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GLEANINGS IN E NOV. '86 BEE CULTURE

SINCE 1873

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113 Years Continuous Publication by the Same Organization

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COVER . . . Batik by Jean Paulson Photo by Diana Sammataro

INSIDE IN NOVEMBER

WINTERING, WAX AND THE FUTURE

The beekeepers year isn't over quite yet, and this month we offer several ideas on wintering theory and techniques. Dr. Jaycox covers two prominent theories, mentioning good and bad points of both. The Hewitt Museum in CT offers a short survey of methods and equipment used in the past to winter bees in 'Early Winters'.

Wax is a commodity that can't be overlooked, so we have two excellent articles on uses of this hive product. The ageless craft of Batik is explained well in Jean Paulson's article of the same name, and Stu Root and Dr. Robert Berthold explore home uses of wax and candle making — both useful and profitable information.

Other subjects this month include another look at queen excluders by Steve Taber — definately worth considering for next year. Dr. Tew offers some suggestions on marketing beekeepers and Toge Johannson describes an alternative to the standard hive used today.

Charlie Koover looks at a variety of subjects, offering some sound advice and excellent opinions, and Richard Taylor takes a walk in the future, looking at several aspects of beekeeping.

All this plus more Games, Testing Your Beekeeping Knowledge, Research Review and Apimondias International Symposium — Inside in November.

COMING NEXT MONTH — Keeping in the spirit of the Holidays, next month we'll look at some new equipment, both to buy and to make. Also, trees as nectar sources — now is the time to start those planting plans. And we're going to take a long look at the new Tax Reform Bill — with some general applications of the new laws. This will be followed in January with the specifics of how this will affect the business of beekeeping. These, our regulars and the Holiday Season — December will be great with *Bee Culture*!§

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GLEANINGS IN BEE CULTURE



Novemer 1, 1986

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, unproce	ssed hone	ey to Pa	ckers, I	F.O.B.	Produce	er.				
Containers Exchanged	1	2	3	4	5	6	7	8	R	A
60 lbs. (per can) White	42.00	36.38		48.00		37.50	38.63	39.75	32.40-54.00	36.80
60 lbs. (per can) Amber	41.00	33.16	40.00	43.00		31.50	37.00	37.10	31.00-43.00	36.35
55 gal. drum/lb. White	.57	.58	-	.54	.43	.61	.57	.58	.4361	.56
55 gal. drum/lb. Amber	.54	.53	.60	.43	-	.54	.53	.53	.3656	.51
Case lots - Wholesale										
1 lb. jar (case of 24)	29.13	23.03	26.00	25.98	25.92	27.05	25.25	30.12	22.50-35.20	26.36
2 lb. jar (case of 12)	28.67	23.16	25.00	22.75	23.76	25.45	27.53	26.70	21.00-34.50	25.59
5 lb. jar (case of 6)	31.13	26.43	25.25	24.95	23.04	24.55	25.40	28.20	21.00-34.00	26.79
Retail Honey Prices						1				
1/2 lb.	.97	.88	1.10	.75	.83	.80	.87	.98	.75-1.10	.91
12 oz. Squeeze Bottle	1.43	1.14	1.60	1.35	1.17	1.27	1.22	1.41	.79-1.69	1.30
1 lb.	1.63	1.43	1.50	1.57	1.43	1.42	1.57	1.71	1.09-1.84	1.54
2 lb.	2.73	2.54	1.15	2.92	2.59	2.82	2.77	2.57	1.15-3.05	2.59
2-1/2 lb.	2.55	3.25	3.25			3.30	3.41	3.45	2.55-3.99	3.36
3 lb.	3.97	3.90	4.25	3.45		3.73	3.75	3.82	3.15-4.36	3.84
4 lb.	5.13	4.64	4.00	4.15	4.99	4.52	4.85		4.00-5.25	4.67
5 lb.	6.50	5.60	5.75	5.88		5.32	5.50	5.39	4.99-7.00	5.71
1 lb. Creamed	1.75	1.62	1.59	1.45	1.69	1.50	1.56	1.62	1.40-1.84	1.59
1 lb. Comb	2.50	1.96	2.00	2.25		2.25	1.85	2.25	1.50-3.00	2.16
Round Plastic Comb	2.13	1.75	2.00	1.85		1.88	2.44	1.65	1.50-3.25	2.01
Beeswax (Light)	1.18	1.14	1.10	.95	.85	1.00	1.08	1.20	.85-1.25	1.08
Beeswax (Dark)	1.05	1.01	.97	.85		.93	1.00	.95	.85-1.15	.98
Pollination (Avg/Colony)	22.50	16.25		27.50		26.10	22.00	25.00	10.00-27.50	22.29

New Features on Honey Report Graph

We have rearranged the regional map used for our monthly report. There are now 8 regions instead of 9. We are trying to make these regions more uniform in nature, but as you are aware, conditions can vary across the street let alone over several states.

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. This will give you an idea where you stand nationally. 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 \$1.09 - \$1.84 and the average price across the country is \$1.54.

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 4 has a price index of 1.00 this month and remaining regions are compared to that index.

Note: These figures are only as good as the data sent in by our reporters. If you believe the numbers here are not indicative of your area please contact us. We are actively seeking reporters in Regions 3 and 5. If you are interested, please contact the Editor. We provide token compensation for your efforts.

•Region 1.

Price index .92. Sales steady to slow. Government distribution partially blamed. Some areas demand increasing however. Generally, production down but enough late crop to overwinter. Feeding and medication may be required in some areas. •*Region 2*.

Crop index .91. Sales steady to slow, with prices unchanged to slightly lower. Moisture adequate to high to help fall flow. Some areas may need feeding for winter. Production generally low for the year.

•Region 3.

Price index .9. Sales steady to increasing with prices up somewhat.

•Region 4.

Price index 1.00. Sales good to excellent at slightly higher prices. High moisture honey a problem, good fall flow in some areas, no flow in others. Scasonal production down generally, to nearly nonexistant in others.

•Region 5.

Price index .69. Sales slow. Extremely wet weather hampering harvest. Seasonal production low, lowest in years in many areas.

•Region 6.

Price index .78. Sales steady to slow, but slower than usual for this time of year. Production average to good so surplus expected.

•Region 7.

Price index .85. Sales excellent, demand for locally produced honey strong. Promotion of American made products working. Summer drought hurt production, but recent rains have helped. Snow in higher altitudes. Wintering conditions look good.

•Region 8.

Price Index .84. Sales steady to increasing. Some areas reporting excellent demand, especially in North. High moisture in most areas hampering harvest, but helping fall flow. Some insecticide damage in southern areas in cotton.

•Alaska.

No report this month.



Occasionally, even the most lighthearted, easy-going and down to earth people take themselves too seriously. And in all modesty, I must admit to being one of these people. I have both a vested and personal interest in the success of the Honey Promotion Act, so it was fairly easy for me to get wrapped up in the process of the vote, the first meeting and the election of Board Members.

However, for someone outside the industry, all the noise we made was perhaps just a little out of proportion. After all, how much impact is this going to have on the rest of the world, and is it really as important as we think it is?

Well, you must answer that question yourself, but it is always wise to try and be objective when considering something that will affect your business.

In the scheme of things, we are not alone when considering the future of an industry - and our attempt to exercise some control over our destiny. We have all read of other commodity groups struggling to gain some influence in a world that often appears out of control. So it was with just a little guilt, and a lot of fun that I read the following piece in the Washington Post recently. It deals with the egg industry, and a marketing order they are attempting to implement. The primary difference between them and us is that their program will regulate production and volume rather than research and promotion (see *). But the basics are similar. Remember, be objective

Who'll Rule Roost On Egg Production is Ruffling Feathers

WASHINGTON - Squawks, clucks, crowing — they've heard from almost everyone but the Easter Bunny on this one, and Agriculture Department officials now must decide whether they want to admit Uncle Sam to the nation's henhouses.

At issue is a federal marketing order proposed by some of the country's largest producers of eggs. It would allow the industry to regulate the flow of eggs to market and to eliminate egg surpluses by sending surplus hens to slaughter — a step that some call "henocide."

The proposal isn't going over easy.

The United Egg Producers, a trade group that has lobbied for the order, says it is vital to the future of an industry bedeviled by falling consumption. But many smaller producers, bakers, restauranteurs and consumer advocates say it is a veiled move to create a barnyard OPEC that would scramble markets and drive up prices.

USDA's Agricultural Marketing Service has held regional hearings on the proposal and heard a symphony of pros and cons. According to marketing service chief James C. Handley, the department will decide this month whether to allow the egg marketing order process to go forward.

Although the Reagan administration doesn't like the idea (hard-boiled Justice Department antitrust lawyers argued vehemently against it at the hearings), Handley said USDA is uncertain which way it will go.



But even if USDA approves the order, egg producers will have the last word. By nationwide referendum, they would vote on the proposition, which could force them to shell out up to 2 cents per dozen for egg research and promotion and to compensate for the slaughter of hens to reduce egg production.

The order, if approved, also would create a national board of producers empowered to decide when eggs are in surplus and to determine how many hens would be sent to the soup factory to keep egg supplies in line with demand.

Agricultural marketing orders, a relic of the New Deal era, were created to help farmers get better prices by limiting the marketing of their products to consumers. Some of the 48 orders, which cover such things as hops, spearmint, citrus and vegetables, regulate research and promotion. Others regulate production and marketing volume. (*)

Administration moves in 1981 and 1982 to wipe out some of the orders, on the ground that they violated free-market principles, created so much controversy that Congress banned the Office of Management and Budget from reviewing them and limited USDA's powers to end them.

USDA's hearings and invitation to public comment apparently did little to resolve the major disputes over the egg marketing order. More than 4,000 pages of testimony and scores of letters were produced.

The United Egg Producers and its allies complained bitterly about the presence of Justice Department antitrust lawyers at the hearings, accusing them of intimidating witnesses and stalling proceedings. Producers called the Justice Department's efforts "a blatant usurpation of power from the Department of Agriculture."

"If this is the American process, shame on it," said Gerald L. Pitt of the Illinois Egg Market Development Council, pecking at Justice's tactics.

R.K. Looper, president of Cal-Maine Foods Inc. of Jackson, Miss., urged the USDA to "help us protect our rights, which are being attacked from all quarters — from the Department of Justice to Congress itself." Looper's comments identically matched dozens of statements by other backers of the producers' group.

But some opponents of the marketing order had equal difficulty in being original, although they didn't think the plan was what it was cracked up to be.

Sen. David H. Pryor and Gov. Bill Clinton of Arkansas, both Democrats, submitted nearly identical statements on behalf of the Arkansas Poultry Federation, warning that the order "will eventually result in higher egg prices for consumers."

Ray Coleman, an egg producer from Webster, Ky., may have been the most succinct. "This marketing order is <u>not</u> for the birds or the people of the poultry industry," he said.

Continued on Page 591



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A NOTICE TO OUR READERS About Mail-Order Purchases

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- 3 Understand the seller's return and refund policy, including the allowable return period and who pays the postage for returned merchandise.
- If you should have a problem with your order or merchandise, write a letter to the seller with all of the pertinent information. Telephone complaints should be followed up with a letter of confirmation. Keep copies of all correspondence.

5 If you have thoroughly followed up in writing with the seller on your problem and still are not satisfied, contact the consumer protection agency in the seller's state or your local U.S. Postal Service.

Dear Editor:

I don't understand why there is so much discussion on what the best smoker fuel is. Any beekeeper worth his salt should know that dried horse manure tops the list. These little brown nuggets crumbled on top of burning paper produce enough cool, white smoke to work the whole apiary. And when you get out of your truck at your next location, you'll probably find it still smokin' and ready to go.

Cow chips are good, but horse is number one. Enough said. Peace.

John Calder P.A. Uluisaivou RA, Fiji South Pacific

Dear Editor:

I would like to disagree with Richard Taylor in the September "Questions and Answers".

Q. If you overwinter

Bees need space to cluster, which means empty cells to crawl into from both sides of the comb, to keep the bees between the combs warm. They cannot keep full honey combs warm. To put it short: No empty cells to cluster on — dead hive.

On the other hand, my hat is off to Richard Taylor for mentioning in "Bee Talk" that the Rev. Langstroth was suffering from manic-depressive disorder. That comes much closer to the truth than the "head trouble" that Florence Naile talks about. It's nice to bring it out into the open, there are a lot of people suffering from it who don't know just what their problem is.

I also disagree with Charles Mraz about the Varroa mite. A hive that gets wiped out by varroa cannot learn to control it. Varroa overpowers a hive too fast for the bees to learn. It is being said that the Africanized bee can live with Varroa, but the Africanized bee cannot get through winter in the Northern States. Sorry, but I do not know a solution to the problem.

Concerning Dr. Morse's comments on chalkbrood, I would like to recommend that beekeepers who have problems with chalkbrood <u>move</u> their hives. Move them backwards a few feet, move them forward a few feet, sideways if possible, move them to pollination, move them to another yard, move them back to the homeyard but don't leave them in exactly the same spot. Short of that you can spray the area in front of the hive with Benomyl, available in Flower shops and Garden shops. The bees come back from foraging and drop on the ground in front of the hive, and re-infect the hives with spores from the mummies that the house bees drag out of the hive.

> Gerard K. Guth P.O. Box 131 Auburn, NH 03032

Ed. Note: Although probably very effective, this application of Benomyl is not on the label, therefore illegal. However, a solution of 50:50 Bleach and water would probably be just as effective — and legal.

Dear Editor:

It would be useful to find a method of identifying honey adulterated with high fructose corn syrup (HFCS) other than using a mass spectrograph to determine the ratio of carbon 12 and 13 isotopes.

A letter in *Science* several years ago reported that some 'ultra pure' sucrose used for analysis was contaminated with RNA (ribonucleic acid).

Commercial grades of corn syrup would contain RNA, and also the genetic material DNA (deoxyribonucleic acid) from cells crushed in the process of syrup.

A recent article in the New York Times (2/4/86 page C1) reported the development of a technique using DNA analysis to 'fingerprint' individuals in criminal investigations from samples of blood, semen, and hair roots.

The methods include electrophoresis and special probes to prepare radioautograph films (see *Nature* 1/6/86, page 171 for additional information).

This method would be ideal to identify African genes in a colony of bees. It would be interesting to determine the extent to which genes in African semen imported by the US Department of Agriculture in 1960 have spread throughout North America.

Are there populations in which the genes have recombined after the initial dilution? Hopefully, DNA analysis will be available by 1988 when drones are expected to fly over from Mexico to reintroduce African genes on a massive scale.

> Toge S.K. Johansson RD 1, Box 256A East Berne, NY 12059

Dear Editor:

In your September 1986 issue, in the "Testing Your Beekeeping Knowledge"

MAILBOX . . . Cont. from Page 549

column, the answer man made two mistakes.

Question 4 asked whether beeswax and foundation in storage were safe from wax moths. The answer was that no insect can live in pure beeswax.

Unfortunately, I know for a fact that wax moths can grow and spread in wax foundation in storage.

I store my foundation in my basement. Several years ago I noticed a wax moth by my basement door and wondered what it was doing in my basement. A few weeks later, I opened my box of super foundation and discovered massive wax moth infestation. I saw eggs, wax worms, larva, cocoons, and ruined foundation.

Question 11 indicated bees would not build wax in bright light. Well, on several occasions I have seen bees build colonies and comb in brushes and trees.

> Robert B. Clarkson 515 Concord Ave. Anderson, S.C 29621

Ed. Note: Dr. Collison - A reply?

Dear Editor:

I purchased a "Bee-Calm" from Cloverfield Bee Supply on March 19th, 1985. It was useless, so I returned it to Cloverfield. They have not as yet refunded my \$26.50, and have not responded to The Better Business Bureau of Minnesota. Please print this warning to alert other Beekeepers of this problem.

> Thomas H. Carson Route 1, Box 1450 Stroudsburg, PA 18360

Dear Editor:

Your item on making foundation by J. Iannuzzi refers to the difficulty of finding a wringer. The problem with getting an old one is that the rubber roller has died long ago. But crank wringers are readily available through janitorial supply houses. Janitors use them on the sink in the janitor's closet to help clean their rags. The big problem is that they cost about \$80.

I can remember the uses I put my mother's washing machine through. It was most useful to squeegee prints on ferrotype tins to dry, far superior to trying to roller by hand an 8" x 10" photo on that metal. Also, one could take a sheet of copper, a sharp scribing instrument, mimeograph ink, wet paper, blotter sheets, and the trusty washing machine rollers to make engravings. If they did not cost so much I would certainly buy one now.

> William H. Anderson, Jr. 4414 Park Avenue Richmond, Virginia 23221

Dear Editor:

I read from various news media that the United States is one of the largest honey producers in the world, with a highly developed beekeeping industry. One characteristic which I am happy to read about is the large number of commercial apiaries with colonies of 300 or more.

I am a beekeeper practicing on a small scale. I shall be pleased if I will be given the opportunity to come to the United States, stay on a bee farm, study and improve my knowledge in modern scientific and organized beekeeping management for a period of 2 years.

With this in view, I shall be pleased if you will send me names and addresses of Associations of Beekeepers, individuals, firms, organizations, etc., in your various regions engaged in beekeeping to enable me to write to them directly.

At the same time, you may also publish in any of your journals, if possible, indicating my eagerness to attach myself, for a period of 2 years, in the United States to a firm, an individual, an organization, or any other ventures involved in commercial beekceping to enable me to broaden and



upgrade my knowledge and skill in scientific and organized beekeeping management.

> Herbert Addison 15 Kent Stree Banjul, The Gambia

Dear Editor:

This letter is written as a request for information. I am a Peace Corps Volunteer serving as a beekeeper, in Winneba, Ghana, West Africa.

My question deals with an attempt to further my beekeeping project here in Ghana. At present, we are using the Kenya Top Bar Hive. I would like to expand my effort to include the Langstroth hive used widely in the United States. As you know, this hive uses wax foundation pressed into cell sizes of 55.3 cells per square inch, to accomodate Apis mellifera. My bees here are Apis adonsonii which would require a foundation pressed to 64.4 cells per square inch. Is this smaller celled foundation available anywhere? If not, would one of your foundation producers consider producing a limited amount of this foundation on an experimental basis?

It is my impression that this new foundation and Langstroth hive could revolutionize beekeeping in Africa. I would appreciate any help you could give in this situation.

> PCV James Crozi PC/Ghana c/o State Dept. Washington, D.C. 20520

The following is a synopsis of several letters we have received in the last couple of months. As you may have noticed, the style of type has changed in the magazine since September. It is not smaller, just different, but some readers profess difficulty reading it. I don't have perfect vision either, but the concensus in our office is that our present style is easy to read. However, we value reader imput, so please contact us if you too are having difficulty reading this.

Dear Editor:

I am truly sorry you changed your type of print. When I was younger my eyes were strong and I had no problems reading. Now that I'm older my eyes aren't what they used to be and reading your new print is diffucult.

Sure, it makes a better looking magazine, but if I have trouble reading, all the good looks in the world won't help.

A long-time reader

Continued on Page 552

GLEANINGS IN BEE CULTURE

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November 1986

MAILBOX . . . Cont. from Page 552

Dear Editor:

Varroa struck Lebanon on epidemic scale in 1985-86.

It crippled 50% of our industry of 50,000 hives, which yield about 500 tons of honey annually with an annual growth of 20%.

"Lebanon," says rev. Adam, "is one of the richest countries for producing honey. It is hard to find another country as rich in quantity, quality and variety."

Varroa destroyed an average of 50% of the apiaries, reaching a 90% level in the far North and South, but never exceeding 20% in the central part of the country.

The game of nations has maintained Lebanon, but for 11 years, it has been in complete political and economic chaos. The government is virtually non-existant; the Lebanese are left on their own to solve whatever problems encountered.

Rachid Yazbek, pioneer in the industrialization of beekeeping in Lebanon, started warning of varroa, and working on methods of controlling the disease as early as 1984.

In 1986 Varroa reached the alarming epidemic level. Beekeepers were demoralized in front of such a tenacious killer. Rachid Yazbek then took the initiative to write to the outside world asking for help.

Dr. Cantner of GTZ, West Germany, responded favourably in early '86 and after lengthy correspondence a two-fold plan was developed, aimed at controlling and eliminating the disease:

1. Control the disease. GTZ distributed 4 strips of Folbex VA free per colony. The campaign was conclusive.

2. Eliminating Varroa. GTZ invited 30 beekeepers to be trained on alternative methods of controlling varroa at the Freiburg Institute. Those not speaking English wil be trained at the end of this summer in Tunisia. These trained beekeepers will in turn be trainers, and were chosen from all areas and ethnics of Lebanon, so that all Lebanese beekeepers will be educated in alternative methods.

We started experiments on lactic and formic acids and will be glad to discuss the results with anyone concerned.

We owe praise to Germany for its promotion and good work in an era where only individualism, Evil and destruction is promoted.

We owe a debt of gratitude to GTZ for its attention so badly needed and easily granted.

We owe appreciation to Dr. Cantner who was throughout trustfull, inquisitive and efficient.

We finally blame Apimondia for its

sound absence in a scene where the floor should be completely theirs.

> Richard Yazbek, Jdeidet Beirut Lebanon

Dear Editor:

Honey promotion is in full swing in Connecticut, Western Massachusetts and Eastern New York and sales are looking much better. It pays to promote your product. Some beekeepers feel that the National Promotion Program will be taken over by importers and the big producers. My answer to this is make sure this doesn't happen by showing an interest in what goes on. People that show the most interest will have the most input. And what is put into the program is what you will get out of it. The National Honey Queen did a great job in CT. Please thank her for us.

Some people seem to want the tracheal mite in all of North America so they can move bees as they please. It's said the mite doesn't harm the bees, but I ask for proof that it is good for bees. If it isn't good, it must be bad. They have no right promoting the mite without documented proof of the damage it may do to the

BEEKEEPERS TALKING TO BEEKEEPERS

That's what this magazine is all about. Share your story, your experience or your techniques. Pick up a pen or set-up your typewriter — your audience awaits ... Send to:

Kim Flottum, Editor P.O. Box 706 Medina, Ohio 44258 industry. It appears they have been hurt by the mite and seem to want everyone else to feel the pain.

> Norm Farmer Bristol, CT

Dear Editor:

CHARGING THAT FAMILY FARMERS ARE BEING HURT BY GOVERNMENT SUBSIDIES TO LARGE COMMERCIAL FARMERS, U.S. SEN. BOB KASTEN (R-WI) VOICED SUPPORT FOR STRICT PAYMENT LIMITATIONS FOR MAJOR FARM PROGRAMS.

