GLEANINGS IN BEE CULTURE

JUNE 1983

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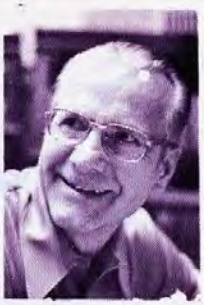
John Root



Lawrence Goltz

Mark Bruner

GLEANINGS IN BEE CULTURE

June 1983 *(ISSN 0017-114X)* *Vol. 111, No. 6*

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Created to Help Beekeepers Succeed

111 Years Continuous Publication by the Same Organization

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Contents

Cover Story

June begins a new year's nectar and honey flow for most of the country. Our cover: bees clinging to a barrel rim. "A swarm in June is worth a silver spoon."

Photo By ALEX MULLIN

NOTES FROM THE BEEYARD

Thoughts, In June, About Things Natural & Otherwise

June is a month of happenings. The first night baseball game was played on June 2, 1883 in Ft. Wayne, Indiana. On June 14, 1982, Argentina surrendered the Falkland Islands to Great Britain. Kentucky became a state on the first of the month in 1792. And, although 11 inches of snow fell on Berlin, New Hampshire on June 10, 1909, this is usually the month of the warming days. With the summer solstice on June 21, we celebrate the shortest nights of the year and astrologically acknowledge the beginning of a new year's nectar and honey flow.

In these early months of the season, a beekeeper is apt to be more aware of the natural surroundings than at any other time of the year. The demands of a colony, growing in strength, are representative of the subtle ways in which nature expects us to pay attention to it.

Sometimes, though, what is natural and what is otherwise, become a bit jumbled up inside the human mind. For instance: it is interesting to note how many persons regard swarming as an unnatural occurence. "Shook" swarming is, of course, an artificially induced event, but apart from that, swarming is one of the most natural of happenings. It is nature's way of causing the bees to perpetuate themselves and spread their colonies.

Maybe, sometimes, we lose perspective on what we, as beekeepers, are all about. The word "beekeeper" is quite precise. We keep bees. Except in a purely legal, proprietory sense, we do not even own bees. We certainly have limited dominion over them. We cannot train them as we do dogs or horses. Those facts seem obvious, but they need constant reinforcement because they influence our individual styles of management.

We would all do well to remember that management methods, such as supering, marking queens, reversing, even employing two queen systems, excluders or antibiotic disease prevention, may often seem routine, expected, useful and, hence, natural. But that is only from the human point of view. Such things may, in fact, be the best of possible things, but they remain factors of human intervention in the natural activities of social creatures who behave as they do because of millions of evolutionary years. Bees do not reverse their own hive bodies. They do not normally establish two queen colonies. Therefore, such measures, though potentially beneficial are, none-the-less, artificial.

Is that bad? Of course not. At least, it need not be. The cultivation and collection of a honey crop is, in itself, an artificial culmination of bees' natural instinct to horde. Because beekeeping is an industry, the end goal of which is profit, certain artificial management techniques must be imposed.

That raises the questions: "What management style is best?", "How can I manipulate a hive without harming it by my interference?" Almost every beekeeper has knowledge of, or experience with, instances where the involvement of the beekeeper caused undesirable outcomes in terms of colony health and productivity. Sometimes we even suspect that interference can cause more damage than neglect. Ask around at any beekeepers' meeting and you'll find a handful of persons who have been, at one time or another, asked to check a colony that has gone completely unattended for a number of years. Upon checking, the beekeeper will often be amazed how the bees survived and, in fact, flourished, despite inproper care and protection. Many are the cases in which beekeepers have then exercised all the proper management procedures to help the neglected colony, only to have it promptly die out the next winter.

So what is the answer? Perhaps it comes from analogy. We are all aware of what happens when a person trys to act or behave like someone else has said they should. Salesmen who are quiet, by nature, attempt to be bombastic because they are told that that quality sells. Young teachers foresake their own styles because others convince them that one style is better than another. That is not necessarily so and it applys to beekeeping too. The fact of the matter may be that honeybees will always do things by certain ways prescribed, long ago, by nature. Humans can tap into this process and benefit from it by regulating and directing certain aspects of it. Obviously, there are certain actions that will definitely be good or definitely harmful, but, for the most part, it is a matter of finding styles that suit the individual. Such a discovery must always be based on knowledge — on an educated understanding of what the choices are. Often, the proper choice in a decision involving controversial methods or beekeeping tools, means choosing the system or device most suited to the individual beekeeper's way of working. The reaction of bees to any given thing, is not always geared to an absolute, but to the way they are handled and the extent to which a beekeeper can thoroughly carry out extensively reasoned, well-planned objectives.

We will, throughout this issue, and future ones, be presenting such choices as apply to the season's needs. They should be considered with sensitivity to the fact that the beekeeper is an outside force who must be disciplined to self-honesty and an objective perspective of the human role in the world of bees.□

Mark Bruner
Medina, Ohio

Photography Contest Final Notice

Gleanings has a continuous need for high quality photographs. To help ourselves out, plus give our readers a chance to participate, we're sponsoring a photo contest, open to anyone who wants to enter.

Theme: Obviously, beekeeping. We do, however, have an oodle of certain types of photos on file. We have pictures of bee beards that will last us well into eternity. Basic apiary shots are also in abundance, although variations on that theme might still be of interest. What we are looking for mostly, are photos vividly illustrating a precise aspect of bee management and handling.

Mechanics: All sizes are acceptable, as are color photos, though we prefer clear black and whites. Please convert slides into photos. Identify photos either with a very light pencil on back or by a separate attachment. Be sure to include full name and address on each item. Each entrant may enter an unlimited number of photos.

Conditions: Our staff will choose a maximum of 12 winning photos. Winners will be paid $25 for the photo, which will then be used, at the earliest convenient time, as the cover for *Gleanings*. We do request that you retain personal copies of your photographs. Photos cannot be returned or acknowledged unless accompanied by a self-addressed stamped envelope. Unless otherwise requested, we will hold all photos in our files for possible future use. Photos which do not win in the contest may still be used as illustrations for *Gleanings* articles. In such an event, the photographer will be paid $5 per photo used.

Deadline: Postmarked no later than June 20, 1983. Address to: Photo Contest, *Gleanings In Bee Culture*, Box 706, Medina, Ohio 44258.

A Guide To Supering For Extracted Honey

Knowing When And How To Give Bees Needed Work Space

By THE EDITORS

When To Super

If the brood chamber containing the queen is filled with brood and honey, and if the second story, or possibly a third story, is nearly filled with honey that is not sealed, another super of empty combs should be added to the top.

Bees usually know better than their keeper when extra room is needed. Essentially, there are two primary types of supering: bottom — where an empty super is put under a partly filled super, and top — where, as suggested by the term, the empty super is placed on top of the lower super. Although both forms have their advocates, there is little to substantiate that one way produces more honey than the other. The main disadvantage to bottom supering is that it requires additional labor.

Sometimes, the rush of honey is so rapid that bees will be temporarily unable to seal the cells. Although some beekeepers routinely extract so as to free additional hive bodies for supering, on occasion, extracting from combs that are not predominantly sealed will yield honey with too high of a water content. Individual discretion is required on this matter.

If you are working with outyards, always bear in mind that a visit to your bees may not be convenient at the moment they most need extra room. Supering, therefore, must sometimes be performed days or weeks in advance of the actual time the bees will be occupying those supers.

Queen Excluders: Pro & Con

A queen excluder is any device having openings permitting the passage of worker bees but excluding the passage of larger drones and queen bees. The purpose for its use is to restrict the queen from honey supers where she is liable to distribute brood, making it necessary to take extra time-consuming precautions so as not to extract the young brood with the honey.

There has been considerable discussion of this subject. Queen excluders have been referred to, by their detractors, as "honey excluders". There are those who believe that bees are reluctant to pass through the excluders and that certain, perforated excluders damage the wings of passing workers.

Those who use excluders admit that, occasionally, a colony will not adapt well to excluders — whether because of general physical size, temperment, or intensity of the honey flow, but that, as a rule, excluders are an integral part of supering because of the labor time they save during the extracting process. The debate continues over whether or not excluders affect honey production, but to date, no conclusive reports demonstrate that production is less for colonies with excluders.

As for the complaint about damaged wings, there are numerous types of exluders now available, from metal to wood to plastic. It is a simple matter to find an excluder with smoothed perforations that present no danger to bees.

Worker passing through queen excluder.

What Kind Of Super Should Be Used For Extracted Honey?

Depth of supers from shallowest to deepest.

The answer to the above question is individual. To begin with, in most localities, best results are achieved with the standard 10-frame hives of Langstroth dimensions. Many folks only use eight or nine evenly spaced frames, though — the reason being that the extra space results in the building of thicker combs which are easier to uncap.

As for the size of supers: supers are available in full size ($9^{7}/_{8}$ inch), which will weigh about 85-90 pounds full; medium size ($6^{7}/_{8}$ inch), which, when filled, will weigh about three-quarters of the deep super; and shallow depth supers ($5^{11}/_{16}$ inch), about 40 pounds when filled with honey.

The obvious advantage to using the smaller depths is that they are lighter to handle. They also tend to be easier to uncap. However, their big disadvantage is that they require what amounts to double handling, because it requires two shallows to approximate what could be obtained from the standard, deep super. Ultimately, this choice comes down to a matter of personal strength and a decision as to how much weight an individual can handle.

One final note regarding supers: combs are not interchangeable between different sized supers. Uniformity in size provides the capacity for using the same comb for either a brood nest or extracting super. □

Monthly HONEY Report

LAWRENCE GOLTZ

April 10, 1983

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

Wholesale Extracted — **Reporting Regions**

Sales of extracted, unprocessed honey to Packers, F.O.B. Producer. Containers Exchanged	1	2	3	4	5	6	7	8	9
60 lbs. (per can) White		30.60	34.80		36.50	34.00		36.00	34.50
60 lbs. (per can) Amber		27.00	32.40		34.00	36.00		34.50	33.50
55 gal. drum (per lb.) White		.56	.58	.56	.60			.58	
55 gal. drum (per lb.) Amber		.48	.54		.54			.55	
Case lots — Wholesale									
1 lb. jar (case of 24)		24.90	26.25	25.90	27.50	24.50		27.00	31.90
2 lb. jar (case of 12)		23.30	24.25	23.75	26.50	23.00		25.70	30.00
5 lb. jar (case of 6)		27.80	27.25	23.00	30.50	26.50		28.40	32.80
Retail Honey Prices									
½ lb.			.90	.83		.90		.90	.99
12 oz. Squeeze Bottle		1.19	1.35	1.20	1.35	1.35		1.40	1.39
1 lb.		1.39	1.50	1.43	1.50	1.55		1.48	1.45
2 lb.		2.59	2.85	2.59	2.50	2.60	3.25	2.69	2.99
2½ lb.					3.19	3.25			
3 lb.					3.79	3.85	4.50	3.85	3.59
4 lb.		4.95		4.95	4.89	4.90		4.89	
5 lb.			6.25		5.70	5.80		6.10	5.90
1 lb. Creamed			1.55		1.59			1.59	1.75
1 lb. Comb			2.25		1.99	1.85			
Round Plastic Comb				1.50	1.79				
Beeswax (Light)		1.15	1.00		1.35	1.25	1.10	1.25	
Beeswax (Dark)		1.00	.95		1.20	1.20		1.15	
Pollination Fee (Ave. Per Colony)		22.50	25.00		20.00		17.50	20.00	18.00

Miscellaneous Comments

Region #2

Winter loss about 3% in Pennsylvania. Bees strong, honey sales fair. Bees in good condition in New York State. Some beekeepers are concerned that prolonged spring rains may cause excessive food consumption and some starvation but not a problem as of early May. Much early bloom in West Virginia. Prospects are promising for a good honey year.

Region #3

Prolonged rains and cool weather has hindered foraging in Ohio. Bees in excellent condition with very little winter loss. Winter loss was normal in Indiana. Feeding due to wet weather. Spring bloom good but bees unable to work. Beeyard work behind. Honey sales fair in Indiana. No demand for beeswax. Bees did not build up well in southern Illinois due to late, cold rainy spring. Feeding has been heavy. Bee pasture looking good in Illinois. No honey in beekeeper's hands.

Winter loss higher than expected in Wisconsin, about 10%. Very cool weather between March 15th and April 15th. Queens now laying with new pollen coming in since April 21st.

Region #4

If bees were fed in time there was practically no winter loss in Minnesota. The ground is saturated with moisture and it has been almost impossible to reach many beeyards with a truck. Weather was very wintry through late March and into April and brood rearing was interrupted. What began as an early spring dropped back to being 10-14 days late as of early May. Colonies are unusually large for the season as of early May, but spring rains are causing problems. Honey sales are fair.

Region #5

Late snow and freezes in April destroyed nectar and pollen sources. Fruit and truck crops damaged or destroyed by cold in North Carolina. Much feeding needed to offset nectar losses. Honey sales slow. Weather unsettled in Carolinas during April. Even with rain every few days, the orange blossoms produced a good but average crop of honey in Florida. All reports state that Titi honey crop is spotty. Condition of tupelo and gallberry is good with lots of growth, but seasons are running late. Tulip poplar buds were damaged by the freezes, but there may be some bloom from younger buds.

Region #6

April was cold and very wet in Kentucky. Temperatures in 20's killed many

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GOLDEN CIRCLES: THE BEE AND THE STEWARDSHIP OF THE LAND

By AARON BRAXTON
DURANGO, COLORADO

WHAT IS OUR RESPONSIBILITY TO NATURE? WHY ARE BEEKEEPERS A GOOD EXAMPLE OF HOW HUMANS CAN ACHIEVE HARMONY WITH THE ENVIRONMENT? THE PHILOSOPHY OF A COLORADO BEEKEEPER, INVENTOR AND AUTHOR.

"A lot of people before us sacrificed everything they had, incuding their lives so we could thrive here, on this Land," says Vernon Culhane, searching me with piercing blue eyes. "They didn't get a whole lot in return, and they worked harder than you or I could imagine. We owe it to them to manage the Land wisely; to honor it the way we would our best friend. We don't want to let down those people who struggled so hard.,"

Vernon Culhane; Durango, Colorado beekeeper, inventor, and author, leans back in his brown leather rocking chair. His wife, red-haired Marguerite Culhane, sits beside him in a smaller rocker. Alike the two look; that similarity evolving from years of working together in intimate harmony.

Does Culhane mean we owe it to our ancestors to treat our land with their respect in mind? I observe that this credo sounds very Indian.

"Indians are an example of Good Stewards," Culhane affirms, running a honey-colored, freckled hand through his fine snow-white hair, "Down in the valley there's a tree the Indians used to peel off strips of bark to compound medicinal teas. That was about two hundred years ago. And that tree is still living, because they took good care of it. They knew someone might need it further on down the line."

"You make it sound as if they had a responsibility to that tree," I reflect.

"They did," Culhane agrees, brightening, "The same as we have a responsibility to the Land around us. A tremendous commitment, as we make the world for those yet to come."

Culhane himself is a fine example of Good Stewardship. With the land in mind, he invented his wing-type extractor, which allows entire supers to be taken in and honey extracted from the frames without damage to the super. Culhane's dark burgundy colored, delectable chokecherry jam is the scrumptious materialization of the interwoven efforts of man, flora, and bee.

Vernon Culhane displays old frame to student, explaining its handcrafted design, with painstakingly carved dovedtailed joints and formed tin braces.

"When did you first begin to feel a responsibility to the Land?" I query.

Culhane considers. "You know, my father, Dan, could not support this place from the projects he had going here, and had to labor in town to stop the bank from foreclosure. A baker, he slaved away leaving my mom back here with us kids, not exactly contributing to domestic bliss."

"When I was about twenty-five, Mom and Dad took me into town, purchased a five dollar deed, and turned the land over to me."

"Mom,' I said, 'Dad. This land will always belong to you.' I meant it, too."

I wonder aloud if Culhane was raising bees at that time.

He grins. "I was sold on bees from the start. I'd been a raisin' 'em since I was real little. They were always fascinating, the way they acted, their behavior. And a lot of times they were the only money maker on this place."

"And I always enjoyed the time I spent alone with the bees, in solitude. I'd much rather be there with the bees than in an office, catching someone else's cold. The bees can tell a lot about human nature too . . . they always keep the salesman away."

Those bees sounded like good friends.

"They're my partners," Culhane decides. "I suppose they're my friends, too. We help each other along." Another friend, Dr. Jean Rosenbaum, inventor of the cardiac pacemaker, and author of the bestseller, *Is Your Volkswagon a Sex Symbol?* — a book about how human habits reveal personalities, added some technical insight to the man-bee-land relationship, concurring with Culhane:

"Men and bees are the perfect example of symbiotic relationship; where two distinctly different species contribute to one another's lives in a mutually beneficial fashion. Men cultivate the flora on which the bees thrive. The bee, in its travels, is exposed to germs in man's environment; germs that can cause diseases in man. When the bee makes its honey, it fortifies it with different amino acids and polysacchrides that can prevent these diseases in man, through antigens that stimulate specified antibody production. Thus, man has taken care of the bee and vise versa."

"It's all a matter of sharing," Culhane nods his head, leaning forward, tapping a khaki knee, "In the bee industry, you learn after a while that you can't go making sudden and miraculous improvements in your old methods. Too much of anything, and the bees will swarm. It's a gradual, careful, deliberate process; upgrading the tried and true. They still haven't invented anything half as effective as the smoker . . . they haven't even made any changes in the last fifty years. So when these old guys die with an idea, we lose a whole lifetime of learning and knowledge, unless it's shared somehow."

"Vernon, in your August, 1935 article for *Gleanings*, titled, 'A Balanced Processing Plant', you say: 'Local as well as general; conditions should be considered when opening a plant. "Does this tie in with the Stewardship of the Land?"

"Yes," Culhane confirms, rising from his rocker and striding to an antique walnut bookcase, "You're on to it now. The theory itself is very simple, but it's also very deep. You have to care for the Land so that it doesn't deteriorate, but you also have to improve it somehow. A

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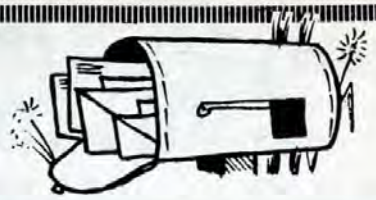
Gleanings Mail Box



A Pro Tariff Argument

Dear Editor:

Charles Mraz's article in the April 1983 issue of *Gleanings In Bee Culture* questions the value of working for import protection from cheap foreign honey. Since our association is working for import protection for honey, I feel that some comment is necessary.

Mraz asks the question: "Will high tariffs or restrictions work?" I am assuming that he feels that an article in the *Farm Bureau* magazine, Northeast Agricultural for February, 1983, answers his question. Subject article entitled "Let's not forget — Smoot-Hawley gave us a lesson."

In the late twenties Senator Smoot and Congressman Hawley worked out a high tariff law to hold back foreign imports. The article explains that the Smoot-Hawley law was responsible for the depression of the thirties. I am in no position to question this conclusion. However, I doubt if anyone can tell me that our hypocritical free trade laws won't get us in a worse mess than ever before. A genuine depression of the eighties will be a lulu. I feel that our free trade policy is heading us in that direction. Financing the so-called "free trade" has presented a bigger problem than bankrupting groups such as beekeepers. Free trade buffs should study the full implications and problems of giving Red China a "most favored nation" status. Only the most naive among agricultural producers would say our deal with Red China is good for any segment of our society — no matter how large or small.

Free trade buffs should ask themselves: "How come the International Trade Commission is swamped with petitions if our international trading is such a good thing for the economy?", "How come so many corrective bills are pending in Congress if our trading is so nice?", "Why should a bankrupted beekeeper really care which trade policy caused his trouble."

Congress can enact laws that will help the beekeeper. There are a number of routes that can be taken. However, I will hasten to say that none will work unless the beekeepers of the country tell their elected officials about their problems and continue over the years to keep in close touch. Unless this is done, no laws will help.

The recent heavy volume of mail going to and from Washington covering the problem with imports gives us hope that the first session of the 98th Congress will give us the necessary attention to correct our problem.

Glenn Gibson
Executive Secretary
The American Honey Producers Assn.
Box 368
Minco, OK 73059

Advice On Coating Hive Equipment

Dear Editor:

I thank you very much for sending me your great magazine *"Gleanings In Bee Culture"*.

There is always something in it of very interest to me, indeed very helpful.

I would never agree with any beekeeper to use paint inside a hive.

I use two coats of linseed oil, and before introducing the hive-body to the bees I rub it out with freshly picked lemon-balm, this is a herb and it creates the most attractive and healthy atmosphere. The bees liked it very much. On the outside I use white paint.

Ernest Bachtle
New Southwales, Australia

Senator D'Amato Comments On Food And Hunger Resolutions

Dear Editor:

"Our NYS Senator, Alfonse D'Amato, on March 21st wrote to me as follows:

Thank you for contacting me and please excuse the delay in replying.

I am pleased to note our concurrence on the vital importance of domestic food programs. I am a co-sponsor of S. Con. Res. 6, the Prevention of Hunger at Home Resolution. As such, I have committed myself of the fight to prevent any cuts in vital domestic nutrition efforts. At a time when millions of Americans are unemployed, it would be both callous and foolish to reduce the funding for programs that are keeping many Americans from going hungry.

On a related topic, I have also co-sponsored S.17. This legislation is designed to tap the vast stores of food currently in federal warehouses and distribute it to the needy. I believe that responsible governments have an obligation to ease the suffering and need of its citizens by any means possible. It is within that framework that I have co-sponsored the two aforementioned pieces of legislation and will view any proposals in these areas.

