the "Bees and Apiaries Act", clarifying the definition of a bee colony; and *authorizes indemnity payments to the owner of bees destroyed by the Department.* An indemnity of **$25** for each colony destroyed shall be paid to the owner of the bees. The $25 indemnity would permit the beekeeper to purchase bees to replace those that are destroyed.

Formal Complaint Filed

The following is from a letter by Roger A. Morse, Cornell University, to the Officers of Empire State Honey Producers Association.

A new way of packaging oil was called to my attention recently. A photo of the product is enclosed. This same product, I am told, is packaged

Happy 30th Birthday to the Honey Bear

Who would have thought it possible? A bear filled to above the ears with it's favorite food — Honey! This creation was inspired by W. Ralph Gamber of Dutch Gold Honey, Inc. in Lancaster, PA and the late Woodrow Miller of Miller American Honey Co, Colton, CA. Gamber and Miller decided that this lovable, squeezable bear and their honey were the perfect match. Gamber would work the East Coast and Miller the West Coast.

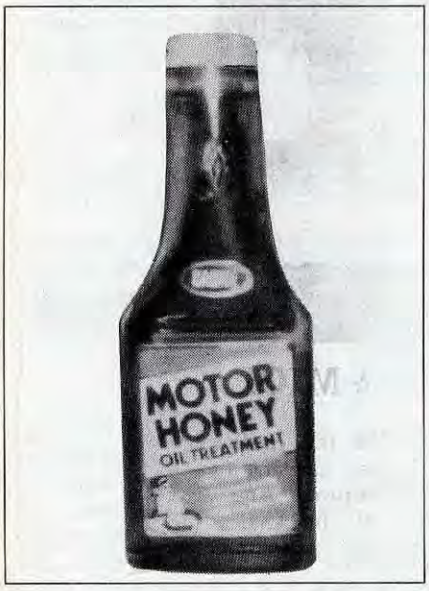
They gave the Olympic Plastic Co. (now defunct) of California the job of creating this adorable little honey container. Its' soft tummy, its' bib-like label, friendly smile and six toes on each paw made it unique in every way.

It wasn't long before other plastic companies copied this little creature, even the six toes on each paw. However, the important thing is that it made a big hit on the honey market.

It is refillable for honey, is perfect for basting a turkey, can be used as a baby bottle, or is a great bathtub toy or squirt gun for children. No wonder this happy little fellow is popular with adults and children alike. This little honey bear proves that good things come in "bear-able" packages.

in a traditional metal oil can using the word honey.

This material has the color and viscosity of honey. It is packaging in a squeezable plastic container that reminds one of a food package. I have shown this product to several people on the Cornell campus. Everyone agrees that this could be mistaken as a food product, especially by youngsters.



This morning, by phone, I registered a formal complaint with Ms. Pat McQueen, Pure Food and Drug Administration, U. S. Court and Federal Building, Room 1217, 100 S. Clinton St., Syracuse, NY 13260. She has promised to look into the matter. A Pure Food and Drug Administration official from the Buffalo office has seen the product in the metal can and agrees that there may be a problem here. My experience with the Pure Food and Drug Administration is good, and I think that they will get this package and the use of the word honey off of the market. However, if you care to pursue the matter, and perhaps even find the product yourself, I encourage you to do so. I presume some follow up letter to Ms. McQueen or the Pure Food and Drug Office in your area would do no harm.

☆ INTERNATIONAL ☆

1988 International Conference on Tropical Apiculture

The Government of Egypt is hosting IBRA's 4th International Conference on Apiculture in Tropical Climates in Cairo from November 5 - 10, 1988. Participants will include researchers, beekeepers, extension workers, agriculturists, and representatives from aid agencies concerned with agricultural and social development.

Further details are available from the Conference Steering Committee, International Bee Research Association, 18 North Road, Cardiff, CF1 3DY, UK. (Telephone/ansaphone 0222 372409/372450; Telex 23152 monref G 8390.)