Kasten spoke to the Senate in support of an amendment offered by Iowa Senator Tom Harklin to the continuing resolution. The amendment, which would have limited to \$500,000 the amount of government payments any one farmer could receive from all government price and income support programs, was defeated 47-52 on a procedural vote.

"While farm families are struggling to produce foodstuffs for the market, many large farms are producing for government programs, and are being paid handsomely for it," Kasten said.

"Any farmer who needs more than a halfmillin dollar check from the government to stay in business had better start looking for another line of work," he continued.

"The signs are growing that the American people are no longer going to put up with payments of hundreds of thousands of dollars, or even millions of dollars, to wealthy farmers, corporations, and even foreigners."

Kasten said that there are more commercial dairy farmers in Wisconsin alone than there are commercial rice and cotton farmers in the entire country.

"And yet, the U.S. Department of Agriculture estimates that the rice program will cost more in fiscal year 1987 than the entire dairy price support program.

"It is obvious," Kasten said, "that much of the spending on some commodity programs is in the form of enormous payments to individual farmers."

Kasten said that given the huge deficit facing the nation, the government no longer can afford to "throw money around to the benefit of a relative handful of wealthy farm operators."

"If we are to help farmers — and we should help farmers — we must target that assistance to the samll and mid-sized operations that derive most of their income from farming," he concluded.

> Senator Robert Kasten Senate Office Bldg. Washington, D.C. 20510

GLEANINGS IN BEE CULTURE



November 1986



Q. How much sugar water should I feed my bees in the fall? Do the bees store this sugar syrup and just consume it from the feeder as they need it? Do they convert it to honey?

> Guy Bolt Chattanooga, TN

A. There is no need to feed a colony unless it is light when you lift the back end. If a colony needs feeding to provide winter stores, such feeding should be completed well before the first frost. My formula is to pour five pounds of granulated sugar into a one-gallon jar then fill this up with hot water and stir with a wooden spoon or stick. The bees will "invert" this sugar syrup and store it in their combs', exactly as they would honey, but such inverted sugar is not, by definition, honey, and should never be confused with honey. How much a colony might need is relative, but one or two gallons is usually enough.

Q. This is my first year of beekeeping, with two hives. A commercial beekeeper has advised me to kill the bees rather than try to overwinter them. How does one do that? And do you recommend it for this cold climate?

Mike Peraaho Nashwauk, MN

A. Some commercial beekeepers in Canada used to routinely kill all their bees in the fall then start again with packages in the spring, but I believe this is less common now. The Cyan-O-Gas once used is no longer legal. I am quite certain that it is in any case, not necessary or desirable to kill your bees, even in your cold climate. If your hives are good and heavy come fall, sheltered from the wind and tipped slightly forward, they should survive well, get off to a strong start in the spring and make you a good crop next year.

Q. Can I use paradichlorobenzene ("Paradi") to protect against wax moths some shallow supers with granulated honey in the combs? I want to use them for swarms I hope to gather in the spring.

> J. M. Henderson Big Spring, TX

A. It is not a good idea. Honey absorbs the odor somewhat, and I have seen swarms abandon hives containing combs with the residual odor of paradi in them. If, however, such combs are aired out for at least a couple of days, and then given to established swarms, they will probably be accepted.

Q. Is there a simple method for detecting adulteration in honey? Can a polariscope be used for this purpose?

Carmel Aquilina Malta, G.C.

A. There is no simple and reliable method for detecting adulteration. There are reliable methods, especially for detecting the presence of corn syrup in honey, but they require a trained chemist. A granulation detector, which utilizes polarized light, would not disclose the presence of adulteration.

Q. Should extracting combs be left on the hives all winter or stored inside with fumigation?

Albert L. Hilty Bowling Green, MO.

A. They should not be left on the hives, at least where winters are cold, for the bees are apt to cluster in them and starve. They can be stored in a cold room, still sticky, without fumigation, and the bees will move up into them at once when they go back on the hives in the spring. But where winters are mild and supers must be stored before freezing temperatures begin, use paradi moth crystals.

Q. How is it that the anatomy of the honey bee queen includes both an ovipositor <u>and</u> a stinger which is a modified ovipositor? Would she not possess but one?

Charles Brand Beltsville, MD

A. R. E. Snodgrass describes the sting as a "remodeled" ovipositor, but this seems doubtful, since laying workers do not, I believe, use the sting as an ovipositor, and the queen certainly does not. Q. How did you come to the conclusion that a strong colony will rid itself of A.F.B. by "house cleaning" and likely not break out again? And how would you deal with an outbreak of A.F.B. in your own colonies?

> James F. McNeeley Troy, Ohio

A. I arrived at this conclusion through reading and personal experience. The best brief discussion I know of is found in Dr. Elbert Jaycox's book Beekeeping Tips and Topic,s pp. 121-123. See also the chapter on bee diseases by Dr. Gochnauer and others in The Hive and the Honey Bee, ed. by Dadant & Sons, 1975. The authors state that "the normal housecleaning tendencies of some bees can be a means of removal or of spread of infection," and that "the honey bee colony is not readily infected by B. under normal conditions. larvae Experimental colonies often tolerate inoculation with large loads of spores without developing infection. experimental inoculations. . . were tested in an apiary with uninoculated healthy colonies located adjacent to the inoculated ones to detect cross-contamination of colonies. Although subject to routine management. . . uninoculated check colonies did not develop infection . . ." etc., (p. 635). These observations tend to confirm my own experience. As to the manner in which I would deal with a colony infected with A.F.B., if several combs were infected I would burn the colony forthwith, but if I found a small infection in one comb I would burn that comb only and then keep an eye on the colony the rest of the season. As in so many things, I believe that truth and common sense in this area lie between the extremes of hysteria and recklessness.





HONEY RECIPES

Edited by Annabelle Derden Selph Published by North Carolina State Beekeepers Association and North Carolina Agricultural Extension Service Durham County

Good things often take some time in the making and the new cookbook by Annabelle Selph took over 15 years — but the wait was well worthwhile. This cookbook of prize-winning North Carolina cooking with honey recipes, is now available and the proceeds go to support apicultural research at N.C. State University.

Annabelle Selph, who modestly calls herself the coordinator of this book, spent over 15 years in producing "Honey "Pecipes", which is much more than just a oney cookbook. But, before discussing the book, it is appropriate to take a look at Mrs. Selph's background and credentials. She has a Master's degree in education and had done considerable post-graduate work in the area of nutrition. These interests in nutrition and education have been combined over the years, and she has taught in the area of nutrition at both the high school and college level. For 29 years she served as the Director of the Food Service Department for the city of Durham, N. C. and worked extensively with the school meal programs. In addition, she is married to a beekeeper and has taken a great interest in the use of honey as a nutritious ingredient in cooking.

It was Annabelle's background in education and nutrition and her interest in honey that led to her commitment to the production of a cookbook which would collect some of the many excellent recipes used in North Carolina homes. However, Annabelle was not content to just collect recipes. Instead, she solicited prize winning recipes and then subjected them to testing by a large number of N.C. cooks (both male and female). Over 600 recipes were submitted for the cookbook and 415 went through the entire testing process. The number of recipes was reduced to 360 to avoid redundancies and those 360 recipes make up the heart of this book. I say 'heart' because Annabelle was not content to just publish a book of honey recipes, even though she had a superb collection.

The book is designed so that even the inexperienced cook can use it in his or her home. It provides many hints and suggestions on general cooking and the specialized use of honey as a cooking ingredient. It even has a section on household hints which covers such topics as how to keep the honey from sticking to the measuring cup - to how to clean the sink after some very heavy use. In addition, there is an excellent index and cross reference system which makes the use of the book a very simple undertaking. For example, the cross reference listings quickly reveal there are three recipes which involve the use of pears with honey and eleven recipes which include pork. This is not just a book of honey desserts, the recipes run from appetizers and beverages to salads and main courses.



1 rabbit (optional)

Cut elephant in small pieces. Cook until tender (about 1683 hrs.). Add rabbit only if more portions are needed, as most people don't care for Hare in their stew.

Perhaps one of the most interesting sections of the cookbook is the section on "Institutional Recipes". For example, if you ever wondered how to make lasagna or pizza (with honey, of course) for 100 people, then this book is for you. Because of her experience as food director for the city of Durham, Annabelle was well aware of the value of institutional recipes for use in the schools. Thus, the book contains 16 pages of honey recipes which includes everything from "basic sweet dough" to "sweet potato spice bars". All of these recipes have been prepared and tested by one or more of the school systems in the State of North Carolina and were recommended for inclusion in the book by the appropriate school food managers.

There are many uses for institutional honey recipes today, but the most apparent is probably in the school systems. The U.S. government has tons of domestic honey in storage that is available to all of the nation's public school systems. If your local school system is not making use of that honey supply, then perhaps the reason is that the system directors are not aware of institutional recipes for honey. This book supplies a good number of "tested" recipes, and the testing was done by school system personnel.

Perhaps the best way to summarize this book is to provide a copy of the Table of Contents which shows the broad coverage of the book. The contents are as follows:

Beekeeping and Honey in North Carolina Herbs and Spices Tips on Cooking with Honey Abbreviations Substitutions Metric System Conversion Table Temperatures Appetizers and Beverages Breads Meats, Poultry and Main Dishes Fruits and Vegetables Salads, Salad Dressings, Sauces and Dips Pastries and Pies Desserts and Dessert Sauces Cookies, Candies and Confections Cakes, Frostings, Fillings and Icings Canning, Freezing, Jellies, Jams & Preserves Institutional Recipes Miscellaneous Indices 400 Household Hints

Now for the important information. The cost of the book is \$10.00 per copy which includes the cost of handling and shipping. For orders, please make checks payable to the NCSBA and mail to: N.C. State Beekeepers Association, 1403 Varsity Drive, Raleigh, NC 27606.§





Dr. H. Glenn Hall has been hired by The Institute of Food and Agricultural Sciences (IFAS), University of Florida as a honey bee research geneticist. Dr. Hall, recently with the Lawrence Berkeley Laboratory, Berkeley, California, has a broad background in genetics and bee biology which he plans to bring to Florida. His expertise is greatly needed at this time with the anticipated arrival of the Africanized honey bee by the end of the decade. He began work at the University of Florida in October, 1986.

Dr. Hall has developed a technique using nuclear DNA (deoxyribonucleic acid), the basic genetic material of all living organisms, to reliably distinguish honey bees at the most basic level. This will have far reaching effects, enabling apiculturalists and others to develop superior identification techniques and certification of bee stock. This will be an important contribution to both agriculture and the general public of Florida if the Africanized bee measures up to its reputation developed in South and Central America.

Although other techniques exist to distinguish highly defensive Africanized honey bees from European stock now found in the United States, none are 100% effective. Physical measurement (morphometrics), heavily relied on during recent events in California, and new techniques such as insect skin chemistry (cuticular hydrocarbon analysis) or use of complex proteins called isozymes all are manifestations of the information coded in the genetic material. Only when the material itself is examined and differentiated is confidence considered at its highest. Although not applicable as a screening technique, it is expected that identification by other more economical techniques will be confirmed with Dr. Hall's new technique, providing a greater degree of reliability than possible in the past.

Dr. Hall's contribution is considered so promising that he has received a USDA Competitive Grant in Biotechnology to continue his work at the University of Florida. This is the first grant of this nature ever awarded to an apicultural researcher. This research was first communicated to the National Academy of Sciences by the well-known Nobel Prize Winner, Dr. Melvin Calvin.

Working with bees since elementary school days in Baton Rouge, Louisiana, Dr. Hall spent a high school summer with a local beekeeping researcher. He received his Bachelor of Science Degree in Zoology from the Louisiana State University in 1969. While an undergraduate Dr. Hall worked in bee research at the University of California, Davis, and for several years was assistant in bee breeding and genetics with Dr. Otto Mackensen, pioneer in instrumental insemination. He received his Ph.D. in genetics from the University of California, Berkeley, in 1978, supplementing his income with a small commercial queen rearing business.

For several years, Dr. Hall has worked in cell and developmental biology with Lawrence Berkeley Laboratory. The focus of his research was cancer, until recently when he was again able to apply his expertise to work with his favorite organism, the honey bee. It is expected Dr. Hall will provide the IFAS apicultural program at the University of Florida an added dimension as both an experienced practical beekeeper and DNA researcher.§



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By William L. Coggshall and Roger Morse

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NATIONAL HONEY BOARD MEETS IN VIRGINIA

By Dwight Stoller Sec/Treas. National Honey Board

The National Honey Board held their first meeting September 24 and 25 in Alexandria, Virginia. Present were all 13 Board members and 10 alternates, USDA personnel and visitors.

Displaying excellent cooperation, board members, alternates and USDA staff were able to accomplish an incredible amount of work during the 2 day meeting.

Day 1. Alternates appointed to a working committee. 2 sub-committees formed. The first, chaired by Bruce Beekman (CA), studied rules and procedures (offered by USDA from other commodity groups) and recommendations for a job description for Board Manager, and considered possible sites for the permanent office.

The second sub-committee, chaired by Morris Weaver, (TX) looked at rules and regulations governing collections of assessments and refunds, developing a budget, and reimbursement for committee member travel expenses.

A third sub-committee, chaired by Richard Adee (SD) was formed to work on certain aspects of budget formation. Two individuals who had submitted applications for the position of Manager were introduced and presented themselves. They were John Straub, (IL) and Troy Fore (GA).

Day 2. The amended By-Laws were adopted unanimously by the Board. Officer election went as follows: Chairman of the Board, Mr. Harry Rodenberg, a producer from MT; Vice-Chairman, Mr. T.E. Burleson, a packer from TX; Secretary/Treasurer, Mr. Dwight Stoller, a producer from OH.

By-Laws dictate the Executive Committee must have two members besides the officers, these are: Mr.

Continued on Page 586





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GLEANINGS IN BEE CULTURE



THE BEE SPECIALIST

By ELBERT R. JAYCOX 5775 Jornada Road North Las Cruces, NM 088001

"Basically, there have been two schools of thought on wintering . . ."

cleansing flights. In some of his last. important writings, Farrar still maintained that there was little difference in temperatures in the *un*occupied spaces of well-insulated and unprotected hives. "For insulation to be effective, it would have to be placed around the cluster rather than around the hive," according to Dr. Farrar.

Some of Phillips' ideas about why and how insulation saves colonies now appear questionable, but he gave good advice about all the requirements for successful wintering. He pointed out that people who said it was as cold in packed hives as



unprotected ones were obviously leaving entrances wide open and letting the wind blow through them. He never mentioned Farrar's name, but referred to "the new theory of wintering," and pointed out that those methods caused a number of serious problems for wintering colonies, even after winter was long past. Among these were high humidity in the hive, dysentery, European foulbrood and Nosema disease. Phillips listed the ways to measure the success of wintering, and added to the list over the years as he saw some of Farrar's problems. These measures of success included: 1) No dead bees on the bottom board - all were thrown out of the hive. 2) Twelve frames of brood when the bees were unpacked. 3) Temperatures above freezing any time in coldest weather within the hive. 4) Lack of condensed moisture in

the hive. 5) No problems with dysentery, Nosema or European foulbrood.

The Madison laboratory was one of the first to consider that the infection of bees with the protozoan parasite, Nosema apis, a serious impact on colony has performance, queen supersedure, and "dwindling." fact, Dr. In Farrar "campaigned" about the serious nature of the disease while Dr. Phillips considered it a disease of little importance except where bees were stressed by improper wintering, i.e., without insulation. We now know how serious Nosema can be, but wintering techniques are not solely responsible for its damage. For example, the Stanley brothers of Iowa have always wintered their bees carefully, but it was not until they began culling old, black combs that their wintering success improved and microscopical evidence of Nosema disappeared.

The possibility of a relationship between wintering stress and European foulbrood (EFB) seems real when you consider the history of the problem at the Madison laboratory headed by Dr. Farrar. Few areas of the United States or other beekeeping research laboratories had the difficulties with EFB seen at Madison. Thirty years after Dr. Phillips claimed that "the new theory of wintering" aggravated the problems with European, Dr. F. E. Moeller, successor to Dr. Farrar, wrote about the virulent form of EFB that plagued the laboratory bees since the late 40's. They fed antibiotics continually, year after year, and became aware of previously unnoticed losses of brood to the infection. Finally, from 1967 onwards, they were able to control the disease with oxytetracycline. It would be easy to suggest that the strain of bees, or some other factor, was responsible, but the Madison laboratory was always testing stock, breeding new lines, and trying to rid

Continued on Next Page

Wintering Methods — New Importance?

t seems as if we will never quit talking about how best to put our bees into winter, and with good reason. Beekeepers continue to lose such large numbers of colonies, and the survivors are not always in shape to do a job of honey production or pollination, that it is worthwhile to reveiw some of the principles. If other animal industries lost as many of their livestock annually as beekeepers do, they would have thrown in the towel long ago.

Basically, there have been two schools of thought on wintering, not including wintering in cellars or other enclosures. One school has long believed that the essentials of wintering include plenty of good stores, a strong colony, adequate room for bees and brood, and protection from both wind and cold temperature. Protection from the cold in this case means insulation or packing. Dr. E. F. Phillips of Cornell University, Dr. M. H. Haydak of Minnesota, and G. S. Demuth of the U.S. Department of Agriculture were prominent among those advocating the proper use of insulation to improve the survival rate of wintering bees.

The other group was led by Dr. C. L. Farrar, long-time head of the U.S. Department of Agriculture laboratory at Madison, Wisconsin. Dr. Farrar dwelt on the idea that bees have survived for thousands of years in all kinds of climates and they will continue to survive without much help from man. He constructed hives with screened areas instead of wood to show how bees could live without protection from the harsh Wisconsin winters. He said, "The cluster itself must protect the colony against low temperatures" and that too much packing would prevent the colony from responding to warm periods during the day to remove its cluster or to take

JAYCOX . . . Cont. from Page 560

its bees of European foulbrood. They apparently never wavered in their "loyalty" to the wintering system that included winter manipulation and heavy feeding of pollen supplement, but NO insulation.

Successful wintering by grouping colonies and providing insulation with high R-value has been proven by many Canadian beekeepers, particularly in northern Saskatchewan. Even in central Illinois, I found that my colonies were stronger and used less food when insulated in groups of four. It was then that I had trouble believing Farrar's story about insulation interfering with the colony's awareness of outside conditions. Such colonies are lightly clustered, if at all, and they are invariably close to the entrance. At any break in the weather, even on cold days, the bees often made short exploratory flights.

In general, beekeepers haven't made much progress in wintering bees out of doors. Not long before I left Illinois, there were three severe winters in a row, and losses were 40 percent or more in Iowa and Illinois. Last winter in England the story was even worse. We have not improved since 1915 when Phillips and Demuth said that one-tenth of the bees are lost on the average, with up to 50 percent in bad years. They also pointed out correctly that winter losses are not confined to the northern portions of the United States; they occur in many areas, even the South. Yet losses can be reduced to one percent with strong colonies, adequate stores, adequate space, and protection from cold and wind. If you are still losing too many colonies each winter, and the survivors are not much better, look at your management and see where you need to make changes.

Many beekeepers are using controlled indoor wintering with great success. For example, Neil Vanderput of Carman, Manitoba, Canada, has even sold 400 nucs from his colonies wintered indoors and then produced large crops of honey.

Proper wintering of bees assumes much greater importance with the advent of tracheal mites into the United States and Canada. If Philllips and others were correct about the effect of wintering conditions on Nosema disease and European foulbrood, think of the relationship of those conditions to mite infestations and their impact on the wintering colony. Research workers are no better than beekeepers in their management for winter, especially when they want to save every infested colony for experiments, regardless of its condition just prior to winter. Evidence of this action can be found in the proceedings of the recent mite symposium in Minnesota. In one experiment, winter loss was 32 percent due to insufficient food. Survivors may not have been much better off. In another experiment, 30 percent of the test colonies died and the authors noted that the bees lacked food and were fed through the winter. In general, nothing was said in the reports of how the colonies were prepared for winter in relation to colony strength, stores, space, and protection. Nosema levels were often high in the reports, and appeared related to mite infestation. Another response to stress? In that case, winter losses were 11 percent and 25 percent in uninfested and infested yards respectively. de

Canadian results seem to differ from studies done in the United States. They did not see an effect of mites on populations of wintered colonies, and mite populations remained quite stable in the test hives. Do Canadians do a better job of preparing bees for winter? Is this also the reason why the tracheal mite disappears in northerm Germany and Scandinavian countries after being introduced there time and again?

We need to examine closely all research reports and those of beekeepers relating mite infestations to winter losses. Without proper preparation for winter, colonies cannot help but respond in a different way to mite infestations than they do when they are strong, well-fed, and protected from wind and cold. I hope that we will see more details in future reports than were included in the symposium proceedings.

More Trees For Bees

Throughout the world, trees are premier nectar plants for bees, but in many countries trees are becoming scarcer, especially in arid areas where attempts to grow them often fail. Charles Peaty, of All Forest Tree Services of Western Australia, says that individuals and organizations waste energy and money trying to make "instant trees" from oversize, pampered specimens. Peaty's company has specialized in creating arid farm shelterbelts on over 1000 farms without watering the trees at all, yet guaranteeing success. The secret is to plant a small tree at the right time of year into a carefully prepared site, to protect it from predators, farm animals and humans on tractors, and to apply certain helpful growth stimulants such as wetting agents and fish fertilizer. In extremely dry climates, a limited watering regime helps speed up growth.

All Forest Tree Services believe they can make green shelterbelts around towns and cities in such dry, sandy areas as Saudi Arabia. They are introducing species of eucalyptus and acacia from the arid zones of Western Australia because they flourish in dry conditions, flower superbly, and make useful timber. The trees grow better in sandhills than in clay river beds, so towns bothered by blowing sand have a chance to reduce their discomfort by creating beautiful forests, flowers for honey production, and future sources of lumber. As the trees are pruned, they will provide firewood from the branches removed.

The article from which I took this information, in Arab World Agribusiness, shows a beautiful stand of 18-month-old mixed eucalyptus planted in a saline soil in Western Australia without supplemental water. The area averages annual rainfall of only 8 inches.

Posthumous Honor For Roy Thurber

P: F. (Roy) Thurber was a thinking man's beekeeper. He always looked for better ways to do things and shared the results through his extensive writing. Roy lived in Kirkland, Washington and died in 1984.

