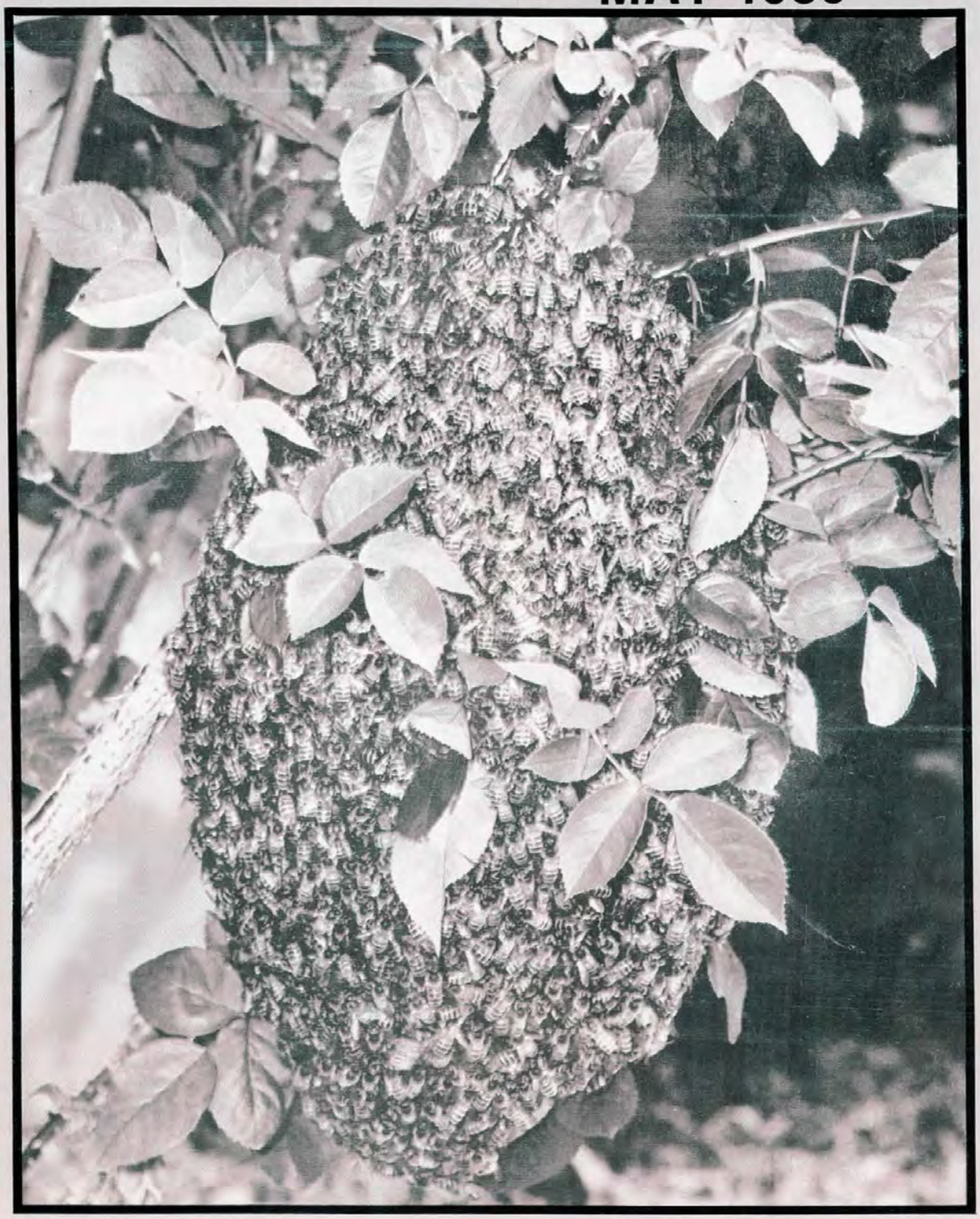
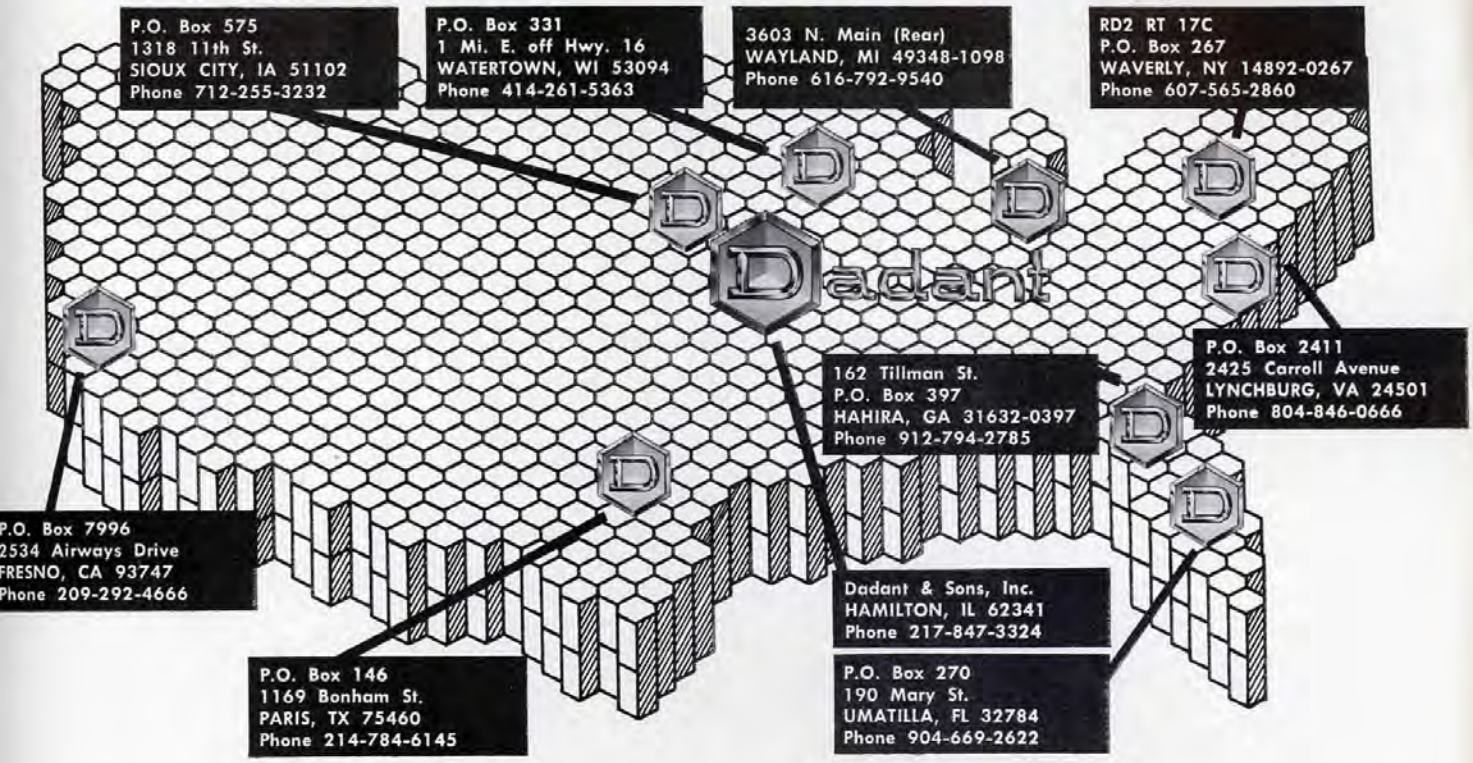
GLEANINGS IN BEE CULTURE