I appreciate the opportunity to address your concerns."

This appears to be a wise and sensible action on the part of the Senator and we trust his bill will bear fruit.

Bernie Hayes
121 Miller St.,
Wellsville, NY

Assessing Our Tax Report

Dear Editor:

In reading my *Gleanings In Bee Culture*, I ran across this article in **Capping The News,** April 1983, page 182 about assessing a taxing situation in California.

Your source either failed or didn't have all the information. Your article states if you have 40 or more colonies it's 30¢ per hive. Anyway, this spring I received a letter telling me I owed $10.00. Being unhappy about the situation, having only one colony, I was a little late getting my $10.00 mailed in. There came a letter telling me to pay up.

J.R. Strunk
P.O. box 494
Glenhaven, CA 95443-0494

Preventing & Solving Pesticide Problems

Dear Editor:

I am writing in response to the April installment of The Citizen Beekeeper entitled "Legal Procedures for Recovering Losses From Pesticide Damage." As an enotmologist and sideline beekeeper with 12 years experience dealing with pesticides in vegetable pollination. I feel compelled to comment on several of the statements made (and points omitted) in this article.

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Research Review

By DR. ROGER A. MORSE
Research Editor of Gleanings
Professor of Apiculture
Cornell University
Ithaca, NY 14853

Selecting Bees For A Long Life

The introduction to the article cited below emphasizes that in the past several decades it has been shown that many desirable characteristics can be selected for in honeybees. These include resistance to several problems including American Foulbrood, some insecticides, and hairless-black syndrome; bees that will collect more pollen and have a greater hoarding ability have also been found.

Unfortunately, few queen breeders have shown interest incorporating any of these characteristics into their lines. The greatest interest has been in resistance to American Foulbrood. Several people have shown that natural resistance can be found in a small percentage of bees across the nation. What is obviously needed in this country is greater interest in a bee breeding program. This, of course, cannot be done without a source of breeding stock and an active stock center.□

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Kulincevic, J.M. and W.C. Rothenbuhler. Selection for length of life in the honeybee (*Apis mellifera*). Apidologie 13:347-352. 1983.

Requeening Without Dequeening

Many people have searched for a simple way to requeen honeybee colonies. One suggestion has been that ripe queen cells could be placed in colonies and that the emerging virgin queen would replace the old queen in the hive. At least three formal studies of the idea have now been made. All are in agreement that the method works in only a small percentage of cases and is not practical.

In the study below a ripe (about to emerge) queen cell was placed between the top bars of frames in a honey super. This research involved a total of 919 colonies over a three year period; some were overwintered colonies and others had been started from packages the same year. The tests were made during a honey flow.

The overall results were that 12.7% of the colonies were successfully requeened by this method; 53% of the colonies retained their own queen while 24% reared new queens. The remaining colonies were queenless when they were checked at the end of the experiment. It is not clear in this paper but I don't think the queen cells stimulated supercedure. No doubt the search for a simple method of requeening will continue; its a difficult but fascinating subject with no changes in sight.

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Szabo, T.I., Requeening honey bee colonies with queen cells. Journal of Apicultural Research, 21:208-211. 1982.

The Future For Overwintering Bees In Canada

Researcher Don Nelson of the Beaverlodge Research Station (Alberta, Canada) writes, "It is feasible that sometime in the future Canada may stop importing packages and queens because of the risk of importing undesirable gene stocks (i.e. Africanized bees) or exotic mites." That's a strong statement but I agree it's not impossible though in my opinion it's the mites, not the Africanized bees, that pose a threat and might bring about such a change.

Can bees be successfully overwintered in northern Canada? The studies I have seen to date indicate they can. Queen rearing and requeening in the area may be difficult but certainly not impossible.

Nelson indicates a new report on the economics of overwintering has been prepared. The title is "An Economic Comparison of Wintering and Package Bees in the Peace River Region" (Report no. 821-14 by Don MacDonald and George Monner). Copies are available by writing: Print Media Branch, Alberta Agriculture, 9718-107 Street, Edmonton, Alberta T5K 2C8, Canada. Nelson's notes don't indicate there is a charge though the journal title suggests its contents are for Canadian consumption.

According to Nelson, the report, which I have not yet seen, indicates it is more profitable to overwinter colonies than to buy packages; however, the publication points out that "a high level of management skill" is needed to winter bees successfully in the Peace River District. Package bee producers may be especially interested in what this report has to say as they could be the group most immediately affected.

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A YEAR IN THE BEEYARD, Roger A. Morse. 1983. Charles Scribner's Sons, NY. 166 pp. $14.95.

HONEY: GUIDE TO EFFICIENT PRODUCTION, Walter L. Gojmerac. 1983. University of Wisconsin Extension, 1535 Observatory Dr., Madison, WI 53706. 35pp. $1.75.

Both of these publications,, written by well-respected expert beekeepers, succeed where many bee book fail: they are accessible.

Many times I have become frustrated or irritable because of having to dig and hunt and scrounge through a jumble of words in order to glean a specific bit of needed information. *A Year In The Beeyard* and *Honey: Guide To Efficient Production*, both provide an abundance of material, but each presents the literature in a month-by-month format, supplemented liberally with subtitles, graphics and other aids to quick, beneficial reading. I was pleased by the fact that helpful items were arranged to be at the forefront of reading, as opposed to being lost behind discussions of lesser importance.

Those of you familiar with the work of Roger Morse and Walter Gojmerac, appreciate that these two writers are very capable of presenting complex procedures and intricate details in a very straightforward, comprehensible and enjoyable manner. For readers who have not experienced the thoughts and advice of these two men, *A Year In The Beeyard* and *Honey: Guide To Efficient Production*, offer pleasant and valuable surprises.

M. Bruner

Bee Talk

by DR. RICHARD TAYLOR

Trumansburg, NY

Last year Eugene Killion sent me a copy of his new book, *Honey In The Comb*. In view of the growing popularity of comb honey beekeeping, this book, by the acknowledged master of the craft, seems to me to be one of the most important bee books in recent years.

The original *Honey In The Comb* was written and privately published by the late Carl Killion, father of the author of the present volume, in 1951, prior to the invention of the circular section and at a time when comb honey production was declining to the point of becoming almost a lost art. Only 3,000 copies of that book were printed, some of which were finally damaged in a flood. Those that have survived have become collector's items.

This book is entirely new, both in text and in its profusion of illustrations. Eugene Killion has carried on with the same methods perfected by his famous father, and by Charles Kruse before them, and used by father and son in partnership for a half century, so it represents no radical departure from the first book. It is clearly and carefully written, and no detail of procedure is omitted or left unillustrated. It is, accordingly, an invaluable source, although some comb honey beekeepers, like me, seek methods somewhat less complex than those described by Mr. Killion.

There is a complete and well illustrated chapter on queen rearing, probably as good as anything you can find on that subject. More importantly, there is a good and well-illustrated section on circular sections. Some of the more laborious steps in the preparation of comb honey in square sections are, the author notes, entirely eliminated by the use of round sections — such as, for example, scraping propolis, cutting and inserting individual sheets of foundation (two pieces per section, individually attached, according to the old method; one uncut sheet for each four sections using the rounds ones), and so on.

The famous "T" super associated with the Killion system, with its essential features adapted to the new round sections, is described. One notes, too, that Mr. Killion prefers 8-frame supers placed on 10-frame hives, whether for square or round sections, a practice I heartily endorse. Hive covers are simple and homemade, and no inner covers are used. Partially shaded apiary locations are recommended, in which I concur, although this goes against the usual recommendation of full sunlight. And hives are tilted forward — a simple but valuable practice for any kind of beekeeping.

The one thing I do miss in this book is a chapter on selling honey. Mr. Killion describes a one-thousand colony operation, and one cannot easily envisage the immense comb honey crop that this must yield. The reader yearns to know how it is sold. Marketing is an especially acute problem in comb honey production, because the product does not, unlike extracted honey, keep indefinitely without granulation or other deterioration. There is, indeed, a good market for comb honey, but the beekeeper has got to know how to find it, and then do some hustling.

"HONEY IN THE COMB. . . . seems to me to be one of the most important books in recent years."

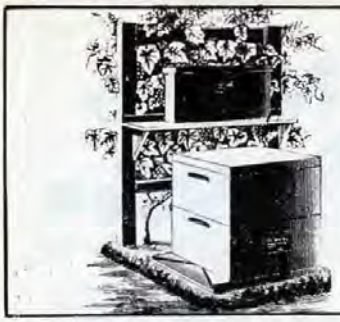
The actual colony management described by Mr. Killion is more complex than I would want to undertake as a regular practice, although I have used it, on occasion, with a few colonies. It involves reducing each colony to a single story, stacking the extra colonies up three or four high and requeening the stack to make a skyscraper hive, then going through the single-story honey producing colonies four days later to destory all the queen cells that this sudden reduction will have prompted the bees to build. All of that represents a lot of work, but it is only the beginning, because two or three days later one must again go through the colony, destroy all the new queen cells started since the last visit and, in addition, find the queen. She is either removed or destroyed, leaving the colony queenless. Then, four or five days after that considerable labor, one must go through the colony still another time to destroy the queen cells that the bees will hastily have built around the larvae. Then, after the colony has been queenless for eight days, it has to be requeened, either with a new queen or with a queen cell. If the latter, then it is going to be still several more days before the colony has a mated and laying queen.

That method works, provided all goes well; there is no doubt about that. But when one considers the average time required, even by an expert, to locate a queen, and to search out every single queen cell in a hive, the sheer time needed for a sizeable operation — a hundred colonies, for example — becomes boggling. I should think a whole crew of good beekeepers would be needed to deal with the thousand colony outift that Mr. Killion describes.

This is, of course, no criticism of that system of management. I think no one in the world would presume to know as much about comb honey beekeeping as Mr. Killion. Anyone just getting into comb honey production should be warned. however, that there is a lot of work in that system and, equally important, a lot of things that can go wrong at the hands of anyone less than Mr. Killion.

My own system of management, which depends heavily on the use of round sections, involves little more than supering over very strong colonies that are prevented from swarming by timely splits. This requires no requeening or cell cutting, and in fact, very little labor, and it works. I do not claim that it is better than Mr. Killion's, but it is certainly much simpler, and beginners, especially, should realize that comb honey getting does not have to be difficult or laborious. □

(Readers with questions please send self-addressed stamped envelope.)



Bees and Gardens

With gardening and beekeeping in full swing it may be a good time to review a question that is often on the mind of beekeeper-gardeners when the honey flow is getting under way: What can I plant to improve the honey flow?

Most hobby beekeepers, lacking the mobility of commercial beekeepers, can only hope for sufficient nectar and pollen sources near the permanent hive locations to provide a crop surplus. Planting trees and shrubs or large acreages of nectar yielding plants have limitations for the average hobby beekeeper.

What then, if anything, can be done?

A "bee garden" on your property may not contribute greatly to your own bees unless it is supplemented by other "bee gardens" within flying distance of your colonies. The best contribution will be to establish a precedent among other gardeners, which may eventually provide some unexpected bonuses for local beekeepers, including yourself.

The Herb Garden

Many of the herbal plants which offer nectar to bees are adaptable to small garden plots. They can offer a concentrated foraging area for bees, beginning in early spring when nectar is needed to sustain and stimulate brood rearing and continue through the summer and fall with the possibility of harvesting some interesting, though seldom substantial amounts of honey, from certain of the herbs. Several years ago, Lenore Bravo, of San Francisco, who contributes periodically to *Gleanings,* sent me several vials of some very unusual honeys. Apparently they came from the different herbs grown in her neighborhood. I cannot remember all of the exotic flavors but one or more resembled such common tastes as butterscotch and anise. Others defied description or comparison.

A visit to a meeting of the local herb gardening club provided me with an opportunity to observe some of the basic steps for beginning herb gardening. I found that slower growing, perennial herb seeds should be planted indoors six to twelve weeks before transplanting time, or before the average frost-free date in your area. The faster growing annuals should be seeded indoors three to four weeks before transplanting outdoors. Many herb seeds can be sown directly into the garden after the threat of frost has passed. Fast growing annual herbs will benefit from direct seeding, but some of the slower growing perennials will not make suffcient progress the first year if they are not seeded until outdoor conditions are satisfactory for sowing the seed, making indoor starts mandatory. Herbs tolerate soils with low or moderate fertility but do respond to extra care.

Seed sown indoors should be in soiless, fairly sterile medium, available from garden stores or nurseries. Examples of commercial mixes are Sunshine Mix, from Fisons-Western Corp. of Vancouver, B.C. Canada and Ball Growing Mix-Blend consisting of pulverized bark, vermiculite and perlite.

Follow the recommendations given in most garden books in respect to sowing, caring for the seedling and transplanting.

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Capping The News

THE EDITORS

"Beekeeping Small Talk"

Laramie Wyoming Bee Research Lab Saved—Future For Madison, Wisconsin Lab Still In Doubt

In response to pressure from U.S. Senators, Jim Abdnor and Thad Chochran, the USDA has reportedly insured that the Laramie, Wyoming Bee Laboratory, scheduled to be closed in June, 1983, will remain open at least for the duration of the present administration.

Although the closing would not have directly eliminated research money or personnel positions, critics believed that the scheduled relocation of the Wyoming researchers to the Carl Hayden Research Center in Tucson, Arizona, would have made certain types of research more difficult to perform. The isolation of the Wyoming facility makes it ideal for work with pesticide research and, it the event of mite infestations or influx of Africanized bees, its location is excellent for conducting studies requiring a high degree of confinement.

According to Richard Adee, of Bruce, South Dakota, who was with Senator Abdnor on the 18th of April when the closing order was rescinded, senatorial opposition to closing was voiced when the matter was first suggested some months ago; and that the closing order, issued by the USDA, was an irritating surprise to some senators who had not even been informed of it.

In conversations with several congressional and senate aides, *Gleanings* learned that similar attempts to close the Wyoming lab have been made in past years but have been circumvented by Wyoming and other concerned legislators.

Coinciding with this news, comes unofficial word that the Madison, Wisconsin Bee Research Lab is slated for closure. A date has not been specified. Roughly a third of that lab will, in such an event, be transferred to Baton Rouge, Louisiana; the remainder to the Carl Hayden Center in Tucson. No staff will be cut.

Because of its location, the Madison lab has been engaged in research having to do with winter management. According to Eric H. Erickson, research leader at Madison, the focus of research might undergo some shifts as a result of closing, but he also points out that this is "an overall program of re-direction within the agency of which we [the Madison Lab] are one small part of the total effort. The objective of the entire effort is to redirect research into other areas——emphasizing some and de-emphasizing others."

Pesticide Notification Becomes Law In New Jersey

The New Jersey Dept. of Environmental Protection has enacted a regulation requiring 36 hour notification to beekeepers whose colonies lie within one-half mile of a pesticide application. A master computer file listing beekeepers who enrolled with the NJDEP will be made available to pesticide applicators.

This regulation comes 10 years after the first pesticide regulations were written in New Jersey, and is a testimony to what can be accomplished through organized efforts of beekeepers.

New Nosema Report

APIS, Apicultural Information and Issues, in its February, 1983 issue, reports the discussion of nosema at the recent meeting of the Apiary Inspectors of America, and cites the following statistics:

—A 1975 survey in 43 states revealed nosema to be present in 66% of inspected apiaries.

—The assumption that nosema is a minor problem because it doesn't kill colonies outright, is both foolish and dangerous. Longevity of infected bees can decrease by up to 40%. Tests showed that 15% of eggs in severely infected colonies did not mature. Infected queens stopped egg production and died within several weeks. Winter kill, as the result of nosema, can be upwards of 1500 or more bees than similarily sized healthy colonies.

—The total cost for feeding colonies fumagillin as a preventive measure is approximately $1.30 per colony plus sugar and labor. The myth that this is too expensive to merit implimentation is exploded by the fact that it takes only four or five pounds of honey to pay for the cost. Whereas, the cost, in lost honey production, as a result of nosema disease, can be much more extensive.

The report cites two volumes of information as source books for better understanding of nosema. They are: *Honey Bee Pathology,* Dr. L. Bailey, 1981, New York; and *Honey Bee Pests, Predators And Diseases,* edited by Dr. Roger Morse, 1978, Ithaca, New York, Cornell University Press.

A Honey Substitute?

The publication *Food Product Development* carried an article, reported in *Apicultural Abstracts* Vol. 34(1) 1983, which describes the potential shown in market trends for a 90% HFCS honey flavored sweetener. "It is claimed that these sweeteners, marketed as honey flavored liquid fructose' and containing 90% high fructose corn syrup (HFCS) have the sweetness and flavor of honey, but are easier to handle. Various formulations have been used for baking, spreading or pouring, and they are also considered suitable for use in beverages for athletes."

This appears to be another example of the reputation of honey being turned to profit by a competitive product. Why is this happening? It is happening for several reasons, none of which should be construed as being critical of the aggressive development and promotion by the corn sweetener products industry.

If anything, this turning to substitutes for honey is a failure of the honey industry to follow through with a united, effective marketing and promotion program for honey. By default the market is being relinquished to the competion without a fight. American-produced honey is languishing in storage while imported honey fills the market needs. Price in bulk favors imported honey. This may be an economic fact of life but it is not unrelated to the growing tendency of the consumer to accept substitutes. The philosophical acceptance of substitutes is a growing trend in our lives, forced in part by necessity; necessity brought on by real shortages or by real or imagined economic necessity.

Probing deeper into the acceptance of substitutes would no doubt reveal a process of psychological conditioning contrary to some past cultural values. In

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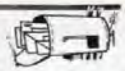
Gleanings Mail Box



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I feel the idea of the column is very good, indeed successful beekeepers must be able to manage their business as well as their bees. I feel it is unfortunate, however, that you chose to deal only with legal procedures and not mention the subject of avoiding situations which necessitate litigation. In our present agricultural system, pollinators and pesiticides simply must co-exist. This will be possible only if the beekeepers and pesticide applicators learn to talk to each other.

In regard to your article, you correctly state that "the law dictates that a landowner may legally use pesticides..." Legally, as used here, not only means (as you seem to imply) that he/she has the legal right to use pesticides, but also that he/she has the responsibility to use them according to the law. A law that does not necessarily regard "bees, foraging outside their apiary, as trespassers." The legal use of pesticides includes not applying those products highly toxic to bees in an area where bees are foraging, either on the crop or on weeds in that crop area.

As to your remark on pesticide drift into an apiary, I agree that if such instances do occur legal recourse is more feasible, provided serious damage results. In my experience, I have yet to see a case of spray drift into the well chosen apiary location causing significant damage.

In the sequence of actions you suggest following a bee kill, you bring out an important point. In an area where it is likely that more than one pesticide application has been made, the offending application must be determined. You seem to imply that it will be the general case that the exact time of the bee kill will be known. It has been my experience that this is not the case. Determining within a week the time of kill seems more common. Often this leaves not one, but several possible offenders since insect problems are often more general than one field and the same insecticide may be applied to several fields of the same crop in an area.

You mention in item 4 of your sequential guidelines that an official of some enforcement agency visit the kill site, hopefully a pesticide enforcement official. That is a very good point, but in item 6 of the guidelines you state that the beekeeper should take and freeze samples. In many cases this is not admissible evidence unless gathered by an official of some enforcement agency.
missable evidence unless gathered by an official of some enforcement agency.

William E. Chaney
Extension Apiculturist
Entomology Hall
West Lafayette, Indiana 47907

Obituaries

ROY L. WEBSTER died March 19th at the age of 86. He had not been very well in the past four years, but until a year ago he worked with his bees.

He died in Beverly Nursing Home and I can tell you he had stuffed bees hanging all over his room, and one plastic bee that would flutter. At the time of his 86th birthday, January 1, 1983, our family gathered in the sun room and when he opened his packages and found a plastic bee, he had the best smile he had had in months, and said "I'll be darned if one of my bees hasn't come up to see me." We all had smiles and tears. He is succeeded by his wife of 63½ years.

He truly loved bees. He made a skep and there are bees still going in and out of that this spring. He also had a tree stump in his beeyard and there are bees going in and out of that.

Mrs. Roy L. Webster
Danby, Vermont 25739

ROBERT B. HERIER died Friday, March 11, 1983, at his home in Springfield, Ohio. He was a school teacher and principal in Illinois and Georgia. He owned and operated his own beekeeping operation for many years.

Bees and Gardens

Continued from page 293

Transplant the seedlings to the outdoors when seedlings have developed and the danger of frost can be expected to be over. Some herbs do better in raised beds with prepared soil but most will do just fine in ordinary garden locations and environments. A few herbs, such as the mints, tend to spread beyond where they are wanted, crowding out other plants. If you wish to keep them within bounds, plant these rapid spreaders in buried pots, boxes, cement blocks or vertically placed drain tile to confine roots.

Aside from their culinary and other uses, several herbs are adaptable to "bee gardens". The following are some which fall into this catagory. There are others, perhaps some better than those listed, of which I am unaware. Readers may suggest others.

Basil *(Ocimum basilicum)* Grows to two feet. Whitish to lavender flowers. One variety (O.b. "dark oval") has vivid purple leaves. Keep all basils pinched for fuller growth. Do not fertilize. Propagate by seed.

Bergamot *(Monarda didyma)* Bee balm and oswego tea are other names. Grow three feet tall and has shaggy red flowers. Wild bergamot or horsemint (*M. punctata*) is a common wild bee plant. Grow in full sun. Grows slowly from seed, so it is best to buy nursery stock or propagate by division.