Now the Roy Thurber Distinguished Professorship will be established in the Entomology Department of Washington State University for studies in pollination ecology. The professorship is being created with a gift of \$250,000 by an anonymous Washington resident and matched by an equal amount from the state's Distinguished Professorship Trust Fund According to the dean of the WSU College of Agriculture and Home Economics, the attention of the donor was attracted by the work of Dr. Carl Johansen, recently retired from WSU. His work included the study of bee activity on crabapple pollenizers. It has been estimated that research and extension work on pollination at Washington State University has saved hundreds of millions of dollars for Washington's economy over the years.

This tremendous gift adds emphasis to a note by Prof. L. A. F. Heath that appeared in the Huntingdonshire Beekeepers' Association Newsletter, February, 1986. He explained how the current shortage of funds in academic institutions has drastically changed the ability of individuals and organizations to influence research. Money can make the difference! In the past, academic freedom and the institution prevented undue outside influence from dictating a research program. Now, if beekeepers finance even a research assistant, they can specify what that person will work on. Prof. Heath is calling on Britain's 40,000 beekeepers to exert their influence on research. The donor for the Roy Thurber Distinguished Professorship is leading the way in this country.§



By CARSTEN AHRENS

We've had such a good response to Mr. Ahren's games we offer 2 more this month. Somewhat less than serious, they are fun and you could learn from them. Enjoy

AN APIARY GAME True - False

Honey bees are called social 1. insects because they live in colonies with very precise division of labor.

2 The insects are of value chiefly for the honey they produce.

3. Four castes: drone, queen, soldier, worker, make up the colony.

4. ____ The queen is not the ruler of a colony but it's mother.

A worker egg upon hatching 5. will develop into a queen if its diet includes "royal jelly".

Drones must be fed by workers or their tongues are too short to secure nectar.

From egg to adult, 16 days are 7 necessary to produce a queen; 24 days needed for a drone.

8. Swarming occurs when the hive is improperly ventilated.

9. A honey bee has a head, thorax and abdomen; the wings and legs are attached to the thorax.

Egg cells are square and each 10. may hold several eggs.

Pollen is gathered, mixed with 11. honey and is called bee bread.

12. Pollen baskets develop on a bee's back between wing bases.

A veil is worn and smoke is 13. ____ used to prevent bees from seeing the keeper remove honey from the hive.

Loud noises (bells, horns, etc.) 14. will keep bees from swarming.

15. ____ Our beehives are wood; in Europe they are often made of straw.

16. ____ The first settlers in America secured wild honey from bee trees.

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November 1986

BEES in PROSE and POETRY A Game - - - - Match:

- "The Pedigree of Honey A. Does not concern the Bee -A Clover, any time, to him, Is Aristocracy"
- B. "Tom Birch is as brisk as a bee in his conversation; but no sooner does he take pen in his hand than it becomes a torpedo to him and benumbs his faculties"
- "Honeyed words like bees Gilded and C. sticky, with a little sting"
- D. "And John was clothed with camel hair and with a girdle of skin about his loins, and he did eat locusts and wild honey"
- E. "Europe is really a swarm; many bees on a single course"
- F. (Cassius) "Anthony, The posture of your blows are yet unknown: But for your words, they rob the Hybia bees, And I leave them honeyless." (Antony) "Not stingless, too." (Brutus) "O yes, and soundless too; For you have stol'n their buzzing, Antony, And leave them honeyless"
- G. "Birds and Bees"

- "A comely old man as busy as a bee" H. L "Hide me from day's garish eye, While the bees with honied thigh, That at her flowery work doth sing"
- J. "Star that bringest home the bee, And sett'st the weary laborer free"
- "And a small cabin build there K. ... a hive for the honeybee.
- L. "There was a swarm of bees and honey in the carcass of a lion"

1	Anonymous (? - ? B.C.)
2	St. Mark (1st Century A.D.)
3	John Lyly (c. 1554-1606)
4	Shakespeare (1564-1616)
5	John Milton (1608-1674)
6	Samuel Johnson (1709-1784)
7	Thomas Campbell (1774-1844)
8	Emily Dickinson (1830-1866)
9	John Burroughs (1837-1921)
10	Wm. B. Yeats (1865-1923)
11.	Elinor H. Wylie (1885-1928)

Elinor H. Wylie (1885-1928) 12. Jose Orteza (1883-1955)

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From the Australian Bee Journal, Vol. 67, No. 9, September 1986.

A MARKET POTENTIAL

"Assessment of market potential for Victorian queen and package bees in North America" by David St. John. Marketing Report series No. 4, July 1, 1986. Agdex 481/840. This document is now available from the Department of Agriculture and Rural Affairs. Quote: "It has been suggested that the potential establishment and spread of the African bee and the Varroa and Acarpis spp. mites in the Unted States may mean that the North American market could soon become a major outlet for Australian exporters of queen and package bees. The maximum value of this market is estimated to be worth 9.7 million dollars." Australia is now on good trading terms with Canada.

As if imported honey wasn't enough of a problem!

AZIMUTH NAVIGATION

Venture Out.

Touch my warmth here on your doorstep. Fire your muscles with my Celestial powers.

Stir the darkness; Wake your sisters.

Come Out.

I am gold communication on your doorstep.

Absorb my radiant strength with your winged-body.

Follow my bright music; I'll show you sweetness.

Rouse Sisters.

Come quench your thirst in the mellifluous wetness.

Toil; satisfy purple cups luring with sticky spendor.

Feed generations you will never see; Your gentle industry is but a royal nursery.

Celebrate Now.

Tell me 'round in dance of darkness. Your geometric movements celebrate our sacred secret. My Ancient solar message; Your perfect

dance of light.

Hurry Now.

My map further moves across your doorstep. Task your sisters away collect sweet rewards. Time beams lower; I horizon touch.

> by Carol Maier 1806 23 Ave. N. Lethbridge, Alberta T1H 4S8 327 2554

Testing Your Beekeeping Knowledge

By CLARENCE H. COLLISON Extension Entomologist The Pennsylvania State University University Park, PA 16802

The activities of honey bees are regulated by many different factors associated with the environment in which they live and their internal physiology. Bee behavior in its simplest sense would be defined as the automatic reactions of an individual to stimuli found within or in the immediate area of the bee's body. Principle structures associated with behavior are the sense organs and glands of the individual bee. Interactions between colony members are also an important component. Stimuli associated with vibrations, odors, touch, taste, and light are detected by the bee through thousands of specialized sensory cells. Nerve impulses from these cells are processed along relatively fixed pathways of the nervous system and the individual responds in a highly predictable manner. Many behaviors can be described as a more or less rigid sequence of actions. These behavioral patterns are innate and the way the individual reacts independent upon the stimuli encountered. Individual bees may react differently to similar stimuli because sense organs may have different levels of sensitivity related to genetic composition, and glandular differences associated with age and hormone levels. Not all reactions, hewever, are entirely mechanical. Numerous experiments with honey bees have shown that they also have the ability to learn, which greatly adds to the complexity of bee behavior.

Please take a few minutes and answer the following questions to find out how well you understand honey bee behavior. The first ten 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. Honey bees passing through a pollen trap and losing their pollen loads proceed to seek out a cell and go through the pollen-depositing activity as if they are still carrying pollen loads.

2. _____ Honey bees respond to increasing carbon dioxide levels within the hive by fanning.

3. ____ The number of honey bees engorging honey in response to smoke is greatest during a heavy nectar flow and favorable flying conditions.

4. <u>Secondary</u> colony reactions to smoke include an increase in the number of guard bees at the hive entrance and a decrease in number of foragers leaving for the field.

5. ____ Animal scents and the smell of human sweat encourage stinging behavior.

6. ____ The transfer of food between two colony members is initiated when one of them either "begs" or "offers" food to the other.

 Honey bees ordinarily become momentarily motionless when exposed to loud sounds or vibrations.

 Laying workers behave like normal queens; they cease doing typical worker duties and spend all of their time laying eggs.

9. ____ The queen honey bee leads the primary swarm out of the hive during the swarming process.

10. ____ The presence of queen cells in a colony will increase the chances of successfully introducing a new mated laying queen with a Benton mailing cage.

Multiple Choice Questions:

11. ____ Honey bee swarms prefer to select bait hives that are _____ feet above the ground.

A) 9, B) 11, C) 15, D) 13, F) 7 12. _____ and ____ Two pheromones that are used by a swarm of honey bees as they move to a new homesite are:

A) Nassanoff Pheromone, B) Isopentyl Acetate, C) Footprint Pheromone,

D) Queen Substance, E) 2- Heptanone

WEAVER'S FAMOUS QUEENS

 ALL-AMERICAN (Italian)

BUCKFAST

WEAVER APIARIES, INC. RT. 1, BOX 256 NAVASOTA, TEXAS 77868

Phone: (409) 825-2312

13. Please answer the following questions in reference to the below illustrated communicative dance, as it is being performed on a vertical comb within a honey bee colony.



A. What is the name of the dance being performed? (1 point)

B. What information is being conveyed by the dance? (2 points).

Honey bees are least apt to sting: (Please select the correct response)

- 14. ____ Rapid moving objects
- _____ Slow moving objects
- 15. ____ Smooth textured materials
- ____ Rough textured materials 16. Dark colored materials
 - Light colored materials

17. Given equal concentrations of sucrose, glucose and fructose solutions, which one will the bees prefer to collect? (1 point).

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BEES IN OLDE ENGLAND

By ARNOLD KROCHMAL

The latest addition to our bee library, (which has publications from the U.S.S.R. to the Caribbean) is the oldest book we have ever found, "An Enquiry Into the Nature, Order and Government of Bees" by the Rev. Mr. John Tohrley of Oxford, England, and dates from 1745, the first edition of a classic. When the bill arrived, Connie suggested it was as much of an investment as a source of old information. We had forgotten that converting pounds to dollars recently was expensive. However, the pleasure and enjoyment we are getting are almost covered by the cost. The minister used bees as an example of what he thought society should be Industrious, loyal to the King and cooperative.

The book begins with a very learned and lengthy defense of a Supreme Being and a good purpose in life. The author writes as follows:

"In an age so degenerate as the present, so miserably over-run with scepticism and infidelity, an humble Endeavor to fix the first and fundamental Truth will not be either needless or out of Season. What can more promote the kind Design than the evidence of Nature (The Work of God) and Scripture (The Word of God)?

The Arguments from Nature and Scripture led me first into such an Acquaintance with these little creatures (bees) Whose wonderful Parts and Properties are proofs of the infinite Power and Wisdom of the Creator. They have been the delightful employment of my Leisure hours. Bees are most to be admired; as by their painful labors and plenteous collections they contribute and minister not only to the necessary Supports, but also to the pleasant and delightful accomodations of life. Furnishing us with Food and Physic. Bees feed the belly and heal the Body, they deserve to be beloved and defended.

Their great loyalty to their lawful Soverign and all Royal Orders are most readily executed, cheerfully obeyed, whether in swarming or fighting with their enemies nor is there to be found so much as a single Rebel in all the Communities. On Every just and proper occasion, they will freely offer and sacrifice their own Lives in

defense of their adored Sovreign's.

Has Nature taught them to hate and abhor Riots, Tumults, Treasons and Rebellion? Come here, oh, all you Christians and behold your duty to your Sovreign.

These Insects then never rise in Arms against their Sovreign, but by their steadfast loyalty condemn our Rebellion. These little Creatures thus firmly knit in sundry Affection.

If Human Societies be compared how monstrous they will appear. A spirit of self interest destroys all. How happy for Great Britain if all were as firmly united and as true to one another.

We see the Universe governed by the One God. And these little, yet most admirable Insects are apparently a perfect Monarchy agreeable to the original Plan.

My Reason assures me there is a Supreme Being. With these little creatures whose wonderful Parts and Properties are so many evident Proofs of the Infinite Power and wisdom of the Creator."§

- B An entire colony of four boxes.
- A The Square Hole for communication
- between the boxes. S The sliding Shutter
- C The Appearance of the cells, through the Glass.
- Q The Queen.
- D The Drone.
- E The Labouring Honey-Bee.
- H The Handles.
- K A View of the Cells when Open.
- V. A View of the Cells reversed.
- M The Egg at the Bottom of the Cell.
- N The Young Worm.
- in The Toung worm.
- O The Worm converted into a Chrysalis.
- P The Chrysalis at the Point of Transformation.
- Q The Fore-Part of the head magnified. (side sketch)
- D The Doors to view the Glass.
- P The four pins.
- X The Section of a Box.
- 2222 The Frame.
- 1111 The four Pins that fasten the Frame.





THE QUEEN EXCLUDER, AGAIN

By STEVE TABER of Honey Bee Genetics 3639 Oak Canyon Lane Vacaville, CA 95688

n an article several months ago I pointed out some of the things a queen excluder could and could not do to help you in your beekeeping. This article is written so that you can work your bees for honey production without the use of an excluder. It's a great deal more work but the colonies will develop larger populations and you should produce larger honey crops than you are producing now.

First, let's look at some actual figures, because these were used to convince most of you that the queen and bees would have enough room in 1 or 1-1/2 brood boxes. The full depth Langstroth frame yields a comb size of 8 x 17 inches, while the Modified Dadant, or the Illinois comb size is 5 x 17 inches. Total square inches of comb for the Langstroth are 272 and 170 for the Illinois frame. The best queen might lay 1,800 eggs per day, with a usual figure of about 25 eggs per square inch. A good queen could fill about 72 square inches of comb a day with eggs, and in 21 days would fill a bit more than 1,500 square inches of comb space. It's quite easy to see there is more than enough theoretical comb space for the very best queen since there are 2,700 square inches of comb space in a full depth Langstroth box.

Theory aside, queens rarely lay in either of the outside combs, and much of the remaining 8 combs will be used for something else, such as honey or pollen, or are damaged and unuseable. This is true even when you add the 1,700 square inches of the Illinois super to make a total of 4,400 sq. in. available for the queen and the bees. As an example, take out a frame with some of the best comb you can find and measure it carefully to see how many square inches of actual comb space there is. If you're lucky, you'll find one in a hundred that contains 272 square inches of useful comb. Measure more combs. What do you average - 200 square inches per comb? Still more than enough.

"If your bees move out of the space you gave them to rear brood and into the honey supers, you KNOW the queen doesn't have enough room."

When you give a super of combs to this colony that already has enough comb area for the queen, what happens? Before you leave, the queen is up in the supers laying eggs. You know that, so you put a queen excluder over the brood chamber to stop it. The queen was already restricted before the queen excluder was put on and now she is restricted more with the queen excluder. The bees are putting honey and pollen into the cells of emerging bees.

If the bees move out of the space you have given them to rear brood into honey storage supers, you **KNOW** you didn't provide enough room for the queen in the brood area. So how much space do you assign to the bees and queen for brood? Well, unfortunately most beekeepers do not give them enough space. It is rather common to see "enlightened" beekeepers providing only one standard plus one Illinois for the queen and bees. In most places, this is not enough room at all; two full-size, standard-depth boxes are barely enough room and three are much better.

When I was young and eager, my preferred hive size was the Farrar style that held 12 frames, was 6-5/8 inches deep and was square. Since I've acquired a bad back the Farrar style is too heavy, and now I use a hive box that holds 10 fames, 6-7/8 inches deep. The bees don't care what size equipment you have or how many frames you keep in the box. That means there is little difference in bee populations, honey production, or propensity to swarm using any of the kinds of frames or boxes to hold frames that are available.

This discussion about equipment is made because I think all equipment should be interchangeable. To keep your brood chambers in a deep and a shallow box then becomes a mistake. All equipment used on the hive for the brood and queen should be the same, and generally speaking, it's easier to keep only one style of equipment for honey storage. This goes for comb honey equipment too; don't mix up rounds with the square types. Honey extraction equipment should be the same, either all deep or all shallow. Now, my opinion is that your beekeeping will be simpler if your extracting frames are the same size as your brood frames. Further, if you are getting up in age or are of limited physical strength, don't get into the full depth equipment because it's just too heavy. A full super of honey with 10 frames will contain about 50 pounds of honey and 30 pounds of frames, wax and box which adds up to 80 pounds.

In my June 1986 article discussing excluders, I pointed out that no research had ever been done on this piece of beekeeping equipment. Therefore, it is impossible to predict exactly how bees will behave with or without an excluder. However, the following general rules-of-thumb have evolved: 1) Bees do not like to build comb unless forced to do so by comb shortage and a honey flow; 2) Foundation placed on a hive in the absence of a honey flow will have holes gnawed in it; 3) Foundation in frames, or empty frames are not attractive to bees at all; 4) Three or four (or more) drawn combs (called "bait" frames) placed in the super with the foundation will get the bees working in the foundation sooner.

You can see it's a race between the bees and the queen. If there is comb already waiting and the queen needs room, then the queen will run right up there and lay eggs. When the bees are working at drawing out foundation and there is a honey flow on, honey will be placed in the new comb as fast as it's drawn, preventing the queen from laying there. My honey flows are very slow, perhaps a half pound a day for two months, so when I give the bees combs to build, I give them only 3 or 4 empty frames at a time, the rest being fully drawn combs. With such a slow honey flow it is almost impossible to make the Continued on Next Page

TABER . . . Cont. from Page 566

bees store comb honey in rounds or squares.

If you produce comb honey you really need a pretty intense honey flow, with the bees making several pounds of honey a day. You crowd the bees until just the right moment, then give them the comb honey supers. If you put these supers on too soon, the bees will chew the delicate foundation and the resulting sections will look sloppy. If the supers are put on too late, the bees till swarm — no doubt about it. Comb honey production is difficult and expensive. When comb honey is placed on the market, the price doesn't do justice for the trouble it causes the beekeeper.

Remember that it's a good idea to restrict the queen's egg laying about 4 weeks before the end of the honey flow. Cut her down to about 700 eggs per day. If your honey flow ends about July 15, on June 15 put an excluder on restricting her egg laying to one standard box. Eggs laid after that date will not emerge as adult bees in time to take part in the honey flow. We call them "welfare bees" — living off the work of others.

> Brood nest manipulation to prevent queens from entering honey supers before and during the honey flow

Use three full-depth boxes for brood and manipulate them as follows, starting about a month before fruit bloom. At the

conclusion of this first manipulation, the top box will contain honey, second box will contain some honey and pollen, and all of the sealed brood. The bottom box will contain some honey and all of the unsealed brood. Ten days later, expect to find the queen has moved to the top box. She will lay eggs in the comb spaces the bees have just removed honey from. The manipulation I mentioned is placing the top box on the bottom board, as it should contain most of the combs of honey, while in the middle box there will be combs of very young brood. Any remaining combs containing young brood are placed in the second box while the remaining combs of older sealed brood are placed in the top box, flanked on each side with empty combs.

Of course your hive may have brood that will go only in the bottom and second boxes, meaning the top box will be nearly empty. This is fine, as your primary concern is that the bees have sufficient stores to last until new honey comes in, or that the queen is laying sufficient eggs to build a large population.

Great care should be used in making these 10-day manipulations. If the bees begin collecting more honey than they are consuming, most of the combs with honey should be placed toward the bottom. On the other hand, if bees are consuming more honey than they are collecting, honey should be placed toward the top of the brood area. However, as soon as the honey flow starts, all heavy combs of honey and pollen are placed on the bottom board. Any remaining combs of honey are placed toward the outside of the second box which also contains most of the young brood. The top, or third box will contain 8 frames of sealed brood with the outside combs empty. Now place your empty supers for honey accumulation *over* the third brood box. There is little chance of brood being placed there by the queen and the honey supers will be brood free.

These manipulations should be done as described about every 10 days. That is, placing combs of honey in the bottom box with remaining empty space occupied by young brood. You can see that the bees will have removed most of the honey in the 10-day interval and that the combs that were young brood are now sealed over as pupae. Often the entire third box can be swapped with the box on the bottom board without making individual comb changes.

It is imperative that combs containing brood are always kept together and not separated by empty combs, foundation, or combs of honey. Always keep combs of brood together (brood next to brood and brood over brood) and never separated. Again to develop large populations, cease remember to brood box manipulations one month before the end of the honey flow. If you don't, the bees will place honey in the cells that have emerging bees, forcing the queen to curtail her egg laying and reduce the future adult population.§



BEEKEEPERS ARE PEOPLE, TOO! by DR. JAMES TEW

The Agricultural Technical Institute, Wooster, Ohio 44691

I e can all feel safe as we peruse this bee magazine. We're all beekeepers that write for it, publish it and read it. But it's not always the same with the non-beekeeping public. I've addressed this issue indirectly in other articles and have been informed that beekeepers are perfectly normal folk that serve agriculture admirably. I don't argue that point for a second. I'm just interested in keeping the general public on our side. The public is accustomed to big news or to "cute" news. It's disconcerting that beekeeping frequently finds itself in the nonpositive news. A truck load of bees can spill in Oregon and it's news in Delaware. It's the kind of thing that doesn't happen often but when it does, it's news. This is frequently the general public's only exposure to the beekeeping world - bee truck accidents, "Killer Bees", and government legislation. If one tries to make plant pollination requirements a story, it probably wouldn't get off the ground. Consequently, the public expects beekeepers to be somewhat different.

4 chevel fotoles

Bee industry representatives are currently working on plans to help market the honey crop produced in the U.S. It is a program that is sorely needed and I wish them the greatest possible success. But I sometimes wonder if we don't need a program to market beekeepers. We need to make our non-beekeeping friends know that Beekeepers are People, too.

We could expect to use the great array of electronic gadgetry that is available to us today and certainly we will use it, but there are much easier ways. For instance, there is a beekeeper in our town that has been keeping bees for 40+ years. Everyone in town seems to know him. For all those years, he has maintained high ideals and has always treated people fairly. He always went for the difficult and thankless jobs, such as placing observation hives in the public's eye whenever appropriate. His

"I wonder if we don't need a program to market beekeepers. We need to make our friends know beekeepers are people, too."

extracting operation was clean and open to the public. A great number of nonbeekeeping people in this town feel good about bees and beekeeping because of the efforts of this gentleman. We need more like him — patient and dedicated.

In no way do I consider myself to be an authority in the area of public opinion manipulation, but my job at Ohio State does require that I deal with a considerable number of non-beekeeping people on beekeeping matters. I suppose that's why this topic frequently comes up in my ramblings.