MAY 1983



BUILD YOUR BEEKEEPING ON A SOLID FOUNDATION



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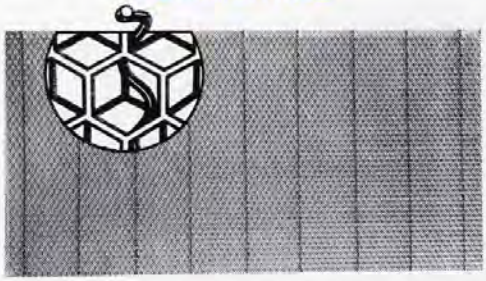

Introduced in 1921, Crimp-wired Foundation was the first reinforced foundation to ever be offered to beekeepers. The steel wire is crimped to make shoulders that radiate strength in all directions throughout the foundation. Sturdy steel hooks at the top of each crimped wire anchor foundation securely into the wedge top bar frame.

CUT-COMB

Because each portion of the foundation becomes part of the comb honey for sale, we use the utmost care in selecting only the very finest of virgin cappings wax for the manufacture of this foundation. The raw wax is then washed, cleaned and filtered so only pure 100% beeswax is present in the finished sheet of foundation.

DURACOMB

Duracomb Foundation introduced a new concept in the art of foundation making. An inner core of tough plastic is coated with pure beeswax on both sides and then milled with perfect cells of worker size. Duracomb completely eliminates the need for cross-wiring and embedding.

DURAGILT

Duragilt is the latest addition to the Dadant line of reinforced foundations. It has the same tough inner core of plastic as Duracomb, but is further reinforced with metal edges that extend up into the top bar of the frame as well as down into the slot of the bottom bar. Communication holes are provided along the lower edge of the foundation.

John Root

Lawrence Goltz

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GLEANINGS IN BEE CULTURE

May 1983 *(ISSN 0017-114X)* *Vol. 111, No. 3*

Created to Help Beekeepers Succeed

111 Years Continuous Publication by the Same Organization

Since 1873

Created to Help Beekeepers Succeed

Contents

Cover Story

That bees swarm is a fact. When, why and to what extent is left to the experts to determine, since the bees are unlikely to convey their secrets otherwise.

NOTES FROM THE BEEYARD

Those of you who have subscribed to *Gleanings* for more than three months, probably have noticed some physical changes in the format of our publication. We have added a few new column ideas, introduced a series of monthly management tips and designed our pages with ruled lines that divide our articles and features.