Tri-Country Week! November 9-15, 1987 Edmonton, Alberta

Plans for the 3rd **Tri-Country Symposium**, (Mexico, US, Canada) are well in hand. There will be more than a dozen speakers from Mexico, Germany, Venezuela, Nicaragua, and many parts of the United States and Canada, covering a range of topics on exotic mites and Africanized bees. An information package is being prepared, but not in time to meet the publication deadline.

Contact Fantasyland Hotel directly at (403) 444-3000 (collect). Tell them you are attending the Beekeepers Convention. Rates: Executive $72; Deluxe Exec. with jacuzzi $85; Theme $95. DEADLINE FOR CONFERENCE RATE is October 9th. After that date, rooms are guaranteed on a first come basis only.

For more information, contact Louise M. Zwaenepoel at the Alberta Beekeepers Association, 2434 - 104 Street, Edmonton, Alberta, Canada, T6J 4J8, or phone (403) 435-0306 for details.

☆ CALIFORNIA ☆

The **California State Beekeepers Association** invites you to join us for the 98th annual convention which will be held on the scenic central California coast in San Luis Obispo at the Park Suite Hotel. The convention is scheduled for November 16 - 20. In addition to an exciting program of speakers, we have a fascinating tour of the beautiful Hearst Castle planned. The convention offers our members and guests an opportunity to socialize, make valuable business contacts and be informed and updated on current interests to our industry.

TRI-COUNTRY WEEK! November 9-15, 1987 Fantasyland Hotel, Edmonton, Alberta

REGISTRATION FORM — Register before October 20th and SAVE!

Name _____ Spouse _____
Company _____ Phone _____
Address _____ Pcode _____
Zip _____

Registration Fees: (spouse included)			
ABA CONFERENCE: (Nov. 10 & Nov. 12 a.m.)	Earlybird $25		$ _____
TRI-COUNTRY SYMPOSIUM: (Nov. 11)	Earlybird $25		$ _____
CHC CONFERENCE: (Nov. 12 p.m., 13/14)	Earlybird $25		$ _____
Register for all three conferences by Oct. 20, 1987 for a 10% discount. Earlybird door prize drawing. Rates go up to $30.00 for each Conference after October 20th.		$67	$ _____
Organized Meals: Tickets also available at Convention up to 48 hrs. before event.			
Tuesday, November 10:			
LUNCHEON in the Exhibits Hall	tickets	@$10	$ _____
OPENING RECEPTION (evening)	tickets	@$ 5	$ _____
Wednesday, November 11:			
BREAKFAST with entertainment	tickets	@$10	$ _____
LUNCHEON with speaker	tickets	@$10	$ _____
Thursday, November 12:			
DELEGATES BREAKFAST	tickets	@$ 9	$ _____
LADIES AUXIL. BREAKFAST/MTG.	tickets	@$ 7	$ _____
LUNCHEON with speaker	tickets	@$12	$ _____
INTERNATIONAL BANQUET/DANCE	tickets	@$22	$ _____
Friday, November 13:			
LUNCHEON Tri-Country Report	tickets	@$12	$ _____
TOTAL ENCLOSED			$ _____

Mail to: ABA, 2434 - 104 Street, Edmonton AB T6J 4J8

Tuesday, November 17

8:00 Registration
9:00 Opening Ceremonies
10:30 National Honey Board Report
11:00 Calif. Honey Advisory Board Report
11:20 Apiary Board Report
11:40 Am. Beekeeping Fed. Report.
12:00 Lunch
1:10 Tom Webster, U. C. Davis, Ent. Dept. "The Effect of Monitor Pesticide on Honey Bee Brood."
1:40 Robin Thorp, U .C. Davis, Ent. Dept., "Crop Pollination in California: An Overview"
2:20 John Skinner, U. C. Davis, Ent. Dept., "Sunflower Pollination: Past, Present and Future"
3:15 Larry Teuber, U. C. Davis, Agron. Dept., "Floral Characteristics of Alfalfa Influencing Pollinator Activity"
4:00 Larry Goltz, "Bee Plants - Moving to Better Neighborhoods"