I think we should make every effort to be visible in a positive way to the public and to the appropriate government officials. The effort here is simple; to off-set the negative publicity that we frequently get.

We've just returned from the Ohio Farm Science Review. Thousands of people, most non-beekeepers, passed through our entomology exhibit which contained the bee display. We tried to look good by having a quality demonstration professionally done. I hope it worked because many of my bosses visited the facility. Other places that would work are librarys, fall festivals, county fairs, roadside stands — almost anywhere that the public is going to turn up.

I referred earlier to the electronic systems available to us occasionally. They can do us a great service or, if poorly done, can do us a great disservice. I usually take the risk.

Several years ago, we became involved in live broadcasts on a morning T.V. show broadcast from Cleveland, OH. We received a call that they wanted us to put on a bee beard demonstration, live, on their morning show. I'm not opposed to beards, and I wasn't surprised that they asked for that, but I wished it could have been something else. We went for it. We had a three pound package and the beard people. I was safely positioned outside the cage in the "Marlin Perkins". position as the fellows inside went through the process. It went along very well, until one of the TV hosts asked, "What's this yellow stuff running down the inside of the cage? Is that honey?" I immediately knew we were teetering on the brink of a "Live" disaster. In a millisecond I decided against lecturing the audience on the toilet habits of confined honey bees and confidently responded, "That's just pollen!". There was just no way to tell 16 million people, most of whom were still having breakfast, that they were looking at *live* bee poop.

It's a bit of a shame that it takes scandal stories to get the public's attention on our topic, but I guess we have to accept that. After all, how many of you reading this piece would get excited if I broke off into a diatribe on required fertilizer rates for maximum pod set in soybeans. At least we do have topics that pique the public's interest. A few months after the Cleveland episode, we were invited to have a segment on a national TV show, again with the bee beard. I went to my superiors and expressed interested concern. It was a great chance for a lot of publicity but it was imperative that the exposure be positive. The decision came back for me to do it. With the usual problems, the piece came off okay and the show directors gave us the full 7 minutes (the maxium exposure). Forty-four million people watched those seven minutes. We used the grabber of a beard to get an opportunity to tell our story to the public. However, the pressure was so great I didn't sleep for a week before or after the story. I am retired for a while. However, mass media can do great things for us. It's a medium we must use to get the point across that beekeepers are people, too. We just have a slightly unusual interest. I'm currently working on an angle for "Miami Vice" - just kidding. I've had enough.§



In countries where the annual per capita income is \$200 or less, it is obvious that cabinet quality hives, each costing half that much, are not a realistic choice of equipment for programs promoting beekeeping as a means of increasing income. In Honduras, in a rural setting, earnings from ten beehives can double the yearly income.

There is interest in hives intermediate between those of Western industrialized countries and local rustic hives that do not provide the possibility of manipulation. The long (horizontal) Kenya bar hive has been promoted as a likely candidate to fill the need for such an intermediate hive.

Since bees tend to build nests vertically, as in tree cavities, it seems it would be advantageous if a bar hive were designed to accomodate the addition of space vertically rather than horizontally. Additional space for brood rearing or honey storage could then be provided by placing an empty hive body at the appropriate level. The hive developed by George W. Christians (Fig. 1) might be useful as a prototype for such an intermediate hive with hive bodies arranged vertically as in the standard Langstrogh hive.



Mr. Christians started keeping bees in box hives, but saw a way to improve the harvesting of honey by providing bars on which the bees built their combs. Between 1948 and 1964, he increased his holdings to approximately 175 colonies. He also sold equipment and bees to local farmers. In 1978, an investment group expressed some interest in the hive, and one apicultural advisor demonstrated it at beekeepers' meetings as an alternative to the box hives still scattered throughout the hills of his state. We met Mr. Christians at the 1964 Southern Beekeepers Federation Conference in Chattanooga, Tennessee, and visited his home in Chattanooga to see his hives. Plans and information about using the hive presented here are based on correspondence between 1964 and June, 1983 when Mr. Christians entered a hospice at 94 years of age. The suggestion to place a sample of the hive and pertinent correspondence in the Philomen J. Hewitt, Jr. Honey Bee Museum met with Mr. Christians' approval.

Specifications:

The <u>section</u> (hive body) is used for both brood chambers and honey supers (Fig. 2).



It is made from 1 x 8" finished lumber 3/4 x 7-1/2". Inside dimensions 13-1/2" x 14", outside 15 x 15-1/2" x 7-1/2". The 1/2" difference is deliberate to insure proper assembly of sections.

Nine top bars (Fig. 3) (14" dimension)



are used in brood chambers, eight in supers (1-1/2" spacing for thicker combs). It requires two sections for brood chambers. They are separated by 13/16" side bars (Fig. 4) 14" long (lightly tacked onto the top of

SIDE SEPERATING STRIPS



the bottom section with 1" nails just to keep it from slipping but easy to remove), and $3/4 \ge 7/8 \ge 15-1/2$ " removable <u>end bars</u> (Fig. 5) with beveled inner sides to provide a bee space over the ends of the top bars. These same side bars are fastened more

END SEPERATING STRIP

EIG. S



securely to the bottom of honey supers with 1-1/2" finishing nails.

The bottom board (Fig. 6) has a $1/2 \times 3/4 \times 1-1/2''$ pedestal for each corner of the



hive, leaving a 1/2" opening on all sides. The openings can be closed or reduced with $1/2 \times 3/4"$ strips when colonies are small. A 4 x 8' asbestos board (3/16" thick) was cut into 15 pieces 16 x 19" to provide a front landing board of 3-1/2". As asbestos is no longer available, it would be necessary to use plywood or other materials.

The <u>top cover</u> (Fig. 7) is recessed. The inner cover of masonite provides a beespace clearance around the ends of the comb bars but tends to warp after long exposure to moisture. Applying two coats of linseed oil is helpful.

Christians used an 8" tilting table saw with various setups and jigs, and poplar

Continued on Next Page

CHRISTIANS . . . Cont. from Page 569



and white pine lumber from local sawmills. Five sections are required, but an adapter makes it possible to use standard hive bodies for brood chambers or honey supers. Double end bars in the center of frames make cut comb weighing approximately 2-1/2 pounds, and can also be used for mating nuclei.

Management:

Shake a swarm of bees into a hive with comb bars in position, and you may get a reasonably straight set of combs or a bad mess. To be sure of getting removable combs requires some supervision. Start with a bait comb in the middle, preferably containing open brood. Look in a few days and you will find combs started on either side of the bait comb. When they are large enough to reach the sides and straight, move them one space out from the bait comb and put empty bars in their place. Continue putting empty bars between straight combs until the section is completed. If any deviation occurs at the ends, don't hesitate to cut the comb loose from the bar and bend it straight. In 24 hours they will be fixed up like new. For the second section, three straight combs from the first section are alternated with empty bars. The three spaces in the first section are filled with empty bars.

Whenever necessary, bars can be lifted up to inspect the combs. The upper portion of combs may be fastened to the sides of the section, but not to the bottom portions. Mr. Christians used an "indispensable " 12 inch hook made from a galvanized clothes hanger, cold hammered into shape, for cutting such attached combs. The slots between the sections provided by the removable end bars make it easy to inspect for space or the presence of queen cells. Sections can be reversed when brood reaches the last comb on each side of the upper section as a possible swarm deterrent.

To remove the sections when full, pull out the removable end bars at the base of the super and with a long knife cut the bottom of the combs clear of the bars below. Raise the super up on extra side and end bars, and give the bees an hour or two to clean the cut comb before removing the super. Smoke out the bees and take it away for storage or extraction. Supers should be removed early enough in the summer to give the bees time to put ample winter stores in their two brood chambers as the brood nest shrinks in preparation for winter. The honey "grinder" which Christians used for processing the combs is described below.

As already noted, Mr. Christians smoked bees out of the supers to take off honey. It would be preferable to use bee escapes to avoid tainting the honey. A simple trap is described in Stephen White's Collateral Bee-boxes (London 3rd ed 1764) using a board in which 1/2" notches were cut. Trap doors made of thin metal are hung in these openings on pins, and a small nail or pin is inserted a little lower across the back of the door to prevent it opening in both directions. Bees leave by pushing the door open but cannot return. In due time most of the bees will have returned to their hive unless there is brood or a queen to keep them from leaving. Bee tight bottoms/tops with such escapes on 1-4 sides could fit under and/or over one or more supers. Screening or perforated metal would provide ventilation.

Bee escape boards like those used in Canada are now sold by bee supply dealers and can be fabricated by beekeepers themselves (see <u>New Zealand Journal of</u> <u>Agriculture</u> 1951 pp 105-106; 1958 p 237). Removing bees with a blower is quick and effective, but is a sizeable investment for subsistance beekeepers.

John Keys in his <u>Farewell</u> (London 1796) used a knife to cut comb between boxes when removing honey, but he also used two pieces of heavy metal shoved in from each side to cut the connections of the combs to the tops of the bars. They could be left in position with a screened bee escape board placed on top of the super, and removed on a subsequent visit; a useful alternative for removing honey in outyards.



To extract the honey from the combs, Mr. Christians used a grinder as described in Figure 8. The comb was pushed against the spiked cylinder, and the pieces of comb and honey dropped onto a 10' long screen in a tray which was moved under the grinder. Casters would make it easier to move. After draining, the screen was moved onto a platform over a large washtub where it was squeezed as dry as possible.

A simple honey press can be made from two boards bolted together at one end (Figure 9). The upper, longer board is



fashioned with a handle, and the lower plank has a rim around the edge with an opening at each side for the honey to escape into a receptacle underneath. The honey comb is arranged in a bag made of burlap or other loose weave material. Such presses have been described in many European sources such as T.J. Bakken & Odd Rosenberg's <u>Slipp Biene Til</u> (Norway, 1959 p 136).

With only 2 hives in recent years, Mr. Christians placed the grinder on top of a 6 gal. honey tank with a screen suspended 4" from the top. This accomodated the comb from one super, and it was allowed to drain for 24 hours. The wet wax remaining on the screen was melted in water to produce 2 lbs. of wax, and 3 lbs. of honey water which he fed back to his bees. Such honey could be used to make beer or mead to eliminate the risk of spreading disease.

We imported a Mountain Grey (Apiaries) All Steel Heather Honey Press from England for separating honey from wax cappings which had drained overnight. It is the same efficient press used for wax production in Africa (see film "Wax production in Tanganyika"). The cake of wax that remains has very little honey in it (2%?). We prefer the press to using a cappings melter that heats the honey as it melts the wax.

The current autumn issue of <u>The New</u> <u>Zealand Beekeeper</u> (pp 25-28) describes a new Swedish system of harvesting honey that also uses frameless supers and a grinder after which the wax and honey are separated with a modified Cook and Beal spin-float system. Instead of bars, as in Christians' hive, sheets of comb foundation are threaded onto two right angles of aluminum. There is a slotted masonite

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CHRISTIANS . . . Cont. from Page 570

board on top and underneath each super, making a pair of such boards between adjacent supers. These masonite boards are split apart when a super is removed to harvest the honey. This principle is described in the hive designed by J. & A. Martin except there was only one central opening rather than 30 slots (<u>Albeilles.</u> <u>Traite' sur les Ruches a l'air libre</u> Paris, 1826).

The least complicated, and perhaps most elegant, method of harvesting small quantities of comb honey may be to cut it into pieces that fit a plastic or waxed paper tray; first draining on screen if desired. The very irregularity as built by bees suggests deliciousness: the luxury of crisp comb with midrib constructed by bees rather than foundation squeezed out by a machine.§

Biographical note: George W. Christians was born in Sullivan County, New York, and grew up in Freeport, Long Island. He worked on dam construction in Tennessee as an electrical engineer. His method of grouting leaks under dams with asphalt brought him work around the world. His appreciation of beavers as experts in dam maintenance by locating leaks and plugging them could have saved millions of dollars in attempts to control creeks in Wyoming. Engineers did import eight beavers in 1983, and trout have already returned to the streams. In a pamphlet entitled This Depression (1931) Mr. Christians explored economic conditions which led to this catastrophy, and proposed a human effort monetary system to prevent such crises in the future.





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November 1986



Fabricadabra! Given a piece of cloth, a little beeswax, some dye and even minimal imagination, you can produce a beautifully colored printed fabric and practice one of the oldest known forms of textile printing.

Batik's origins are uncertain, but the Indonesians, who donated its name (literally wax-writing), the Japanese, Africans and Egyptians have all practiced some form of the craft.

It is, basically, a method of printing fabric with wax and dyes, using wax to "resist" the dye in specific areas. As one proceeds from light shades to dark, more areas are waxed out to hold the underlying color and prevent further drying until the design is complete. The wax is then removed by ironing between sheets of paper. The finished piece can be used for scarves, pillows, curtains, wallhangings or clothing - any place one would ordinarily use fabric.

If you would like to try your hand at batik, you will need the following equipment:

Newspaper

- •Medium soft charcoal sticks (available
- in art supply stores) Household paraffin
- ·Beeswax
- •Natural bristle paintbrushes (various widths)
- Thumbtacks
- ·Dye (Rit can be used but cold-water Fiber-reactive dyes from a craft supply store are preferable)
- ·Salt and possibly washing soda
- ·Fabric, 100% cloth muslin, batiste, etc.
- ·Plastic buckets
- ·Double boiler or electric frying pan (will no longer be fit for food
- preparation after using for batik)
- •Iron
- ·Wooden stretcher strips (from art store) Rubber gloves
- •Tjanting needle (craft supply store)

To begin, put down plenty of newspaper in your work area, which ideally should have running water nearby. Choose size of white or light-colored fabric on which you wish to work. If it's new, wash and dry it to remove any sizing that will inhibit penetration of the dye.

Attach the cloth to stretcher strips with thumbtacks. Sketch a simple design on the fabric with a charcoal stick. Decide on a simple color progression: white, yellow, orange, red, brown for instance. While you're thinking about which areas of your design are to be which color, melt 1/3 paraffin and 2/3 beeswax in the top of the double boiler over water, or in the electric frying pan set on low. CAUTION: Wax is a very flammable substance. Batik is not a suitable craft for unsupervised children or careless adults

Having decided what part of your design is to remain white, apply the liquid wax to

PORK PROMOTION ORDER

Secretary of Agriculture Richard E. Lyng announced the issuance of a final rule implementing a national pork promotion, research and consumer information order, and the appointment of 160 pork producers and importers to the National Pork Producers Delegate Body. Lyng said the National Pork Producers Delegate Body is being established under the Pork Promotion, Research, and Consumer Information Act of 1985 to administer a program to strengthen the position of pork in the marketplace and to develop and expand markets for pork and pork products. The program will be funded by a mandatory assessment of up to 1/4 of one percent of the market value at the time of sale of each hog sold in the United States as well as an equivalent amount on imported hogs, pork and pork products. Lyng said the order will become effective upon publication in the September 5 Federal Register. The collection of assessments, however, will not begin until November 1.§

Maybe the Honey Board and Pork Board should get together. Can you think of anything better than a Sunday dinner of ham with a honey glaze?

the cloth with a brush or the tjanting needle. (This is an Indonesian implement which allows you to draw fine lines, dots, etc.) Make certain the wax is hot enough to penetrate the fabric completely.

When all white areas have been waxed, remove fabric from stretcher and place in a prepared dye bath. (If you're using Rit dye, you'll have to mix them hot, but allow to cool down completely or you'll end up with melted wax.)

You should be wearing rubber gloves for this and all other dyeing steps. Keep moving the fabric in the dye solution until the desired color is obtained. As batik is an additive process, i.e., you're putting one color on top of another, be careful not to go too dark too soon. After you've reached the desired shade, rinse in cool water and air dry out of the sun.

When thoroughly dry, restretch the fabric and wax out the areas that are to remain the new color. Re-dye in a slightly darker shade, rinse, dry. Repeat this process as many times as you desire colors on the piece.

When all dyeings are complete, the batik is ready to be ironed out. Place a thick pad of newspapers on your work surface. Cover with paper towels (to avoid transferring newsprint to fabric); place fabric on towels, cover with more paper towels, then 1 layer of newspaper. Iron on medium setting, changing papers as they absorb the wax. CAUTION: Do this operation in well-ventilated a with preferably fan room, 8 blowing the wax fumes outside.

When no more wax comes from the fabric it's ready to be made into a pillow, curtains or whatever. Since batik dyes can't be boiled in, the colors are susceptible to fading, so fabrics should be kept out of direct sunlight.

You'll notice a newtork of fine lines in the larger areas of your piece. This is crackling or veining, and is a characteristic of batik which occurs when the wax becomes brittle in the cold dye baths, cracks, and allows the dye ito seep into the fabric.

This has been a very cursory introduction to a fascinating craft. It is a very time-consuming process, both in the waxing procedure itself and in the waiting for dyes to dry, but the time is well spent with humble and inexpensive materials, true beauty can be created.

Further information: Contemporary Batik and Tie-Dye by Dona Z. Meilach, Crown Publishers, 1973.

Jean Paulson owned and operated a batik studio, "Fabricadabra", in Sugar Loaf, NY for seven years and still occasionally does custom work. The wall hanging on this month's cover is one of her latest creations.§

GLEANINGS IN BEE CULTURE





The honey harvest is nearly over and you're sitting on all this beautiful beeswax: the old comb that was melted down this past summer in the solar melter, the combs that broke or weren't worth reusing after extraction and of course all those beautiful cappings.

You've melted them down, extracted the last drop of honey, strained out all the other residue and now have cakes and cakes and cakes of perfectly good beeswax.

After you've decided how much to save for trade-in on foundation next year, or how much to sell outright — what's the best way to use what's left?

Well, we've got a few ideas here that. may help you or your friends around the house, and some good advice on making and using candles.

The household information is always handy when giving or selling wax for those reasons, because the more ideas you can give a customer the more you may be able to sell. And candles are always a money maker, or great gifts at Christmas or other occasions.

Stuart Root supplied us with the household information that he has discovered during a lifetime of dealing with wax. Dr. Robert Berthold, a recognized wax and candle expert produced the advice on candles.

USES FOR BEESWAX AROUND THE HOME

A couple years ago a friend of mine bought me a cake of beeswax at an antique store with "The A.I. Root Company, Medina, Ohio" molded into it. It was dirty and covered with the white "bloom" of age. I received it on Christmas as a gift with a red ribbon around it. The giver thought it was a valuable antique, so I showed more appreciation for the gift than its apparent worth. Eventually, it found its way to a corner of my work shop where I have been using it in bits and pieces ever since.

As a youngster, I remember small pieces of beeswax in various parts of our house which were used for everything from paper weights to aiding my mother in her efforts to mend my jeans. It's usefulness surprises me every time I use it for something different.

For instance, I have replaced the pine molding in my house with oak. This wood is very difficult to penetrate with a finishing nail, but it is amazingly easy with a little beeswax first applied to the point. The nail/wood friction creates heat, which melts the wax, lubricating as it is pounded home. Afterwards, it cools and hardens, sealing the nail in the wood with a moisture barrier that protects it for years to come. The same is true when driving a screw into hard wood, especially if there is no hole drilled first. The screw thread scrapes just the proper amount of beeswax



when it is raked over the cake.

I enjoy gardening, especially with roses. Beeswax makes a terrific seal for rose plants that need to be relocated. In the early spring before growth starts, I remove them from the ground and wrap in cold, dripping wet towels for an hour or so. I melt beeswax in a large can at 160° F. (71° C) then quickly dip the top part of the plant in and out of the beeswax. This coating temporarily protects the top of the plant from insects and preserves stem moisture during the period in which new roots are being formed.

A beeswax blend can be used for sealing grafts on small plants. Add 25% beeswax and 75% petroleum jelly to a small can and heat the mixture to about 160°F. Suspend the can in a sauce pan containing water to produce a double boiler effect. Mix the blend completely and then let it cool to a solid. It's consistency will be similar to cool margarine, so use a screwdriver to stir the solid mixture until it turns into a paste. Scrape charcoal powder off a charcoal brickette so it is as fine as flour. Add enough charcoal powder to make your mixture thoroughly black. Finally, carefully apply the grafting paste with a finger or flat stick around the graft and follow normal procedures to support the graft. The petroleum jelly will keep the mixture pliable and the charcoal powder will act as a sun screen to keep out destructive ultra-violet rays, which may inhibit new growth. Later, the paste can easily be wiped off the plant.

Everyone who works outside in all weather conditions, and wears leather boots, needs a suitable waterproofing agent that will keep the water out, protect the leather and remain flexible. I have found pure beeswax works best. Practically every solvent that dissolves beeswax will linger and can cause skin irritation. As a result, I do not use a solvent. I recommend a cleaned, light colored beeswax because it has fewer contaminents. Melt comb, cappings or beeswax cake into a suitable container filled part way with water. If the water boils, cool the heat source. When it reaches 160°F stir the two materials for two minutes, then let it stand undisturbed until the beeswax solidifies and cools to room temperature. The water will dissolve any residual honey and will provide easy access to the dirt that settles to the bottom of the cake. This cleaning procedure will remove nearly all of the dirt and enough pollen for this water-proofing process. Cut the beeswax out of the container and scrape the dirt off the bottom of the cake until all of it is removed. I use a 1500 watt hair dryer at the highest heat setting and the lowest air velocity to melt beeswax off a cake and onto the shoe. I then quickly wave the blower over the spot of beeswax until it melts into the leather. If the wax boils on the leather, the heater should be reduced. Thick spots of beeswax can be wiped off with a cloth or old towel. Later, the color of the leather will darken slightly, or look oiled so it usually is easy to tell what areas

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BEESWAX . . . Cont. from Page 570

have not been treated. This process provides excellent protection on seams and stitching, but I cannot over emphasize the importance of *not* overheating the leather, stitching, or sole area.

This process works well on metal tools that are kept outside too, and the beeswax coating will prevent them from rusting. It can be used for preserving the wooden parts on tools as well. However, using this treatment should only be attempted by an adult or with adult supervision. It is a very good idea to have an *ABC rated fire extinguisher* handy in case combustable materials are near by.