35% More Reading

What many of you might not realize, however, is that by adjusting our type size and restructuring our page layout, we have been giving you approximately 35% more reading per issue since April, 1983. Thirty-five percent is a large increase and we believe you will benefit from it. We now have the capacity to offer a larger diversity of subjects and themes for your consideration. We have expanded room for reader contribution. We have more freedom to let *Gleanings* go where you want and need it to go.

Need For Reader Contributions

As always, *Gleanings* welcomes feature articles from readers. A writer's guideline, detailing our requirements and pay scale, is available if you send a self-addressed, stamped envelope.

Additionally, we invite your contributions to the following, newly introduced or upcoming regular features in *Gleanings:*

1. **Heads Of Grain From Different Fields,** a monthly guest column. Our founder, and first editor, A.I. Root, used this title for a column in the original *Gleanings.* We have brought it back as an invitation, especially to those of you who have had little or no prior opportunity to publish your thoughts in a magazine such as ours. We encourage you to send, for our consideration, manuscripts dealing with a facet of bee management that is of special interest to you. Your experiences may be helpful to others.

2. **The Citizen Beekeeper.** This column is devoted to aspects of beekeeping other than direct, hands-on bee management. Readers with particular expertise or experiences in areas of the law, business management, taxes, economics or politics have an opportunity to share their knowledge in this column.

3. **The Beekeeper's Forum** is a column based on our commitment to presenting complex, sometimes controversial subjects in a thorough, objective way by providing a forum for varying viewpoints. Each **Forum** will feature at least one important question or issue of relevance to comtemporary beekeeping. Sometimes the discussion will be pro and con; at other times, a multiple number of opinions will be offered for your consideration. In addition to welcoming suggestions for topics, readers can check the column, each month, to find out what subjects we are actively seeking opinions on. □

Photography Contest

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 this 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, OH 44258.

Thoughts About Bees, Children & The Importance Of Small Things

Americans think in large thoughts. Even many of us who preach that big is not necessarily better, can't quite completely believe that is so. Consequently, Americans sometimes strive for quantity rather than quality. We do not escape that tendency even in the beeyard. More than one beekeeper has made the mistake of assuming that financial success is directly linked to the number of colonies one has. That is only partially true. As in any agricultural endeavor, it is far too easy to overextend one's ability to properly manage operations. Too many colonies are the same as too many cattle or too much corn. 100 colonies will not necessarily produce more than 50 colonies if the beekeeper doesn't have time to tend well to those 100. Because most beekeepers are hobbyists or sideliners, the question of how much time each individual can devote to effective beekeeping skills should be carefully considered and answered before unwise investments are made.

Our "thinking big" syndrome does not cease at the outer limits of any one subject. Far too often we hear it applied to matters where such a perspective could prove quite dangerous. Listen to almost any discussion of endangered species. You will discover that many persons do not believe that the extinction of a small fish, bird, reptile or insect will make any difference to the world, and believe that it is certainly a minor occurence compared with letting a seemingly insignificant

species endanger a power dam or industrial complex. Everyone who works with bees should know better. Smallness is not the crucial factor. What is of utmost vitality is the fact that every form of life, whether huge or dimunitive, is intimately linked with a complex and fragile network of food chains and interdependencies. To break even the slightest link in that comprehensive pattern is to risk disrupting everything else with which it is related. Humans, who depend on this food network for survival, and who contribute to it in very contradictory ways, obviously have more to lose than any other life form. We have the ability to tamper, hence the ability to destroy.

Every beekeeper realizes that, without bees, there would be a dwindling of many plant forms. Plants are a food source as well as the primary means of keeping the wind from blowing away the earth's top soil. In real terms, an absence of bees would cause environmental alteration, food losses and a host of related catastrophes.These are things that beekeepers, and many others, know but too often don't incorporate into their daily way of thinking and living.

Perhaps one of the best examples of how nature values bees is the specific adjustment that it makes with regard to true red flowers. Karl von Frisch, in his book: *The Dancing Bees,* points out that there is a rareity of such flowers. The reason? Bees do not see red. They are blind to that color. Nature has accomodated the importance of the honeybee by coordinating as natural interdependencies. Life is quite simple, and as completely complex as that. Even the smallest living thing relfects the larger marvels with which everything is linked.

How does one grow to appreciate and be sensitive to the intricacies of those things from which we derive the strength to survive? By consciously making an effort to learn and reinforce a caring, sharing relationship with the rest of the living world. Additionally, it becomes our responsibility to pass the need of such a healthy awarenes along to those who will take our places. Children. Small people.

Young children are usually not frightened unless they are told that fear is expected or appropriate. Children seldom think of things as repulsive unless they witness someone else exhibit such a response.

Most of us who see beauty in creatures, such as bees, were brought up by others who appreciated, rather than feared, the natural differences among living things.

Insect life, in particular, represents the unknown to the minds of many. This is despite the fact that more than 80% of animal life forms are insects. There remains a fine line between accepting the mysteries of insects as a challenging, exhilarating learning experience; or rejecting knowledge by perceiving such life as alien and forbidding.