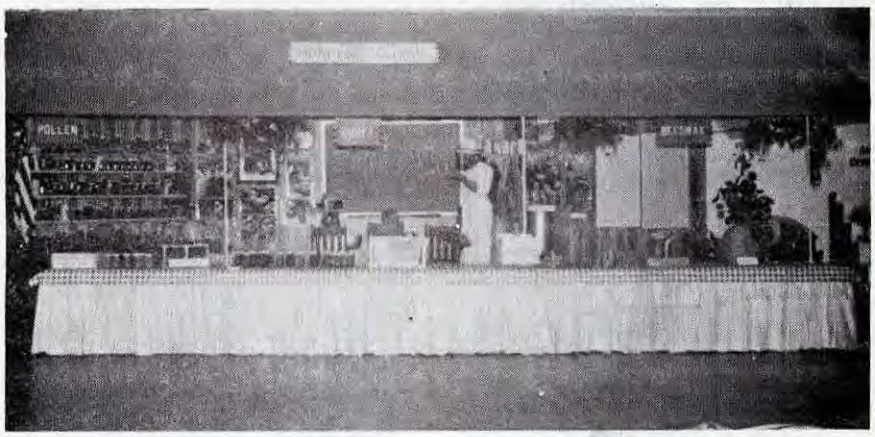
Wednesday, November 18

8:00 Pat Paswater, State Apiary Ins., Apiary Report
8:30 Howard Rosenberg, Farm Labor Mgmt. Spec., "Learning to Live with the New Immigration Laws"
9:10 Karen Klonsky, Coop. Exten. U. C. Davis, "Microcomputers - How Can They Work for An Agricultural Business?"
10:00 Gordon Held, San Luis Obispo, "Business Use Of Computers"
10:45 Beekeepers Panel — Moderator, Eric Mussen, Ext. Api. U. C. Davis. Beekeepers Who Use Computers "What They Do, What They Don't Do, And What Have They Done To Our Business"; panel members are Karen Klonsky, Gordon Held, Brian Ferguson, Darrell Wenner, Richard Gannon, Edward Allen.
11:45 Research Luncheon, Rob Page, Ohio State "Breeding Resistance to Tracheal Mites"

Thursday, November 19

8:00 Dave Gordon, U. C. Davis Ent. Dept., "A Survey of Current Beekeeping Practices in California: Implications for Africanized Honey Bee Control"
8:30 Christine Peng, U. C. Davis Ent. Dept., "A Bioassey for Antibiotics"
9:10 Orley Taylor, U. of Kansas, "Control of Natural Mating in Honey Bees"
10:00 Orley Taylor, U. of Kansas, "African Bees in Mexico: What To Expect"
10:40 Rob Page, Ohio State Univ., "Honey Bee Breeding: A Prognosis for the Future"
11:20 Harry Laidlaw, U. C. Davis, Prof. Emer., "History of Bee Breeding and Instrumental Insemination"

Additional information about the CSBA's convention may be obtained by contacting the CSBA president, Gene Brandi at 1511 Hawthorne Drive, Los Banos, CA 93635, (209) 826-2811 or the secretary/treasurer, Carol Penner at 19980 Pine Creek Road, Ed Bluff, CA 96080 (916) 527-0941. For discounted air fare contact American Airlines/American Eagle, Starfile No. S82203 at 1-800-433-1790.



The **Beekeepers Guild of San Mateo County** placed first in the Agricultural Feature Division at this year's County Fair. The Fair was held July 24 through August 2, 1987 at San Mateo, California.

The theme of this year's display was "Honeybee School". The display featured a classroom setting where all study was devoted to honey bees and their various products.

Dorie Goit, 1987 California Honey Queen was present to promote both honey and the importance of bees to agriculture. The display also featured all types of beekeeping equipment, honey recipes and numerous educational aids.