Have you ever had a squeaky tailgate, door, or spare tire on your vehicle? Try mixing up a blend of 80% beeswax and 20% petroleum jelly. To prepare this, loosely wrap a heavy duty grade of aluminum foil around a broom handle, making a rolled seam on the side. Twist and flatten the aluminum foil on the top end of the broom handle and slide the aluminum foil tube off the handle. Be careful not to crush it as it is removed. Place it in an empty juice type can to support it vertically and pour the blend into the aluminum foil tube. A cavity may form in the center and a second fill may be necessary. When it cools, peel back the aluminum foil to expose a little of the beeswax blend. Apply it like a crayon to the squeaks as they appear. Store it in your

tool box for handy access. This blend probably has

thousands of uses by itself. It is not only a good lubricant, but also can be used as a tackitive for improving manipulation of papers, checks, tickets, stamps, etc. From the beeswax blend stick, smear off a portion the size of a rice kernel on one finger. Rub it between finger and thumb until it is absorbed into the skin and wipe off

the excess with a towel. This will tackify your fingers to speed you through most any paper sorting project.

I have a floor drain in my house that was not in use so it dried out and had unpleasant odors coming from it. I did not want to seal it permanently with cement but I did want to stop the odor problem. My solution was to tear off an eighteen inch square piece of heavy duty aluminum foil. I molded it into the shape of the drain pressing it into the bottom and edges like an inverted hat with the brim flat on the floor. After I checked for potential leaks I deposited one edge of a ten inch diameter piece of old dog chain over the drain, cutting the diameter in half. Then, I melted enough beeswax in a large can to more than fill the drain flush with the floor. I poured it into the drain at 160°F, slowly bringing the wax level up even with the floor. IMPORTANT: If the drain cavity sealed with aluminum foil does not fill up at a normal rate there may be a leak in the foil. If so, stop pouring immediately, wait for the wax to solidify, clean out the wax and foil and start over again. When the wax cools it will contract in the middle causing a slight depression in the level. After about fifteen minutes, pour more beeswax into the center of the plug, and if necessary, raise the level up even with the floor. If it is ever necessary to remove the wax plug from the drain, the chain will provide adequate leverage to achieve removal.

And finally, a friend recently suggested beeswax as a terrific lubricant for stubborn zippers. It is tacky enough to stay put without absorbing into the material.

There are probably thousands of other uses for beeswax around the home that we haven't mentioned yet. Some of these include lubricating sticky drawers, windows, doors or any other sliding mechanism. As a wood filler it has as wide a range of uses as there are colors of wood and wax to match. It also makes an



excellent polish when mixed with mineral, linseed or lemon oil. Beeswax is also used in many art forms, including batik (see article, this issue), the lost wax process, carving, Ukranian Easter Eggs and encaustic painting.

But probably the most popular use is in making candles.

CANDLE MAKING

Introduction

One of the many uses to which the beekeeper can put surplus bees' wax is in making candles. Beeswax candles burn longer than those made out of paraffin, and they also produce a pleasant scent. You can use them yourself as decorative items, they make much appreciated gifts, and we have found a ready market for them with the general public.

Preparing the Wax

Cleansing. In order to produce a top quality candle that burns cleanly with a minimum of dripping, sputtering and smoking, it is necessary to make sure the wax is completely free of contaminants such as honey, pollen and propolis. A number of things can be done to help achieve this. By using wax rendered from cappings, the propolis problem is reduced. If the cappings are then washed repeatedly with cool water to remove the residual honey, a light colored Beeswax will result. Once washed, the wax should be boiled in water 10 to 15 minutes. Once the boiled wax is removed from the heat, the liquid wax should be allowed to sit for about 10 minutes to allow any water vapor in it to escape. At this point pour the wax through some type of clean filtering material (sweat suit material works great), and the wax is then ready for candle making. Be sure not to let your blocks of wax rest on any dirty surface because beeswax acts as a "magnet" for dirt particles. (Note: We have found that no matter how clean the wax appears, only the boiling in water will completely free it of unwanted contaminants.)

> Lightening Beeswax's Color. Sometimes beekeepers are interested in lightening the color of their beeswax. From the standpoint of candles made from capping wax, most people are suspicious if the proported beeswax candles are not a lemony color. From the standpoint of making candles from our darker wax, we generally use this making colored wax

beeswax candles as discussed later.

Various methods have been used to bleach beeswax, from the early Greeks' use of sea water and sun light to current commercial methods using various types of bleaching compounds. It is also reported that the addition of small quantity of oxalic acid to melted beeswax will lighten the wax's color. Oxalic acid is also used for bleaching wood, and it is available at some hardware stores. Be sure to get oxalic acid and not a substitute and be sure to follow the label directions, since oxalic acid is a

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BEESWAX . . . Cont. from Page 574

poison and careless handling can result in serious injuries.

Dr. Jonathan White, before retiring from the USDA, developed a relatively simple procedure for removing metal contaminents from beeswax; these metal contaminants are one of the major beeswax discoloring factors. If interested, this process is described in detail in the December 1966 issue of *Gleanings in Bee Culture*, pages 742 and 743.

CANDLE MAKING

Wicking. Due to its weaving and chemical treatment, commercially made candle wicking should be used as opposed to string. The type and size of the wicking needed varies with the diameter of the candle and also to some degree to the individual batch of beeswax itself. Due to variations in beeswax, if your candles do not burn to your satisfaction, experiment with different sized wicking.

Melting Wax. Since melted wax is highly flammable, extreme caution should be exercised in handling it. We suggest you use an electric hot plate or an electric stove as a heat source rather than an open flame when melting your wax. Except where otherwise specified, your candle wax should be melted in a container placed in a hot water bath. We generally allow the water to reach the boiling point while using a candle thermometer in the melted wax to determine when it has reached the proper temperature for pouring. We recommend 180 to 185°F for metal molded candles so when the candles cool they will contract from the sides of the mold, hence expediting their removal. We pour wax in the polyurethane molds as soon as it has melted.

MOLDED CANDLES

Beeswax candles can be molded using a variety of different molds including metal molds and polyurethane molds.

Tapered Tube Molds. Tapered tube candle molds have been used for hundreds of years. Antigue molds of this type can sometimes be found, but often they have deteriorated to the point where they are no longer functional. Reproductions of these antique molds are also available which make perfect candles.

In the making of standard 10-1/2" high, 7/8" diameter base tapered candles, 120 (30 ply) square braided wicking plus wax cleaned by the earlier discussed method will usually produce relatively dripless candles. Although some candle makers recommend coating the insides of the mold tubes with a thin coating of silicone, oil, or other antistick substances, we have not found this to be necessary with the antique mold reproductions. The wax should be heated to between 180°F and 185°F to insure adequate shrinkage of the wax as it hardens which facilitates easy removal of the finished candles from the mold.

Bobby pins are an excellent tool to use to suspend the wick in the molds; a 3/4 inch thick piece of household sponge cut to fit the base of the mold when dampened with cold water works well in preventing the liquid wax from escaping from the tips of the mold tubes; working on some type of kitchen tray or cookie sheet also accommodates any accidental drips or spills.

While the wax is melting, cut the wicking into pieces long enough to extend down one tube of the mold, across the bottom, and up the second tube with approximately an extra inch of wicking extending above the top of each tube.

Threading Wick. The wicking can be threaded most easily through the tubes by taking a piece of thin, relatively stiff wire (wire such as used in reinforcing foundation in frames) and twisting a loop in its end. The wire is then easily threaded through the tube, the wick threaded through the loop, and the wick then pulled through the tube with the wire.

Continued on Page 589



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November 1986



the mark years

his is the day I'm supposed to get out my crystal ball and say what the future holds for us beekeepers. Actually it isn't very hard to see what's ahead, just in terms of present trends, but one must always be prepared for surprises. Of course, no one can predict these, 1 otherwise they would not be surprises.

From the description of present conditions which I described last time, four things stand out as posing threats, great or small, to our future. These are (1) Africanized bees, (2) parasitic mites, (3) competition from imports and (4) adulteration. I am going to comment on these in turn, and then I am going to turn to what seems to me the brighter side of our future.

With respect to Africanized bees, it is important to note that these have not spread into the southern or more temperate region of Argentina, even though that country borders Brazil, where these bees first made their appearance in this hemisphere. It appears they have been stopped, specifically at about the latitude of 33°S. The explanation for this, I believe, is that they do not form a winter cluster, and therefore do not survive in the colder latitudes. They are, in otherwords, a tropical and sub-tropical insect. There is no reason to think the same will not hold true as they continue their spread into the northern hemisphere. That means they probably are not going to be a problem for northern beekeepers, inasmuch as they are not likely to survive north of the Carolinas.

It also means, however, that they very probably will thrive south of that line. It seems to me quite inevitable, therefore, that the queen and package bee industry, now concentrated in the Gulf states and California, is going to be totally wiped out, and that queen rearing will revert to the north where, incidentally, it all began.

BEE TALK

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

"Long range planning does not deal with future decisions, but with the future of present decisions."

This is a dismal outlook for queen breeders in the south. On the other hand, it should be remembered that most of our honey comes from the north, with the notable exceptions of Florida and California, and northern beekeepers, I feel quite sure, have little to worry about so far as Africanized bees are concerned.

What, then, about parasitic mites? I commented on this last time. So far as the tracheal mite, or what is sometimes misleadingly called Acarine "disease", is concerned, this is almost certainly a small problem. I think Dr. Jaycox summed it up pretty well recently when he whimsically proposed a "Last Losers Club" membership to consist of the last beekeepers to have their hives "depopulated" before the agricultural officials in their states follow the lead of other states in deciding that this approach has been futile. I cannot believe that, a year hence, any state will be trying to regulate the spread of tracheal mites, or even taking them very seriously.

The Varroa mite, on the other hand, is something else altogether. We'll probably get that pest eventually, and judging from the experience of beekeepers in Europe, it is undoubtedly a serious threat. How large a problem it will be, and how effective will be the measures developed to control it, we simply do not know. My hunch is that, in time, resistant strains of bees will be developed.

The problem of honey imports, the third on my list, is without doubt a big one, and there is no reason to think it will go away. On the contrary, it is going to get worse. This is simply part of a general trend in agriculture and in the direction of large economic forces. Ours is becoming increasingly a service economy. We depend more and more on foreign labor for the production of goods, especially agricultural products. We are sometimes urged to raise barriers against these growing imports of honey, through protectionist legislation, or Peter Drucker

to urge governmental subsidies of one kind or another for beekeepers, but in my opinion such measures are both futile and foolish. They have the effect of trying to save beekeepers at the expense of consumers, and there can be no future in that. Honey imports went from forty-nine million pounds to one hundred and twentynine million pounds in the four years ending in 1984. I do not know what they are now; doubtless much higher. And they will surely keep going up; domestic honey producers meanwhile are falling farther and farther behind. We can hardly compete with Chinese peasants who are happy to earn in a month what we need for a day, and China is now one of our greatest competitors in the production of honey. The implications of this for commercial beekeeping are very large and gloomy - but I am going to address myself to that next month.

Finally, I shall say something about the problem of the adulteration of honey. It is not a significant problem now, but it poses an enormous threat to all beekeepers, commercial and other. The problem results from the invention, not long ago, of a process for manufacturing a special high fructose corn syrup. This was, I believe, a Japanese discovery. Immense quantities of this are now used in soft drinks and other products. The adulteration of honey with sucrose, or cane sugar, is difficult to do but easy to detect - but the very opposite is true of high fructose corn syrup. Whole apiaries can be fed this syrup in large quantities, for example, while supers are on the hives, and then the combs can be extracted as if they contained honey. This can be tested for, by isotope ratio analysis, but the test is not simple. I have been distressed by the presence of sales representatives for this type of corn syrup at beekeeping conventions and by the appearance of large advertisements in bee

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TAYLOR . . . Cont. from Page 576

journals. The syrup has a legitimate use for winter feeding, of course, but it also has an illegitimate use that is all too apparent. One entrepreneur even had the idea of producing thousands of round comb sections containing nothing but flavored corn syrup. His ideas was that he would be within the law if he did not call it honey, even though it would look exactly like comb honey. What troubles me most about this is that he could just possibly be right about that. I am certain that such a product would have no real future, and would be scorned very quickly once the public caught on, but in the meantime dreadful and lasting damage would have been done to beekeeping and the general confidence in our product. And right there is where the danger lies. That adulterated honey should find its way to market here and there is not, in itself, overwhelmingly serious. But what is a serious threat is that this might happen, and as a result, all honey would become suspect. Honey would acquire a bad name and beekeepers would lose their one most precious asset. We produce the most delectable food on the face of the earth, and the only unprocessed sweet. That is the one great thing we have going for us. It is something we absolutely cannot afford to lose. I believe the danger is real, and that we must cope with it by whatever means.

So far I have spoken only of the pessimistic side of things. In spite of this, I think American beekeeping has a very bright future. It will be different from what it has been for the past several decades, but I think it will nevertheless be good. I had hoped to go into that this time, but I see it is going to have to wait until next month.§





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November 1986



RESEARCH REVIEW

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

Choi, S.Y.

Current status on the bionomics and control of bee mite (Varroa jacobsoni Oudemans) in Korea. Korean Journal of Apiculture 1:96-106. 1986.

Requeening Africanized Bee Colonies

A study recently completed in Brazil shows that there is no difference in queen acceptance between colonies of Africanized and Italian queens. Colonies of Africanized bees accept Italian queens as readily as they do queens of their own race and visa versa. Mated queens were accepted more readily than were virgin queens. Older virgins were more acceptable than younger ones. These studies were done in Sao Paulo state in Brazil, not too far from the station where the African bees were first introduced in 1956. It is reported that Africanized queens are "more attractive to the workers of the receiving colony."

Cortes, C.M. and L.S. Goncalves

Variables which affect the acceptance of Apis mellifera queens by Africanized honey bee workers. Abstracts, 10th International Congress IUSSI. Page 223. 1986.

A New Journal From Korea

The Apicultural Society of Korea has started a new journal: The Korean Journal of Apiculture. Articles in the first issue cover a wide variety of subjects including pollination, Varroa mites, pesticide problems, the flowering times of honey plants in Korea, black locust trees, and the morphological characteristics of the native Korean honey bees (Apis cerana) and the imported European honey bees (Apis mellifera). Some articles are in English, some in Korean; all include English summaries and use English for the figures and tables. It is planned that there will be two issues a year.

Further information about this new journal may be obtained from the Society, c/o Institute of Korean Beekeeping Science, Department of Agricultural Biology, College of Agriculture, Seoul National University, Suwon 170, Korea.§

More on Honey Loan Program

There appears to be little relief in immediate sight for those who have had their honey loan rejected for adulteration by the ASCS (Agriculture Stabilization and Conservation Service), according to Frank Robinson, Secretary-Treasurer of the American Beekeeping Federation. The reasons are complex. One problem is the large backlog of samples yet to be run. It seems only the 1985 crop is being processed now; if honey is found to be adulterated (see the June issue of APIS for details on the testing process), the ASCS will ask for the loan to be returned.

There is no telling what will happen when testing begins on the 1986 crop, but beekeepers should be extremely careful about feeding bees if any possibility of adulteration exists. According to a recent notice by ASCS, offices shall continue to submit every tenth eligible preloan inspection sample for an adulteration test and will not reveal the random selection technique sequence used.

Again, only a political solution to this problem seems possible. Writing a letter to your elected representative with a copy to the American Beekeeping Federation, 13637 N. W. 39th Avenue, Gainesville, FL 32606 is suggested. This is a two-edged sword, however. Too much pressure might cause the ASCS to stop loans until the matter is solved to everyone's satisfaction, a process that could take a longer time than many could afford to wait.

The so-called "buy-back" provision is finally being implemented, according to a letter recently received from Senator Lawton Chiles. This will allow producers to repay 1986 loans at a level lower than original loan rate with interest on the loan forgiven. According to the Senator, buy-back price levels will be set weekly based on current market prices. The program's philosophy is to minimize loan forfeiture, reduce excessive honey stocks, lower cost of storing honey by the Federal government and maintain competitiveness of both export and domestic honey markets. Exact details are available from county ASCS offices.§

Reprinted from APIS Newsletter, August 1986, Malcolm T. Sanford.

VARROA JACOBSONI Infestation Rates

1-level fatche

t is increasingly apparent that European honey bees in temperate areas suffer more from Varroa jacobsoni mites than do Africanized bees in the tropics. Africanized bees in Brazil show a high degree of resistance to the mites.

The paper from Korea cited below contains more information about the kind of problems we may expect if the mites are found in the U.S. There are a large number of colonies of European honey bees in Korea. It is stated that "most of the bee colonies are highly infested." Forty per cent of the European honey bee colonies are seriously weakened and honey production is reduced by 50 to 70 per cent. One to three mites may be found on adult worker bees and one to eight on adult drones. The number of mites per bee varies during the year. The greatest number is found on adult workers when there is no brood production underway. Interestingly, mites have not been found on bees visiting flowers.

In Korea there is apparently no good method for controlling the mites. The most effective chemicals are imported and expensive. The biological control methods that have been tested have not been too effective and have had adverse effects on the bees.

Another interesting statement made in this paper is that Varroa mites were not found in Korea prior to 1950. I've heard that they were not present in Japan prior to about the same time. Yet the native host species of these mites, the honey bee Apis cerana, has presumably been in both countries for quite a long time. We know that Apis ceranahas a certain natural resistance to Varroa and as we search for why this is true, it is important to keep in mind information about the original distribution of these animals.



An international symposium sponsored by Apimondia was held in Toulouse, France, May 11th - 14th. The Symposium attracted beekeepers and research scientists from around the world to share their knowledge about instrumental insemination and to honor the pioneers who developed this technique. The first Symposium on instrumental insemination was held in 1966, 20 years ago.

DRS. MACKENSEN, LAIDLAW AND RUTTNER RECEIVE AWARDS

Gold metals were awarded to Dr. Otto Mackensen, Dr. Harry Laidlaw and Dr. Friedrich Ruttner in recognition of their cutstanding achievements in the conception and perfection of a method to control mating of the honey bee. The development of instrumental insemination was a puzzle of many contributors. Attempts to control the mating of the honey bee were numerous and frustrating. The persistence, determination and creativity of these three scientists has given us a valuable tool for the study of honey bee genetics and a means to improve our commercial breeding stock.

EQUIPMENT DISPLAYED AND DEMONSTRATED Insemination equipment from around the



Dr. Peter Schley

world was displayed and demonstrated. The Mackensen-Roberts prototype was evident in most of these. Many innovative variations were available for comparison. Mentioned here are only a few of the instruments displayed.

Dr. Peter Schley from West Germany demonstrated his design based upon the Ruttner-Fresnaye-Schneider instrument. The refinements and precision of fine workmanship are evident. The micro manipulated machine has a lateral drive which allows for very fine adjustments of the glass tip which he claims will give beginners more confidence. He has also designed a large capacity piston and plunger syringe. A lock nut on the syringe measures a semen dosage of 8 microliters.

An instrument redesigned for transport was described by Adolf and Christa Winkler from East Germany. This is a compact, light weight device of which all parts, including the microscope, light and CO2 source, are on the same element. Dismounted, it may serve as a semen storage container which can be transported in a temperature controlled box maintained at 12 to 18°C by 98% acetic acid for a three day storage period.

There were many new syringe designs displayed. Many of these utilizing the glass tip. Improved techniques of producing high quality glass tips have renewed their popularity.

Dr. Andrzej Zawilski from Poland designed a syringe which contains a large reserve for mixing and transport of semen. This syringe allows one to inseminate 10 queens with mixed sperm from many drones. The syringe is connected with an electronic device which measures the semen dosage.

Dr. John Harbo from the USDA in Baton Rouge designed a large capacity syringe for semen storage which I demonstrated. Semen is collected in a detachable capillary tube which also permits efficient insemination of numerous queens. Glass tips, which are angled and have a long taper, are used. A micrometer accurately measures the semen dosage.

BEE BREEDING PROGRAMS DISCUSSED

Dr. Volprech Maul from the Kirchhain Lab. in West Germany reported on their progress. The insemination station founded at Oberursel was later transferred to the Kirchhain Lab. to provide stock to beekeepers as well as the institute. The sale of breeder queens helped pay for this standard service. The Mackensen instrument was used initially, with various new devices developed to make handling easier and allow use of the glass tip which they found more successful. The Kirchhain mating hive was developed especially for I.I. queens. The design, made of polystyrene, provides optimal thermal conditions and allows for easy access to queens. Two technicians produce 1500 I.I. queens seasonally. Their current breeding program has been cutback to give priority to Varroa research.

A closed population breeding program is used at the Kirchhain Lab. to select Carniolan stock. I was very pleased to meet Dr. Maul because their program is very similar to what we are doing at Vaca Valley Apiaries. He has been working with this program since 1971. Selection is based on the performance of I.I. queens in strong colonies which are tested for two seasons. In evaluation of colony performance, Maul found no marked difference in honey productionbetweenselected colonies headed by I.I. (instrumentally inseminated) or N.M. (naturally mated) queens.

Dr. Cora Rosenthal from the bee breeding station in Trifin, Israeal reported on her successful breeding program. Every year selected colonies produce 50% more than the average production of other colonies. Drones are taken from the best honey producers (30 out of 220 colonies



Dr. Harry Laidlaw

SYMPOSIUM . . . Cont. from Page 579



Woyke, Mantz, Laidlaw

were selected) and inseminated to selected queens. The N.M. daughters of these I.I. queens performed admirablu.

INSEMINATION TECHNIQUE

The development of closed population breeding programs are becoming more popular. These programs recommend the use of homogenized semen for optimal selection while avoiding inbreeding. Techniques to mix semen from a large number of drones offer a great advantage to queen breeders.

Dr. Robin Moritz from West Germany demonstrated his method of centrifuging semen. He reported that queens inseminated with centrifuged semen perform well in the field, of 76 test queens only two became drone layers.

I had the opportunity to demonstrate another more simplified method of pooling semen by mechanically mixing. Semen was collected in a Harbo syringe, expelled into a cone shaped vial and stirred with a glass rod, then recollected. Queens inseminated with this semen were successfully used at Vaca Valley Apiaries in full strength colonies for honey production and pollination services as well as for breeder queens.

DYNAMICS OF SPERM MIGRATION

Dr. Jerry Woyke discussed the dynamics governing the entry of sperm into the spermatheca of I.I. queens. He explained that little is known about this process. In this experiment queens were given various amounts of semen and dissected varying times after instrumental insemination to determine sperm migration efficiency. Woyke found that the rate of sperm entering the spermatheca is highest initially followed by a decreasing efficiency over time. With passage of time, the same increase requires twice as long compared to the previous period. The amount of semen given to the queen also played a role in the sperm migration efficiency. Larger doses of semen migrated to the spermatheca at higher rates, though the rates of entry, given different doses of semen, remain the same throughout the period of sperm migration.