The bee and honey industry is periodically beset upon by marketing problems. Ultimately, the answer to successfully overcoming foreign competition, public misconceptions about bees and similar dilemmas, is effective media managment and communication. The more consumers know about a product, the more they are apt to objectively evaluate and purchase it. Eventually, the logic of that sequence works its way back to a realization that every industry, if it is to maintain commercial stability, must not only build itself a market for today—it must also prepare for the future.

Children, especially those up to the age of about 7 or 8, use their imagination continuously and vividly. There is so much about the world that they do not know, they must invent much of their own magic—their own explanations for puzzles and questions they encounter.

It is at this age that children are most impressionable. It is at this age that the fine line between accepting or rejecting differences in life forms is crossed, one way or the other. The effects can be long lasting. For that specific reason, it should be extremely obvious to beekeepers that the eventual health of the bee and honey industry will be determined by the extent to which today's children are educated.

It is imparative that associations and individual beekeepers take it upon themselves to seek and welcome opportunities to introduce young people to the realities and wonderments of honeybees. Much more attention should be paid to cultivating media aids for that same purpose. Picture books and animated films of smiling bees wearing human clothes and doing cute things are all well and good—they suggest an image contrary to that of the vicious killer bee. Perhaps, though, it is now time for realism. Children do not have to be tricked into comprehension and acceptance. A factual presentation of insect life in literature and in the use of teaching aids such as observation hives, will, in no way, cause children to be anything other than interested, if not engrossed, and eager to learn more as their individual abilities permit them.

Time and again we have all heard the cliche: The future is in the hands of the young. We all accept the statement, but ironically, not enough of us take the time to develop the potential of what we know to be true.□

Mark Bruner,
Medina, OH

Correction

In April *Gleanings* (Management Tips, page 175) the ratio of "one level teaspoon per colony in ½ gallon of syrup" should have read "Mix one level teaspoon of Fumidil B® in one gallon of sugar syrup made with two parts of water to one part of granulated white sugar. Best results are obtained when water is heated to between 100 degrees F. and 120 degrees F., the heat source removed and then the Fumidil B® and sugar dissolved," in that order.

PHOTO ESSAY:

By THE EDITORS

Photograph A. is of a ripe queen cell. As soon as colonies have their hives fairly well filled with brood, pollen and honey in the spring, some of them will begin building queen cells in preparation for swarming. Destroying queen cells will not absolutely prevent swarming but may help discourage it if done soon after the cells are started. Destroying queen cells after they are advanced will not help alleviate swarming unless coupled with other methods of providing the colony additional space.

Photograph B. is an example of how the queen, in early spring, lays brood in concentric circles. As brood rearing reaches its height, the frame will begin to be filled in and brood may occupy the entire surface of the comb. If brood is scant and cells are scattered, either the queen is nonproductive and should be replaced or disease is present. One symptom of American Foulbrood is collapsed or perforated cappings.

Photograph C is of a comb developed by laying workers whose reproductive organs have developed enough, in the emergency absence of a queen, to lay and hatch eggs. Eggs from laying workers produce only drones. This condition often indicates neglect or poor beekeeping.

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	45.00	33.60	34.20		37.50	36.50		36.00	34.00
60 lbs. (per can) Amber	45.00	28.80	33.00		35.00	34.50		36.00	33.40
55 gal. drum (per lb.) White	.60	.56	.58	.54	.61	.58		.59	
55 gal. drum (per lb.) Amber		.48	.56		.55	.48		.55	
Case lots — Wholesale									
1 lb. jar (case of 24)	30.50	24.90	26.15		27.50	25.10		26.50	24.10
2 lb. jar (case of 12)	29.50	23.30			26.50	24.00		24.50	25.50
5 lb. jar (case of 6)	32.00	27.80	27.00	27.00	31.00	26.80		27.80	26.00
Retail Honey Prices									
½ lb.	1.00		.91		.89	.90		.89	.99
12 oz. Squeeze Bottle	1.55	1.19	1.29		1.35	1.35		1.30	1.39
1 lb.	1.65	1.39	1.55	1.59	1.50	1.55		1.50	1.69
2 lb.	2.70	2.59			2.55	2.60	3.25	2.69	2.99
2½ lb.	3.35				3.29	3.25		3.15	
3 lb.	4.00		3.55		3.90	3.85	4.50	3.80	4.09
4 lb.	5.00	4.95			4.90	4.90		4.90	
5 lb.	6.00		5.95		5.85	5.80		6.00	5.85
1 lb. Creamed	2.25		1.55		1.59			1.59	1.75
1 lb. Comb					2.09	1.85		1.90	
Round Plastic Comb	1.75				1.79			1.69	
Beeswax (Light)	1.15	1.15	1.05		1.35	1.25		1.30	1.75
Beeswax (Dark)	1.00	1.00	1.00		1.20	1.20		1.25	1.70
Pollination Fee (Ave. Per Colony)	23.00	22.50			20.00	20.00		20.00	19.50

Miscellaneous Comments

Region #1

Very little winter loss and bees in good condition. Brood rearing very heavy through end of March and into April. Stores being used up very fast. Honey sales fair to below average. Early produced queens in demand, though many beekeepers are producing their own queens later in the season. Use of clover by dairy farms is low.