Borage *(Borago officinalis)* A highly ornamental annual or biennial and an excellent bee plant. Grows to a height of one to three feet. Grey-green leaves set off the star-shaped, bright blue flowers. Needs much garden space. Does not transplant well. Sow seed outdoors at three to four week intervals to extend the bloom. Prefers soil on the poor side. Water moderately and allow the soil to dry a bit.

Catnip *(Nepeta cateria)* Toothed leaves, with white or lavender flower spikes distinguish this herb. Cut back each year. Grows in sun or partial shade in light, rich soil. Propagate by seed, cuttings or division of clumps. May become a nuisance if unchecked.

Chamomile *(Chamaemulum nobile)* This evergreen perennial forms a soft, spreading mat of fine foliage about three inches high. Flowers, about 12 inches high, are daisy-like. Start from seed or buy small plants. Clip with mower if grown as a ground cover. Makes an excellent tea.

Comfrey *(Symphytum officinale)* A perennial which grows as tall as three feet. Leaves are large and hairy. Produces long season of bloom of white, yellow or blue flowers. Propagate from root cuttings or divsions.

Oregano *(Origanum vulgare)* This tender perennial is a close relative of sweet marjoram. It grows shrub-like to 2½ feet. The flowers are pale pinkish. Grows in full sun and well drained soil, kept moist. Propagate from seed, cutting or root division.

Germander *(Teucrium chamaedrys)* A ground cover or edging plant. Grows in clumps from six to eighteen inches tall and speads along creeping roots. Summer flowers appear in pink whorls where leaves join the stems. Propagate from stem cuttings, root divisions or seed.

Hyssop *(Hyssopus officinalis)* This compact, shrubby perennial stays under two feet tall. Has white, pink or blue spikes of flowers. A look-alike relative, the giant or anise hyssop *(A. foeniculum)* grows larger. Plant in full sun in well drained, slightly alkaline soil. Propagate by seed, stem cuttings or root division.

Lavender *(Lavendula spp.)* Woody stemmed, growing from 1½ to 4 feet tall. Fragrant blooms of lavender or deep purple. English lavender *(L. spica)* is the most widely grown species. Lavender requires full sun and very fast draining soil. Propagate from seed or stem cuttings.

Lemon balm *(Melissa officinalis)* This lemon scented plant spreads much as does the mint family members. There are small clusters of inconspicuous white flowers in summer. Lemon balm responds to full sun and poor soil that is kept dry. Propagate from seed or division.

Majoram *(origanum majorana)* A perennial grown as an annual, it reaches one to two feet in height. Flowers form in tight clusters of white to lilac. Grow in full sun and slightly alkaline soil. Keep lightly moist. Propagate by seed, cuttings or layering.

Rosemary *(Rosmarinus officinalis)* A not quite-winter-hardy evergreen. Grows two to six feet in height. Except in mild climates it should be grown in movable containers so it can winter in a cool, frost free place. Blooms are clusters of lavender to blue. Grow in full sun and well drained soil. Keep fairly dry. Propagate by seed, cuttings or layering.

Sage *(Salvia spp.)* Garden sage is a hardy perennial which grows to two feet. Violet-blue flowers appear on tall spikes. Pineapple sage *(S. elegans)* is less hardy than *S. officinalis.* Scarlet bloom comes in fall. Sage needs full sun and grows best in poor, well drained soil. Propagate by seed, stem cuttings or layering.

Sweet cicely *(Myrrhis odorata)* All parts of this herb smells and tastes like anise. A perennial which grows two to three feet in height. The hollow stems bear small clusters of tiny white flowers in late spring. Will self seed. It requires cold weather.

Thyme *(Thymus spp.)* All the thymes have woody, twiglike stems. Common thyme *(T. vulgaris)* is a perennial that bushes up to 12 feet tall. Creeping or wild thymes are more delicate in appearance. Lemon thyme *(T. x citridorus)* has a strong lemon scent. All thymes require full sun. Keep thymes well clipped. Propagate by divisions, stem or root cuttings.

Winter savory *(Satureja montana)* A perennial with weak stems to 15 inches. Will stand temperatures down to 10 degrees F. Savories need full sun. Needs sandy soil mix. Propagate annual savory from seed or cuttings and perennial savory by divisions, layering or root cuttings.

One word of caution. An influx of nectar from one or several of these herbs can cause honey from a major source, such as clover, to have an unusual, or even distasteful content. In most instances, however, the quantity of honey is small and is likely to be confined to the brood nest.

Do not distribute the seeds of some these herbs outside the area in which you wish to grow them. Some can grow out of control and become troublesome weeds. There are other nectar plants such as the legumes, better adapted to larger spaces.

L. Goltz

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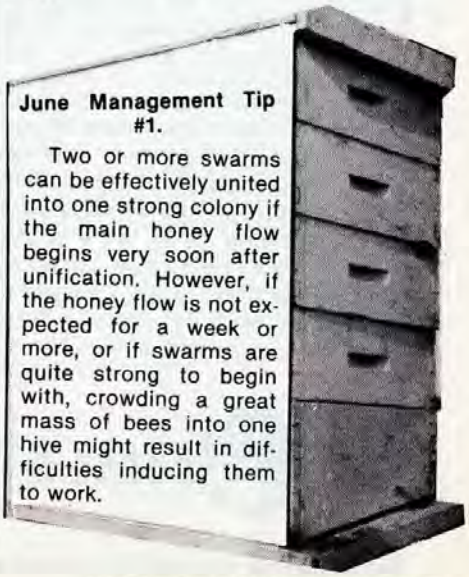

June Management Tip #1.

Two or more swarms can be effectively united into one strong colony if the main honey flow begins very soon after unification. However, if the honey flow is not expected for a week or more, or if swarms are quite strong to begin with, crowding a great mass of bees into one hive might result in difficulties inducing them to work.

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human nutrition we are, by suggestion, being conditioned to accept that substitues are "as good as", or even "better than" what has evolved over millions of years of trial between balancing the elemental composition of our environment and plants and animals.

A current TV commercial portrays a choice to be made by viewers between an orange and and artificially flavored and sweetened beverage, a choice based on a numerical count of calories. How many millions of impressionable people are being influenced by these subtle suggestive messages? Their purpose is to "tell us" what is best for us, even though our instincts suggest otherwise.

Honey, in pure form, is a premium food, but the public is being conditioned, and quite successfully, that it may be merely a reproducable formula that can be duplicated in a laboratory and produced cheaply and in massive volume in food factories, while meeting or bettering the standards of pure natural honey.

SEVIN® Receives "Reduced Bee Hazard" Label Claim Approval

On the basis of tests begun, in 1979, at the University of California-Riverside, The Environmental Protection Agency has granted Union Carbide Agricultural Products Company, Inc., a reduced bee hazard label claim for SEVEN® XLR.

The modified label now indicates that SEVIN® XLR is less hazardous to honeybees than other carbaryl products when direct application to bees is avoided and spray residues have dried.

For more information on SEVIN® XLR and its reduced bee hazard properties, send for a copy of "Reducing the Hazard To Honey Bees," c/o Union Carbide Agricultural Products, Company, Inc., Communications Dept., T.W. Alexander Dr., Box 12014, Research Triangle Park, NC 27709.

Cattle Deaths As A Result Of Bee Feedings

The February 15th issue of the *Journal Of The Veterinary Medical Association,* reports a potential problem for beekeepers who distribute their hives in legume pastures.

The article cites two incidents in 1979, where a total of 16 Holstein heifers and cows died from consuming a syrupy sucrose solution supplemented with corn cobs and placed in large drums for feeding bees after the fall harvest. The concentrated sucrose solution (60-80%), caused acute lactacidosis in the cattle.

Dr. L. N. Standifer Retires

Dr. L.N. Standifer, former Laboratory Director of the Carl Hayden Bee Research Center, Tucson, Arizona, retired from the laboratory effective May 1, 1983.

Dr. Standifer joined the Agricultural Research Service staff in 1956, when he was assigned to study honey bee nutrition and pollen chemistry, and develop a pollen substitute diet. In June 1969, he was appointed Laboratory Director of the Bee Research Laboratory where he supervised the research of other scientists working in a number of areas related to the biology and behavior of honey bees and their utilization for pollination.

Dr. Standifer retires after 27 years of dedicated service to the U.S. Department of Agriculture. During this time he achieved a solid scientific reputation for his studies on pollen chemistry and honey bee nutrition, particularly on the dietary value of various proteins and lipids for brood rearing. In addition, he made significant contributions to the work of other scientists at the Center in many other areas of research.

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HONEYBEE PRODUCTS AS USED BY HUMANS

By ANN W. HARMAN
Laytonsville, MD

A COMPREHENSIVE REVIEW OF VENOM, BEESWAX, ROYAL JELLY, PROPOLIS, POLLEN, HONEY AND THE USE OF BEE LARVAE AS FOOD.

The honey bee has provided humans with a varied assortment of products throughout many, many centuries. We know that in Mesopotamia, 3,000 years ago, honey was used as medicine. Aristotle mentioned propolis for wounds and recommended particular types of honey for eye problems, as well as for wounds. Hippocrates, the Greek physician of 400 B.C., whose name had been associated with medicine down through the ages, recommended natural products such as honey and propolis.

An interesting note on honey is that the ancients believed it to be a nectar or dew that fell from the stars. Any substance that originated in the heavens had to be beneficial.

Probably the original uses for honey and wax were medicinal. Hive products were mentioned in written accounts of healing substances. Honey was also used to make bitter herbs more palatable. Women in medieval times made use of beeswax in cosmetics.

One reason hive products have been used so extensively is the ease of obtaining them. The bees collect or produce honey, pollen, beeswax, royal jelly, propolis and venom for themselves. Man had only to open a bee tree or a hive of some type to obtain these, and with some care, the bees might live to produce more. Another reason for their use was that the products themselves can be used without further preparation, although combinations with other ingredients were as common in the past as now.

Much has been published on the therapeutic value of honey bee products. However, few worthwhile clinical studies have been done here or abroad. Chauvin, of France, speaking in 1974 to the International Apitherapy Symposium in Madrid, emphasized the great need for controlled clinical studies. Unfortunately, such studies have not come about. There are certainly enough tantalizing events occurring with the use of hive products. The world would certainly benefit from an organized research program.

Venom

Bee venom is perhaps the best recognized of all glandular secretions of the honey bee. Beekeepers and nonbeekeepers alike are familiar with the immediately painful sting. The venom is produced in the acid gland, with additions of the alkaline gland, both located within the bee's abdomen. Venom is then stored in the venom sac near the base of the sting apparatus.

Venom has one use by the bees: defense. The enclosed colony with its concentration of young and of food is in need of defense for survival.

Although results of the venom have long been known, only recent chromatographic analyses have given us a better understanding of the venom components.

Several enzymes (phospholipase A, hyaluronidase and acid phophatase) are found in venom, as well as small amounts of other enzymes. The enzyme group is responsible for pain and toxicity.

Another group of compounds called peptides (melittin, apamin and mast cell degranulating peptide) include neurotoxins and possibly an important anti-arthritic agent.

Other substances are responsible for itching, pain and vascular changes (histamine, dopamine and norepinephrine).

Anaphylaxis from bee venom was definitely known to the ancients and was documented in Egyptian records. Only after the perfection of venom collection have resear chers been able to obtain adequate pure venom. Allergy research at such centers as John Hopkins University and Walter Reed Army Medical Center has produced an effective desensitization program for those truly allergic to bee stings.

The anti-arthritic properties of bee stings have been popular in folk medicine for many centuries. Today researchers in New Zealand, Germany, Great Britain, Canada and the United States are making progress in identifying anti-arthritic substances and investigating their effects so that bee venom can be readily available as a safe and effective remedy.

Beeswax

Beeswax is a glandular product of the bee. Four pairs of wax glands on the underside of the abdomen secrete tiny droplets that immediately harden into the wax scales. Wax is the basic building material of the hive since it is formed into comb for brood rearing and food storage.

When freshly secreted, beeswax is white. The colors we associate with beeswax come from the presence of other hive products, such as pollen. Beeswax has several unusual properties: it is soft and pliable with a melting range of 145 to 149 degrees F.

Anyalysis of beeswax was not possible until about 1960, after the development of chromatographic techniques. We know of more than 300 different compounds present in beeswax, but only four of these are more than 5% of the total. However, this large number of substances is primarily responsible for the unique properties of the wax, although unusual characteristics of the compounds themselves also contribute. The general composition of beeswax is totally different from that of plant waxes. The composition of beeswax shows very little variation in its composition.

Chemical compounds containing 30 or more carbon atoms in a chain are some of the principle components of beeswax. It can be said that beeswax is an extremely complex substance, perhaps the most complex of all bee-produced products.

Beeswax, along with honey, was used medicinally by early civilizations. For many centuries it was man's only wax, and easily obtainable by washing away the honey. Beeswax, mixed with other ingredients, was used in various ointments and salves.

The success of beeswax-containing ointments continued down through the centuries and its history can be traced in many old European pharmacopeia. Today the cosmetic industry uses more beeswax than the pharmaceutical industry. However, because of the unusual properties and of its safety for both internal and external application, beeswax is still a popular ingredient in salves, ointments and some pill coatings.

Royal Jelly

Royal jelly is a product of the bee herself. Workers, between 5 to 15 days old, manufacture royal jelly in the

Continued on page 322

BEEKEEPING FOLK ARTS

Honey & Hive Products For Cooking And Other Home Uses

By AMOS ARBEE

For some reason I have a preoccupation following paraphrases: Don't be afraid to take a chance, after all, Columbus did" and "Nothing ventured, nothing gained." At any rate, I do think that they both fit truly well and go hand in hand with the use of honey in your cooking and baking recipes. You must never have the fear that the use of honey will cause you to go astray. Usually, honey is found to add that little something extra to your particular dish. A rule of thumb to keep in the back of your mind while using honey in a recipe, in place of sugar, is for each cup of honey over and above 1 cup, add ¼ tsp. of baking soda to the recipe for better results. Use of a mild type honey is usually better, too.

Honey Nut Cake

8 eggs, separated
1 cup (mild flavored honey)
2 cups chopped shelled walnuts, (ground finely)

Beat egg yolks with honey, preferably with electric mixer at medium speed until very light and creamy. Add ground nuts; mix well. Beat egg whites until very light and creamy. Add ground nuts; mix well. (Be careful not to stir). Spoon into two greased 9-inch cake pans. Bake in a preheated over at 325 degrees for about 45 minutes, or until cakes are done.

Cool and remove from pans. *Hint: This type cake is extra delicious served with 1 cup heavy cream and 1 tablespoon light rum whipped and spread over them.

You can also add on top of whipped cream either fine chopped nuts or candied fruit.

Beeswax

Beeswax is one of the most useful and beneficial products of the honeybee. As I go along in future columns, I will try to touch upon some of the more important uses of beeswax. This particular time I would like to pass along one use which is especially valuable to the carpenter or the "Do it Yourselfer". Take your hammer and drill about a $^3/_8$ inch hole in the handle and fill same with melted beeswax. Then each time you go to drive a nail, first insert it into the beeswax, then notice how easily it drives.

Beeswax can also lessen the risk of cracking a nice piece of finish work. Remember to always keep a cake of beeswax in the shop for future melting and placing in the hammer handles.

The A.I. Root Company now offers a free recipe pamphlet with honey cookng hints and recipes gathered from many years of Gleanings. Send self addressed, stamped #10 envelope to Gleanings, Box 706, Medina, Ohio 44258.

Honey Marketing

By SIDNEY GROSS
3N681 Bittersweet Drive
St. Charles, IL 60174

An Introduction To A Series Of Articles On This Subject

A hobby, by definition, is a leisure activity which is done for enjoyment. Although it always involves work, it's not the same kind of "work" or labor that's involved in making a living. Beekeeping has a big plus as far as hobbies go, for combined with the sheer fun of it all is the production of a commodity of obvious economic value. So, in keeping bees we not only reap the benefits of dealing with nature but we also gain a monetary reward for our efforts.

Any remuneration we receive for honey or other hive products like pollen and beeswax has to be actively sought. If you have something to sell you must let others know about it. Strange as it sounds, the necessity to publicize or market honey actually discourages some people; instead of seeing the challenge and potential reward, they give up. They simply distribute the honey free to others who eventually come to expect it and fail to appreciate all of the labor (both apine and human) which went into producing it. In this series of articles I will show you that selling your honey for a good price is easier than you might think, and that merchandizing your product for cash will make the entire beekeeping activity more fun for you than it is right now. Think of your hobby as a rare luxury in modern life: it is one of the very few twentieth century activities where a single person can oversee an entire process from colony management to honey processing, packaging, and finally sales.

In the course of the next few months I'm going to discuss a group of problems and strategies involved in the sale of honey and hive products. You'll be able to test many of these for yourself by the time the fall marketing season arrives. I've tried them all out and can assure you there are no gimmicks involved, nor will you be asked to do anything distasteful or impossible. Many suggestions are mere common sense which hobbyist beekeepers seem to have overlooked. I am addressing small hobbyists like myself; people who run from one to a hundred or so hives. In this category, none of us expects complete support from the earnings on the bees, but the extra money from sales is still nothing to sniff at.

Let me begin by talking about "marketing". Marketing is a term with a more complex meaning than simply selling. I'm sure that most of us think of marketing based on the model of a shop in which customers walk in, make their purchases and then leave. Certainly, marketing is involved here, but the retail activity is just part of the story. Have you ever thought about why some business enterprises succeed while others fail? Marketing strategies — or lack of them — are involved here. How does a person become successful from small beginnings? If the answer were simple, a pat formula, we would all be tycoons. How to succeed in any business, honey or otherwise, defies any simple logic and yet it's been done.

I think you see that selling your honey involves real problems which require creative solutions. You simply cannot sit back and expect customers to beat a path to your door because it just won't happen. Retailing, even at the rudimentary level we're discussing, is an active process. Fundamentally, you have a product and are seeking a buyer. Your task is to create a situation in which buyer and product come together and the deal closes. When this happens repeatedly you've succeeded. With all the consumers in the world and all the choices avaialable to them, how can you bring your product together with someone who wants it and is willing to pay for it? That is the essence of any marketing strategy: **Marketing means having for sale sommething that somebody wants, at a convenient location and at the time when the product is actually desired.** If the consumer doesn't know that he wants the product then the seller has to create a demand for it, i.e., make people feel that they do in fact want it.

Some commodities are wanted by everyone — staple food, shelter, fuel, health care. Honey and beeswax don't in any obvious way fall into these categories, so if we are to succeed in marketing honey we have to create a demand for it. The job requires some effort but the effort is half the fun. In future articles I'll outline some methods that you can use to foster exactly this need for your product. Next time I want to discuss some the unique problems facing you as a beekeeper/retailer. From that point on we'll talk about the positive steps that will bring you cash customers — and more importantly — that will keep them coming back. □

Monthly HONEY Report

Continued from page 285

tulip poplar buds in some areas. Only 5 days of nectar flow in April in Kentucky. Heavy feeding and starvation occurred where bees were not fed. Colonies surprisingly strong. Beekeepers sold out of honey. Freeze on April 17th and 18th stopped nectar in Tennessee, making it necessary to continue feeding. Colonies very strong. Clover flow looks promising. Honey sales good.

Region #7

Cold cloudy weather in Oklahoma through early May. April very poor for bees. A lot of feeding required during April with lows in upper 30's and lower 40's. About 15 days behind normal season as of early May.

Region #8

A late spring, about 3 weeks behind in nectar and pollen gathering in Colorado. Bees have had to have several feedings during April. Queens starting to lay well with pollen from dandelion in early May. Winter loss above average. Honey sales normal in Colorado. Alternating cold and hot weeks has caused brood rearing to be erratic in Montana. Some queens were not accepted as replacements due to variable conditions. Feeding needed. Spring bloom running ahead of normal in Montana, but about the same as in 1980 and 1981 which were good production years. Snow cover good in Mountains.

Region #9

Cold wet weather in Oregon. Much feeding of bees needed. A cool, wet spring just about wiped out hope for a good queen rearing season in northern California. Unsettled weather since April 17th through early May has lowered queen rearing success by 50%. No honey coming in during late April because of lack of flying time. Heavy feeding widespread. Colonies came out of almonds very uneven in strength. Almond set appears to be down about 30% from last year. Wettest year this century in northern California and wettest April in history. Poor queen mating conditions. □

Beekeeping Technology

By DR. JAMES E. TEW
The Agricultural Technical Institute
Wooster, Ohio

Reactivating Starved, Cold, Clusters Of Bees

(Back from the "Brink")

This is one of those "after the fact" discussions. However,the problem of starvation has been serious in some areas of the United States this past winter and spring. Consequently, a discussion of what has just happened should have some relevance.

Regardless of how long a beekeeper has plied his craft, a few particular events always inspire what is sometimes a long-lost enthusiasm. Obvious items on such a list would be: (1) hiving a swarm, (2) producing comb honey, and (3) rearing queens. I am sure there are other hot spots, but these come to mind immediately.

Reactivating starved, chilled bees may not, at first, seem to be a candidate for the inspiration list; but in my opinion, it should be near the top. A quick discussion may help justify my postition here.

Bees are not people—they often do not reason by human standards. This may explain why a colony will sometimes destroy a newly introduced queen when they have no other method of requeening themselves.