Woyke warned that the care which queens are given after insemination is most important. The influence of external conditions (such as temperature, colony size, method of introduction, etc.) can affect sperm migration. Temperature plays a major role. Woyke concluded that higher temperaturess generated by a large number of workers is one factor which accelerates the beginning of oviposition (egg laying) by I.I. queens. He reported that any doubling of the number of workers will increase the temperature by 1 degree, resulting in queens beginning oviposition one day sooner.

THE STATUS OF SEMEN STORAGE

The progress of developing a method for long term storage of honey bee semen has been slow and difficult. We have reached the same success as other animal breeders with the use of liquid nitrogen yet this remains unsatisfactory. Cattle, horses, etc. need only a few viable sperm to reproduce compared to the queen which requires 3 to 5 million viable sperm to maintain a colony with normal growth.

Dr. John Harbo, who has been working with sperm storage in liquid nitrogen, reported that dimethyl sulfoxide (DMSO) used as a protective agent for spermatozoa causes detrimental effects. DMSO was found to cause sterility in 3 percent of daughter queens produced from queens inseminated with semen treated with DMSO. These daughter queens were found to produce non-hatching eggs suggesting genetic damage caused by the DMSO.

For short term semen storage, Harbo's experiments indicate the optimal temperature is 21°C. Migration of spermatozoa into the spermatheca was four times greater when semen was stored at 15 to 25°C as compared to semen stored at 5 or 10°C.

The mystery, how queens can successfully store semen for 4 or 5 years, is one we need to explore. Dr. Gudrun Koeniger removed the trachea of the spermatheca and found that queens continued to lay eggs, but these were not fertile. Dr. Laidlaw pointed out the fact that sperm is constantly moving in the spermatheca and being redistributed as the queen lays. The fluid in the spermathecial glands is used and replenished and may be due to protoplasmic flow. Are these clues to the mystery?

ROUND TABLE DISCUSSION OF RUTTNER'S BOOK ON INSEMINATION

A round table discussion was held to coordinate efforts for a third edition of Dr. F. Ruttner's book, *INSTRUMENTAL INSEMINATION OF QUEEN BEES*. A small group of interested scientists and bee breeders discussed the concept of the new edition. Topics such as: the theory of breeding programs, selection methods, semen storage, and post-insemination care of queens will be added. Several new authors will be contributing and Dr. Robin Moritz will edit the new volume which is scheduled to be published late 1987.

FRENCH BEEKEEPING

The most common bee kept in France is the native French black bee which is well adapted to the local conditions. It maintains a smaller brood nest than the Italian. There are about 100,000 colonies in France, of which the largest operation consists of 500 to 1000 hives. There is essentially no package bee industry in France. The queen market is small and currently geared to selling virgin queens. There is growing interest in developing this market. A new generation of beekeepers are beginning to recognize the value of rearing selected stock.

The Garonne Valley, which includes the area around Toulouse, is a breadbasket requiring pollination of many fruits and *Continued on Next Page*



SYMPOSIUM . . . Cont. from Page 580

some vegetables. Pollination fees vary from \$11 to \$20 per colony depending upon the crop. France does not have the large monocultures familiar to the States. Crops are grown on small acreage and for this reason competition for bee locations is high. Bee yards must be kept small, as it is difficult to place more than 30 colonies per site. The health food market for pollen is good in France, especially among retired people. The French honey market shares our similar problem of cheap imports.

The Varroa mite has been in France for two years. Its impact has not yet been felt because the mite population has not built up to a level where it causes economic damage, though it is a major concern and poses a serious future threat. Acarosis (tracheal mite infestation) is a fluctuating problem, though does not appear to be a major problem. The current major disease in France seems to be American Foul Brood. France also has the bee louse, a minor pest which beekeepers claim can be controlled by the use of tobacco in their smokers.

BARBEQUE IN THE RAIN

The symposium ended with a traditional french barbeque given at a very old, historic French farmhouse made of sun dried clay. After a beautiful ride through the countryside, 150 beekeepers arrived at the farmhouse, long tables were set up outside with hive boxes as chairs. An unexpected rain started to sprinkle as we walked around exploring the grounds and nearby colonies. The rain soon turned into a heavy shower and we quickly filled the farmhouse, shoulder to shoulder, huddled in any available shelter surrounded by bee equipment and the lively conversation of many languages.

The atmosphere was spirited, sipping homemade french wine and mead, engrossed in conversation. The electricity flickering off and on, and the aroma of famed Cassoulet (a regional speciality of beans and sausages cooked in duck grease) permeated. Polish beekeepers sang and danced around the warmth of a large bon fire, and were soon joined by others, creating a very festive and memorable evening.§

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By DON COX

One day while Grandpappy and Grandma were both working outside, there drifted into Li'l Pinch a couple wearing bed roll back packs. Grandpappy was splitting wood and Grandma was stacking it in the wood shed. As soon as Grandma saw them she made a beeline for the house as they were rough-looking characters. The man had let his hair, if you could call it hair since it looked more like bailing twine, grow down to the shoulders. He was also growing a beard or had just not shaved for a week to ten days. The woman was as thin as a rail with raven black hair down to the waistline. Certainly an odd looking couple, she bone thin and he the opposite, as he had allowed the belly to spread.

They hello'd in to Grandpappy and asked if he knew of someplace where they could stay overnite. Remember, this was back in the 1920's, before the great depression and the 1960's when we saw many couples like this floating around, trying to find somewhere they could settle and get back to nature.

Up close, it was seen that both were young and not hardened burns, so Grandpappy told them about an old cabin down the road toward Dogtooth. He also found that their names were Joe and Blue Gils. Now, this all occurred in late March,

and there was still snow on the ground from a late snow storm. There was a fireplace in the old cabin so Grandpappy gave them enough of the split wood to last them overnite. When Grandma found out what was

going on, she insisted that they also take along several blankets and some food. (Grandma did not know that Joe had married a girl who could not cook.)

They settled into the old cabin and after several days, decided to squat there until spring. As mentioned, this took place when the ground was covered with snow, which gave no warning of the horrors lying in wait beneath it. Somewhere under the white blanket there were hibernating shrubs and other living things. As the snow melted, Joe started to clean up the yard and the area where someone before them had gardened. He also found the yard to be covered with a mulch of broken glass, old boards and tin cans. Out in the far corner of the fence he saw an old wooden box. It seemed to be covered with a mutant form of Convolvulus that must have been dropped from a UFO. It covered the ground, fence and the old box.

As March gave way to April, and Spring advanced and green began to show and take over, he was much closer to the old box in the back corner. The green showed up as nothing but weeds and as Joe kept working at cleaning up, the vines

would whip about his neck and near throttle him. As he jerked some of the vines away from the old box, some insects darted out at him. Feeling the first sting, he hightailed it away from that corner of the yard. Joe possessed unblemished ignorance of bees, and when he approached the old box the next day, again trying to clean up around it, he was stung again. This upset him a great deal, so the old box received a good kick. Well, you and I know what that would do — and it did, so again he had to hightail it out of there.

An old beekeeper would know what to do when he found bees in an old box, so Joe paid a visit to Grandpappy. Now remember, Grandpappy was not a beekeeper, and he didn't have a lot of smarts about bees. But this didn't stop him from

giving advice about bees and how to remove them from the box, and how to hive them into a modern movable frame hive. During the conversation, Grandpappy mentioned Ugli, the beekeeper in Lil'l Pinch, and told Joe to go and talk to him about the problem.

Ugli said it would be several days before he could come over to look at the situation, but in the meantime, Joe could learn a little about bees from the books that he would loan him. Learning beekeeping by reading the book had reinforced Joe's conviction that anyone could do anything with the aid of a little research. However, books could not provide the hands-on experience that has to go along with it. The books covered too much too briefly for Joe to grasp all about swarming and other bee behavior and he became confused. Of course, the books didn't tell him a thing about stings that he didn't already know.

So he asked Ugli to give him a hand.

Ugli agreed that he and the twin boy, You Are, would come down to help. When they did, they provided Joe with a veil and gloves. You Are cut the combs from the box and Ugli showed Joe how to tie them into the movable frames. He explained what he was looking at, such as worker brood, drone brood and the beautiful queen. The combs were in as much of a tangle inside the box as the vines were on the outside. However, after about an hour and a half they had all of the comb and bees in the new hive.

The last time Grandpappy saw Joe, he had checked the hive to see that all the combs were fitted into place with nice white comb filling the spaces between the



chunks of old comb and the queen was laying a well bunched pattern of new brood. He also learned that Blue was well along in learning to cook. So it looks as tho there will be another beekeeper in Li'l Pinch.

Double Walled Hives

In today's bee literature, one reads about packing cases for wintering bees. Even some talk about bee wintering houses in the far North.

Well, Grandpa told us about beekeeper Uglie's double walled hives. It seems that Uglie was always experimenting with beekeeping equipment. He had a lot of smarts about bees and their behavior, but still he was an odd sort of a man. He was a tall, spindly fellow of 60 with a slight stoop. Maybe he had lifted too many deep supers. All his clothes had a downward sag, just not enough flesh on his bony frame to support them. A black jacket hung from his shoulders, the pockets weighted down with a hive tool, pliers and other oddments, and always several inches of sock between the turn-ups of his trousers and his shoes. On his head an old straw hat, which he was advised to wear after the bad attack of sunstroke the previous summer.

As Grandpa told us about beekeeper Uglie's double walled hives, I could just see the wheels turning in Pa's head. Uglie used a standard deep hive box and around it built another box with about 2 1/2 inches of space between the inside of this box and the outside of the standard deep hive box. The cavity between the two boxes was filled with excelsior as the insulating material.

I mentioned that Gramps' tale started my Pa athinking, and sure enough, about a week later, he brought home two sheet

Continued on Page 596



EARLY WINTERS

By DIANA SAMMATARO

How to winter bees is probably one of the most controversial topics among beekeepers since bees were first hived. When we put bees into a wooden box, we put them in a stressful situation, and further, expect them to winter successfully.

When I started collating and reorganizing the collection of antique beekeeping equipment for the Hewitt Honey Bee Museum and Research Center, in Litchfield, CT, I was amazed at the varied bee hive styles that were invented to help bees live through tough NW Connecticut winters. Some of us today may be able to learn a little about wintering from past beekeepers, so I thought I would share some of the things I dug up.

One hive, called the *Langstroth Portico Hive*, was originally made in 1880. This hive gets its name from the wall extensions: the sides and the bottom board extend past the hive front; and the outer top front wall of the hive slants down like a shed. These four extensions form a shallow



alcove to give bees protection from the weather. The top edges of the hive body were beveled so when "Root's Simplicity" honey super was added, a smooth tight joint was formed.

S. Valentine & Son of Hagerstown, Maryland, made the Success Bee Hive in 1860. The bottom board is nailed to the hive body. The unusual cover, which is "A" shaped, does not telescope over the hive, and the second story is wider than the first. In the winter it is turned upside down to slip over the bottom story and thus form a



packing case. In the summer, the box was used right side up to hold section cases for section comb honey.

Allen Latham, a Norwich, Connecticut resident and long time friend of Mr. Hewitt's, came up with several hives that were made especially for wintering problems. The main features were thick walls, entrances parallel to the frames, and forward-slanting floors. It also had a food rim super and a chaff or sawdust cushion as permanent parts of the hive. A row of vertically embedded nails along the entrance served as a permanent mouse guard. In his Let Alone Hive model, the first seven frames towards the front formed the broodnest, confining the queen with a removable vertical queen excluder. Beyond the excluder, the bees were allowed to build comb any way they wished, which was removed as surplus once a year. The outer covering of the hive was black tar paper, to help keep it warmer in the winter.

The most famous hive in the collection is the patented *State of Maine Beehive*, dated 1859 from the patent papers. While basically a square box, its interest lies in the cupola on top which has six tin tubes to provide ventilation. Glass windows and glass enclosed boxes for surplus honey are a common feature in old-type box hives. Ruggles S. Torrey, the inventor, from Bangor, Maine was also a Civil War token merchant, whose coins of 1864 stated him as the inventor of this famous hive.

If you get the chance, make it a point to visit this unique museum. All artifacts, which include bee equipment of all kinds, a



large number honey-pots, fabric and wall paper with bees, as well as china bowls and books on bees are stored in the honey house of the late Mr. Philomen J. Hewitt.

Contact Mr. Chuck Howe, 5 -12 Mile Road, Goshen, CT 06756, for more details.§

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HONEY BOARD . . . Cont. from Page 358

Richard Adee, a producer from SD; and Mr. Bruce Beekman, a producer from CA.

A tentative budget was considered after expenses and total income estimated - the sum of \$1.6 million was adopted.

Following is a summary of the rules and regulations adopted by the Board:

Assessment.

31

•Assessments begins January 1, 1987.

•Rate of assessment for first year is \$.01 per lb.

·Payment of assessment due upon physical delivery to first handler.

·Producer packer shall pay assessment at time of sale.

·Cooperative shall pay assessment upon physical delivery to cooperative.

·Imported honey shall be assessed by U.S. Customs

·Honey put under loan with A.S.C.S. shall be assessed by A.S.C.S. when put under loan.

 Producer shall not be assessed on honey from own production used to feed bees. Honey used to feed bees shall be assessed when entering the channels of commerce by being sold and shipped from one producer to another. The buyer of the honey shall be the first handler and pay the assessment.

·Honey delivered by a producer to a handler for processing in preparation for marketing or consumption shall be assessed, and assessment shall be collected by the handler, whether processed for the producer or handler's account.

·Honey delivered to a commercial storage facility by a producer shall not be assessed if stored for account. First handler would be identified on a subsequent basis.

·Producer assumes responsibility for assessment upon delivery to commercial user or food processor who utilizes honey as an ingredient in manufacture of formulated products. Producer becomes first handler at point of sale.

·Producer assumes responsibility for assessment for own production as an ingredient in manufacture of formulated products for account or the account of others. Producer becomes first handler at point of sale.

·If producer sells honey to a processor who processes and packages a portion of the honey for own account and sells the balance of the lot, with or without further processing to another processor or commercial user, the first processor is the first handler for all the honey and shall collect assessment.

Exemptions.

•Exemptions shall be granted by the Board for production or importation of less than 6000# of honey in a 12 month period ending December 31.

·First handlers will be required to collect assessment unless producer has valid exemption certificate issued by Board.

·Applications for exemption available upon written request to Board's office, subject to annual approval.

Refunds.

Refunds will be made in June and December. Applications for refunds in June must be received by May 31, applications for refunds in December must be received by November 30.

·Amount of refunds during any year made to importers shall not exceed the amount of refunds made to domestic producers as a percentage of total assessments collected from such producers.

Manager job description adopted, with the Executive Committee to screen applicants. Candidates will be interviewed at next meeting.

Possible office sites discussed were Dallas, TX; Denver, CO; Indianapolis, IN; Kansas City, MO; Sioux Falls, SD and St. Louis, MO.

The next meeting of the Board will be Dec. 5th and 6th in Sioux Falls, SD.§



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Spring Managemet II by Connor......\$59.95 Honey Management by Connor..... \$59.95 An Introduction To Beekeeping: A step-by-step guide The Africanized Bee Alert by USDA......NEWI.....\$59.95

Beekeeping Education Service/ Larry Connor P.O. Box 817-Cheshire, Connecticut 06410 Phone 203 271-0155



1. True The behavior of pollencollecting honey bees that have their pollen loads removed by a pollen trap as they enter the hive is similar to that of foragers who retain their pollen loads. The full behavior pattern of packing pollen in a cell is completed even though they do not have any pollen to pack.

2. True As the carbon dioxide level increases in the hive, honey bees respond proportionally with fanning behavior.

3. False The number of bees engorging in response to smoke is greatest during a nectar dearth and unfavorable flying conditions.

4. False Secondary colony reactions to smoke include a reduction in the number of guard bees at the colony entrance and a decrease in the number of foragers leaving for the field.

5. True The scent of animals, many of which are natural enemies of honey bees, nd the smell of human sweat are examples of stimuli that release the stinging impulse.

6. True Exchange of food between colony members is a form of communication that is important in the maintenance of the social structure. The transfer of food between two members starts when one of them either "begs" or "offers" food to the other.

7. True There is no evidence that bees can detect sound directly from air but do respond if the sound is intense enough to vibrate a substrate contacting them. Honey bees ordinarily become momentarily motionless when they are exposed to loud sounds or vibrations.

8. False Laying workers behave like normal worker bees, participating in all other hive activities in addition to laying eggs.

9. False Prior to the emergence of a swarm, a small number of bees become highly excited and nervous and appear to initiate emergence from the hive. These bees force their way among the other bees in the colony in zigzag running steps, vibrating their abdomens and producing a perceptible whir with their wings. As more and more bees become involved, the queen is aggressively pushed towards the hive entrance by the worker bees and forced to

become part of the impending swarm.

10. False Colonies with queen cells have a lower acceptance rate of caged queens than those colonies that do not have any cells.

11. C) 15 feet

12. A) Nassanoff Pheromone

D) Queen Substance

13. Round Dance



The dance indicates that there is a nectar or pollen source within 100 meters of the hive. Go out and search for it. No information on distance or direction are given. Least apt to sting.

14. Slow moving objects.

15. Smooth textured materials.

16. Light colored materials.

17. Sucrose.

There are a possible 20 points in the est this month. Check the table 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 20-18 Excellent 17-15 Good 14-12 Fair

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ALL BEES HAVE BEEN TESTED AND FOUND FREE OF ACARINE MITE AND OTHER DISEASES.

Answers to Games Gallery

ANSWERS TO AN APIARY GAME

1.	_	
2.	F	They pollinate countless
1		flowers.
3.	F	True of ants but bees don't;
1.		have the soldier caste.
4.	Т	
5.	T	
6.	T	
7.	T	
8	F	when the hive is
0.		augrangended
~	-	overcrowded.
9.	1	
10.	F	cells are 6-sided, hold one
		egg.
11.	<u>_T</u>	
12.	F	baskets on the tibias of
		hind legs.
13.	F	veil prevents stings: smoke
	-	tranquilizes bees
14	F	just an old notion
15		historically yes but yers
15.	1_	Instorically yes, but very
	-	little presently.
16.	F	settlers brought first
		honey bees with them to
		America.

1

1

1

ANSWERS TO **BEES in PROSE and POETRY**

1.	L	"The Book of Judges 14:8"
2.	D	"The Book of St. Mark 1:6"
3.	H	"The Anatomy of Wit"
4.	F	"Julius Caesar"
5.	_1	"Il Penseroso"
6.	B	Boswell's "Life of Johnson"
7.	_1	"Song of the Evening Star"
8.	A	"The Collected Poems of
		Emily Dickinson"
9.	G	"Title of one of his books"
10.	K	"The Lake Isle of Innisfree"
11.	C	"Pretty Words"
12.	E	"The Revolt of Masses"



KOOVER'S KORNER

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

"High Morale, Washing Machines and a New Frame . . .

We offer three of Koover's Kronicles this month because he writes faster than we can publish. He covers a range of topics this time from supers to extractors to frames to swarming. Enjoy...



Pieced and glued planks for hive construction are cheaper than wide boards and they don't warp.

We are at the cross-roads. It's change or perish. I was lucky. When I started in beekeeping, Paul Pierce had just manufactured his first attempt of a moldedplastic foundation. I adopted it hook, bait and sinker. That was 40 years ago. And almost right from the start I was able to modernize my beekeeping operation. It wasn't very big. You will laugh. Never more than 6 hives. I am a thrifty person. I couldn't see all this luxury equipment, hive bodies manufactured of the softest wide planks when I could buy them made from narrow strips of the same soft pine. They are electronically (whatever that is) glued together. They never came apart in all of my 43 years of beekeeping. And they saved me money. I had bought a four frame extractor from an Eastern manufacturer. It was built like a battle ship and it almost weighed as much. It had to be shipped by truck clear across the country.

I am happy to report that the same manufacturer now sells the same extractor made of modern stainless steel that can be



My man-killer.

shipped by parcel post or United Delivery which means a savings in transportation. My wife had a modern washing machine and I couldn't see why I had to crank my arm off to get the honey out of my combs. The electric motor of her washing machine allowed her to do other chores while the



Reel-pulley has a knob to start reel before motor picks up load. This saves the motor. The extractor is strapped to the work bench. There are no heavy gears as it is belt-driven.

machine was doing its job so I got busy and motorized my extractor. "Time is money."

Beekeepers are outrageously wasteful with their time. Not me. So I got away from uncapping combs. With a wide putty knife I scraped the sealed honey comb right down to the midrib off my molded plastic combs. And let the warm broth drain through metal strainer and cheese-cloth into plastic buckets. Ready for bottling. The extractor became a spinner to get the remaining honey out of the cappings. Hardly worthwhile. The wet combs went back on the hives and the bees pot-licked the honey out of plastic cells and used it to draw out the combs again. Everybody happy.

A NEW IDEA

At last I hatched a new idea. Like an old hen who had difficulty laying an egg, I have been going around trying to present it in such a way that the critics can't peck it to pieces. For instead of saying, "Let's give it a try", the natural inclination is to condemn it.

Here it is. Instead of using Hoffman endbars, ask your dealer to get you 9-1/8" grooved top bar, grooved bottom bar frames or 9-1/8" wedge top bar, 2 piece bottom bar frames with (and here comes the rub) 1-1/16" end bars and bottom bars as wide as the top bars. It means another set-up for the hive manufacturers automatic wood-working machines. Different end bars and bottom bars, and that has been the stumbling block I never have been able to overcome.

But the narrow bottom bar has been a fraud from the day Julius Hoffman slipped it over on the American beekeepers. He had to do it, for frame spacing edges caused the bottom bars to clank together killing bees.

Continued on Page 590

BEESWAX Cont. from Page 575

Thread the second tube in the same manner, making sure that about one inch of wicking extends above the top of the two candle mold tubes.

Grasp both the one inch wick extensions and tautly support each wick down the center of each of the tubes using the bobby pins. Now place the cold water moistened sponge on the drip tray, place the base of the candle mold directly on the sponge, press the mold FIRMLY DOWN ON THE SPONGE, and pour the melted beeswax just to the top of each tube. (In the past, some people have filled the mold completely to the rim, only to find that it was much more difficult later to remove the candles and to trim the bases of the candles.) The cool damp sponge causes the hot wax to solidify in the tips of the tubes, preventing the remainder of the molten wax from escaping from around the wicking. The tray will catch any drips and the occasional leakage of wax around the sponge.