Region #2

Honey sales steady with little price change. Bees have wintered in the best condition in many years. If cold and wet weather comes and stays there will be a need for considerable feeding due to large populations of bees. Pollen started coming in early. Beekeepers concerned over prices, many colonies for sale. Beekeeper reaction to labeling foreign honey is favorable.

Region #3

Bees reported in excellent shape in Illinois but feeding of colonies has increased due to heavy consumption of stores. Early and heavy brood rearing. About same conditions exist in Indiana and Ohio. Winterly conditions in Wisconsin and portions of Michigan at end of March. Pollen collection began in early March.

Region #4

Getting top prices for white Dakota clover honey. Winter has been mild for most part in the Dakotas and the moisture supply has been good this spring. Frost depth had not been as deep as usual this winter. Spring came early in Minnesota but cold and rain has slowed arrival of spring. Very wet. Most colonies heavy with honey, about 20% need feeding in early April. Honey sales fair. Good winter survival of colonies.

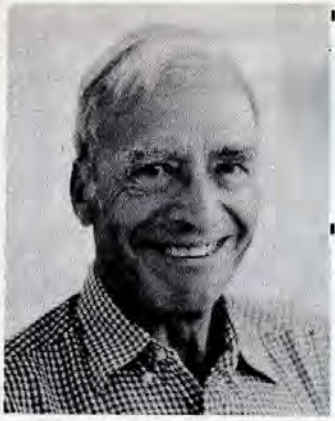
Region #5

Mixed periods of snow cover and warm weather during late March and early April has slowed brood rearing and put queen breeders behind in their work. Honey sales slower in North Carolina and variable according to area. Much foreign honey being offered at 42¢ to packers. Heavy feeding being reported. Some damage to early fruit bloom and are hoping that no heavy damage occurs as last year. Good orange blossom bloom in Florida, but bees have been restricted by rainy weather. Titi honey crop may be erratic due to rainy conditions.

Region #6

Colonies came out of winter very strong in Kentucky and Tennessee. Pollen abun-

(Continued On pg. 240)



Siftings

By CHARLES MRAZ
Box 127
Middlebury, VT 05753

From the response I received from readers of *Gleanings* of my March Siftings, there seems to be much interest in Apitherapy, the study of Theraputic Activity of all bee products. This interest is also strong in Israel where I attended the International Apitherapy Congress. There was an excellent attendance and many interesting papers were presented.

It may be news to some people, but there has also been an Apitherapy Society in China for many years. Even though there has been little contract with China, their interest in Apitherapy is amazingly similar to ours. With such wide spread interest, we hope it will increase as we continue to learn what part bees and their products can play in the treatment of degenerative afflictions for which there is no satisfactory treatment at the present time.

The great problem is that there is very little research in this field and very little available literature. There is not much chance that there will ever be extensive research in these natural products for the simple reason they are low profit items that cannot be patented or controlled to pay the high costs necessary to finance such research. There is no reason however, why every beekeeper cannot do research, with his or her own products.

My main interest in the past 50 years has been venom therapy, and most information that I acquired comes from the experience of treating many hundreds of people with all forms of Rheumatic and Traumatic afflictions. These things cannot be learned in books, there are few books available with this information, and very few people have any experience. Any beekeeper interested, I strongly believe, should take an active part in this research. I am sure just about every beekeeper has relatives and friends that suffer from pain of Rheumatic Diseases. There is every reason that a beekeeper should try to help them. The treatment is safe, effective and costs almost nothing. There is really nothing to lose except the terrible pain and suffering.

I realize there is the fear by many that bee venom therapy is "dangerous". From my 50 years of experience, I find it safer for an arthritic than taking a bath. More arthritics are killed in bath tubs than by bees. Actually, far as I know there has been no fatality of an arthritic with bee venom therapy in the past 100 years. If we compare this zero rate with fatalities caused by the many drugs used in treating arthritics, it is easy to see aspirin can be dangerous. Rather than any adverse side effects as with drugs, bee venom has many beneficial effects in addition to relief from pain. Arthritics normally are not allergic to bee venom. The least a beekeeper can do is offer to help relatives and friends in pain. With a bit of experience one can learn easily.

This same thing is true with other bee products. There is evidence that the simple sugars in honey, natural dextrose and levulose, do not cause sclerosis of the arteries as does sucrose (U.S.D.A. Bulletin), a cause of heart and vascular diseases. A beekeeper can advise those with high blood pressure to use honey in place of sucrose and take a teaspoon of pollen each day. These two products certainly pose no danger in the diet of one with high blood pressure. I have had many tell me that pollen is most effective to lower blood pressure. One thing that is certain; drugs used to lower blood pressure cannot be considered harmless, but can have serious adverse side effects. Most people that have tried pollen indicate that they had results in about two weeks.