Occasionally, a swarm will bypass all logical home sites (by human standards) and take up residence—say under the hood of a 1954 Dodge pickup. It is with this human understanding of bees that a beekeeper pronounces a hive that was alive the day before to be dead from cold and starvation. Unfortunately, bees do die in great numbers on occasion. It may very well be that all the bees in the hive in question are in fact quite dead. However, depending on the size of the cluster, the minimum temperature during the previous night, and the temperature during the following day, some of the bees may still be alive but appear absolutely dead because of their cold-blooded nature.

Now, at this point, if the beekeeper realizes the hive was alive the day before and that the temperature during the previous night only dropped to 25 degrees F. or so, a great need will develop to "save the bees!"

The fact the colony was in a weakened, vulnerable condition—probably caused by the beekeeper—need not be discussed here. The point is all the cluster may not be dead. In early spring, if the queen and some of the bees can be revived, the colony could conceivably build up enough to survive. I have seen beekeepers (including me) sit beside a hive for hours with dead and dying bees scattered everywhere, all kinds of contraptions to offer heat and light, various concoctions of sugar syrup and honey, all to bring the colony "back from the brink." I think the concerned enthusiasm this procedure requires is equal to the energy required to hive swarms or raise queens or whatever.

I am not aware of an established technique to reviving bees that are cold starved. However, some of the following observations may be helpful to someone that in the future finds a hive in need of resuscitation.

1. Do not break the cluster. The bees comprising the cluster will appear totally dead. Unfortunately, in many cases they are. Bees that have recently become starved and chilled to the point of being immobile appear to be in a state suspended animation. They do not feel dry or brittle and are soft and plyable to touch. If a few bees are placed in direct sunlight, away from wind for 10-20 minutes, they will normally revive enough at least to show some movement. Breathing on the bees may help, but keep in mind that condensation from exhaled air will dampen bees and make them colder than ever in most cases.

2. At this point, be prepared for a mess. The bees should be warmed—in some manner—for 30-45 minutes before attempting to feed. We tried leaving some of the chilled hives in their hive boxes while others were poured into assorted containers for heating. Many bees were left stuck into cells when the cluster was removed from the hive bodies. If the cluster (or part of it) can be revived, bees begin to crawl everywhere. Lights are commonly used to provide heat and serve to clearly show the beekeeper the rate of recovery. Somewhere along this time, the senior beekeeper in charge must decide when to begin feeding. Some of the bees will be trying to fly while others are still attempting to wake up. It seems that the sugar syrup that is required as a food for the bees that have awakened may finish off many bees not yet revived enough to clean themselves. We definitely had better luck warming then feeding than when we just poured warm sugar syrup over the chilled cluster.

3. We had better results with sugar syrup than with honey when feeding recently revived bees. The honey appeared to be too thick to be taken readily by the weakened bees.

Conclusions

Do not expect to save the entire colony. In fact, do not even expect to save most of the colony. Many bees will show signs of life but never be able to recover. If this project is undertaken, it should be as a labor of love.

Do not try to warm bees too quickly. The impulse is jam the colony into an oven heated to 350 degrees F. to snap them back as quickly as possible. Obviously, heating too much too fast will snap them the other way.

Do expect a lot of crack comments from friends and relations. Bear in mind that you will be an unusual-looking person at times. It will sincerely be worth the effort though if you can save enough of the cluster for the bees to rebuild the population. This is the type of information I hope you never need, but if so, good luck! □

The Beekeeper's Forum

As part of our commitment to farily and completely discussing complex, controversial topics related to beekeeping, we offer THE BEEKEEPERS FORUM, in pro and con format. Opinions expressed in this column are presented for objective consideration by the reader. None should be interpreted as an endorsement by the editors. Reader suggestions and contributions are welcomed.

Bears are a periodic and continuing problem for many beekeepers. The reasons are many and complex, ranging from shorter hunting seasons to disease cycles in the populations of predators such as weasels that routinely prey on newborn bears, thus controlling their numbers. *Gleanings* urges every beekeeper to be aware of local bear activity and related laws. Additionally, we present the following points of view as they relate to current circumstances in the state of Pennsylvania.

Point Of View #1.

By BESS CLARKE
Canton, PA

Bears are territorial animals and the increase in numbers makes it necessary for them to spread out from their natural habitat to invade farmland and residential areas where apiaries are traditionally located. Honey bees become easy prey for bears who are seeking both food and entertainment.

The problem of too many bears could be solved, at least in part, by allowing the sportsmen who are paying for the privilege of hunting to have a greater opportunity to kill a bear.

For example, the Pennsylvania Game Commission achieved its goal of a larger bear population by completely eliminating the traditional one-week season in 1977 and 1978, and then permitting one day of bear hunting for each of the next three years. Foul weather in 1982, when the season was extended to two days, resulted in about half the anticipated kill. Only 587 bears were shot.

For the past two years a special license has been required for bear hunting. Possibly the Commission has overestimated the number of sportsmen who are interested in hunting bears since not all the 89,000 licenses issued at $5.25 were sold.

Furthermore the kill for hunting parties and camps has been limited to one animal for the entire group, effectively eliminating a kill by a majority of the most avid hunters.

We have been keeping bees in the northern tier of Pennsylvania for nine years, being careful to locate the beeyards within 300 yards of an occupied dwelling (a Game Commission restriction), and making an effort to avoid swampy upland meadows or forested ridges where bears are known to travel.

Aside from a few isolated cases we didn't have much trouble until last fall when we sustained nine different instances of bear damage.

It must be conceded that our local game protector has been very helpful in setting traps and assessing damage. The Game Commission, however, pays only about half the value of the bees. And the bears are still at large.

Bears learn quickly to avoid traps. Trapped bears which are moved less than 40 miles return quickly to their home territory. There is one documented case of a bear who traveled 186 miles to get home.

The Game Commission recommends electric fence as a deterrent to bears. This may be of some help to the hobbyist who keeps a few colonies close to his home but it is simply not feasible for a large commercial operation.

There is no doubt that some bears are being shot by irate beekeepers and farmers in retribution for property damage. But, it really isn't much fun to sit in a cold, dark beeyard night after night hoping to sight a bear. It would be far better to reduce the restrictions on legal hunting and let the sportsmen control the surplus bears.□

What measures would you use to fairly solve the existing problem between beekeepers and black bears?

Point Of View #2.

In a letter to Pennsylvania Assemblyman Roger A. Madigan, and subsequently published in the Pennsylvania Beekeepers' Newsletter, John Plowman, Jr., Public Relations Officer for the Pennsylvania Game Commission, offered the opinion that, at least in the case of his state, the prescribed hunting season was an adequate method of "managing bruin populations." Furthermore, states Mr. Plowman, "We would be derelict to that responsibility by denying the rightful existence of such a prized wildlife resource as selfishly proposed in the opinion of the beekeepers."

Mr. Plowman continues: "If further controls are necessary, perhaps they should be directed towards those special interests who take advantage and criticize a reasonable compensation fund while enjoying the benefits. Besides the bear damage and bear protection fund, the new electric fencing is an excellent alternative to reduce problems."

In summary, he states: "Bears aren't going to put the beekeepers out of business and cause the total annihilation of the honey industry. If they [beekeepers] would use more courtesy and logic in effecting a better rapport with the Game Commission...I'm sure the right compromise could be found."

Point Of View #3.

by WILLIAM R. ASKEY

R.D. #2 Box 295
Linden, PA 17744

Can bees and bears coexist? Answer: Yes. Conditionally.

I've never yet had a bear I could not stop, even after he had fed on bees and honey, several times. I carefully built a good electric fence.

I use twelve volt deep cycle battery (Marine). Auto batteries are not worthwhile because if weeds, limbs or a ground interferes, your battery will be dead on the fence with a bad cell and likely won't charge. Fifteen in one year taught me something. Deep cycle marine batteries cost a bit more, but I've yet to have one fail to charge and I keep them on the fence for a full two months.

I do not believe a fence without bacon rind at ten foot intervals around the perimeter would do much good. You've got to hit the bear where it lights up his ears, believe me. A bear is usually in no great hurry, has a good nose and a bacon rind draws him like bees to honey. I've seen some signs where bears got bit by my electric fence and left hurridly.

I bring in all batteries and chargers about New Years and have them in operation by about March 25th when warmer weather starts the bears moving. The price of about three hives would pay for a fencer. Now you can get a solar powered fencer that stays on guard all season. They are $159.95 from Agway.

A few tips: hide the fencers in the midst of the bees, tack your ground wire to a green tree and, if you're on the land of others, be a friend to the landowner and keep him or her in honey.

There is some risk of theft and vandalism, but still, I'd rather put up with changing or replacing batteries, and removing weeds about twice a year, than shooting the bear.□

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Questions and Answers

Q. Why would I have drones in **one** hive this time of year (early April)?

I have not seen any in my other hives. K.K., Mo.

A. Colonies of bees may vary considerably in the date in which they first begin to rear drones in the spring. Some colonies raise very few throughout the year, while others produce enormous numbers. The number of drones may not necessarily affect the size of the honey crop from these different hives. Contrary to what many beekeepers may think there is no direct evidence that the number of drones raised is because of combs with many drone cells, although combs with an excessive number of drone cells may accentuate the tendency to produce more drones that would be normally present with all worker comb, except for the number deliberately converted to drone cells by the bees. Trapping drones may also be a futile practice if we are to believe that the drone population is determined by a colony's swarming or other tendencies rather than the number of drone cells or attempted control measures by the beekeeper, such as trapping.

Q. What does a beekeeper do with frames that have sealed brood from a recently deceased hive? How can they be cleared, stored and reused? W.T.

A. A careful examination should be made of the brood combs to determine if disease was the cause of the death of the colony. If American foulbrood was the cause, the frames, combs, other hive parts, dead bees and honey must be destroyed or sterilized according to the recommendations of your county or state apiary inspection service. If any doubt exists about identification of suspicious appearing combs ask your bee inspection service to examine a sample.

A colony which has died in late winter or early spring may leave a mass of wet, soggy bees, many with their heads and bodies wedged into cells if they died of starvation. The combs may be moldy. A hive with dead bees should be emptied of the bodies of the bees, those which are not in cells and can be brushed or shaken from the combs. Do not bother to remove the dead bees from the cells, this will be done very quickly by the bees which are installed later. Close all of the hive entrances so that robber bees cannot enter. Either leave the hive at the site or move it indoors for storage until a package, a division or a swarm can be installed. If the hive was disease-free the new colony should prosper. If no combs of honey were left, the newly installed bees should be fed until they become self-sufficient. In a few weeks the combs should be cleaned and there should be brood in various stages.

Q. I am confused about early spring feeding. I am a weekend visitor to my hives and I started to feed sugar syrup laced with Fumidil B® in early March when we had a short warm spell. They took several quarts (one hive) and also devoured a one pound patty of pollen substitute.

Since then, weekends have been cold, rainy and over 14" snowfall. I cannot feed them regularly and although willow and alder should be producing pollen by now, the first nectar won't be in until May.

Have I done wrong to stimulate brood before a continuous nectar supply is available?

Their honey stores are about gone so I am planning to continue syrup and dry sugar feeding till May. R.J., NJ

A. If a colony is low on feed there is no alternative but to furnish that colony with feed. Any other result is secondary and unavoidable, if it has some undesirable after-effects as you suspect. The weather patterns have been unusual this spring, to say the least, but apparently bees can make some adjustments as long as they are healthy and have ample food stores. You are correct in planning to continue feeding until May.

Q. As a weekend novice beekeeper I've been watching their activity in our Maple sugar bush during this erratic, poor maple syrup season in the Northern Catskills.

This year we had an early March ice storm that broke off many terminal maple twigs. The bees were active on warm sunny days, possibly collecting maple sap for their hives.

I know that when I used to do sugaring that the open buckets would collect a few bees, together with lots of moths.

Has anyone investigated encouraging bees to use this early source of nectar? Has there ever been a "honey flow" based on maple sap? (It sure would be easier if the bees would do the work. It's no easy job to carry all those buckets of maple sap and to boil down 40:1 ratio for hours and hours!) R.J., NJ

A. In regard to the question about the bees gathering maple syrup. I am not familiar with this activity but would tend to regard it as such an unusual activity as to make it appear to be something that will happen only in very specific areas and perhaps under unusual circumstances. I doubt that maple syrup will ever be considered a regular source of honey, but may simply occur as a result of happenstance. No organized effort has been made, to our knowledge, to "tap" this source of nectar. Maple syrup may be harmful to bees, in quantity, if used as brood food or for adult bee feed. It is much safer to rely on sucrose sugar syrup for supplemental feeding.

Q. Should the opening in the inner cover for the Porter bee escape be covered for the summer months? Would this help the bees remove the moisture from the honey? R.C., PA

A. In answer to your question, I would say leave the hole in the center of the inner cover open all year around, although some cover it in the winter. A clue as to the inclination of the bees may be seen if a piece of window screen is tacked over the hole in the fall and notation made of how much the bees will plug most or all of the screen with propolis. Despite this possible objection on the part of the bees to have this center hole open it will serve to ventilate the hive in cold, damp climates. One problem in closing the hole in summer is that this will often allow ants to move in over the inner cover. If there is any other disadvantage it may be in that having an opening in this position during the honey flow may interfere with the circulation of air during nectar ripening. I fail to find this to be a widespread objection in either the literature or in talking with beekeepers or from personal experience.

Q. Where can we small beekeepers get cheap sugar, maybe a lower grade, to feed our starving bees? I am paying $1.49 for five pounds and $2.82 for ten pounds. D.P., Ark.

A. The small user of sugar, such as a hobby beekeeper, may have a problem buying at the lower rates. If you are near a food processing plant such as a bakery or cannery, or a sugar refinery, there may be a possibility of purchasing sugar in bulk or in 100 pound bags which is unsuitable for table use. Be very careful, however, that impurities, such as filler, dyes, etc. are not included as they can be harmful to bees. Another possibility is purchasing pooled orders originating from bee associations for fairly substantial quantities at the bulk quantity prices available to large users.

Continued on page 324

The Citizen Beekeeper

Direct, hands on management of bees is only one dimension of apiculture. Successful beekeepers must also manage procedures and special problems related to economics, politics and the legal system. This column will be a forum for discussion of such vital subjects. Reader contributions are welcomed.

Moving Honey Bee Colonies

By EUGENE KILLION

Bureau Of Apiary Inspection
522 South Jefferson
Paris, Illinois 61944

What If A Load Of Bees Overturned On The Highway?
Would You Know What To Do?

Since my recent article on the movement of honey bee colonies, there have been numerous reports about mishaps and serious problems in moving bees. After that article appeared, the University of Illinois received more than one hundred requests in a single day for copies of my revision of a fact sheet titled "Moving Honey Bee Colonies." Shortly thereafter I was invited to speak on the same subject at a meeting of one of our larger local beekeepers' associations near St. Louis. By coincidence, as I watched the national news on the ABC television network in my motel room that evening, the highlight of the thirty-minute newscast focused on a semi-truck loaded with 444 colonies of honey bees that had overturned on I-65 just south of Louisville, Kentucky. An article concerning that accident, and details of the clean-up operation later appeared in "The Kentucky Bee Line."

A beekeeper's letter to the *American Bee Journal*, recently forwarded to me by the editor Joe Graham, has prompted me to write still another article. This beekeeper lives near an interstate artery which is used by many migratory beekeepers to transport large numbers of bee colonies to and from their summer locations. His concern was how he and other beekeepers should be prepared, if called upon to aid an unfortunate beekeeper, state police or community officials in such an emergency.

In Illinois we have an excellent network system to deal with highway accidents involving colonies of bees. It functions very well, due to the number of apiary inspectors we have located throughout the state, our eighteen beekeepers' associations and the compulsory registration program that is constantly being updated.

For example, this system was utilized in a situation which was only indirectly related to bees. Late one evening I received a phone call at home from a beekeeper who was hauling a truckload of 100-pound bags of sugar to a Wisconsin destination. While stopped in southern Illinois at a state truck weighing station, he had been informed that he was overloaded and would have to dispose of a certain amount of the sugar to meet the weight requirement for entering the state of Wisconsin. He offered to sell the extra sugar, at cost, to some beekeeper or beekeepers' association before leaving Illinois. The only alternative was to unload the excess weight and drive on, leaving the bags of sugar for anyone to pick up.

Since my office is only a few blocks from my home, I hurried and started making phone calls to beekeepers further north along the driver's planned route. Before the driver reached the last Illinois weight station, two beekeepers intercepted the truck and purchased the excess sugar. We were happy to be able to give this kind of service to the unfortunate beekeeper.

Following the incident of November 19, 1982, in Kentucky, the men who assisted in the clean-up operation are forming a group called "Task Force Bee Spill" to handle any other similar problems. I think this is an excellent idea for other states to follow, especially those that have numerous loads of bees being moved along their highways.

I would like to make some suggestions for anyone preparing to offer emergency assistance. Recruit the best qualified people to do this work, such as beekeepers who have a good knowledge of bee behavior and have had experience in moving bees. One or two should be called in to supervise the clean-up if the driver of the vehicle has not had much experience in transporting bees. Believe it or not, this has been true in many of the accidents.

Both home and office phone numbers of these qualified persons should be made available to state police, county sheriffs' departments public health directors, or any authorities who may be notified in case of an emergency. Generally, this phone listing would include the numbers of the Chief Apiary Inspector and all apiary inspectors in the area. If there are no inspectors nearby, then the home phone numbers of qualified beekeepers should be provided. There should also be a line of communication among members of the helping group.

Consider a hypothetical case in which you receive a call from a excited city official, chief of police or state trooper. One of the first things to do is to get the exact location of the accident, especially inquiring if it is in a residential or rural area. It is very likely the individual reporting the emergency may be in need of some reassurance that the bees are not going to fly out and sting every person for miles around. A knowledgeable beekeeper will be able to explain how the bees can be expected to react to the situation.

Though all highway accidents with bees have certain similarities, each one is unique with variations affected by time of day, characteristics of the location, and weather conditions, especially temperature. If the problem occurs in a rural area at night, it is best to wait until dawn before starting clean-up operations. In a business district or residential area it will probably be necessary to begin long before daybreak in order to complete it before pedestrian and street traffic increases:

After all aiding parties have been notified, make sure you have extra equipment before heading for the scene. Take extra smokers, fuel, veils, gloves, flashlight, matches, hive tools, hammer, nails, duct tape, and any other equipment you think may be needed in such a situation. Extra trucks will be useful to move the bees away from the scene to an isolated area where they can be re-loaded at another time.

Seconds after an accident occurs, if the hives are thrown off the truck and broken apart, the flying bees will be quite aggressive. However, this lasts for just a few minutes after which they become very disorganized, staying close to the overturned equipment and clustering on all parts of it. I always warn the state troopers not to drive up close to the accident and shine their spotlights on it, as many bees will fly directly into the beam of light. Some troopers disregarded my advice and received multiple stings in an incident last fall.

Upon arriving at the scene, seek out the main parties concerned, identifying yourself and loaning veils and gloves to the state police in charge of the situation. Offer suggestions but do not attempt to impose opinionated solutions as the final decision on how to handle the problem remains with the beekeeper (owner of the bees involved) and the city and/or state officials.

Try to salvage as much equipment as you can for the beekeeper. In one instance the beekeeper purchased new large garbage cans and we filled them with broken combs of honey. After the clean-up work has been completed, some bees will still be flying around during the day. Leave a salvaged bee hive at the scene so these bees can find and enter it. After dark this hive can be removed.

All broken equipment that cannot be saved should be burned or buried. We re-

Continued on page 314

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Citizen Beekeeper

Continued from page 312

main on the scene until the area is completely cleared away. This creates a better image for the beekeeping industry and does not leave any of the clean-up problems for the state or municipal agencies that have responsibility for maintaining the streets or roads.

Whether a load of bees is creating a problem on the highways, by being involved in an accident or by being overweight at a state weigh station, the first person usually contacted is the Hazardous Materials Officer of the state police. As a rule, these officers are not knowledgeable in the handling of honey bees. I urge you to give these people the benefit of your experiences and your utmost cooperation and assistance in these difficult situations so that honey bees will not some day be classified as hazardous cargo.

How To Handle Crabby Bees And Crabbier Government Anti-Bee Ordinances

By THURBER

5522 127th Ave.
Kirkland, WA 98033

One night after a bee association meeting two or three members were wondering what should be done about one beekeeper who kept bad tempered hives, and I got roped into discussion. Well, I knew that the man kept bad tempered bees because one hive had swarmed and I caught the bees on the adjacent city lot. They had been a bit bad tempered when I caught them which is unusual. Swarms generally are easy to handle. Then after I had hived them, they were too hot to keep here at home. They stung my wife, the dogs, and people who casually dropped by so I took them out to a stump farm of a friend and requeened them. You might say that if people drop by uninvited and they get stung that is their problem. You are wrong! You can be sued by people who come onto your property uninvited and you can be sued by the mail carrier, the UPS delivery person, paper boy, etc. You think a sign that says DANGER BEES or a NO TRESSPASSING sign relieves you of liability — well I suggest you talk to your attorney or insurance agent.

Going back to the initial subject, I wish I knew what to do about a beekeeper who keeps bad tempered bees. If he will discuss the matter, maybe you can point out he can be sued. Then too maybe he does not know how to requeen and if you offer to help, maybe that is a solution. Do not laugh! I know beekeepers who have had bees for many years who have never requeened. But if he is one of these people who think they have an inherent right to keep bees and they are his bees and if they are bothering his neighbors that is his business, etc., well what should someone do? Frankly isn't this a serious matter? I think it is. And when you discover that most city or town ordinances were passed just because of one inconsiderate beekeeper you may join me in wondering what to do. Do you go punch him out or poison his bees or what? Me, I do not know.