After a minute or so, the wax will solidify in the tips of the tubes, and the mold can be lifted off the sponge and set on the tray. As the wax cools in the tubes, it will contract. As this occurs, more melted wax should be added to fill the cavity forming around the wick. This may have to be repeated two or three times to produce a candle with a solid base.

Once you have completed pouring and the wax has begun to harden, the bobby pins can be removed and the excess wax above the tops of the tapered tubes can be scraped off while it is still soft.

Candle Removal. The mold containing the candles should then be allowed to completely cool. This cooling can be hastened by placing the mold containing candles in a freezer.

To remove the candles from the mold, the mold should be turned over and the wicking running from the tip of one tube to the tip of the other tube should be cut in the center.

Sometimes by simply pressing the frozen candle further into the tube mold with your thumb the candle will release. Also gently tapping the mold on a hard surface will often facilitate the release of the candles. If either of these methods fail, the candles can be removed from the mold by grasping the one inch length of wick extending above the top of the mold using a pair of pliers and then by tugging on the wick while holding the tube of the mold under running hot water.

For the candle maker who, in the process of attempting to remove the candle, has the wick break off, a cork screw can be screwed into the base of the candle, and the Polyurethane Molds. Recently candle molds made out of industrial quality polyurethane have become available. The advantages of the polyurethane molds over some of the plastic molds are that the polyurethane molds have an extremely long life, leave no seams, do not require a cold water bath, give extremely sharp detail, candles cast in them are easily removed, and the two piece molds are held together with elastic bands not cumbersome clamps.

To date we have experimented with a two piece skep mold, a two piece bear mold, a three piece three angel mold, and a one piece tapered hexagon mold. In all instances, we have found the molds to achieve all the criteria outlined above.

To thread the angel, skep, and bear mold we use a Stole or Bodkin weaving needle which are available in some sewing stores. We have found it advantageous to further sharpen the tips of these needles using a grindstone or a metal file. Insert the wick through the eye of the needle and force it through the mold using a pair of pliers. To thread the hexagon taper mold, we use a looped piece of bee wire as is described in the threading of the metal molds. The wick is then suspended over the pour hole in the mold using the proper length bobby pin. If you are planning to made additional candles in these molds, leave the wick attached to the roll it came on. You can then wick the mold for the next candle by simply pulling the wick through while it is still attached to the candle being removed from the mold. We have found that with the three angel mold and the skep mold that 60 ply wick will produce an acceptable flame and a pool of wax which does not usually overflow and run down the side of the candle. With the hexagon taper and the bear mold, the same thing can be achieved by using 2/0 wick.

In melting the wax for the polyurethane molds, unlike the 180 to 185°F temperature recommended for the metal molds, we usually pour the wax just as soon as it is melted. This reduces and sometimes eliminates the shrinkage of the wax as it cools and therefore the need for numerous retoppings.

Unlike the metal molds which we recommend placing in the freezer to facilitate candle removal, the candles in the one piece polyurethane tapered molds should be removed at room temperature. If they were to be placed in the freezer, the polyurethane contracts more than the beeswax locking the tapered candle in the mold.

The bottoms of the angel, bear and skep candles can be further flattened after the wick is trimmed, by rubbing them on the bottom of a heated fry pan, skillet, or other flat-bottomed pot. As the melted wax accumulates, it can then be poured off and collected for future use.

It is also advantageous to rest the bottoms of the polyurethane molds on a dampened sponge for a few moments as the candle is poured to prevent any wax leakage around the wick.

Finishing Candle Bases. The excess wick at the bottom of the candle should be trimmed off. In the case of the dipped or poured tapered candles, their bases can be finished by either trimming them with a sharp knife, or by inserting the candle bases in a hot-plate-heated device that both flutes the base of the candles and smooths their bottoms (see last page for supplier).

Coloring Beeswax. In addition to the normal yellow beeswax color, many people like colored beeswax candles. Beeswax can be colored using a number of different types of commercial wax coloring agents which are available in many hobby and candle supply shops as well as by using Crayola-Brand crayons.

Satin Finish. A very attractive satin finish can be applied to the surface of either a dipped or a poured candle using the following method. Fill a container a little taller than the candle with water allowing for about a one inch layer of wax on its surface. Heat the water until the wax is melted. Immerse the candle until it is completely below the surface of the wax, then withdraw it. You will have to experiment a little until you get the desired effect.

Polishing Candles. Often when beeswax candles are stored for a period of time, a "dusty" appearing substance called "bloom" forms on their surface. The bloom can be removed and the candles can be brought to a bright luster by polishing them with a piece of cloth.

Care should be taken when removing the finished candle from the urethane mold so as not to mar the candle's surface. We have found that by placing the candlecontaining-mold in the freezer that the wax draws away from the interior of the mold and the wax also becomes harder. By spreading the two sides of the mold and following the freezer suggestion, the molded candles usually "escape" from the mold unblemished.

After removing the candles from the mold, the wick should be trimmed and the bottom of the candle will probably need finishing. The finishing of the bottom can be accomplished by either paring it with a sharp knife and/or rubbing it on a hot

BEESWAX . . . Cont. from Page 589

metal surface such as an old clothes iron.

Rolled Candles. Candles rolled from thin sheets of beeswax although not longlasting from a burning standpoint, can be quite decorative. These can be made from standard non-wired beeswax foundation. from beeswax foundation which has been purposefully colored for candle making by the manufacturer, or by making your own thin sheets of wax. You can make your own sheets of uniformly thick wax by using a shallow pan of the dimensions that you want your final sheet of wax to be. Add about 1/2" of water to the pan heating this to about 165°F, and then add melted beeswax to the surface of the water until the desired thickness is achieved. Once the wax has solidified, it can be freed from the pan by using a sharp knife or by warming the pan. You will then have a sheet of wax of a uniform thickness.

To roll a candle from any of these sheets of wax, be it homemade or purchased foundation, be sure the wax and the place where it is to be rolled is warm (80°F seems to work well) and clean. Cut a proper length of the correct sized wick for the finished candle and carefully begin to roll up the wax sheet incorporating the wick. The most difficult step in the process is the first turn, after that, it becomes progressively easier as more and more turns are completed.

Hand Dipped Candles. Candles can also be made by repeatedly hand dipping a length of the proper sized which based on the planned diameter of the finished candle. To produce a candle with a standard diameter base (about 7/8"), it will take between 30 and 35 dips.

The container which is going to hold the melted wax for dipping should be at least two inches deeper than the maximum length dipped candle you plan to make. This reduces the number of times that you have to add wax as it builds up on the candle; allows room for the wax to rise in the container as the candle is dipped; and eliminates the possibility that the base of your candle will become contaminated with any foreign material that may collect in the bottom of the container.

Some type of double boiler arrangement gives maximum safety and uniformity of heating. We generally don't heat the wax much above its melting point, since the hotter the wax is the more dips that are going to be needed to complete the candle. Dipping should be done in a draft-free place, for even the slightest movement of air can cause a "sculptured" candle. When only making a few dipped candles, we do not tie a weight to the bottom of the wick. Rather we dip the wick and as soon as it is out of the wax we pull it taut until the wax hardens. Repeating this a couple of times will produce a stiff straight starter candle to continue dipping with. We are careful to dip the candle to exactly the same depth each dip, so as to produce the typical shaped top of a dipped candle. Also dip and remove the candle rapidly from the wax, otherwise you may end up melting more wax off your candle than you deposit on it!

For yet a larger scale production of dipped candles, a larger container of wax can be used. Racks that will fit into the larger container can be fitted with multiple wicks, and a number of these racks can then be dipped in succession, greatly increasing the production rate.

It is also possible to give molded tapered candles a hand dipped appearance by reshaping their tops and removing the seam down their sides using a sharp knife, and then dipping them a few times.!

Continued on Page 596

KOOVERS . . . Cont. from Page 588

Not only that, bees chewed away several rows of cells, for they can't maintain broodrearing temperatures between these toowidely-spaced bottom bars. A screw-eye at the bottom bar stops all that.

The closed-end, side bar of the frame creates a hive within a hive. It's no good as a broodnest and ideal as a surplus super. An Englishman by the name of Madoc invented it as a surplus super, 6-5/8" deep. R.O.B. Manley, the famous English beekeeper made it popular the world over, except here in America. I know why. We like things big. Our commerical beekeepers want their surplus supers as deep as their brood supers. So they can exchange them. Brood combs that are no longer suitable for brood-rearing can be turned into surplus honey combs. I shall refrain from making a comment about that. But don't complain about filthy foreigh honey being imported.

But why at this late hour another frame? For this simple reason; that molded plastic foundation makes it possible to speed up your extracting machines without the danger of breaking combs. Combs that will last and last for years. Without drone cells. Easy to extract. Easy to uncap without the danger of striking iron spacers. And best of all, easy to remove the frames from the supers. Or, if you wish to extract the honey by uncapping the frames in the super and spinning the honey out while the frames stay in the supers. I have seen it done. And all the time no danger of breaking combs. So much for commercial operations.

But what about the little guy? By using the shorter end bars in his 6-5/8" supers he can get the honey out by digging, (if you please), it out of his frames with a widebladed putty knife, right down to the

Continued on Page 599



INNER COVER . . . Cont. from Page 547

The Monsoon season has been in full swing here lately with 9 out of 10 days with rain. The last 2 weeks of August and the first 2 weeks of September were almost completely dry, with only 1/4" or so of moisture. It was dry, certainly drier than the previous 2 months — but nothing compared to what some of you in the southeast have gone through.

Anyway, along with the rain we've had unseasonably warm weather — hot and humid. Tropical describes it nicely, Thank You. What this has done to the honey flow is an honest question because we haven't had a good opportunity to get into the bees to check. Probably not much coming in because they can't fly, but when they can, the activity is incredible — it will be interesting to see.

The Ohio Estate became a reality this month too. The Ohio Estate? Let me explain. For the last four years I haven't had the land available to do really what I enjoy — large scale gardening. Now gardening is a rather nebulous term tomatoes, peppers and sweet corn are certainly one aspect that I enjoy, but there s another side.

Experimenting with Land Based Honey Production is my real forte. I like to look at both agronomic and ornamental flowers attractive to bees, and the economics related to raising them. Then the complicated part of double & triple cropping and the soil requirements and water needs and tillage and weeds and ...

Well, the list goes on, but not my desire to answer the questions I keep coming up with. I have this unfailing belief that if I keep experimenting I'll solve all sorts of crucial problems and make millions of dollars.

That's pretty good incentive to garden. And now I have the space to do it in. Of course, a house came with the land, and there's the painting and fixing required to make it suit our domestic needs. The office and kitchen (in that order) are on the top of Diana's list to 'fix next', while the roof and the living room head mine!

I hope by Easter all the 'must fix' things are fixed (or we have learned to live with) and I can get down to the serious side of maintaining the Estate.

I've already staked out the plot for my farmer neighbor to plow this fall, and have a rough design of what will grow where come planting time.

I'm looking at some of the mints,

several weeds, buckwheat, a whole slew of legumes, sunflowers and some I'll keep secret for now. There are annuals, biennials and a few perennials, so double and even triple cropping is a real possibility. And bloom can be fairly well scheduled to produce continuous forage, or just during the dearth of the regular forage surrounding the Estate.

Of course I'll spend a fortune on seeds, fertilizer, a new rototiller and the other equipment needed to make this all work, and I'll have to find those extra hours each week to tend to the planting, weeds and taking some hard data to determine if what I'm doing is doing any good.

But there are rewards to this project. There is the satisfaction of a great looking garden, I like my gardens to look good. Of course the tomatoes, peppers and sweet corn I can pick and eat — without washing — right there in the vegetable patch if I want. Finally, there are all the millions I'm going to make when I find the answers to all the questions I keep coming up with. It should be a good summer.



I guess maybe it's a little premature to dream about gardening next summer when we still have to overwinter the ten colonies sitting on the north end of the Estate. We have a natural windbreak, of sorts, they sit next to, composed of 5 or 6 spruce. These will help, but not as much as I'd like.

Ohio is not one of the more hillier or forrested states I've lived in, so there is a wind problem I'll have to deal with. We will probably put up a snowfence type structure, and maybe some bales of straw. I'd like to try some of the packing and insulation techniques commonly used, but the roof, gutters, windows and doors of my house must be fixed or replaced first, so I'm not sure if I'll get to the business of wintering the colonies. Time and cold weather wait for no man, and I hate drafty floors on those January mornings.

A wind break, plenty of stores (we run about 75-80# in each colony, a slight forward list and an upper entrance is all the bees will probably get this year. You've got to be tough if you're gonna live on the Estate.

While I was out standing in my field (I've always wanted to say that!) shortly after moving to the Estate, a fellow with a fancy car, expensive clothes and a big smile drove up to the house and walked out to where I was.

He introduced himself as one of my neighbors and welcomed me to the area. Then, in passing, he mentioned he was running for re-election to some local office and he sure would appreciate my vote.

I allowed as how I wasn't yet familiar with the local game I couldn't say one way or the other, but since I hadn't missed an election since '66 I'd decide by Election Day.

As we were talking he noticed the 10 colonies over on the north side of the field. He asked if they were mine, was I a beekeeper and how could anyone work with something that stings — all in one breath.

I said yes, yes, and it's not really a problem if you know what you're doing as he was rapidly retreating to the car. He got in, thanked me for my time and left. It was obvious he was a non-beekeeper. But as I was relating this tale to Diana, I got to thinking about the label I'd just given that fellow - Non-Beekeeper.

That label has bothered me ever since I first heard it. I'm always reminded of the terms non-comformist, or non-entity, or non-compliance and even non-descript.

Gramatically it is correct, I guess, but it just doesn't roll off the tongue the way I'd like. It doesn't feel or sound 'right'. When I was farming, city folk weren't called 'nonfarmers', even though they were, nor do I refer to people now as non-writers who don't work the same job as I do. So why non-beekeepers?

When you want to stereotype people, give them a label. Examples abound. He was an 'All-American' boy tells you immediately what his morals and ethics are; a few years back if someone was called a 'Hippie' you instantly had a picture of that person, regardless of their attitudes towards authority, free love or flowers. Do you see what I mean?

When I think of a 'non-beekeeper', I think of someone who is essentially, afraid of bees, and probably beekeepers. And I guess a lot of people fall into that category. But I still don't like the term. The most frustrating part is that I can't come up with a better title. One that sounds and feels 'right' and doesn't have all the 'non' connotations I've already mentioned. If somebody has a better description let me know because I'd like to hear it.§



★ CANADA ★

ALBERTA Beekeeper Technician Program Offered

Fairview College, Alberta, Canada, offers' one of the world's most unique opportunities to study beekeeping.

The Beekeeper Technician Program starts in January and runs for eleven months. The couse is designed to train people to work with commercial beekeeping operations and prepare for careers as independent beekeepers.

The course is offered in three sessions. Session 1: theory of apiculture and honey production, including a one-month field trip to California.

Session 2: work with the College's 300hive apiary or established beekeepers. Session 3: learn business and management aspects of running a beekeeping operation.

For more information write to: Registrar, Box 3000, Fairview, Alberta, Canada TOH 1LO.

SASKATCHEWAN Saskatchewan Beekeepers Association

Annual Meeting and Convention

The Annual Meeting of the Saskatchewan Beekeepers Association will be held February 5, 6 and 7, 1987 at the Sheraton-Cavalier Hotel in Saskatoon. The meeting will focus on the tracheal mite research project which is being conducted in La Ronge, Saskatchewan and on the problems of the approaching Africanized bee in Central America.

Reservations can be made by calling the Sheraton-Cavalier in Saskatoon at (306) 652-6770 and further information regarding the program can be obtained from John Gruszka,Secretary-Treasurer,Saskatchewan Beekeepers Association, Box 3003, Prince Albert, Saskatchewan, S6V 6G1, (306) 953-2790.

Assoc. of Professional Apiculturists and

Canadian Honey Council

The annual meetings of Canadian Association of Professional Apiculturists and Canadian Honey Council (C.H.C.) are planned to be held this year during the week of November 16-22, 1986 in Charlottetown, P.E.I. For further information about the C.H.C. meeting please write: Linda Gane, Sec./Treas., Box 1566, Nipawin, Sask. SOE 1E0.

★ CONNECTICUT ★

The Western Connecticut Beekeepers Association, (which meets from 8 p.m. to 10 p.m. at the Fairfield County Extension Center, Rt. 6, Bethel, CT.) has the following schedule of events:

Nov. 20 -- Richard Taylor, talking on "The Future of Beekeeping".

★ FLORIDA ★



Florida State Beekeepers Association Queen Committee

Leah Fischer was crowned the 1986 Florida Honey Queen in Fort Myers, Florida. For almost a year she has been promoting the Beekeeping Industry throughout Florida, and loves every minute of it.

Leah is the daughter of Mr. and Mrs. Stephen Fischer of Umatilla, Florida. She is attending Lake County Community College in Leesburg.

Some years ago she was introduced to beekeeping and its many benefits through family friends, Frank and Charlotte Randall of Umatilla. Since that time she wanted nothning more than to be a honey queen. She was the princess and honey Queen respectively for the Central Florida Beekeepers Association for two years.

She is a truly enthusiastic representative of the Florida beekeepers and the industry as a whole. She has visited schools from kindergarten to high school, gave demonstrations and spoke to church groups and at luncheons. She has prepared samples of food made with honey in stores.

The Tampa Bay Beekeepers Association of Hillsborough, Pinellas and Manatee Counties, Florida, is celebrating it's 40th year anniversary. Because of a special program planned in honor of the event to be held on Thursday, December 4, 1986, it is requested that ALL former members and former honey queens contact us. Please write or call Diane Cornwell, Publicity Committee, P.O. Box 13535, Tampa, Florida 33681. (813) 634-2072.

\star ILLINOIS \star

ILLINOIS PRIZE HONEY DRAWS SUPER PRICE



L to R: William E. Barrows; Louis Bellatti; Miss Illinois County Fair Queen; Director Larry A. Werries.

HONEY BEE TRACHEAL MITE (Acarapis woodi)

The State of Illinois Tracheal Mite Quarantine will be lifted October 1, 1986.

Illinois still requires a health certificate for brood diseases and a statement that bees are apparently free of tracheal mites as determined by sampling under AIA guidelines.

Illinios will check all colonies for mites entering the state.

★ LOUISIANA ★

ArkLaTex Beekeepers Club Celebrates Firsts The ArkLaTex Beekeepers Club of Shreveport and Bossier City, Louisiana,

Continued on Next Page

GLEANINGS IN BEE CULTURE

NEWS & EVENTS. . . Cont. from Page 592

celebrated its first birthday recently. During the celebration Jana Parker, 1986 Northwest Louisiana Honey Queen presented Quinton Potter, the founder of Louisiana's first club apiary, with a wooden hive tool. The wooden hive tool was designed, constructed and donated by W. E. Rowell and is embossed with the founder's name on a brass plate, followed by a plate for each year's club apiarist. The hive tool was then passed on to Mr. Potter's successor, John Mathis, 1986 club apiarist.



(L to R) Apiary Founder Quinton Potter, NW. La. Honey Queen Jana Parker, Club Apiarist John Mathis and Woodworker Emeritus W.E. Rowell.

The ArkLaTex Beekeepers Club is Louisiana's largest club (over 100 members) and, among its many other activities, is hosting the Louisiana Beekeepers Association 1986 Convention, December 5th and 6th. The convention is the association's first to be held in Shreveport, La. For more information write: ArkLaTex Beekeepers Club, P.O. Box 78435, Shreveport, LA 71137-8435

★ MEXICO ★

Africanized Bee Identification Laboratory Opens in Veracruz, Mexico.

During several months of extensive training, locating appropriate personnel, facilities and funding from the Veracruz Government to carry through the Dirección General de Ganaderia and Patronato Nactional de Lucha contra la Abeja Africana y Unión de Apicultures de Veracruz opens the new and first honey bee identification laboratory.

The new facility uses a Computer Assisted Morphometric Honeybee Identification Program developed by Dr. H.W. Daly from the University of Berkeley, CA which was improved by Drs. T. Rinderer and H. Allen Sylvester from ARS, U.S.D.A. Baton Rouge, LA. It also uses two less-sophisticated systems of Africanized bee identification (FABIS). The Laboratory will conduct Africanized bee identification in Mexico. Considering many beekeepers in this state are migratory, the appropriate certification of these colonies will help in the control and spread of honey bee movements prior to and after the Africanized bee is well established in the area.

The Laboratory personel provided the State Government with an African Bee Identification Project several months ago in order to accelerate the completion of facilities. These are the only people in Mexico able to identify the Africanized bee using the techniques developed and provided by the American scientists cited above.

Extensive sampling is taking place all over this state and other strategic southern states in order to provide early Africanized bee identification in Mexico. There were unconfirmed reports of Africanized bees in Mexico earlier this year, and this fact promoted the establishment of the Identification Bee Lab.

★ MINNESOTA ★

Minnesota Meeting Schedule

The Minnesota Honey Producers will hold their Annual Meeting - December 5 and 6, 1986 at the Sunwood Inn, St. Cloud, Minnesota. Located on Highway 23, Downtown, St. Cloud.

★ MISCELLANEOUS ★

AHPA Convention Plans

Plans for the 1987 American Honey producers convention are gradually taking shape. This year's meeting will be held January 13-17 at the Sheraton-Marina Hotel, Corpus Christi, Texas. The Sheraton is located on the Bayfront downtown. Limo service to and from the airport is available free of charge. Room rates are \$39.00 for one or four.



A view of the Corpus Christi Bay and Marina immediately in front of the Sheraton Marina Hotel where the American Honey Producers Association will hold its annual convention, January 13-17, 1987. THE CONVENTION SCHEDULE: The registration desk will be open all day January 13 and 14. The Executive Committee will meet during the morning of the 13th and the Board of Directors will meet during the afternoon. The General Assembly will meet the following three days (January 14, 15 and 16). The business session of the General assembly and the Board of Directors are scheduled for the afternoon of January 16 and the banquet is planned for the evening of January 16. The 1987 Executive Committee will meet in the morning of January 17.

THE CONVENTION PROGRAM: The general assembly program will be designed to cover not only the industry's current problems but future problems as well. We are inviting speakers from industry and government who can best address the several subjects that need attention. A substantial part of the program will explore ways and means of strengthening our relations with Congress. Free time for tours is planned.