☆ ILLINOIS ☆

The **Illinois State Beekeepers Association** will hold their Annual Convention on November 14, 1987 at the Department of Ag. Bldg., IL State Fairgrounds, Springfield IL.

9:00 Registration
9:30 ISBA Meeting Reports; Pres., Sec., Treas., Hist., Apiary Insp. Report, Mr. Eugene Killion
10:45 Mr. Dan Hall, Manager of the National Honey Board, Longmont, CO, "The Honey Check Off Program"
11:30 Election of Officers
11:45 Lunch ($6.25 per person)
1:00 Walter J. Diehnelt, Honey Acres, Ashippun, WI, "Honey of a Museum"
1:30 Richard Porter, Pres. of Southern IL Beekeepers Assn., "My First Experience with Pollinating Apple Orchards"
2:15 Walter J. Diehnelt, "Beekeeping"
2:45 Local Chapter Reports
3:15 Installation of Officers
3:30 Remarks from the New President

For more information contact: Udell Meyer, R. R. #3, Box 308, Edwardsville, IL 62025.

☆ MICHIGAN ☆

The fall conference and annual business meeting of **The Michigan Beekeepers Association** will be held at the Oleson Center on the campus of Northwestern Michigan College in Traverse City, Michigan, November 6th and 7th, 1987.

Keynote speakers include Dr. Walter Gojemerac and Dr. Roger Hoopingarner, Apiculture Specialists at the University of Wisconsin, Madison, WI and Michigan State University, respectively. Penny Reese, former MI Honey Queen and 1987 American Honey Princess, will speak on honey promotion efforts around the country. A local beekeeper will also demonstrate a new and improved method of removing bees from honey supers with greater protection from bee stings.

Registration begins at 11:30 a.m. on November 6th and 9:00 a.m. on November 7th. A banquet will be held at the Oleson Center on Friday evening. There are many fine accommodations in the area. For a list contact: The Chamber of Commerce, (616) 947-5075. For further information contact: M.B.A. president, Ray Buell, 335 S. Houghton, Milford MI 48042, (313) 685-2868.

☆ MISSISSIPPI ☆

The **Southeastern Mississippi Beekeepers Association** will host **The Mississippi State Beekeepers Association** in our annual fall meeting November 6th and 7th, 1987. The program will begin at 9:00 a.m.

on the 6th at the Dixie Electric Power Building East of Laurel, Mississippi. Speakers for the day will include: Mr. Richard Adee of Bruce, South Dakota, Mr. Neil Miller of Blackfoot, Idaho, and Mr. Les Shippe of Wiggins, Mississippi — all migratory beekeepers. Also included on the agenda is the American Honey Princess, Ms. Pennie Reece.

The Program will resume at 7:00 p.m. on the 6th featuring The Magnolia Boys Quartet with a two hour gospel music presentation.

On the 7th the program will begin at 9:00 a.m. and will include Mr. Mark Leonard with the U.S. ASCS office to present information and advise on the Honey Loan Program. Also there will be a presentation by Mr. Keith Deleplane of Baton Rouge, Louisiana on the artificial insemination of queen bees.

Door prizes and complimentary meal will be included in the two day event. Rooms will be available at the Ramada Inn and the Townhouse Motels of Laurel, MS. Each will give special rates to all beekeepers. Contact Donald E. Rushton, Route 13, Box 14, Laurel, MS 39440 or call (601) 428-4003 for additional information.

☆ NEW MEXICO ☆

All Beekeepers are invited to attend the **New Mexico Beekeepers Association's** annual convention, December 4th and 5th at the Albuquerque Hilton Inn located at 1901 University Blvd. N.E. An international line-up of speakers, equipment displays, door prizes and outstanding New Mexico hospitality will make this meeting fulfilling and enjoyable to the hobbyiest as well as the commercial beekeeper.

For further information contact Rick or Betty Cole, 600 N. Bosque Loop, Bosque Farms, N.M. 87068 or call (505) 869-2841.