Once faced with a petition to ban bees I went to the police and asked them if they could not declare the offending bees a public nuisance. They did, and the beekeeper was ordered to get rid of his bees. When a similar situation arose in another police jurisdiction, and the bees were declared a nuisance, the beekeeper fought back through a lawyer. I think he might have won because the police possibly did not apply the city nuisance ordinance in the prescribed manner but the beekeeper made the mistake of bringing his attorney on to his property to show him how he, the beekeeper, was being picked on. Fortunately one or two of the bees stung the attorney who then decided he did not need the beekeeper as a client. The beekeeper I heard then figured the attorneys might have a mutual hotline so he never hired another and got rid of the bees. So this incident too had a happy ending. The beekeeper got rid of his bees and the other beekeepers did not suffer for his ill-advised actions.

On the other hand I read that a town in Vermont recently had an anti-bee ordinance passed because of one beekeeper so we do need a solution. If you have a good one, write the editor. I am sure he would welcome it.

Now let me go on — if you have ordinances which permit the keeping of bees in your city or county, do not relax. Ordinances can be rescinded if there are enough problems and public outcry. When you analyze as best you can why ordinances could be rescinded, I think you will find the ordinances are probably pretty good, but the ordinance enforcement people generally do not know beans about bees, and probably would not know the difference between bees and wasps. One man in Seattle was in a pickle because yellow jackets were hassling the lady across the fence. She called the ordinance enforcement people. One came. She showed him yellow jackets eating from the dog food dish and then related horror stories...they could not eat out, the bees were continuously getting in the house, etc. The bees across the fence, the ordinance people said, had to go. I got an agonized call for help and went to see what was the matter because that man had purchased new breeder raised queens in a pool order I put together each year, and I was pretty sure the bees were docile. I then went over to see the dog food eating bees. In less than five minutes I found a wasp nest in a large shrub up against the house and located perhaps 15 feet from the back door where the dog food dish was. When I tried to tell the lady about the wasp nest she refused to believe me so I got hold of the ordinance enforcement gentleman. He came back. I caught a bee, put it in vial, and then we went to the lady's back porch to catch a dog food eating bee. Obviously bees and wasps do not look the same. Then I pointed out the wasp nest. That did it. The abatement order was cancelled over the lady's screaming protest. Then would you believe she wanted the beekeeper to come kill the wasp nest. That failing she wanted someone in our swarm control group to do it. For free of course.

I told you this story not because I was a hero but because the enforcement people need beekeepers who can teach them a bit about bee identification and bee behavior. I do not think many if any cities or counties have known information resource available. So you be it! The "it pays to know how" is up to you. You and your friends might give a thought to possible problems and come up with solutions AND stay alert to what's going on in your community! Have plans now just in case. The next incident might just involve you! □

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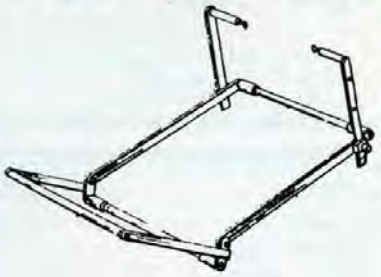
First Flights

New Ideas & Products



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For further information, contact the producers at the address above.

We invite submissions to this new products column. Descriptions must be kept very brief. Patents must be pending on products exhibited here. Publication of material is at the editor's discretion and does not constitute an endorsement. Product user feedback is welcomed.

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Some Suggestions For Catching & Hiving Swarms

By THE EDITORS

1. Don't take unnecessary risks by climbing up to unsafe places to catch a swarm. Wear a veil when hiving a swarm even though they appear docile.

2. When cutting a limb on which a swarm has clustered, gentle actions are necessary. Take care not to jar or excessively shake the limb. Lay the limb as close to the entrance as possible or drop the bees in front of the entrance with a quick shake. As a few bees go in, the rest are apt to follow.

3. A smoker can often be successfully used in directing a swarm which is clinging to a flat surface such as a wall, but otherwise using a smoker is usually useless against a swarm cluster and might, in fact, disturb them. Additionally, the beekeeper might use a piece of cardboad or other stiff, flat object for gently scraping bees into receptacles. Some beekeepers find it helpful to spray swarms with thin sugar syrup to make them more placid. The addition of medication to the syrup may be a wise precaution after the swarm has been hived and is being fed.

Photo of bait hive, sent to us by A. Lloyd Allison of Cleveland, Georgia. Bait hives are placed in spots where swarms have landed in before. Presumably, subsequent swarms are attracted to the same spot by chemical residues. Bait boxes are sometimes, but certainly not always, a successful device for capturing swarms. Old hive equipment is especially suited for this. Generally, a single frame of comb is placed in bait hives.

4. Remember that bees need some ventilation. To place a captured swarm in an airless container will suffocate the bees. Plastic, for example, may be handy but it will overheat in the sun if bees are confined for a period of time without sufficient ventilation.

5. Full sheets of new foundation can be used in the new hive when hiving swarms. This is a convenient way of having comb drawn out quickly and well.

6. If bees have been dropped into a basket, box or net, and are subsequently poured out before the entrance, it is advisable to have a bee brush handy for the purpose of directing clumps of bees toward the entrance. A few puffs of smoke may also help.

7. After hiving a swarm, observe if bees begin running out of the hive and demonstrating unorganized, restless behavior. This may be an indication that the queen has not entered the hive or has been lost.

8. After hiving a swarm, place the cover on loosely so that a current of air can pass from bottom to top for the first 24 hours. □

Some Observations On Queen Rearing

by PETER L. BORST

12819 Via Grimaldi
Del Mar, CA 92014

Queen rearing is a subject which holds a great deal of interest for me, and I have spent considerable time researching it. In spite of the fact that many excellent books and articles have been written on the subject, a few misconceptions prevail among amateur and professional beekeepers alike. I'd like to touch upon some of these while sharing experiences I have had over the years of working with bees.

Natural Queen Rearing

Nature has provided the bees with a plan for replacing their queen, which we call supercedure. Although it has been theorized that the reduced production of queen substance by an old queen prompts the bees to supercede their queen, it remains that some hives seem much prompter about doing this than others. In fact, some colonies supercede young queens, newly introduced, while others keep their "ancient" queen until she can no longer lay properly, and as a result, the colony perishes. In other words, bees follow some kind of intuitive feeling about the chances of their queen.

I once had the opportunity to observe natural supercedure step by step. I had a particular queen and a small number of bees in an observation hive for a time, but as they never seem to be all that happy under glass, I transferred them to a four frame "nuc", and put them out behind my house. Several weeks later, I noticed the presence of one queen cell, which I ruined while examining it. They soon built another, so I decided to watch the whole process. The cell hatched, the queen mated, and there soon were two queens laying together, mother and daughter. Soon the old queen disappeared, I'll never know why——they both seemed capable.

And so, although the bees of a colony seem to feel a great deal of fondness for their queen, protecting her and defending her from intruders, they are quite ruthless when the time comes to get rid of her. Of course, I realize that many people would not call the bees' response "fondness", but rather: instinct of preservation. Still, anyone who has seen bees' reaction to having their queen returned after several days absence, will admit that they appear to be rejoicing.

Queens are also raised by bees under what is called the swarming impulse. This is often depicted as the ideal condition for queen development. It is when the environment is most favorable that bees feel the urge to divide the colony. Pollen and nectar are being brought in abundantly and the hive is crowded with bees of all ages. A strong colony may raise several dozen large queen cells from fresh white wax and may cast numerous swarms with virgin queens in addition to the first swarm headed by the mother queen. If the beekeeper happens upon such a colony before it swarms, he can easily divide it into half a dozen nuclei, each receiving a frame with at least one sealed queen cell, destined to become the mother of the new colony.

Unnatural Queen Rearing

On the other end of the scale is what I call unnatural queen rearing. It always surprises me when I hear people advocate the method of raising queens by setting aside several frames of brood with whatever bees cling to the combs, to sit back while the bees make the best of a disasterous situation. In fact, this method was described and condemned a hundred years ago by G.M. Doolittle in his book, *Scientific Queen Rearing*, (1888). He was raising queens after the fashion of the day, putting a handful of bees and brood in a mating nuc. Subsequently, he had the disquieting experience of having the queens in his hives drop dead, en masse.

At least two things go wrong with this method of queen rearing. First, the larvae used by the bees for their queen may be too old to develop into a perfect queen. It is known that queens can be raised from larvae as old as three days (three days of being fed the food for worker bee larvae), but bees may attempt to raise queens from even older larvae. These bees may have characteristics of **both** workers and queens, or be incapable of mating. Being older, they are apt to emerge first and kill the younger, potentially "better" queens. Second, there may not be enough nurse bees to provide the developing queen with the abundance of royal jelly that one finds in queen cells raised in swarming hives. It has been found that queens raised under ideal circumstances are larger, have more ovarioles (the egg producing organs) and lay more vigorously than queens raised under emergency conditions.

So, the practice of pulling a few frames out of a hive and setting them off by themselves is a poor bet. It would be far better to divide the hives about equally. To do this it is best to move the entire apiary and separate the two stories the following day. Or, division can take place in the apiary if one finds the queen of the hive and puts her with the division set a few feet away from the parent. Of course, if going this far one may as well provide the queenless part with a cell or mated queen.

Commercial Queen Rearing

While it is true that the raising of thousands of queens gives ample opportunity for turning out weak, inferior queens, most breeders actually raise queens as good as, or better, than bees left to themselves. Commercial queen rearing is a complicated and demanding art. I worked with an outfit that produced nearly one thousand queen cells per day and I shall describe the operation in some detail.

Near the warehouse was an apiary of one hundred hives. These hives were fed sugar syrup and pollen supplement until natural conditions eliminated the need for this, usually in late May. The hives were of three types. There were about twenty breeder hives containing selected queens placed in single story hives with queen excluder compartments confining the queens to two frames in the center. By rotating the combs in these hives, frames were constantly available containing thousands of twenty-four hour old larvae. There were forty starter hives: queenless hives into which the grafted cells were placed, for two days. There were forty finishers (or cell-builders). These are two story hives with the queen in the lower portion and the youngest brood in the upper, separated by a queen excluder. The daily routine consisted of first moving the cells from the starter hives to the finisher hives to make room for new cells which would be put in at the end of the day. As the cells were moved into the finishers, the ripe (ten day old) queen cells were taken out and placed in an electric incubator. Meanwhile, the eleven day old cells were removed from the incubator, candled to check for dead queens (or ones that weren't the correct age) and cut off the wood sticks (cell bars). The queen cells were placed in padded boxes and rushed to the queenless mating nucs, previously made ready.

The day would then be spent caging queens, feeding hives, or shaking bees from packages. About four o'clock, the workshop would be warmed up and grafting (placing the tiny larvae into man-made cell cups), began. When grafting nine hundred cells, about three people would graft while one "runs" the cells to the starters, one frame to each of twenty hives.

From six to nine hundred queen cells would be ready daily, to be introduced that day. If they were not, they hatched in the incubator and tried to kill each other.

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Heads Of Grain From Different Fields

A Guest Column

By PAMELA J. SPENCE
ERNEST WHITE
And
LOREN DAVIS

The Great Florida Expedition

By PAMELA J. SPENCE
151 W. Henry St.
Wooster, OH 44691

How do you learn to become a commercial beekeper? Sitting in a classroom, taking notes helps. But to **really** learn about commercial beekeeping means wading in, smoker in hand and working those bees.

The Commercial Beekeeping program at Agricultural Technical Institute in Wooster, Ohio, co-ordinated by James E. Tew, Ph.D., employs just such a learning combination.

The bees of ATI, like the bees from many commercial apiaries in Ohio, overwinter in Florida to prevent wide spread loss of colonies should the weather prove severe. Migratory beekeeping involves overwintering the bees in a mild climate then moving them north progressively with the nectar flow.

Several weeks ago, beekeeping students accompanied Dr. Tew and field technician Phillip Mariola on the trek to Florida to bring back the bees. "This was the first year we did the whole operation ourselves," says Tew. "Previously, we had a cooperative agreement with a commercial beekeeper to truck them down. We just stood around with our hands in our pockets and watched him do it." Tew believes that the students gained valuable insight into the many problems that a migratory beekeper faces.

"It was a valuable learning experience for all of us," says Tew. "Every possible thing that could go wrong, did. But that was good, because we'll be better prepared next time.

"For instance, I will know next time that when you call up and rent a Bobcat in Florida, that it doesn't automatically come equipped with lights. And I'll tell you what; it gets mighty dark out in the woods at 3 AM when you're trying to load hives on a truck using nothing but flashlights. Especially in the fog."

Tew had words of encouragement for the aspiring beekeepers before we all embarked on the Great Adventure: "You'll get stung repeatedly, lose sleep, lose weight, wonder what in hell ever possessed you to go into beekeeping in the first place. But you'll sure have a better idea of what this whole business is about."

Early Sunday morning we began the 18 hour trek to Florida; the flatbed truck that would carry the hives back (loaded now with sheep to be dropped off first in Gainesville, Florida), Tew's battered blue pick-up truck and the brown van carrying ATI students, two Americans and four Burmese.

Dr. James E. Tew (L.)
Phillip Mariola (R.)

In Florida, the hives had been placed at several sites in various farmers' fields. By Monday afternoon we were bouncing down dusty back roads enroute to the first site. We carefully negotiated the van and pick-up truck through the narrow gate and were faced with a larged expanse of plowed field, covered at the lower end by a healthy stretch of water.

"When we came down here last fall," Tew said, eyeing the hives that lay on the other side of the flooded field, "this field was pasture, cows grazing on it, hard as a rock. And we just drove the flatbed straight on through it. Unloaded the pallets of bees. No problem. That's lesson number one: nothing ever looks the same twice."

We drove in as close as we dared and began the process that would be repeated in all other yards: cleaning out dead colonies, consolidating hives on the pallets, pulling frames to check brood and food stores.

Skies were crystal blue and the bees were flying in full force as we lashed hives to pallets with ropes, ready for loading onto the truck later that evening. Loading has to be done in the evening when the field force has returned to the hive and the colony has settled in for the night.

Returning to the van, we began another process that would be repeated many times before the trip was over: digging vehicles out of the mud. Florida had had an unusually wet spring and below the fragile crust of dry ground lay a sea of sandy ooze.

When the van wouldn't be pulled out, dug out or cussed out, we hitched it to the flatbed and dragged it out. When the flatbed sunk axle deep in mud only the tractor of a neighboring farmer could drag it out.

After dinner, the crew returned with Bobcat in tow for the final loading. The decision was made to park the truck safely on higher ground and have the Bobcat transport the hives across the marshy terrain. "No sir, you just can't get a Bobcat stuck," said Richard Minyo, student from Southern Ohio.

After the Bobcat sank in the mud, the decision was made to transport the hives by hand. "No problem," said Army Captain Htim Aumg Kyaw, "this is how we move hives in Burma."

At night, bees do not fly as much as they crawl. "They have this uncanny knack," said Tew, "of finding the one spot that isn't protected, that isn't closed up quite tight enough."

"Wouldn't be so bad," said Minyo, "if they'd sting you one at a time. But a whole bunch of them will hit at the same time."

In the early hours of morning, six bees simultaneously stung Tew on the throat. "I really thought — 'this is it; I'm going to throw up or pass out.' But I didn't. I just stood on one foot then the other, saying, 'Boy, that hurts!"

It took two gruelling nights to get all the hives loaded. The morning of the day we started back, the Burmese students tied down the netting that covered the hives. The truck sent up a steady hum of lost bees trying to get back in and angry bees trying to get out.

Employees and guests at the motel stood around in wide-eyed amazement saying, "What in the hell have you got on that truck? Are those **bees**?"

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Heads Of Grain From Different Fields

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Army Captain Htim Aumg Kyaw
Tying down netting

We started the trek back finally, leaving behind the blue skies, lush vegetation and gentle warm breezes. We drove back North through driving rain, lightning and high winds, arriving at ATI in the gray Wooster morning. Our migrant workers were dispersed to their new task: pollination of fruit orchards in the Wooster area.

Dr. Tew hopes of setting up an internship whereby an ATI beekeeping student would stay in Florida to moniter the bees and develop a queen-rearing operation. Winter internship in Florida? My thoughtful gaze meets Minyo's. "I'm way ahead of you." he says, "I got first dibs."□

Caveat Emptor

By ERNEST WHITE
Pinehurst, TX

Thursday afternoon I visually checked my newest hive. Five days previously I had purchased and picked up a Buckfast queen and three pounds of bees from an apiary in Navasota, Texas. Panic and nausea welled up in me. There on the bottom board lay my beautiful queen bee, clipped, marked and quite dead.

After removing the queen, I respectfully preserved her with liberal amounts of alcohol in a laboratory vial. At this point, I needed little visual reinforcement for my personal guilt trip. In addition, I had to relate our loss to my two sons Kevin and Pat. This tragedy represented a fifty mile round trip, cost of queen and a resultant queenless hive.

Five minutes later I ordered another queen, to be picked up in two days.

One somber amateur beekeeper drove the twenty-five miles to the apiary. Questions of why did the queen die flitted through my mind.

This essential question was answered by the owner of the apiary when he said, "queens are killed through kindness rather than neglect." Visual images confirmed this truth! Even though the queen had been placed correctly, there had been too much activity around the hive. For example, looking through the plexi-glass view window too often, moving entrance reducer, loud talking and smoking cigarettes near the hive entrance. I feel the queen was killed by over-anxious subjects.

Perhaps you wonder if I had to pay for the new queen. The master beekeeper asked me one question: "Was that queen alive when you put her in the hive?"

My answer was honest: "Yes, the queen was alive,"

Evidently, I passed the honesty test. He gave me a new Buckfast queen.

In conclusion, the master beekeeper acquired my lifelong respect. I learned not to kill a queen with kindness. The old axiom, *Caveat Emptor*, proved once again to be flexable between the professional and the amateur beekeeper.□

As You Sew — So Shall Ye Reap

By LOREN DAVIS
R. 2, Box 83
Decatur, AR 72722

I am a hobby beekeeper with five hives. I live in the Ozarks of northwest Arkansas. I grew up on this same farm in pre-World War II days, and left at the age of twenty-one. After forty years away, I retired and returned here in 1979.

We have many trees and plants in the timber which provide bee pasture in the spring and early summer. However, from early July until early September it is usually hot and dry and there is very little for the bees to work on.

This fact has caused me to start looking for plants or trees not native to this area, which bloom in mid to late summer to provide bee pasture.

I had always heard that buckwheat was a good bee plant. I ordered three pounds of seed from northeast Kansas and I planted it in late May. I was amazed to see it begin to bloom three weeks after planting. In the meantime I read in a bee magazine that buckwheat was worked by bees only in the New England states. I watched the buckwheat as it grew. It bloomed profusely, but only an occasional bee visited it. The next spring a good volunteer crop came up but again the bees did not work in it.

". . . . There are many bee plants that are good nectar producers in some parts of the country and not in others."

During this time I ordered small packets of bee plant seed of about a dozen varieties from the Pellett Gardens. Some of them bloomed in late summer but no bees visited them. By now I have concluded that there are many other bee plants that are good nectar producers in some parts of the country and not in others.

If I am correct in this assumption, why isn't more attention called to this fact in the books and magazines? I have read articles on anise hyssop, for instance, which describe it as a heavy producer of nectar. I started some from seed last year. Only one plant reached the bloom stage and at a time when the bees were idle, but no bees visited it that I saw. I realize that this is not a sufficient test for it. I am waiting eagerly to see whether or not the bees work on it this year as I will have much more of it that will bloom.

Sweet clover and white clover are often mentioned as excellent sources of nectar. I have acres of white clover and some sweet clover but neither seems to be of much importance as far as bees are concerned. Bees do visit them to some degree.

The asters and goldenrod are often mentioned as good fall sources of nectar but I have yet to see a bee on either of them in this area.

I have concluded that the only way to find a plant that will make summer bee pasture here is to experiment with a number of new plants each year in hopes of finding one or more that is suited to this area. This year I am trying the bee bee tree and vitex.

I have just finished reading the April, 1983, issue of the *American Bee Journal* and I notice that there are four ads for selling anise hyssop seed or plants. One of these mentions that it is "an excellent bee forage plant." All ads are from Washington State. No doubt it is a good bee plant in Washington, but is it good in Arkansas and other parts of the U.S.?

At the present time I am propagating catnip, which is an excellent bee plant here. It blooms from early June to the first of July.

I am still hoping to find plants that will produce nectar here in midsummer.□

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Honey Products

Continued from page 300

hypopharyngeal glands. The workers supply all young larvae with royal jelly and their only food. Queen larvae and queen adults continue to be fed royal jelly. The fascination we have with royal jelly for ourselves probably stems from its seemingly magical property of producing queen bees.

The composition of royal jelly has been well studied since it is of utmost importance to the bee colony. The moisture content is high, about 66%. The analysis of the dry matter showed about 12½% proteins, 5½% fats, 12½% carbohydrates and about 3% undetermined substances. The composition of royal jelly is quite consistent throughout the year. No differences were found from different locations or from different hives.

Vitamin studies showed royal jelly to be a good source of the B vitamins. However, royal jelly is deficient in vitamins A, C, and E. There appears to be nothing harmful or allergenic in royal jelly.