The external application of natural honey to wounds, burns, etc. should by this time be well known to every beekeeper. If you do not know about it, then you are really missing one of the miracles of natural honey. The way it heals burns, wounds, sores, etc. is just unbelievable, even where antibiotics have had no effect. I know there are many other things supposed to be good, but nothing I have seen, so far, can even come close to the results one gets with the natural honey. I strongly believe the best results are with honey that has not been heated or filtered. Unfortunately, not much natural honey is sold in stores. The best place to get natural honey is directly from a beekeeper. Often honey is labeled "Natural" or "Raw" honey, when in fact the honey has been heated to high temperature and even filtered. Honey that is crystal clear when held to the light is sure to be filtered, which removes all the biotic materials. If it is not dried properly, it can get moldy and spoil, that will give it a bad flavor. Pollen that tastes bitter, moldy or spoiled should not be used.

Propolis apparently also has excellent potential for health, but in the U.S. not much has been done with it. It apparently does have anti-bacterial activity and perhaps even some anti-viral action. This is where beekeepers come in and try propolis in various healing applications. Solution of propolis in grain, (Ethyl) alcohol is excellent for external application for healing. It can also be added to water and taken internally. Until more is known about it, naturally, it should be used with care. Just a few drops of the alcohol tincture of propolis will make a glass of water "milky" and it is very easy to take. I have heard of it used in internal intestinal problems such as Crohn's Disease, where the intestine becomes diseased and causes a blockage. It is considered incurable because if the diseased section is removed, the disease will affect the remaining intestines.

At the recent meeting in Israel, we heard drone larvae is being used in Romania for thereputic use. To most people I am sure this is a "new one". Actually, insect larvae have been used in many countries in the diet. When working with the country people in Mexico, I have seen our helpers remove the larvae from a wasp nest and toast them on the 5 gallon tin can stove all Mexican country people use to heat their tortillas. Years ago, a beekeeper wrote me at great lengths, telling me of the wonderful effects of eating bee larvae. so if any beekeeper wants to experiment with Apitherapy, there is a wide open field to work in. There is no better way to learn than by experience.

Our honey bees are still the best Pharmacists, and we beekeepers should be their best salesmen. □

***Editor's Note:**

It is the policy of *Gleanings In Bee Culture* to encourage open discussion and research related to the potential health value of honey and other hive products. Conclusive studies, unfortunately, are lacking in many such matters. Until more facts can be substantiated, we recommend that consumers consider all possibilities, read widely, analyze the existing evidence and, most importantly, excercise prudent judgement in making personal decisions.

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Hotline For Beekeepers With Financial Problems

Farmers of America Merge In the Nineteen Eighties (*Famine*) is an organization dedicated to helping farmers and ranchers with their financial problems. In addition to a variety of information that can be obtained by writing to: Lois Papousek, FAMINE, RR2, Box 46, Wecota, SD 57480, immediate information can be had, at no cost, by calling 605-598-4546. *Famine* has had prior communication with beekeepers and is familiar with many of the specific problems beekeepers face.

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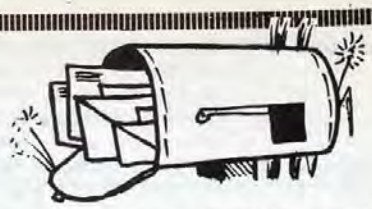
Gleanings Mail Box



Dear Editor:

Since this was an unusual sight, I thought it something to be shared with my fellow beekeepers.

I live near Shippensburg, Pennsylvania and while pheasant hunting near my home the beginning of December, along a slightly wooded area, I noticed this very large mass or ball only about four feet off the ground. Upon investigating I found it contained a mass of wax, a lot of honey and a bunch of honeybees.

A large hive of bees trying to make their home outdoors! What should I do? Being a beeman for many years and naturally a lover of bees, (1) should I wrap the comb (burlap or plastic), (2) build a box around the wax and bees, (3) cut the tree (2" diameter sugarberry tree) and put in into a box, or (4) just forget about it?

My decision, with the help of two fellow beekeepers and my little pickup truck was to neatly cut the tree and place it in a structured cardboard box and place it near my home so I could give it special attention until spring. The total weight of the wax and bees I estimate to be 40 to 45 pounds.

I am 65 years of age and only once in my life have I seen a swarm of bees make their home completely in the open with no protection at all. That other time there was only a small ball the size of a basketball. This time the bees and wax are the size of a two-story box of bees, as you can see by the picture.

I hope to save the bees, as they cannot have disease and defy the sun, rain and winds over the entire year. If I can save the bees until spring, I can brag—THE BEES THAT TRIED TO DEFY NATURE!