☆ NEW YORK ☆

All are welcome to the 119th Annual Winter Meeting of the **Empire State Honey Producers Association**, December 4th and 5th, 1987 at the Quality Inn North (formerly Syracuse Hilton Inn) in North Syracuse, NY, Thruway exit 36 at Interstate 81. Registration starts at 9:15 a.m., Friday, December 4th.

The program includes speakers on the economics of the U.S. beekeeping industry, the National Honey Board, the use of menthol, prevention of bee disease, and other aspects of beekeeping, plus a honey show, banquet, presentation of the NY Beekeeper of the Year award, and exhibits and displays. For more information call the Office of Apiculture at Cornell University, (607) 255-5443.

☆ OHIO ☆

Coming Event for the Ohio State Beekeepers Assoc.

The Ohio Fire Academy, 8895 East Main Street, Reynoldsburg, will be the site for the fall meeting of the **Ohio State Beekeepers Association**. The date is November 7, 1987 with registration beginning at 8:30 a.m. and the meeting beginning at 9:00 a.m.

Speakers include Dr. Clarence Collison, Univ. of PA; Dr. Robert Page, Univ. OH; and a speaker from Prairie View Honey Co., Detroit MI.

There will be a $5.00 registration fee without lunch or an $8.00 fee with lunch charged at the door.

For more information contact John Grafton, Rt. 1, Box 269, Steubenville, OH 43952, (614) 282-2076.

Miss Kyna Naylor, 18, is the 1987-88 Ohio Honey Queen. She was selected to represent the honey and beekeeping industry of Ohio in the promotion of honey and its many uses, and to help aid in the education of the general public about bees and beekeeping.

Fortunately for Kyna, Ohio is abundant in many opportunities to do this. From the world's largest State Fair where Kyna spent a full seventeen days meeting the public with live demonstration hives, to the nation's first honey festival in Lebanon, Ohio where she gives thousands their first taste of such honeys as tulip, poplar or orange. Kyna finds Ohio a vast opportunity to share her knowledge.

She is the daughter of Kenneth and Joyce Naylor of Hillsboro, OH, where she resides on a small farm. She is attending Southern State Community College where she is studying to become a Register Nurse.

☆ OREGON ☆

The **Oregon State Beekeepers Association** will hold its Fall Conference, November 21, at the Surfrider Motel, on Highway 101, two miles north of Depoe Bay, Oregon.

Registration fee is $7 or $10 per family and starts at 8:15 a.m. The meeting starts at 9:15 a.m. Come relax, enjoy and have a great time.

9:00	Dan Hall, Manager of the National Honey Board. "How the Honey Board hopes to increae the wholesale price of honey"
9:30	Dave Turner, Or. Dept. of Ag. "Update on mites, disease and regulations"
10?30	Doug McCutcheon, British Columbia, Ap. Chief Inspector. "Queen production in British Columbia"
11:15	Lynn Royce, O.S.U. Dept. of Ent. "Biology of the honey bee tracheal mite"
1:15	Dr. M. Burgett, O.S.U., Dept. of Ent. "Review of commercial pollination in Oregon"
2:00	Doug Mc Cutcheon, BC Apiary Inspector. "How British Columbia beekeepers and meeting today's challenges"
3:15	Daryl Hedin, Forest Grove, OR. "Oregon honey plants"
3:45	Auction and Business Meeting
6:30	Banquet

For more information contact Dave Kerr, Oregon State Beekeepers Association, 8545 Perrydale Road, Amity, Oregon, 97101 or see the November issue of *Bee Culture*.

☆ TENNESSEE ☆

The 1987 Tennessee Honey Queen is Falicia Hart of Watertown, Tennessee. The daughter of Thomas and Joyce Hart is currently a freshman at Austin Peay State University where she is a speech major. Since Falicia's coronation in October of 1986 she has been busy promoting honey and educating the public on the importance of the honey bee.

☆ TEXAS ☆

Texas Beekeepers Plan Short Course on Africanized Honey Bees

The **Texas Beekeeper Association**, will have it's annual meeting in Galveston, November 5 - 7, 1987 and will feature a number of events dealing with Africanized honey bees.