Royal jelly, with its high moisture content, would appear to be an excellent medium for bacterial and fungal growth. However, no such growth occurs in the hive or in stored clean royal jelly. Murray Blum found that a particular acid (10-hydroxy-2-decanoic acid) prevented both bacterial and fungal growth. Although royal jelly does not support microbial growth during storage, protein breakdown at room temperatures produces discoloration and strong disagreeable odors. Storage, therefore, is best in refrigerator or freezer.

Royal jelly can be produced in significant quantities using modified queen rearing techniques. China alone produces about 100 tons annually. For many years the people of Asia have used royal jelly either along or in combination with other ingredients. In fact, China makes royal jelly chocolate candy and royal jelly wine, as well as lotions and tonics for therapeutic use. The USSR and eastern Europe also show an interest in the medicinal use of royal jelly.

Here in the United States, cosmetics containing royal jelly were popular during the 1960's, but interest waned. At present, royal jelly research seems to be at a standstill in the country and only slight interest is shown abroad.

Propolis

Propolis is actually a product of plants that is collected and used by the bees. We are familiar with plant resins from the sticky substance oozing from the pine trees. However, many plants produce resins, probably for protection from pathogens and from chewing insects. Bees collect their propolis principally from poplar trees, alders and elm, as well a from many other plants. The buds of deciduous trees produce fair quantities of resins during the growing season. However, especially in areas of sparse vegetation, bees have been observed collecting a variety of other sticky substances, notably road tar, caulking compound and partly-dried paint.

Bees use propolis in many places within the hive. Holes and cracks are sealed against the weather. Rough places on walls and frames are smoothed out with applications of propolis. Entrances can be reduced to a few bee-size holes in a surprisingly thick and substantial wall or propolis.

The color of propolis varies depending on its source and age. It can be a light yellowish-green to a dark brown. At warm temperatures, propolis is sticky and pliable, but when cold is hard and brittle. The composition of propolis is complex and little progress was made in analysis until about 1970. However, only a portion of the substances present have been investigated. Beeswax and pollen are found in propolis, but this is not surprising since these substances are present in large quantities within the hive. The plant pigment called chrysin, found in propolis, is also one of the principal coloring agents of beeswax.

The largest group of substances are the plant dye pigments *(flavonoids)*. The compounds of propolis vary with the plant source.

Very small quantities of vitamins occur, mostly some of the B group and C and E. The minerals copper and manganese have been reported, along with such others as iron and calcium. The amounts of vitamins and minerals are too minute to be of value, even to the tiny bee.

Since only a few of the constituents of propolis are known, and those only from the soluble portion, much research is left to be done.

Propolis, by virtue of its incredible stickiness, was used as an ointment by the ancients. It was recommended by them for various wounds and ulcerous sores. Unfortunately, it is so difficult to dissolve or to mix with other substances, it received little notice until about 1900.

If propolis supported any bacterial or fungal growth, it would have no place in the hive. Studies have been made on its antibacterial and antifungal effects. A particularly nice work was carried out in 1967 by Lindenfelser, a beekeeper and a microbiologist. An extract of propolis was found to be effective against a number of strains of bacteria and fungi.

Unfortunately, propolis has been identified as one of the substances responsible for both contact dermatitis and a "hayfever" type of allergy in beekeepers. Cases of contact dermatitis have been reported by some people who used lotions containing propolis. The allergens have not been isolated.

Although propolis research has not shown much progress in recent years, interest has been shown by Dr. Mizrahi in Israel. It will be interesting to follow his progress. Perhaps his forthcoming work will stimulate others to research this fascinating substance.

Pollen

Pollen is a plant product that is collected and processed by bees. Pollen is, of course, the male reproductive cell of flowering plants. Many factors influence production and thus it is difficult to predict how much of any one type of pollen is available for the bees to collect. Bees are not attracted to all pollen-producing plants. Although most wind-distributed pollen is not sought by bees, studies have shown that they will indeed collect freshly produced pollen from some grasses, including corn. Also, not all insect-pollinated flowers are attractive to bees. Therefore, the pollens brought into the hive are from limited sources.

At any given time, bees collect pollen from several different types of plants. This mixture assures that a spectrum of nutrients is available. Bees depend on pollen for their protein, fats, vitamins and minerals. Adult bees use pollen for growth and for production of muscles, glands and glandular secretions.

Pollen, freshly collected by bees, shows a wide range of composition. Moisture content is usually about 25%. The dry matter contains the nutrients: proteins, carbohydrates, fats, vitamins, and minerals. However, the amount of these nutrients varies greatly. Different plant species, climate, location, time of year, as well as other factors less understood, all contribute to the variability of pollen nutrients. Although taken as a whole, pollens contain all the essential amino acids, a single pollen species can be very low or totally deficient in one or more. Storage conditions are known to cause great changes in amino acid content. Pollen also shows a great range in percent of protein, from very low to very high. Fats are about 4% of the dry matter. Carbohydrate levels also vary giving widely different percentages of sugars and starch. Here again, storage conditions can drastically alter the carbohydrate content.

Pollen is noted for its high vitamin content, although not all vitamins are present in pollen. The water-soluble vitamins, the B complex, and also ascorbic acid, are present in comparatively large amounts. However, pollen is very low in vitamins A and D, and vitamin K is not present at all. About 4% of pollen dry matter are minerals. Potassium, phosphorus, sulfur and calcium are the most abundant minerals. Other minerals are present in trace quantities only.

The mixture of pollens collected by honey bees provides them with a nutritionally balanced ration. However, it is very difficult to assess pollen as a nutri-

Continued on page 325

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Questions and Answers

Continued from page 310

Q. As a beginner beekeeper I watch for the first signs of early spring activity in my hives high up in the cold and windy Catskill mountains in NY. In late February, they started flying when we had a short thaw and temperature in the sun of 55-60 degrees. As I was feeding the birds on the back porch I noticed several dozen bees crowding around the cracked corn. Closer examination showed that this finely cracked, bright yellow corn had a lot of flour sized residue and the bees were actually packing this away in their pollen baskets and taking it home.

Alongside the corn I then put out soy flour, wheat flour and confectionary sugar but very little interest was shown for these materials. Do you think that color was the important attraction? Is corn substitute useful for early spring build up or is it likely to be detrimental to my bees? R.J., NJ

A. Before natural pollen bcomes available bees are often able to fly and seem to have an impulse to gather anything which resembles pollen, whether it is of any value to their brood or not. This often leads to numbers of bees gathering material from bird feeders and livestock feeders, for example, although the material is of no value to them. This type of gathering is discontinued as soon as natural pollen becomes available. Pulverized corn is of no value to bees and I doubt if color is a factor in attracting bees. The soy flour, wheat flour and confectioner's sugar may, under certain circumstances be attractive to bees, but as a general rule will be ignored unless blended together in the correct proportions and prepared by very specific proceses which may also include other ingredients which stimulate their attractiveness to bees. □

Q. Please suggest type of bees and number of colonies per acre of blueberry plantation. These will be needed next year in the spring. R.P., Kingsport, TN

A. The Italian race of bees is probably the most satisfactory for pollinating but those who keep Carniolans or even Caucasion bees may argue with this.

Blueberries have the following pollination requirements per S.E. McGregor in his publication *Insect Pollination Of Cultivated Crop Plants.* "Evidence indicates that the grower would profit most, in terms of quantity and quality of berries produced, earliness of harvest, and greatest percentage harvest at first picking, if the highest possible bee population were maintained at flowering time. This might mean five or even ten colonies per acre; doubtless under most conditions it should be greater than one or two. Actual use varies from none to three, and State averages of honeybee colony rentals for blueberry pollination are less than one colony per acre." □

Honey Products

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tional supplement for humans. The great variability in composition, with the known degradation of nutrients brought about by storage conditions plus further preparation into edible products makes studies of benefits very difficult. Furthermore, our understanding of the outer coating of the pollen grain is poor. This outer coating, so tough and resistant, may prevent some or many nutrients from ever being utilized.

Historically, pollen was inadvertantly consumed as an ingredient of honey from destruct harvest. Some records do exist describing consumption by the Greeks and other middle eastern civilizations. Today pollen is popular in the USSR and parts of Europe with many beneficial effects attributed to it. However, true clinical studies are lacking at this time, both overseas and in the U.S.

Eating pollen is not without hazard. Pollen can be easily contaminated with pesticides, many of which are toxic to man. A few pollens, notably from rhododendron species, are toxic. Pollen, if not dried properly, will mold, with resulting toxic by-products. And there are an increasing number of cases of anaphylaxis occurring immediately after consuming some health food product containing pollen.

At present it is impossible to substantiate any claims for benefits obtained from pollen in our diets. Research should be encouraged for this hive product.

Honey

Honey could possibly be one of man's oldest medicines. Today we know that honey is a product both of the plant and of the bee. The plant, in producing nectar, introduces characteristic substances that give the final honey its flavor and color. The composition of honey is extremely variable, but does include certain groups of substances. Sugars: glucose, fructose. and sucrose are the main components Other substances: nitrogen compounds such as amino acids, vitamins, minerals, organic acids, pigments and aromatic compounds are present only in minute quantities. Scientists have identified about 181 different compounds in honey.

Bees depend on nectar, or the resultant honey, for the carbohydrates necessary to their diet. Honey is their energy source that enables them to fly, to forage and to work within the hive. Honey is also used in the storage of pollen.

Honey is a highly concentrated solution of sugars in water. The average water content is about 17%. Fructose and glucose together make up almost 70% of honey.

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Queen Rearing

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Mating The Queen

It is an example of the curious ways of nature that the survival of a colony of bees frequently rests on the success of the queen's mating flight. On this flight she may encounter any number of pitfalls, including being eaten by a bird or blown off course by wind. And, due to the fact that she has already killed her potential rivals, her first duty at birth, the colony may perish if she is lost. Yet, the great majority of queens do fly out at the tender age of five to seven days old, mate, and begin laying about a week to ten days after emerging from the queen cell. Of course, they will never be required to fly off, unaccompanied, again.

The percentage of successful mating flights in a given queen mating apiary may determine its profitability. Some beekeepers go to great lengths to make each mating nucleus recognizable by painting them different colors or putting distinguishing marks on them. However, in the mating yards where I worked in Northern California, we arranged the hives (which were indentical in appearance) to take advantage of natural landmarks. A typical mating yard might have hives scattered in the thick underbrush over rocky hillsides. Another mating yard might have numerous small oak trees, providing shade and identification. But what actually constitutes identification to the eyes of the queen bee? Of course, we don't know what bees see, but through the years of experience, queen breeders have learned how to place hives to increase the percentage of successfully mated queens in an apiary.

Some things to avoid are long rows of indentical hives, or few landmarks. It is better to put the boxes in groups of two or three, near a large rock. If the trees are large you can put several groups of three, radiating from the trunk. In areas where the brush is very thick, some beekeepers cut narrow paths and place the hives along these paths. The rugged terrain may make the work go a little slower but it pays off.

When the beekeeper begins caging the first round of queens, he has an opportunity to check on the quality of the breeder mother. Usually queens are caught and shipped before any of **their** daughters hatch out, but the queen's appearance will tell a lot about the way her mother was mated. Breeder queens are selected for various characteristics, including color. Color is meaningless, per se, but it can serve as an indicator that the queen has mated with drones of similar stock. For example, if we are raising yellow Italians and the daughters of a certain breeder have black stripes, we may conclude that she has mated with a mongrel or hybrid drone. Even tested breeders may begin producing cross-bred queens at any time because the sperm of several drones is layered in the receptacle of the queen.

The final results of a bee breeding program rest on sending the queen out into the wild blue yonder, to meet whatever fate may befall them. Nature has the last word here, as in any agricultural pursuit. Just as with honey production, one may manage his bees in excellent fashion, have good equipment, and so on, but if nature and the weather do not cooperate, there will be no honey to extract, or no queens to mail off to customers, who are already preparing for their arrival.

Stock Maintenance

I will just touch briefly on the complicated subject of artificial insemination (A.I.). Bee breeding has been going on for a long time and with the perfection of A.I. techniques it seemed that previously unattainable goals would be reached. Hybrid super-bees by the thousands could be produced by the isolation of genetic lines and crossing them in labs. The mating flight, with its element of chance, would be done away with.

Well, this has not come to pass. Most queen breeders make no use of A.I. whatsoever. One company that I know of attempted to produce A.I. queens on the production scale but, after a few seasons, they discontinued. The techniques are too time consuming for this type of application. No only that, but we do not really need a hybridized super-bee. The stock we have now is acceptable to most beekeepers and what is needed is stock maintenance. This can be accomplished without A.I. The biggest problems are encroachment by beekeepers with mongrel strains and inbreeding. Organizations have been set up by beekeepers to encourage the exchange of breeding stock to prevent the inbreeding that occurs if beekeepers breed from the same genetic pool year after year. As for encroachment, this is a problem that, with the decrease of areas suitable for queen raising, is more difficult to overcome.

The importance of stock maintenance is going to take on increased significance as the Africanized bees make their way from Brazil to the areas of extensive beekeeping in Mexico and the United States. The characteristics of this bee make it entirely unsuitable for modern beekeeping as practiced in our country. Their tendency to intense swarming and absconding may fill the countryside with wild colonies, but it would make it impossible to harvest large quantities of honey, maintain strong hives, or even keep the bees **in** the hives. Even their reputation as being vicious will create a monumental public relations headache. Bees may be outlawed in areas of even moderate populations, and beekeepers may be forced into swamplands or deserts, where forage may be scarce and roads less than adequate.

In fact, beekeeping in the United States may be about to face its biggest challenge of the century. How we meet it may determine whether beekeeping as we know it will survive. Perhaps all queens for sale will have to be raised in the regions of the far north where the Africanized bees cannot survive.

The solution to all these problems must be centered in that one most important member of the colony — the queen. □

Honey Products

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Other sugars, such as sucrose and maltose, are another 8%. Other substances are present only in very small amounts. Acids, primarily gluconic, contribute to the acidity of honey and the taste. At least 17 other acids occur. About 11 minerals are found in minute quantities: potassium, sodium, calcium, phosphorus and magnesium are the most abundant. Extremely small quantities of other minerals have been found but their presence is highy variable. Amino acids do occur in honey in trace amounts and seem to be dependent on the plant source. The enzyme content has caused considerable interest. Invertase seems principally to be added by the bee to convert the sucrose to fructose and glucose. Glucose oxidase is perhaps the most fascinating enzyme of honey. This particular enzyme, added by the bee from her hypopharyngeal glands operates only when the water content of honey is high, either as freshly collected nectar, during ripening, or if ripened honey becomes diluted. Glucose oxidase acts on glucose to form glucomic acid and hydrogen perodixe, known to us as an antiseptic. Other enzymes may be present in honey.

Vitamins in honey have been studied but only a few have been found, and those in exceedingly small amounts. Some of the B vitamins and vitamin C are in honey but in amounts too small to be of consequence in our diets.

Compounds responsible for color, aroma and taste have not been investigated thoroughly. Fats of several types have been reported. HMF *[hydroxymethylfurfuraldehyde]* has been investigated only as an indication of storage conditions. As laboratory techniques and equipment become more sophisticated, other substances with biological activity will certainly be discovered and explored.

Honey, with its sweetness and pleasant taste, has made medicines and bitter herbs more palatable. The consistency of honey, thick and smooth, seems naturally to have a soothing effect, whether used in-

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Honey Products

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ternally or externally. Since honey does not support bacterial growth it can be used as a burn or wound dressing and seems to encourage healing, especially of ulcerous sores. We know today that the glucose oxidase system is responsible for the antiseptic properties. The body fluids from open sores trigger the reaction and hydrogen perodixe is produced at the wound site. The subsequent release of oxygen creates an unfavorable climate for harmful organisms.

Studies on the metabolism of simple sugars indicated that the sugars present in honey do not cause adverse effects in blood and body tissues that sucrose causes. Research is now being carried out in the U.S. on the influence of the simple sugars in our diets.

Bees As Food

One product that we in the U.S. seldom consider for human use is the bee itself, either as the adult or as the larva. However, researchers in other countries, notably Canada and Japan, as well as Norman Gary in California, have explored the use of bees as food for humans for livestock, for rearing birds and even for rearing other insects.

In a number of countries, insects of various kinds are eaten. In certain areas, particularly in Africa, insects supply important protein in a protein-poor diet.

They honey bee is particularly well-suited to raise for food because of its biology and behavior. For food production humans have only to provide a hive near a source of bee forage; the bees will do the rest. Canadians destroy 2,000 tons of bees annually since, at the present, wintering bees in not economical and in some places not possible. Warmer climates enable the bees to produce young througout the entire year. Therefore, many areas of the world could establish a bee-for-food operation.

Although there are no records of early man eating bees, it is probable that he did. We do know that the diet was varied and included anything edible that could be foraged. With the advent of agriculture, honey and wax became more important as hive products than the bees. Domestic animals proved a better source of protein in many regions. However, the destruct harvest method, still in use today in some areas, does add protein from both larvae and adults to the honey, and therefore to man's diet.

Adult honey bees have a protein content of about 15%. More important than that is the amino acid content. Bees are

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Honey Products

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rich in two essential amino acids (lysine and methionine). One study in Canada showed that adult bees would be an excellent food additive for pigs who are normally fed corn which is very low in those substances.

Recently, here in the U.S. an article appeared in a nationwide newspaper supplement and then was reprinted in several extension newsletters across the country. The article discussed the vitamin content of honey bee larvae. The research on the nutritional content of bee larvae was done in Canada and published in 1960.

Mature larvae and pupae are rich in protein and extremely high in vitamins A and D, although remarkably deficient in other vitamins. The statement in the newspaper article that one bee larva will provide 1500 times the U.S. recommended daily allowance seems to be in error, perhaps from a misplaced decimal point, since one mature larva supplies approximately 15 times the recommended daily allowance.

Vitamins A and D are both fat-soluble vitamins and thus are stored in the body. Both of these can be toxic if ingested in large quantities. Vitamin D is the more toxic of the two with rather serious results including calcification of blood vessel walls and also calcification of the soft tissues of heart, lung and kidney.

Calculations using the vitamin content of larva show that about 2½ tablespoons of larvae per day, as the only source of vitamin D, would produce symptoms of toxicity. Since adults receive vitamin D in other ways, from sunlight and foods, the actual toxic dose is about one pint of larvae.

Insects for food, particularly bees, may never be popular here in the United States. However, we may be hearing more about their consumption in other areas of the world. □

Capping The News

THE EDITORS "Beekeeping Small Talk"

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The Effectiveness Of Top-Ventilated Hives In Outdoor Wintering

A study by Ingemar Fries, from the Swedish University of Agricultural Sciences, on the subject of top-ventilated hives, was reported in the 21st volume, #4, 1982 issue of *The Journal Of Apicultural Review*. According to the manuscript, a three year study with a total of 112 wintered colonies, revealed that, although ventilated hives showed an ability to reduce mold and dampness, there was no significant winter loss, food consumption or spring colony size difference between ventilated and nonventilated hives. The report does acknowledge, however, that geographic factors, other than those in mid-Sweden, might cause differing results.

Physician Seeks Sponsors For Cholesterol Experiments Among Beekeepers

Young T. Cho, M.D., is a Kew Gardens resident and director of pathology at St. Mary's Hospital in Bedford-Sturyvesant, NY.

Among Dr. Cho's many research activities has been working with efforts to document that honey has a positive affect on allergy sufferers and arthritics.

Dr. Cho also says that "bees milk" can reduce cholesterol. He is currently seeking help and sponsorship for conducting cholesterol experiments among beekeepers.

For further information, write Dr. Cho at 9715 64th Rd., Rego Park, NY 11374.

Fruity Honey

A letter from R.O. Johnson of Cranford, New Jersey brought an interesting situation to our attention. While he was visiting in California recently he noticed "honey" for sale in a specialty store which was a surprise to him. "Small containers of strawberry and blueberry honey were sold with added color and fragrance," he wrote. "I did not have time to examine the label carefully enough to see if the contents were listed (but) I am sure that some unsuspecting customers may be led into thinking that strawberry and blueberry honey is red and blue and must smell just like the fruit!

We thank Mr. Johnson for bringing this to our attention. We cannot be certain whether there are violations of labeling and/or pure food laws. If this is true, and there is a deliberate evasion of compliance it may be a matter for the authorities to investigate, and of concern to the honey industry.

Along the same line it was interesting to note that some experiments in Poland (Apicultural Abstracts Vol. 34(1) 1983, in which bees were fed syrups from fruits (strawberry, raspberries, etc.) during periods of low nectar supplies. "The honey-like syrups produced by the bees were analysed and found to contain considerably more monosaccharides (simple sugars such as glucose) and vitamin C than the fruit syrups used as raw materials, were rich in organic acids and had some honey dextrins. Fruit bee-syrup can be considered as highy enriched fruit products with a considerably increased biological value," the review states.

Interesting, but before you think of hooking up your bee colonies to drums of cherry, orange, apricot, raspberry or grape juice to harvest this bee syrup we suggest you consider the marketing angle. Although the research in Poland said this BS (bee syrup) obtained from raspberry juice "had a high nutritive value and the best quality" it may be another matter to clear the product through the U.S. marketing requirements, as it should be.

Chemical Update

The February Apiary Inspectors Of America newsletter reports that, as far as they are concerned, EDB (ethylene dibromide) use is still "okay." The registration problem with EDB is with regard to user safety, as EDB is hazardous when inhaled, even in small amounts. Furthermore, there is a possibility that registration procedures for ETO (ethylene oxide) may be lost. The newsletter points out, however, that a new technique for sterilizing combs and equipment infected with American foulbrood is being developed. High energy electron beams (irradiation) can sterilize AFB scale in five seconds and presents no residue problems or adverse affects on biological activity of pollen. Its cost would be approximately $1.00 per hive body with comb.