George W. Baker,
Shippensburg, PA

Dear Editor:

I have a problem with the way some questions are answered in the Question and Answer section. In the March 1983 issue a question regarding moving bees, I believe, was answered unsatisfactorily. In the past nine years I have had to move hives many times. In the summer with several hives to move it is best to move them at least two miles and then two weeks later move them to the planned location if near the original site. To move them a short distance, in the winter, I have found that the coldest periods are the best; which occur around the first of the year. Anytime is best if it is cold enough to keep the bees clustered. The cluster is not going to be broken if the hive is not jostled or banged around severely. Top exits should be closed and the bottom opening stuffed with dry grass. When replaced only enough grass should be removed to permit one or two bees at a time. In a few days top ventilation should again be practiced to prevent moisture buildup on the inner and outer covers; screening may be necessary to prevent exit near the top.

I have moved bees just a few feet to 150 feet without the bees returning to the original site in cold weather. In some cases I used a cart over fairly rough ground and certainly the cluster was broken, but no more than average attrition was noted when the grass was removed in a couple of weeks.

In the matter of the slatted rack, which was devised by Miller to use up the space in his 2" deep bottoms, I find it difficult to believe that it has any insulating value. Of course there shouldn't be any tendency to build comb or propolis as long as proper bee space is maintained. It also gave Miller extra bee resting space because he kept his bees in a single hive body. I believe that, until serious research is done on the bottom board slatted rack, it be considered experimental and no claims made for it in an authoritive way.

I believe that only known facts should be disseminated in this column.

Victor A. Blazevic
Sterling, VA

Dear Editor:

Just a note about the appeal the beekeepers in Wisconsin are preparing in view of their suit involving a canning company and an aerial applicator; a suit in which there were NO decisions in favor of the beekeepers (*Gleanings* November 1982, page 624).

The Saginaw Valley Beekeepers Association, a small concerned group of beekeepers, recently donated $50.00 of their treasury to the Bennett-Myer Fund, plus some personal contributions of its members. We hope that this will be a stimulus for other groups and beekeepers who have not contributed to help out in this important suit.

Although it is too bad, the truth of the matter is unless we stick together and help each other out in these situations we can not have much of a chance. It is very hard for small associations with limited resources to fight costly legal battles by themselves. Let us lend a hand to our friends in Wisconsin — your state might need a hand some day too.

Contributions should be sent to:

Bennett-Myer Fund
Kimberly State Bank
600 W. Kimberly Ave.
Kimberly, Wisconsin 54136

Norman Adams
Saginaw Valley Beekeepers Association
Midland, Michigan

Dear Editor:

While in Hawaii attending the American Beekeeping Federation meeting we decided to take a trip to the big island. While on

(Continued On pg. 236)

Research Review

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

Apple Pollination Time

May is the month when most of the apples in the north flower and across the northern states a great number of colonies are moved into orchards. An excellent article in the March issue of *American Fruit Grower* reviews the problem and tells about some of the research underway in the Northwest. A number of growers have apparently grafted or planted in crabapples as pollinizers for Red Delicious. We have been hearing more about this is recent years.

The reasons given for using crabapples are several: They have a great abundance of pollen, require little or no space in the orchard, bloom annually and not every other year as do some apple varieties, and have a profusion of flowers. In Washington State it is recommended that bees be used at the rate of one colony per acre except in the high density plantings where there are a great number of trees and many more flowers per acre; in high density plantings two colonies are needed per acre.

Mention is made in the article below of the special problems of pollinating Red Delicious because of its peculiar flower structure; this has received a great deal of attention lately and apple growers are increasingly aware of the fact that more colonies are needed in the case of this variety.

I was also interested that this article carried a note to the effect that Beeline, and other attractants sprayed onto flowering apple trees, with the claim that they would attract more bees to the trees, have proven to be of no value. This year, for the first time in several years, I find no ads promoting the use of these sugar syrups and other hoaxes in the fruit journals. It appears this problem might be solved, at least for the present.

References

Mayer, D.F. Better Pollination Means More Delicious. *American Fruit Grower*, 103:8, 50-51. 1983.

Bee Venom

In 1963 Dr. Allen W. Benton, now of Pennsylvania State University, published a paper on a practical method of collecting honey bee venom in quantity (Science 142:228-229). As a result it is possible to obtain the venom from about 50,000 bees in about two hours without killing any of the bees. The method involves giving the bees an electrical shock that causes them to sting through a plastic sheet and to leave a drop of venom on the underside. The venom is allowed to dry and then is scraped from the plastic.

I often receive letters from beekeepers who are interested in collecting and marketing honeybee venom. The fact of the matter is that the method developed by Benton is so efficient that one man is now collecting and supplying the world demand for venom. Even he doesn't spend much time at it. There just is not any need for anyone else to collect venom.

So far as I am aware a small amount of honeybee venom is being used to desensitize persons who have allergy problems. One may buy venom from several biological supply houses for experimental purposes. At present there does not appear to be much research on this interesting and obviously powerful complex of natural materials.

Bees That Do Not Pollinate

Observations of honeybees visiting one variety of oilseed rape in England showed that about 20% took nectar from the side of the flower. These bees did not contact sexual parts of the flowers and were therefore not pollinators. This behavior was not seen on a second variety of rape that was studied. Flowers on the first of the two varieties are different enough in structure to enable bes to slip in from the side.