A special short course designed primarily for hobby and sideline beekeepers will be offered Thursday, November 5 by Dr. Larry Connor, Beekeeping Education Service, Cheshire, CT. This is the fifth annual short course offered by Dr. Connor for the Texas Beekeepers Association.

Titled "A Rational Orientation to Africanized Honey Bees", the program will deal with the many and varied challenges posed by these bees.

The objective is to establish a solid base of information for Texas beekeepers about these bees — so they have factual information to deal with, and not misinformation.

The short course held November 5, precedes the TBA convention and requires a special registration fee ($0 per person; $50 per couple or business partners; $20 High School and College students). For registration information contact Margie Coplin, 3512 Jack Beaver Road, Arcadia, Texas 75717. Phone (409) 925-6336.

The program will be held at the Best Western Galveston Resort, 600 Strand, Galveston Island, TX 77550. Registration for motel rooms is $35 per night as part of the Texas Beekeepers Association Annual Convention. (409) 765-5544.

☆ WISCONSIN ☆

Annual Convention

The **Wisconsin Honey Producers** annual convention will be held in Madison on October 29, 30, and 31 at the Holiday Inn No. 2. It will have something for both hobbyists and commercial beekeepers. The main speaker will be Dr. James Tew from A. T. I., Wooster, OH.

Speakers from neighboring states will talk on beekeeping subjects and prominent personalities from Madison will be on hand, giving lectures and information. There also will be a woman's program this year!

A continuous silent auction will be held Friday, with the lucky bidders receiving their items at the Queen's Reception.

For more information contact Wally Nass, N9596 Hustisford Road, Watertown, WI 53094.

Obituary

Jack E. Engelhardt
Former Urbandale principal, longtime beekeeper

Jack E. Engelhardt, 73, formerly of Battle Creek, MI, died August 27, 1987 in Arrowood Nursing Center. He had been in declining health for two years.

He was brought to the nursing center a week earlier from Ann Arbor, MI where he had been living for the summer. Last year he moved to Haines City, FL from Ann Arbor.

He was born in East Leroy Township and graduated from Battle Creek Central High School in 1932. He received his master's degree in 1952 from the University of Michigan. He began teaching in Verona schools from 1953 to 1955. From 1955 to 1959 he served as principal of Urbandale Elementary School.

In 1960, he moved to Ann Arbor where he worked as an elementary school teacher and later as a principal until his retirement in 1978.

He was a member of First Presbyterian Church in Winter Haven, FL, and of the Michigan Education Association.

He was involved in beekeeping and was former secretary of the Michigan Beekeepers Association and past president of the Southeastern Michigan Beekeepers Association. He taught beekeeping in Ann Arbor area community colleges and had toured around the world visiting with and speaking to beekeeping organizations.

Surviving are his wife, Evelyn; sons, Ernest and John; five grandchildren; two great-grandchildren; sisters, Bernice and Delila; and a brother, Robert.

☆ 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.

WANTED

ALMOND POLLINATION NEEDS YOUR BEES — If you can provide strong colonies. **Pollination Contracting.** Now arranging contracts. Offering reliable service in central CA for 1988 season. L. Hicken (209) 823-5141 or C. Carroll (209) 823-1386. (1/88)

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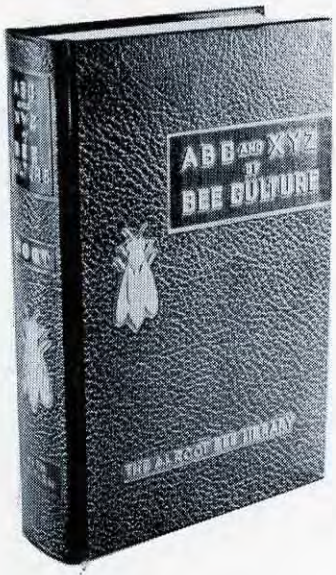

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