For additional information contact: Glenn Gibson, President, AHPA, Box 368, Minco, Oklahoma 73059 (405) 352-4126.

★ NEBRASKA ★

The Nebraska Honey Producers will hold their annual convention on November 7, 8, 1986, at the Radisson Inn, 10909 M Street, Omaha, Nebraska. Eugene Killion and James Tew will be the speakers. There will be displays of equipment and supplies. The meeting begins at 9:00 a.m. each day with a banquet Friday night

For further information contact: Sally Leu, Secretary, Route 4, Box 194, Norfolk, Nebraska 68701.

★ NEW MEXICO ★

Dynamic speakers and plush, yet inexpensive, accommodations will be in store for those who attend the New Mexico Beekeepers Association annual convention, Dec. 5th and 6th at the Albuquerque Radisson Inn, 1901 University Blvd. SE. Distinguished speakers include Glenn Gibson, American Honey Producers Assoc. President; Dr. Gordon Waller, bee scientist from the Tucson Carl Hayden Research Laboratory; and Dr. Elbert Jaycox, author, scientist and educator from New Mexico State University.

The NMBA extends an invitation to all interested persons to attend. For further information, contact Betty Cole at (505) 869-2841.

NEWS & EVENTS ... Cont. from Page 593

* NEW ORLEANS * American Beekeeping Federation seeks "Opportunities in Changing Times"

The Crescent City, New Orleans is the site of the 1987 convention of the American Beekeeping Federation. The annual event is set for Jan. 18-21, at the Hyatt Regency New Orleans.

The Federation convention program is being arranged to allow conventioneers plenty opportunity to sample the culinary delights of New Orleans. Instead of the traditional two evening banquets, only one combined banquet and honey queen coronation is scheduled.

A comprehensive program is being developed that will encompass all aspects of American beekeeping -- from the political scene to current research, from Africanized bees to honey promotion. The theme of the meeting will be "Opportunities in Changing Times."

The general session of the meeting will open Sunday afternoon and close at noon on Wednesday. The business meeting will be Wednesday afternoon, and the usual directors and officers meetings will precede and follow the convention proper.

For more information contact Frank Robinson, Sec./Treas, American Beekeeping Federation, 13637 NW 39th Ave., Gainesville, FL 32606, (904) 332-0012.

★ NEW YORK ★

The annual winter meeting of the Empire State Honey Producers Association will be held Friday and Saturday, December 5 and 6, in Syracuse, New York. The program will be of interest to hobbyists and side-liners as well as commercial beekeepers, including talks and discussions about honey marketing, beekeeping in the Caribbean, disease inspection, pesticide problems, allergic reactions to stings, and other topics.

Quality Inn North (formerly the Hilton Motor Inn), 1308 Buckley Road, North Syracuse, New York 13212.

This is near the intersection of Interstate 81 and the New York State Thruway. Friday 10:00 a.m. to 4:45 p.m., banquet at 6:30 p.m. Saturday 9:00 a.m. to 2:00 p.m. For program details, call Dyce Laboratory, Cornell University, Ithaca, NY 14853 (607) 255-5443).

★ OHIO ★

Ohio State Beekeepers Assn. The Ohio State Beekeepers Association will hold their fall meeting at the Ohio

Fire Academy, 8895 East Main St. (St. Rt.

40) at Reynoldsburg, Ohio, on Saturday, November 15th, 1986. There will be a \$6 registration fee

Logination It	~.				
8:30-9:15	Registration				
9:15-9:30	Introductions, Jim				
	Thompson, Pres. OSBA				
9:30-9:45	Welcome, Steven D. Maurer				
	Dir. Ohio Dept. of Ag.				
9:45-10:30	Promotion, Kim Flottum,				
	Editor, Gleanings in				
	Bee Culture				
10:30-10:45	Break				
10:45-11:30	Bees and Finances. Tom				
10110 11100	Sanford, Ext. Sp., Univ.				
	of Florida				
11:30-11:45	National Honey				
	Promotion Board, Dwight				
	Stoller Pro Bd Member				
11:45-12:30	Lunch				
12.30-1.15	Bee Venom Therapy Arnold				
12.50-1.15	Murray Knox County				
1.15-1.30	OSBA Honey Queen				
1.15-1.50	Report Amy Flannagan				
1.30.2.15	The Future of Backeeping				
1.50-2.15	Tom Sanford				
2.15 2.25	Backager of the Vear Award				
2.15-2.25	Bue session & Election of				
2:20-5:00	Bus, session & Election of				
2.00	Officers				
5:00	Adjournment				

For more information contact John Grafton, Rt. 1, Box 269, Steubenville, Ohio 43959 or call (614) 282-2076.

INTERNATIONAL BEEKEEPING SEMINAR VI, THE OHIO STATE UNIVERSITY'S AGRICULTURAL TECHNICAL INSTITUTE, WOOSTER, OHIO

The Ohio State University's Agricultural Technical Institute conducted the VI International Beekeeping Seminar July 21 - August 1, 1986. As has been the case in previous seminars, the participants were highly motivated and competent beekeepers. This year 12 participants, from five countries, participated in field studies and class lectures presented by Dr. H. Shimanuki, USDA. Beltsville, MD (Seminar Coordinator); Dr. James E. Tew, The Ohio State University (Seminar Coordinator); Mr. John Corner, British Columbia, Canada; Dr. Robert Page, The Ohio State University; Ms. Diana Sammataro, Independent Consultant, Beekeeping; Dr. Robert Romig, The Ohio State University; Mr. Phil Mariola, Bee Technician, ATI, The Ohio State University.

Lecture topics were varied but examples include; Predaceous mites, Africanized Bees, Bee Colony Management, International Beekeeping, and Honey Bee Genetics. The training session ended with a formal banquet at a local restaurant. The group also participated in tours of local interest and lived in dormitory facilities near the Institute's new Honey Bee Laboratory.

The seminar will be conducted again next year at approximately the same time. Lectures can be presented in Spanish and French, depending on enrollment. Individuals interested in Seminar VII (1987) should contact: Dr. James E. Tew, ATI/The Ohio State University, Wooster, Ohio 44691.

★ SOUTHERN STATES ★

PROGRAM

Saturday,	Nov. 1
4:00-6:00	Board Meeting
	(Old Business
Sunday, N	lov. 2
8:00-6:00	Open House - Am. Bee
	Supply, Inc. Lebanon, TN
2:00-5:00	Bee Schools - Dr. James Tew,
	Lawrence Cutts, and
	Huck Babcock
7:00-8:00	Gospel Music - Sponsored
	By The Walter T. Kelley Co.
8:00-?	Story Tellers Competition,
	Dr. James Tew, Moderator
Monday, N	Nov. 3
8:00-1:00	Commercial Displays Open
8:00	Call to Order - Steve Forrest
8:10	Welcome to Tennessee
8:20	Opening Remarks - Steve
	Forrest,
8:30-9:00	"The Mite Infestation in
	Florida", Lawrence Cutts
9:00-9:30	"The Mite Project in North
	Carolina", Dr. John Ambrose
9:30-10:00	"Of Mites and Men"
	Dr. H. Shimanuki
10:30-11:15	"A Beekeepers Approach to
	Africanized Bees, Dr. James
	Tew
11:15-12:00	Pesticides, A Cancer
	Upon Our Industry:, Dr. Eric
	Erickson
2:00-5:00	Bee Schools - Dr. John
	Ambrose, Dr. H.
	Shimanuki, Steve Forrest
8:00-8:30	Francois Huber,
	The Swiss Naturalist
8:30-?	3rd Annual Bee Bowl -
	GA -vs-TN
Tuesday, N	Nov. 4
8:15-8:25	Opening Remarks, Paul
	Harrison, Mod. of the Day
8:30-9:00	"The Honey Research Promo.
	and Consumer Info. Act"
	Reg Wilbanks
9:00-9:30	"The American Honey
	Producers Activities in
	Washington", Richard Adee
9:30-10:00	"Our Future, It's Up To Us"

Continued on Next Page

GLEANINGS IN BEE CULTURE

NEWS & EVENTS ... Cont. from Page 594 Steve Forrest 10:30-11:00 "How To Sell Honey" Bob Cole 11:00-11:30 "Honey Shows of the World" Brian Sherriff 11:30-? **Business Session** Bee Schools - Troy Fore, 2:00-5:00 Ed Buchanan, Jed Shaner 6:00-7:00 Speakers Reception 7:00-9:00 Awards Banquet Wednesday, Nov. 5 8:30-11:00 Board Meeting (New Business)

Commercial displays must be dismantled and removed by 12:00 noon on Tuesday.

Registration Rates: \$30.00 per person or \$45.00 per Family (Before Oct. 15th).

Bee School Rates: \$15.00 per person or \$25.00 per Family (at each session a complete hive with bees will be given away).

Rooms: \$32.00 a night per room.

For more information contact Dr. John Ambrose, Dept. of Entomology, NCSU, Box 7626, Raleigh, NC 27695-7626. (919) 737-2129.

\Rightarrow OBITUARIES \Rightarrow

JAMES LEONARD DE KORNE

After a short stay in the hospital, Jim DeKorne was taken from us on August 14, 1986 at the age of 80 years. Jim was well known in local, state and Federal associations. As well as being a Michigan State Bee Inspector from 1924 thru 1965; the following recognition has been credited to him: Past-President of the Tri-County Beekeepers Association, Past-President of the Michigan Beekeepers Association, life member of the Michigan Beekeepers Federation. Jim was the recipient of the 1969 Beekeeper of the Year Award and in 1984 received an Award For All His Years of Faithful Service from the Michigan Beekeepers Association.

Jim was an inspiration to many also in his own family where some of his sons and grandsons are currently following in his footsteps. He fascinated many a classroom of students with presentations and demonstrations of state-of-the-art beekeeping techniques.

Along with this active involvement in his vocation, he served faithfully and diligently his church where he was a life long member. Jim served on the council at his church for over 40 years as well as many committee positions. He will be sorely missed by young and old who respected him also as a teacher for many years. Jim was preceded in death by his wife, Rachel, who passed away in 1980. Jim will be missed by his eight children, thirty grandchildren and nine great-grandchildren.



CLARENCE G. WENNER

Memorial services were held for longtime Ordbend resident, Clarence Gustav Wenner, on Saturday, September 6th at 3 p.m. at the Evangelical Free Church in Hamilton City, CA.

Mr. Wenner passed away September 1st, in the Cardiac Care Unit of a Chico hospital after a brief stay.

Mr. Wenner was born April 30, 1904 in Roseau, Minnesota, to Anders and Ellen Wenner. He moved to the west coast in 1925 and settled in Ordbend, where he established his apiary business in 1931.

He was an internationally recognized authority on beckeeping and queen bee breeding. He retired in 1985 and his sons are each continuing in their own bee business.

The Ordbend resident was an Honorary life member and past president of the California State Beekeepers Association and was honored as Beekeeper of the Year by the Association. He was also an honorary life member of the California Bee Breeders.

Survivors include his wife, Coralie of Ordbend; two sons, Darrell and Dale Wenner, both of Ordbend; one daughter, Marlene Compton of Chico; six grandchildren; four stepchildren, Fred Roberts and Carol Jean Kinkle of Willows, Carroll Roberts of Bellevue, WA, and John Roberts of Filmore, CA; and 24 stepgrandchildren. He was preceded in death by a son, Raymond, and his seven brothers.

For those who wish, contributions may be made to the Clarence Wenner Memorial Fund, c/o Evangelical Free Church, P.O. Box 455, Hamilton City, CA 95951.

SYLVESTER MACHIEWICZ

Sylvester Mackiewicz, 76, of Chicago, Illinois, passed away suddenly on July 9, 1986 in one of his several apiaries, amongst his beloved bees. Funeral services were held July 12, 1986 at St. Andrew Ukrainian Orthodox Church with internment in the church cemetery in Llisle, Ill.

He was born Sept. 18, 1909 in the Ukraine Country of Russia, where he first began his beekeeping operations. He migrated to the United States in 1948 where he worked as a carpenter, until his retirement in 1975.

Mr. Machiewicz was an ardent and devoted beekeeper for over 50 years, operating approximately 150 bee hives. He was a long time member of The American Beekeeping Federation, The Illinois State Beekeepers Association and the Cook-DuPage Beekeepers Association.

Survivors include his wife, Katherine and three sons, Wsewold, Wolodymir and Oleh.

JAMES MACDONALD MARSH

The 21st president of the Maryland State Beekeepers Association, James MacDonald Marsh, Nokomis, Florida, passed away on September 23, 1986 in Tacoma Park, Maryland. He would have been 85.

Jim was born in Inverness, Scotland, on December 4, 1901 to an American mother and English father. Before starting grade school, his parents moved to Washington, D.C. and later to the suburbs of Maryland near what is known as the "University of Maryland", at College Park.

In 1932 he captured his first swarm of bees and appealed to the young, part-time extension agent at College Park for help. That was the first telephone call George J. Abrams -- known to Marylanders as the real founder of the Eastern Apicultural Society at the College Park campus in 1955 -- received in his long illustrious career as "Mr. Johnny Beeswax" (his favorite name for himself in his extension newsletter caleld "The Pollen Basket").

Abrams later hired his lifelong friend as the first part-time state apiary inspector and used Jim's colonies for early experiments in etheyleneoxide, drone semen for artificial insemination, migratory beekeeping to Florida, and pollination of the apple orchards of Western Maryland and the soybean fields on the Eastern Shore at a time when each of these practices was unknown.

He is survived by his spouse Addie, of more than 50 years, living in Nokomis and his only two children, Edna Lambert, Princeton, N.J. and Harold Henry II, Beltsville, Md. May he rest in peace.

INTRODUCTION . . . Cont. from Page 583

metal shells that could be nailed to the bottom and top of the basic deep hive box. These shells were filled with excelsior for the insulating material. Pa was all set to try the double wall that winter. You old timers will know just what excelsior is. The younger generation probably never heard of it. It is a stringy wood shaving, and was used for packing breakable items in shipment. Now-a-days, plastic foam is used for this purpose.

To get back to Gramps' tale, Uglie outfiitted one of his apiaries with the double walls, but after one winter and one operating season he gave up the idea, as he also had to make special long bottom boards and a special size lid or cover. The hives also became difficult to handle during spring management of the colonies.

The double walls worked well for pa in our cold winters in northwest Illinois. Pa always wintered his bees in a single deep. His bees always had plenty of honey for the winter, as after he took off the supers in July, he left all the fall nectar to be stored in the brood chamber.

I wonder if the double walled hives were before their time. With today's fiberglass for insulation and what we now know about upper ventilation, it might be a project to again experiment with this type of hive.

Winter Supers

Beekeepers probably have tried many things in their attempt to improve, control or to domesticate the wild honey bee. One of the best, or maybe the best, is the Langstroth moveable frame hive body. Using this equipment, man has improved his control of this insect. He is able to view the inner working of the colony and remove surplus honey without killing all the bees.

This is much better than killing the best bees, those hived in a straw skep or gum, that produced a surplus. This also meant keeping less strong colonies to winter over so that there were bees next spring.

Speaking of wintering brings me to the tale Grandpa told us about Joe Gills.

You recall Joe Gills who, after beekeeper Ugli had transferred the bees from the old wood box into a modern frame hive body, became very interested in bees. He borrowed Ugli's books and started to read up on them.

Joe was a tinkerer, and was trying a number of ideas on that one colony. One of the items he thought of was a blanket to hold the heat in the hive. The blanket, which was a box with outside dimensions of the hive, had a canvas fixed to the bottom. This box was filled with leaves and put onto the hive directly over the frames. Of course, the canvas sagged and the bees soon knitted it to the frame top bars. However, Joe was on the right track, as his winter super allowed the moisture laden air to pass through the leaves and escape from under the cover.

I don't suppose the idea was really new, as many things have been tried ever since man has kept bees. However, Pa or I had never heard of this until Grandpa told this story.

I use this idea today and have one on each of my colonies. But I don't call them a winter super, as they are left on the hive all year. I call them insulating supers. The supers are put together like this: First, a 3-1/2 inch by 16-1/4 inch by 19-7/8 inch box is made, which has a cross brace centered on the side walls of the box. Fly screen is fastened to the bottom outer edges and to the center brace. The center brace helps prevent the screen from sagging. The box is then filled with 3-1/2 inch fiberglass insulation and a fly screen top is fastened in place. Next, four 1/4" thick triangular blocks are fastened one to each corner. (See Figure 1.) I must tell you that I also use an inner cover without the bee escape opening in the center, but it does have a 5/16" x 1" opening cut in the rim as an upper entrance to the hive.



For summer use this insulating super is set on top of the inner cover and the outer cover on top of this insulating super. This eliminates the need to provie back home, storage space for these supers. (See Figure 2.)



For winter use, the insulating super is placed directly on top of the honey super. The inner cover is set on top of the insulating super and then the outer cover is put in place. (See Figure 3.) This allows



the moisture laden air to escape through the insulation and prevents condensation and frost forming on an inner cover directly over the cluster as when using only an inner cover.§

BEESWAX . . . Cont. from Page 590

ADDITIONAL SOURCES OF INFORMATION ON CANDLE MAKING AND CANDLE MAKING SUPPLIES

Newman, Thelma R. 1972. Creative Candlemaking. Crown Publishers, Inc., 419 Park Ave. South, N.Y., N.Y. 10016. Paperback. An excellent source book on candle making, and beeswax can be substituted for just about all types of paraffin candles described in the book.

Antique mold reproductions plus other types of molds and candle making supplies from Dr. Berthold, c/o Delaware Valley College, Doylestown, PA 18901.

Beekeeping Information: Dr. Larry Connor, Beekeeping Education Service, Box 817, Cheshire, Conn. 06410. Books, slides, video tapes, charts, etc. Phone: (203) 271-0155.

Ukrainian Easter egg information and supplies. Ukrainian Gift Shop, 2422 Central Ave., N.E., Minneapolis, Minn. 55428.

Morse, Roger. 1984. Beeswax. Wicwas Press. Ithaca, NY 14850.

For the complete candle making brochure prepared by Dr. Berthold, contact him directly at the above address and include a lself-addressed, legal size envelope with \$.44 postage.

GLEANINGS IN BEE CULTURE

☆ Classified Corner ☆

Classified rates: 49¢ 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. Not less than 10 words accepted. Copy or cancellation orders MUST be in by the 1st of the month preceding publication. Send classified ads to: The A.I. Root Co., Attn: Cyndi Stephens, Class. Ad. Mgr., P.O. Box 706, Medina, Ohio 44258-0706.

MAGAZINES

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

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

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American Bee Journal 1951-1984 unbound. Gleanings in Bee Culture 1949-1983 unbound. Also 400 issues 1888-1922 some complete years. Many antiquarian and modern beekeeping books. Send \$1 bill with your wants for quotes and catalogue. Honeyfields Books, Sunninghill, Berkshire England, DE61HX. 11/86

KOOVERS . . . Cont. from Page 590

molded foundation cells, and the bees will draw out those cells right away with the left-over honey sticking in the cell bases. And again no damage to his molded plastic foundation. In years gone by I have written about it again and again, (without success, as far as I know).

What makes us beekeepers so slow to adopt new ideas? We want the latest in everything we buy. We rush to auto shows and go into debt to buy whatever is new that comes along. It baffles me.

These are hard times for beekeepers and it behooves us to be economical for there is now no relief from our country being the dumping ground for products produced overseas — and that includes honey.

Maintaining Morale

The natural instinct of the honey bee colony is to build up to full strength in the spring and then to cast a swarm. And the natural inclination of the beekeeper is to prevent by all means the swarming impulse. This is working against their natural instinct and often leads to failure by breaking the morale of the colony and losing a crop of honey.

The new approach is to encourage the swarming impulse right from the start under controlled conditions, thereby satisfying the instinct and having the colony settle down gathering a large crop.

J. Harold Armitt, the British beekeeper, satisfies the impulse by swarming the colony at the time he selects and under his supervision. This satisfies the bees and they settle down to work with renewed vigor.

In his book, "Beekeeping for Recreation and Profit", and in several articles in the British bee magazine, *Bee Craft*, he explains his system. Here are some excerpts from two articles in *Bee Craft*;

"This method secures all the naturally produced and well nurtured queen cells in the strong colony — normally six or seven very desirable ones. If the brood combs with their queen cells are lifted above the supers WHEN THE RIPEST QUEEN LARVAE ARE FIVE DAYS OLD, THEN IN FOUR, FIVE OR SIX DAYS' time as convenient (not any later) those brood combs and queen cells now crowded with nurse bees can be formed into nuclei. For the hobbyist, if he wishes he can make two or even three nuclei, leaving in each two good queen cells.

"For the commercial beekeeper, he can form three nuclei from that lifted brood with one good queen cell each. With the remaining three or four good queen cells he can form nuclei with combs and nurse bees selected and derived from other colonies. These nuclei will have better queens than can be produced artificially, and there is no way of producing the best queens and the best nuclei at less cost. The colonies themselves remain still in splendid condition to produce surplus honey.

"To sum up— that this method of handling and controlling a colony having well developed queen larvae in cells is successful there is no doubt. That it is easy for everyone to achieve, giving control not only of the swarm but of the increase which can result, is likewise beyond doubt. It also assures successful honey surplus; the provision and facility for requeening; also to leave the colony the necessary quantity of natural stores for its wintering. NOR IS THERE ANY NECESSARY QUEEN FINDING PROCEDURE IN THE WHOLE OF THE YEAR'S MANAGEMENT OF THE COLONY. No other system gives or secures these desirable advantages and controls with this minimum of cost and time."

Mr. Armitt went on to say, "If nuclei increases are not desired all the queen cells are removed four to five days after the controlled swarm was made. The colony will then become powerful for the main nectar flow."

Some will state that this will encourage the swarming impulse in one's bees. For 20 years I have purchased the finest queens available, queens raised from stock that did not swarm, etc. Yet every year during those 20 years all my hives did swarm. Let's blame it on the Southern California climate.

Now I am letting my bees have their way and they like it, for they keep on filling the supers, and that's what it is all about.

You can force your way upon your bees and they sulk. When one gets old one learns to conserve one's strength. Somehow it pays off, for my bees are exerting themselves more, while I take it easy.§

Maintaining Morale is reprinted from June, 1967 Gleanings in Bee Culture.

COLLECTORS ITEM; Few books available "BETTER QUEENS" by the late Jay Smith, \$25.00 postpaid. Write Mrs. Manly Smith, 600 NW Washington, Madison, Florida, 32340. 11/86

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