A Voice From The Past

Beekeepers have often discussed the merits of killing bees in the fall and buying again in the spring, as opposed to wintering a colony. Seldom, however, has the dialogue been as pointed as in 1915, in *The Beekeepers' Gazette*, an Irish journal, when an unfortunate, unnamed beekeeper made the mistake of asking the editor: "We have a bar frame hive working away for the last six years, sealed with wax and never opened. I now propose smothering the bees, feeding the other bees with its honey, and preparing it for next year's use. Can I smother them with the smoker? Or what would you kindly suggest?"

The response was far from kindly. REPLY — Please do not think us unkind. We should prefer to advise you to smother yourself. In a long experience we have never met with any valid excuse for the slaughter of healthy bees. If you carry out your proposal you shall deserve to be hanged, drawn and quartered with such preliminary exercises as having molten lead poured down your throat and a wild monkey set on to bite your stomach.

We have our doubts that the unknown letter writer dared to carry out his plans. □

NEWS AND EVENTS

DELEWARE

Pollination Talk To Be Featured

The Bucks County Beekeepers' Association in conjunction with Delaware Valley College will be hosting the Annual Eastern Pennsylvania summer Beekeepers' meeting. The featured speaker fo the meeting will be Dr. Charles Mason, Associate Professor of Entomology, University of Delaware. Dr. Mason's research has involved many different aspects of honey bee pollination, and he will be sharing some of his findings during his presentation.

The meeting will be held on the campus of Delaware Valley College, located on Route 202, one mile east of Doylestown, PA. The meeting will be held on Sunday, June 19th, 1983. Prior to the formal part of the meeting, which starts at 1:30 PM, there will be a bring-your-own picnic lunch held in front of Mandell Hall, the building in which the meeting will later be held. Following the meeting, the College will host an open house at its Apiary and Bee House including refreshments and the looking at honey bee colonies.

On the following Friday, Saturday, and Sunday, June 24th through June 26th, 1983, the College will be offering its Annual Summer three day beekeeping short course under the direction of the College's beekeeping specialist Dr. Bob Berthold, who will be assisted by a number of other beekeeping experts including Dr. Dewey Caron, Department of Entomology, University of Delaware.

Additional information on the meeting and on the course can be obtained by writing Dr. Berthold, Delaware Valley College, Doylestown, PA 18901 or by calling him at 215-345-1500.

DELEWARE

Delaware Valley College Beekeeping Short Courses 1983

Delaware Valley College, Doylestown, PA will again be offering its Summer Beekeeping Short Courses on Friday, Saturday and Sunday, June 24th, 25th and 26th, 1983. The courses are offered under the direction of Dr. Robert Berthold (Assistant Chairman Biology) in cooperation with Dr. Dewey Caron (Chairman, Entomology, University of Deleware), Mr. John Witebeck (PA Dept. Agriculture Apiary Inspector), and Mr. Frank Makowski (NJ bee supply dealer). The program will include a special talk by Mrs. Marnie Berthold on home uses of honey. Instruction will take place on the Delaware Valley College campus, with the College Apiary and Honey House being utilized.

More than 175 persons attended the 1982 courses. Included in this group were experienced beekeepers, novices, and those considering taking up beekeeping as a hobby. There were quite a few teachers who were planning to use the information presented in their own classroom situation. Also a number of people incorporated the course into their vacations.

The total cost for the three days of instruction is $28.00; senior citizens are allowed to take the course free, space permitting. Further information may be obtained by writing to Dr. Berthold, Delaware Valley College, Doylestown, PA 18901 or by calling him at 215-345-1500.

MELISSA HART

1983 American Honey Queen

Melissa Hart is the 19 year old daughter of Thomas and Joyce Hart — Watertown, Tennessee. She is a freshman at Middle Tennessee State University, majoring in Public Relations.

Melissa has an outstanding record as a 4-H member, serving in leadership positions and has received the State Beekeeping Award. She has participated in National Essay Contests, sponsored by the National Rural Electric Co-operative Association.

In 1983 Melissa will travel throughout the United States promoting the consumption of honey and talking about the beekeeping industry. Appearances are planned in Florida, North Dakota, South Dakota, Illinois, Washington, Wyoming, New Jersey, Minnesota, Wisconsin, Texas, Tennessee, Michigan, Mississippi, West Virginia, Utah, Oregon, Georgia, Iowa, Ohio and Idaho.

The Honey Queen program is sponsored by the American Beekeeping Federation and the Queen is the primary promoter of Honey and the Beekeeping Industry in the United States. □

HUNGARY

29th International Congress On Beekeeping/APIMONDIA

The 29th Congress of Apimondia will convene, from August 25-31, in Budapest Hungary. Main topics of discussion will be development of research and technology related to apiculture, and practical control of varroatosis. Specific topics will include management of small to medium apiaries, migratory beekeeping, virus and bacterial diseases, pesticides, honey plants, apitherapy, honey regulations and new equipment.

U.S. Registration is $125.00. For complete information, write: APIMONDIA — Hungarian Organizing Committee, HUNGARONEKTAR, Budapest, V., Garibaldi u. 2.H-1054, Hungary. Tel: 353-868; Telex: 22 6211.

ILLINOIS

Summer Meeting

The Illinois State Beekeepers' Association will hold a "Beekeeper's Fair" at their summer meeting, Saturday, June 25, at the Wallanches Bees & Buffalo Farm, Plano, Illinois (312) 552-8466. Registration will begin at 9:30 AM with speakers and events to follow.

Activities include: a honey tasting contest, smoker contest, nature walk and honey plant identification, hay rides and view of the buffalos, clown faces and

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GOLDEN CIRCLES: THE BEE AND THE STEWARDSHIP OF THE LAND

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lot of landowners around here are real touchy about planners coming in and telling them how they should farm their land. All the landowners want to do is make a sharp land deal and some big bucks. But what they're doing is more than a simple land transaction! It's like that Indian medicine tree; to them the Land was not just land. It was an intricate microcosm, composed of many brilliant and beautiful parts. Sure, the Indians could have just cut that tree down and made boxes and boxes of tea with it, but it wasn't just the tea they were after. They were after its effects. Its values. To help a brother or a sister. The tree was their brother, too. They knew that somewhere far down the line, some warrior, some great Spirit Chieftain, might need that medicine real bad. So they just took enough for their immediate needs. That's Stewardship! They used the land, but they didn't abuse it."

I later asked Dr. Rosenbaum what he thought on this philosophy.

"Yes! Exactly! The Indians only took what they needed! It's no coincidence that in a twenty-five year public health survey, documented in Four Corners Indian Bureau records, that despite heinous diets, horrible malnutrition and the resulting obescity, alcoholism, and a generally impoverished lifestyle, the Indians of this area had the lowest incidences of heart disease, high blood pressure, and cancer. Why? Because all these are diseases of a technological society; high stress conditions, artificial foods, even synthesized sweeteners. Sugars in their chemical forms have been proven dangerous medically. But honey comes from the Land around us, and is a very complicated substance. The Indians of this area still live close to the Land. They're not a part of the day-to-day stresses and artificially induced technical hogwash that compromises the realities of most Americans. Indians have a simple lifestyle, living in harmony with the land, eating squirrels, nuts, venison, corn grown in the clay."

At a concluding interview, Culhane summed up:

"D.N.A. (deoxyribonucleic acid, the essential compound of all living matter) has millions of codes and possibilities. Scientists are beginning to speculate D.N.A. creates everything about us, even our personalities. How much sperm do you think it would take to make the three billion people in the world?"

"Conservatively, Vernon, five million pounds."

This gets a big laugh from Culhane.

"It would take one five-hundredth of an ounce," he explains patiently, "to make them all. And then you think of Stewardship...the possibilities of what we can do with the Earth are even more awe-inspiring, more vast, more...endless. We don't know what harm we're doing to the Earth, with all the chemicals and radioactive junk we're pouring on it, and into the skies...."

It was silent for a moment. Then Vernon quietly continued.

"If we could only slow down a little...we're just speeding along...maybe they'd realize that it's their children who are going to have to live with this...for better or for worse. Maybe then they'd take care of the Land the way the bees take care of us. Bees only take a little, but they give back with everything they've got."□

NEWS AND EVENTS

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balloons for the children, Dick Kehl of Dadant & Sons, Eugene Killion, who will give updates on mites and Africanized bees; John Straub, with a speech on honey marketing, Tom Golneck, with instructions on mead making, and John Wallanches, with a talk on summer management.

For further information, contact: Keith Meiser, Sec., Cook DuPage Beekeepers' Assoc., 5520 Brookbank, Downers Grove, Ill. 60515.

KENTUCKY

Summer Conference

The 1983 Summer Conference of the Kentucky Beekeepers' Association will be held July 21, 22, and 23rd at Eastern Kentucky University in Richmond, Kentucky. The meeting will be held in Posey Auditorium of the Stratton Building across the street form where it was held last year. Registration will be Thursday afternoon, and the program will start at 7:00 PM. The program is still being arranged at this time and will be announced later. Dr. J.W. Stocker, P.O. Box 156, Richmond, Kentucky 40475, is the conference director this year.

MAINE

Annual Meeting

Members of the Maine State Beekeepers' Association (MSBA) at their March 26th annual meeting in West Bath elected officers, revised their by-laws, launched a contest for a Maine Honey Queen, and studied bee diseases.

If interest and enthusiasm are indicated, beekeeping in Maine is alive and well. A recent Dept. of Agriculture report shows a total of over 792 licensed beekeepers in the state. The majority are hobbyists with one to four hives each. The largest listed apiary consists of 1,000 colonies. Honey production runs into thousands of pounds annually. 327 beekeepers currently belong to the MSBA. Over 140 members and guests attended the recent annual meeting.

Applications for Maine Honey Queen are now being actively solicited. Applicants must be aged 16 to 21, single, and should like or be a user of honey. Final selection will be made in August at the annual conference of the Eastern Apicultural Society in Orono by a committee of judges on the basis of background, poise, appearance, and responses to a quiz. Full information and applicants may be obtained from Helen L. Brown, 448 Greely Rd., Cumberland Center, ME 04021.

Charles R. Hoke, Sr., of Hickory, N.C., teaching Boy Scouts about beekeeping. Mr. Hoke, who became active in beekeeping after helping a brother who had suffered a heart attack, is now a Root dealer and Chairman of the Catawaba Valley Beekeeper's Association.

EAST LANSING, MICHIGAN — Michigan's Beekeeper of the Year is Edward Garve (right), of Grand Rapids. The selection was made at the Michigan Beekeepers Association (MBA) annual meeting at Michigan State University during Farmers' Week and Natural Resources Days, March 21-25. The presentation was made by Dick Hubbard, MBA member.

EAST LANSING, MICHIGAN — Michigan's 1983 Honey Queen is Rhonda Struble (right), a chemical engineering senior at the University of Michigan. She was crowned by Heidi Guthrie, the 1982 Michigan Honey Queen, a theatre and arts sophmore at Oakland University. The Michigan Honey Princess is Karen Cody (left), a theatre and telecommunications junior at Eastern Michigan University. The selections were made during the annual Michigan Beekeepers Association (MBA) meeting held during Farmers' Week and Natural Resources Days, March 21-25, at Michigan State University. The queen will represent MBS at a variety of promotional activities in Michigan during the year.

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NEWS AND EVENTS

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OHIO

State Beekeepers' Meetings

The Ohio State Beekeepers will meet on July 15th and 16th at Ashland College, Ashland, Ohio, and again on November 12th at Capital University in Columbus. Board meetings are held each evening preceding the meetings. For additional information write: Bernard Brambage, 3290 Lake Rd. NR, Lancaster, OH 43130.

OHIO

One—Year Certificate Option

The beekeeping program at the Agricultural Technical Institute has recently completed development of a one-year certificate option (actually minimal certificate requirements may be met in nine months).

The program's purpose is to offer a shorter option for students who do not feel a need for an A.A.S. degree. We expect many of the certificate students to use their educational experience to establish and develop a part-time beekeeping business.

Certificate course requirements include specific apiculture classes on queen and package production, honey production and processing, pollen and pollination, and lectures on bee diseases. Students will have abundant time to pursue individual beekeeping interests and outdoor hive manipulation.

Classes in accounting, business management, and English augment the bee classes to help prepare the student for initiating a small beekeeping business. For further information contact:

Dr. James E. Tew
Technology Coordinator
Apiculture
A.T.I.
Wooster, Ohio 44691
216-264-3911

OHIO

Development Beekeeping Seminar

The Ohio State University Agricultural Technical Institute at Wooster, Ohio, offers a comprehensive and intensive introduction to development beekeeping that will enable development managers and workers to take better advantage of the apiculture potential in developing countries. The main focus will be on tropical and rural subsistence level beekeeping.

Week 1 — Basic Beekeeping (July 11-15, 1983)

Led by Dr. James E. Tew and the ATI staff. It will cover the basics of hive management, honey production, honey and wax processing, disease and pest control, pesticides, queen rearing, crop pollination, bee biology and bee behavior. This combination of classroom and apiary work is directed toward inexperienced beekeepers.

Week 2 —— Applied Beekeeping (July 18-22, 1983)

Apiculture as an appropriate technology. This segment will stress the hands-on practicalities of development apiculture. Various types of hives will be made and utilized. Extractors, solar wax melters, smokers, veils, pollen traps, queen rearing, foundation production and observation hive construction will also be demonstrated. This segment will include some educational field trips.
Weeks 1 and 2 are prerequisites to Week 3 for inexperienced beekeepers.

Week 3 — Development Beekeeping (July 25-29, 1983)

A wide range of relevant topics in the field of development apiculture will be explored by qualified and experienced persons. Management of bees in various tropical regions, organizing co-ops, the hazard of importing and exporting bees, diseases, pests, and predators, finding competent advice and literature, the Africanized bee in South and Central America, pesticides and bees, etc.

Costs/Registration

Tuition **Room** **Meals**

Weeks 1 & 2: $1900; Week 3: $1000; Weeks 1, 2, 3: $2700

$100 Discount on Reservations Received by May 1, 1983

Final deadline for receipt of $200 deposit and reservation form is June 10, 1983. Cost includes three meals per day.

Registration & Information

Dr. Norman Stanley, Agricultural Technical Institute, Wooster, Ohio 44691 USA, Phone: (216) 264-3911, Cable: ATI-WOOSTER.

VERMONT

Ninth Annual Conference And Celebration of Rural Life

One of New England's most significant gatherings — the Ninth Annual Conference and Celebration of Rural Life of the Natural Organic Farmers Association — is set for Friday through Sunday, July 29th through 31st at Johnson State College in Johnson, Vermont.

Up to 900 registrants will attend for three days of classes, discussions, films, exhibits, and hands-on demonstrations in small farm techniques and economics, food and health systems, homestead skills, and agricultural issues.

Pre-registration is required. Three-day fees for NOFA members: $30, non-members: $40 — less $5 for registrations postmarked by July 1st. Six gourmet meals, camping or dorm accomodations, partial volunteer rebates available.

For information, contact: NOFA Conference, P.O. Box 101, West Charleston, VT 05972; Ph: 802-895-4366.

Roberto Rasales Sanchez, one of 20 Nicarauguans who recently participated in an exchange program with the state of Wisconsin. During his six month stay, Roberto developed advanced beekeeping skills at the USDA-ARS North Central States Bee Research Laboratory in Madison. Roberto is now taking these skills back to Nicaragua where he will use them to develop the national apiculture program.

Inviting Alex To The Bees

for my son, age 9

You want to come along?
I'm going down to hive the swarm
on the fence this afternoon.
Yes, you might get stung
but I'll try to show you old
Grandpa's way among the bees.
His smoker's lit—if you'd like
to hold and squeeze the bellows
steady while I tie this knot
in the strings of your veil,
the knot he tied for me.
You ready now? Let's go.
How do beekeepers live? Oh,
slowly with the smoke
nothing fast or harsh or dark,
wearing white, standing away
from flight, working the spring
days alone in acres of bloom.
Hear the honeyflow? That hum?
Easy. Let me take your hand.
There's the queen. Still, now.
Let's try to get her in.
By fall, she'll have her house
also chuckablock with light.

George Venn

*credit to *Off The Main Road,* Prescott St. Press.

BUY & SELL

Classified rates, 49¢ per word, each insertion, payable in cash in advance. Each initial, each word in names and address, 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) count 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., Advertising Department, Gleanings In Bee Culture, 623 W. Liberty St., P.O. Box 706, Medina, Ohio 44258-0706.

MAGAZINES

THE AMERICAN BEEKEEPING FEDERATION needs your support; participate in national affairs; receive six issues of the NEWS LETTER per year. The ABF, Inc., 13637 N.W. 39th Avenue, Gainesville, FL 32601. TF

THE SCOTTISH BEEKEEPER — Magazine of The Scottish Beekeepers' Association, International in appeal. Scottish in character. Membership terms from A. J. Davidson, 19 Drumblair Crescent, Inverness, Scotland. Sample copy sent, price 20 pence or equivalent. TF

THE INTERNATIONAL BEE RESEARCH ASSOCIATION regularly publishes new information on bees, beekeeping, and hive products, for beekeepers and scientists all over the world. Mail inquiries from USA: H. Kolb, P.O. Box 183,, 737 West Main, Edmond, OK 73034, Phone: (405) 314-0984. IBRA PUBLISHES: **Bee World,** a quarterly journal for the progressive beekeeper. **Apicultural Abstracts,** a survey of scientific literature from all languages. **Journal of Apiculture Research,** for original bee research papers. Books and pamphlets on all beekeeping topics. Catalogues of publications and details of journals and membership $1. Specimen copies of **Bee World**; **Journal of Apicultural Research** or **Apicultural Abstracts** from INTERNATIONAL BEE RESEARCH ASSOCIATION, Hill House, Gerrards Cross, Bucks. SL9 ONR, England. TF

DAIRY GOATS—for milk, pleasure and profit. Excellent for children, women and family! Monthly magazine $11.00 per year ($13.50 outside U.S.A.). DAIRY GOAT JOURNAL, Box 1808 T-3, Scottsdale, Arizona 85252. TF

BEEKEEPING. A West Country Journal—written by beekeepers—for beekeepers. 1.50p inland or 1.80p ($4.00 Overseas). 10 issues yearly. Editor, R. H. Brown, 20 Parkhurst Rd., Torquay, Devon, U.K. Advertising Secretary, C. J. T. Willoughby, Henderbarrow House, Halwill, Beaworthy, Devon, U.K. TF

SCOTTISH BEE JOURNAL. Packed with practical beekeeping. Sample copy from Robert NH Skilling, FRSA, 34 Rennie St., Kilmarnock, Scotland. Published Monthly, $4.00 per annum. TF

BEE CRAFT — Official (monthly) magazine of the British Beekeepers Association. Contains interesting and informative articles. Annual Subscription (Sterling cheque 2.22 p.or U.S. $6.) Post paid. The Secretary, 15 West Way, Copthorne Bank, Crawley, Sussex, RH10 3DS. TF

INDIAN BEE JOURNAL Official organ of the All India Beekeepers' Association, 817, Sadashiv Peth, Poona 411030. The only bee journal of India Published in English, issued quarterly. Furnishes information on Indian bees and articles of interest to beekeepers and bee scientists.

Annual subscription postpaid in foreign countries: For individuals US $7.00 for institutions, companies and corporate bodies US $10.00 or it's equivilent, to be received in advance by IMO or bank draft, payable in Poona (India). TF

FOR SALE

Protective Clothing for Beekeepers. Write now for brochure. B. J. Sherriff, Dept. GBC P.O. Box 416, Nacoochee, GA 30571 TF

For Sale Bargain Supers 500 — 9½ comb, 500 — 6⅝ comb, 200 — 9½ foundation, 200 — 6⅝ foundation, Earl Alexander, 436 Porterfield Rd., Richmond IN 47374 6/83

New frame spacing tools for 10-frame honey super. Fast and easy to use. Produce more honey on fewer frames. ½" cast aluminum. Lifetime guarantee. Specify 8 or 9 frame. 1—spacer 9.65, 2—spacers 9.45 ea., add 1.50 postage and packaging. Dealers welcome. Wolf World Products, P.O. Box 707, Baldwin, WI 54002 7/83

INSEMINAION DEVICES. For prices write Otto Mackenson, Box 1557, Buena Vista, CO 81211 3/84

FOR SALE — 25 Italian queens or more $5.95 each; 25 — 5 frame nucs or more $24.95 each; 25 — 5 frame exchanged w/wax $19.95 each; 20 — 10 frame colonies, new hives dipped $39.00 each; 100 — 9⅝ hive bodies empty $345.00; 1000 — 9⅛ deep frames $275.00; and migratory flat covers or bottom boards $220.00. Hubbard Honey Inc., P.O. Box 726, Belleview, FL 32620. Phone 904-245-1106, L.M. Hubbard since 1918. 12/83

BEE REPELLENT CONCENTRATE, safe, effective, spray on clothing or body, as is or dilute, to keep bees away. One-half gallon $18.00 ppd. Send check or money order to Contract Laboratories, Box 192, Sylvania, Ohio 43560. Phone: 419-882-1643 TF

For Sale: 100— 9⅝, and 200— 6⅝, factory made 10 frame equipment, with 9 drawn combs each. Choice of inventory, for $18 and $14 respectively. SW Minnesota. Reinert Honey Co., 507-629-4808 6/83

"Northern bred queens, CARNIOLANS; $5.00 each, p/p. starting May 15th. Glenmont Woods Honey Farm 6137 Ely Rd., Wooster, OH 44691." 6/83

Complete Beekeeping operation 30 miles North of Denver, Colorado, must sell, death in family; All hives and stainless steel equipment bought new 5 years ago. P.O. Box 534, Hudson, Colorado 80642, PH: 303-534-7034 6/83

Excluders: extra-heavy welded wire with metal binding. All new for 8-frame hive. $2.00 each. Stover Apiaries. Phone: 601-327-7223 6/83

For Sale: 40 Colonies 1 story, $50.00 each. North Brunswick, NJ. 201-297-4089. OM 6/83

Good used Shallow and Deep Supers. No disease. Very reasonable. 614-686-2645. ELS 6/83

50 or more hives of Bees for sale, address after May 15th; Charles Jones, Hannibal, P.O. Box 146, New York 13074. 6/83

Ford Bee Truck with commercial bee loader, excellent shape $12,000.00. 70 ten frame shallow supers of comb, 400 ten frame wire queen excluders, 75 eight frame full depth hive bodies, 70 eight frame shallows of comb. (209) 562-1110, No Friday or Saturday night calls. NM 6/83

300 used 60 lb. cans. Good inside. $.95 each or maker offer. Churchman Honey Farms, Goddard, Kansas 67052 6/83

For Sale: 100 Colonies of bees, more or less. Italian Queens in June & July. G.C. Walker, Rt. 1 Box 34-B, Rogers, TX 76569 7/83

70 — 1½ story colonies of Italian Bees. 82 Queens. All or part. Also used beekeeping equipment. Myrton E. Gracy, RFD #1, Saegertown, PA 16433. Phone 1-814-763-3620 6/83

Maxant 2000 4-frame reversible hand-driven extractor, $350. Kelley melter $50. (614) 332-6743 BMS 6/83

For Sale — 800 Four way pallets for 8-frame colonies. $10 per pallet. 208-986-4552 Millet Apiaries 6/83

HONEY FOR SALE

CLOVER, ALFLALFA, Buckwheat, Tulip Poplar, Wild Flower, or Orange in 60's. Dutch Gold Honey, Inc., 2220 Dutch Gold Dr., Lancaster, PA TF

HONEY IN 60's FOR SALE. Bedford Food Products Co., 209 Hewes St., Brooklyn, New York 11211. Telephone: 212-EV4-5165. TF

CLOVER, ORANGE, U.S. and Yucatan Wildflower, in sixties. Other flavors and bakery grade available. MOORLAND APIARIES, 5 Airport Dr., Hopedale, MA 01747. TF

HONEY WANTED

BEEKEEPERS TAKE NOTICE — We cannot guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for CASH only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

BUCKWHEAT, light and light amber honey. Bedford Food Products, Inc., 209 Hewes St., Brooklyn, N. Y. TF

All Grades of Honey, Any quantity drums or cans. Call Toll Free 800-248-0334. Hubbard Apiaries, Inc., Box 160, Onsted, Michigan 49265. TF

WANTED—All grades of extracted honey. Send sample and price. Deer Creek Honey Farms, London, OH. TF

WANTED: comb and all grades of extracted in 60's or drums. Send sample and price to MOORLAND APIARIES INC., 5 Airport Drive, Hopedale, MA 01747. TF

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. Hubbard Apiaries, Onsted, Mich. TF

WANTED—All grades of extracted honey. Send sample and price to MacDonald Honey Co., Sauquoit, New York 13456. Area Code 313 315-737-5662. TF

BEE SUPPLIES FOR SALE

WRITE FOR CATALOG—Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. Hubbard Apiaries, Manufacturers of Beekeepers' Supplies and Comb Foundation. Onsted, Mich. TF

FOR TOP QUALITY BEE SUPPLIES and advice on beekeeping problems, visit your nearest Root dealer and send for your FREE Root catalog. Satisfaction guaranteed. The A.I. Root Co., P.O. Box 706, Medina, OH 44256. TF

BEE EQUIPMENT MANUFACTURERS. Supers ends rabbet-jointed for added strength and durability. Our frames are one of the best on the market. All beekeeping supplies at commercial prices. Write or call for price list.MONCRIEF BEE SUPPLIES, Post Office Box 625, 1105 Lakewood,Lakeland, FL 33802. (813) 858-6754. TF

WE CARRY A COMPLETE LINE OF BEE SUPPLIES and containers. Write for price list. E & T GROWERS. R. 1, Spencerville, Ind. 46788. (A suburb of Ft. Wayne). Phone 657-5136. TF

ALL WESTERN BEEKEEPERS: Lock-corner supers — tops — bottoms — frames. Complete stock — supplies & equipment. Phone or write for quantity prices. UNITED BEE CRAFT COMPANY, 600 Harbor Blvd., West Sacramento, CA 95691. (916) 371-9340. TF

QUALITY CYPRESS BEEKEEPING SUPPLIES — dovetailed hives and hive parts, beginner's kits, complete supplies. Write: BEE-JAY FARM, Dacula, GA. 30211. TF

PINE BEE SUPPLIES
*Beehives dovetailed — $3.50 each
*Super 5¾" or 6⅝" — $2.50 each
*Frames heavy duty per 100 — $28.80
*Frames heavy duty per 1000 — $250.00
*Lids or bottoms (migratory) — $2.00 each or $4.00 per set
Allow manufacturing time on large orders. Marvin Smith Apiaries, Rt. 1, Parma, Idaho 83660, Phone 208-722-5278 days. TF

RADIAL HONEY EXTRACTORS-5 and 10 frames, Patented, factory made of stainless steel. GAMBLE'S HONEY EXTRACTOR CO., P.O. Box 7997, Greensboro, NC 27407, Phone: (919) 299-3973, Day or Night. TF

HONEY EXTRACTORS FOR HOBBY BEEKEEPERS — Affordable Prices. FREE Literature. BEE LINE MANUFACTURING, 1019A Saint Elmo, Austin, TX 78745 TF

NEW NO HEAT OR ELECTRICITY USED. Uncapping fork (not just a scratcher). No flavor loss and better flavor retention. No burnt fingers or shocks. Honey from dark comb not discolored as with hot knife. $11.00 each pp., Blossomtime, P.O. Box 1015, Tempe, AZ 85281. TF

Nucs 4 frame, Golden Italian stock, $35.00 each or 3 for $100.00. Queens $5.00 each, all postpaid. Small orders only. Johnny Pennington, 194 Cooper Hurst Rd., Pearl, Miss. 39208, Ph: 601-939-5994 12/83

BOOKS

RICHARD TAYLOR'S FORTY YEARS BEEKEEPING EXPERIENCE IN HOW-TO-DO-IT BOOK OF BEEKEEPING. $6.95 ppd. LINDEN BOOKS, INTERLAKEN, NY 14847. TF

BEESWAX

BEESWAX WANTED — Highest prices paid in cash or trade for bee supplies. The A.I. Root Co., Medina, OH 44256; Council Bluffs, IA 51501; San Antonio, TX 78204. Box 9153. TF

WANTED — Beeswax any size shape block $1.00 to $1.10 per pound. Prompt payment, small lots welcome. A. VanWees, Greenlane, PA 18054. TF

WANTED

WANTED—All varieties bee gathered pollen. Must be clean and dry. Pollen traps available. Hubbard Apiaries, Onsted, Mich. 49265. Phone: 517-467-2151. TF

WANTED — Old Beekeeping Books and Bee Journals. James Johnson, 107 State Ave., Terra Alta, W.V. 26764. TF

ROYAL JELLY

SUPER STRENGTH Royal Jelly capsules, 100 milligrams per bottle of 100, $12.50; five bottles, $60. Prairie View Honey, 12303 12th St., Detroit, MI 48206. TF

PURE FRESH Royal Jelly, 2 oz. bottle, $19 pp.; 1 lb. $120. Prairie View Honey, 12303 12th St., Detroit, MI 48206 TF

POLLEN

FRESH, PURE, Bee Pollen available in 1 pound containers at $8.50 per pound postpaid. 10 pound bulk pack at $7.90 per pound. Large lots, ask for price. Hubbard Apiaries, Inc., Onsted, Mich. 49265. TF

BEE HEALTHY & ENJOY Canada's best bee pollen. From the pure north of British Columbia. Excellent flavor, superior quality, and guaranteed pesticide free. 3 lbs.-$22.00; 6 lbs.-$39.00; 10 lbs.-$54.00; 20 lbs.-$100.00, ppd. Blossomtime, P.O. Box 1015, Tempe, AZ 85251 TF

BEES & QUEENS FOR SALE

WE USE ALL POSSIBLE CARE in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for a certificate of inspection as a matter of precaution.

Nucs $25.00 — 3-frames/queen — Hybrid — guarantee live delivery — Shipped in cardboard container. F.O.B. Dixie Honey Company, E. A. Cannady, 919-579-6036. Rt. 3, Box 206A, Shallotte, NC 28459. TF

Colonies for sale in Florida. Call Evenings only, (904) 567-9495. No Collect Calls. Terms Negotiable. TF

Carniolan Bees & Queens, Queens $6.50@, 3 lb. pack with Queen $22.50@, 2 lb. pack with Queen $16.50@. Live delivery guaranteed. Health certificates furnished. Shipments begin April 10th. **King Bee Apiaries,** Rt. 4, Box 90, Greenville, AL 36037, Ph: 205-382-2305 TF

GENTLE ITALIAN QUEENS. All breeders individually tested DISEASE RESISTANT. 1 — 9 $6.50; 10 — up $6.00; C/M 50¢ ea.; deduct $1.00 after June 1st. **GOLDEN WEST BEES, 436 Norvin, Grass Valley, CA 95945, (916) 273-4606** TF

CARNIOLAN QUEENS — $7.00 each. Fumidil fed. Live delivery guaranteed. Frank Adams, Rt. 1, Box 170, Marion, MD 21838, 301-957-1284 6/83

ONE HUNDRED STRONG single story colonies for sale. New Queen, Fumidil Fed, outright or frame exchange. Wisc. 715-949-1823, GL 6/83

MISCELLANEOUS

RENDERING every day in our all new plant. All honey saved from cappings. Rendering slumgum and old combs. Write for FREE shipping tags and rates. HUBBARD APIARIES, Onsted, Mich. TF

HONEY STRAINER 100 mesh nylon bag. Approx. 18" x 20", Reusable, Practical, Convenient, Instructions, Ppd. $3.00 ea., 2 up $2.50 ea. Beckman G2, Box 633, Stuart, Florida 33495. TF

INSEMINATION DEVICES. For prices write Otto Mackensen, Box 1557, Buena Vista, CO 81211. TF

Dealership Territories available in some areas. Please contact The A. I. Root Co., P.O. Box 706, Medina, OH 44258 TF

New Orleans area Beekeepers, Ott's Pet Shop located at 5505 Magazine St. now has a complete line of Root Quality items. Visit or call 899-5291. Zip code 70115 6/83

BUZZ-IN! Bee Lure. Makes your bait hives work better! Only $3.95. JURICA APIARIES, 325 Wells, Johnstown, NY 12095. 6/83

MOVING BEES? Kevlok "No-Slip" straps for beekeepers mfg. by AGM Cargo-Ties. Weatherproof Cordura webbing, quick relase, adjustable, reuseable, over center action locks in tension, loop strength 600 lbs., 12 ft. $6.50, 9 ft. $6.00. Postage prepaid. Order from: BEE'Z R BUZ'N, 1324 Kelly Road, Bellingham, Wash. 98826. 9/83

SEEDS

Bee-Bee Tree Seeds, $1.50 per packet and two year seedlings $4.00 postpaid. Arleth's Apiary, 395 Carolina Street, Lindenhurst, NY 11757 6/83

Anise Hyssop Seed — Excellent bee forage plant. $10 — 1 oz., $3.50 — ¼ oz., $1.00 pkt. All postpaid. Sweet Wind Gardens, Rt. 2, Twisp, WA 98856 6/83

INSURE YOUR HONEY PRODUCTION WITH ANISE HYSSOP PLANTS (*agastache amethiodora).* Re article in July issue of American Bee Journal. 500 plants @ 15¢ ea. Seeds $10 per oz., $100 per lb. Complete instructions. Muir Bee Gardens, Rt. 5 box 345, Bakersfield, CA 93307. (805) 845-9065 6/83

HELP WANTED

Translator Needed: Person or persons with beekeeping interest and expertise in translating one or more of the following languages: Spanish, Italian, Romanian, Contact: Translator, c/o *Gleanings In Bee Culture,* Box 706, Medina, Ohio 44258.

Potpourri

Bees & Pecans

What do pecan growers and beekeepers have in common? Problems. And possible solutions to those problems.

Both the pecan and honey industries have produced reasonably well during the past few years. But both suffer from a deficient promotional program. Although pecan growers are not affected by foreign competition, they do face significant marketing pressures exerted by the variety of other nut growers in the U.S. Not only are pecan growers overshadowed by the amount of advertising money spent by competitors, they as well are confronted with the possibility that younger buyers are uneducated as to the many uses of pecans. A similar dilemma has often been noted by those in the beekeeping world.

To counter their problems, the National Pecan Marketing Council, created in 1979, has been gathering a voluntary one cent contribution from growers for each pound of pecans produced. Recently, there has been a move to replace the voluntary program with a federal marketing order. That order would if implemented, be unique in the sense that it would contain no regulatory standards, but would exist for the sole purpose of funding promotion and research. To be approved, the proposal requires ratification of two thirds of the eligible voting pecan growers. The order would be supervised by an administrative board of growers, handlers and shellers. The USDA would not have authority through the board and changes in the order's provisions would require a vote from the industry at large.

Opposition to this proposal exists, as it does within the bee and honey industry when similar issues are raised. Some doubt the viability of a marketing order's role in promoting sales through more extensive advertising. Undeniably, many industries have flourished because of just such high intensity promotional campaigns. The turkey industry, for example, sold the American public on the idea that turkeys weren't just for Thanksgiving time. The key to their success was media. The orange juice industry is currently engaged in a similar effort to convince consumers that their product is "not just for breakfast anymore." The examples are many and increasing.

Marketing orders also have opponents who philosophically do not believe in the wisdom of marketing manipulations. At current production levels, however, even a token assessment on honey could result in many dollars per year that could be used for needed research and promotion. Eventually, some beekeepers may be faced with choosing between personal principles and economic realities.

[Our thanks to the *American Fruit Grower* for information used in the above item.]

Beekeeping Close-Ups

By DR. JAMES TEW

WHAT IS IT?

Hint: The answer will keep you wagging your _____on pins and _____.

Answer to Beekeeping Close-Ups:

An automatic grafting needle tongue.

June Management Tip #2.

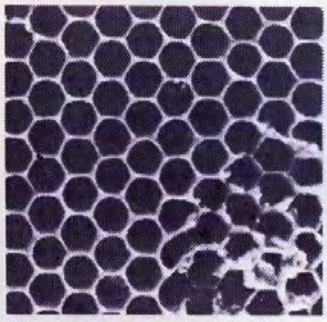
After-Swarms often are too weak to overwinter. To help them along, provide the afterswarm with several combs of honey to assist their establishment. Give them a surplus of stores for the winter and, if swarms are still weak in the fall, unification with another weaker colony might enhance the survival chances of both.

June Management Item #3.

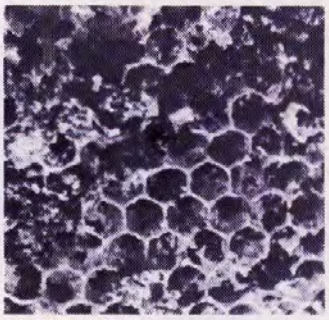
If bees quit working during the summer honey flow, check for these possibilities: queenlessness — brood combs clogged with honey — lack of ventilation — exposure to prolonged direct sunlight.

Index to Display Advertisers

GIVE WAX MOTH LARVAE THE TREATMENT!



Honeycomb treated with Certan.



Without Certan.

Your bee hives are no place for wax moth larvae. Knock 'em out with Certan™!

Its unique biological formula contains natural bacterium which, when eaten by wax moth larvae, paralyzes and destroys the digestive tract, resulting in death.

As a commercial beekeeper or hobbyist, Certan benefits you in these important ways:

- Certan has been scientifically tested.
- Certan provides economical, long-lasting control.
- Certan does not affect honeybees or colony activities.
- Certan does not affect the taste of honey.
- Certan is nontoxic to humans, pets, wildlife and beneficial insects.
- Certan is a natural biological control.
- Certan is a water-dispersible liquid concentrate.
- Certan eliminates dangerous fumigant handling and storage.
- Certan is easy to use.
- Certan is available in convenient 4-ounce bottles for hobbyists and 1-gallon containers for commercial beekeepers.

Give wax moth larvae the treatment! With Certan, the *natural* insecticide.

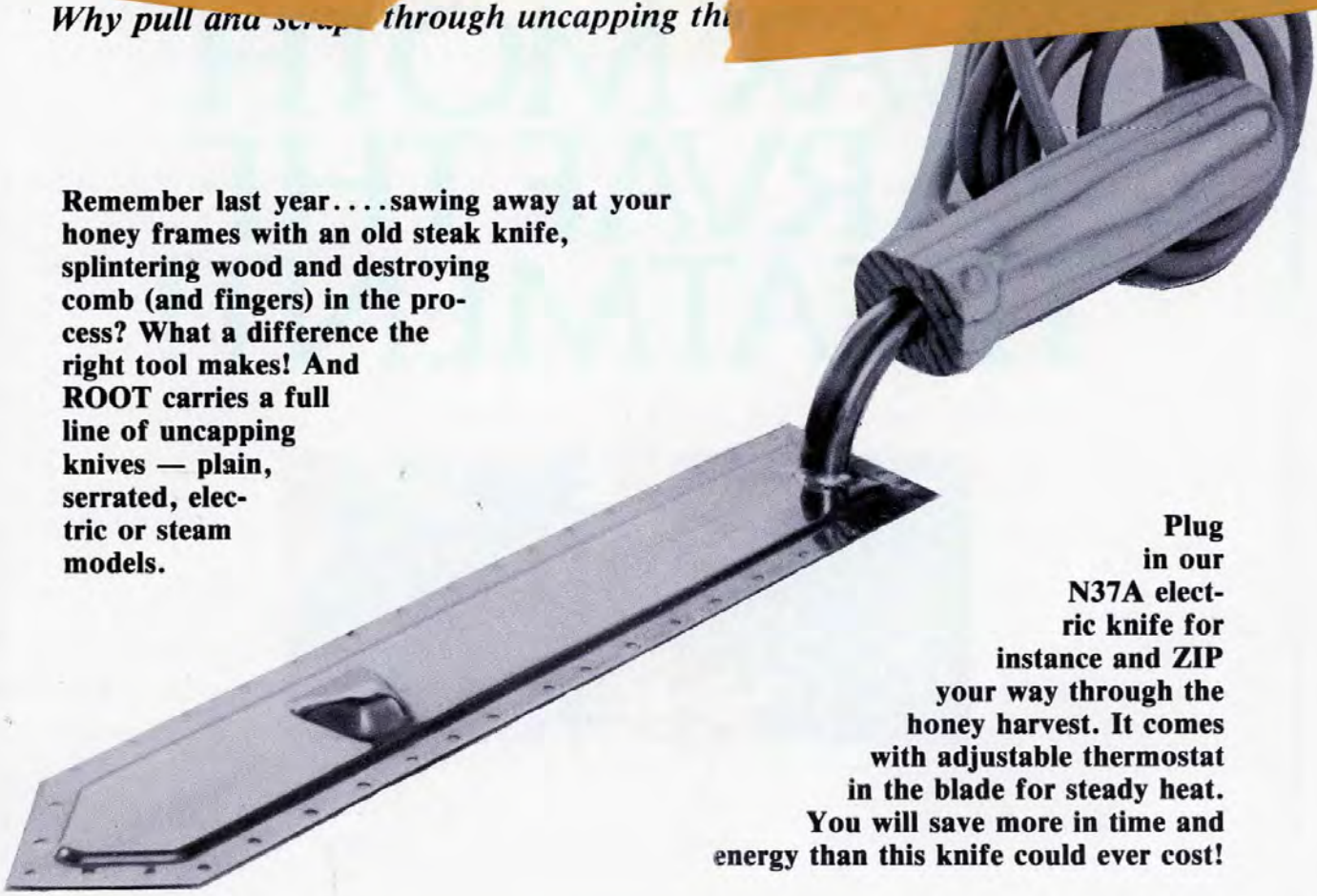
SANDOZ

SANDOZ, INC.,
CROP PROTECTION
480 Camino Del Rio South
San Diego, California 92108

Use pesticides effectively. Read and follow label directions carefully.

LIKE SLICING THROUGH BUTTER

Why pull and scrape through uncapping th



Remember last year....sawing away at your honey frames with an old steak knife, splintering wood and destroying comb (and fingers) in the process? What a difference the right tool makes! And ROOT carries a full line of uncapping knives — plain, serrated, electric or steam models.

Plug in our N37A electric knife for instance and ZIP your way through the honey harvest. It comes with adjustable thermostat in the blade for steady heat. You will save more in time and energy than this knife could ever cost!

Call your **A.I. ROOT** dealer now and keep ahead of the extractor this year.

THE A.I. ROOT COMPANY

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P.O. Box 9153, San Antonio, TX 78204-0153 — P.O. Box 1684, Athens, GA 30603
P.O. Box 357, Fogelsville, PA 18051

Send for a free catalog for the listing of your nearest Root Dealer.