Several years ago it was observed that the tendency for honeybees to take nectar from brussel sprouts without pollinating increased with flower size. More recently Dr. Willard Robinson, while he was one of my students, found that bees learned to sidework blossoms of Red Delicious apples, which differ in flower structure from most other apples. This is apparently one of the reasons fruit set is low with that variety. Earlier this year I reported in this column, as a result of work in North Carolina, that sideworking may also occur on Yellow Delicious apple flowers. In 1953 it was found that honeybees learn to avoid the "explosive" pollinating mechanism in alfalfa.

The problem is really one in plant breeding. Those who develop new fruit, vegetable and nut varieties have been primarily concerned with plant characteristics other than pollination. Honeybees can and do learn. Nectar foragers will obtain what they want in the easiest manner. This obviously makes the job of the plant breeders harder; to develop good plant varieties they must take into account the fact that honeybees learn to do things in the most efficient manner.

References

Free, J.B. and A.W. Ferguson. Foraging behaviour of honeybees on oilseed rape. *Bee World* 64:22-24. 1983.

May Management Tip #1

Several eggs in one cell is usually the sign of a weak colony with a vigorous queen who lays quicker than the workers can expand the brood nest. Uniting with another colony might be desirable. More than one egg per cell might also be a sign of queenless laying workers and should be investigated from that standpoint.

May Management Tip #2

Bees require water and should be provided a source they can grow accustomed to using. A shallow receptacle of any kind will serve the purpose. Float wood chips or cork on the surface to provide a landing place. An outside faucet set to drip slightly on a flat surface below also works well and will not register on your water meter.

Bee Talk

by DR. RICHARD TAYLOR

Trumansburg, NY

The robins are back, the first portent of spring that one can actually see and feel. The other signs are speculative, inferential; but when the robin greets the dawn, then you know that the cycle has started anew. It is a depressing thought, that over most of the globe people have never heard the robin, at dawn and at dusk. Nature doubtless speaks to them in other ways, meaningless to me. It is the voices of nature that we heard in childhood that we never shake off. Maybe there will be a snowstorm or two yet, but they will be afterthoughts, hardly worth getting one's boots out for. I've seen snow on the ground in May, and two days later, swarms.

I don't think I've said much about swarms for a long time. That's strange, for it is the perennial topic of beekeepers. Maybe I've been writing about it and just don't remember. In any case, the return of the robins suggests that the subject is at least a timely one.

You can find all sorts of swarm control methods described in the bee books. Rather few are worth the effort, especially since the efforts are likely to fail. I don't care a thing for systems that require rearranging the hive, shifting brood here and there, trying to cut out queen cells and so on. In fact, I think any swarm-control procedure should be strictly a one-step operation. That is, you do what is necessary once only in a given season, and that's it. Procedures that require repeated manipulations and monitoring seem to me self-defeating.

I believe that every effective measure to control swarming involves, in one way or another, dividing the colony. People think that a hive is going to swarm when it becomes too crowded, and, therefore, their inclination is either to give it lots more room, or somehow hold the population down. Holding the population down is certainly counter-productive, because the single most important factor in getting a honey crop is to have hives that are as stong or populous as possible. Just giving more room by adding supers is not very effective.

Bees do not normally swarm unless there are present (a) a queen, (b) many flying bees, and (c) much brood. Separate any of these three from the others and the bees will not make preparations to swarm; that is, they will not build queen cells.

It doesn't make sense to remove the queen. You've got to have her in order to get the strong population needed later for honey gathering. And besides, if you remove the queen, the bees just start to build queen cells, which is exactly what you don't want.

So the best way is to somehow separate those flying bees from the brood. This is accomplished in one stroke by moving the hive to another part of the apiary, but of course that just creates a new problem. The flying bees that return to the spot where their hive was, need another hive to go into, and how are you going to provide that without reestablishing the very condition you were trying to correct? Of course, you can put a weak hive there, if you have one, and it will become strong instantly by being augmented by all those new field bees. But you are also apt to find that it has become queenless the next time you check.

Here is what I do, and it works fine. When I think the bees might be starting to think about swarming, I go to the apiary and pick out, in about five minutes, the colonies I think might be most likely to swarm. I could peer up under the combs of the second story, to see whether there are queen cells started there, but I don't bother with that. I just pick out the hives that have the most bees on their inner covers. Those are the ones that are strongest and most apt to swarm. That doesn't take any time at all. Then I just take out three combs of sealed brood and bees from each of these, right from the center of the brood nest, checking each comb to make sure I'm not getting the queen too. I replace these brood combs with empty drawn combs or frames of foundation, and that's it. The bees aren't apt to swarm with that brood suddenly missing right from the heart of the brood nest, and of course the queen can't wait to fill those combs up with eggs again, thereby boosting the population just when you're going to need it for honey gathering.

Now, of course, you've got three combs of brood and bees for each colony thus dealt with. You can just combine these to make new colonies, nine combs per hive body, giving them a new queen. They won't fight, because they are all young bees, the flying bees having remained with the original hive. Or, you can use these combs and bees to make up three-frame nucs, giving each nuc a new queen, and sell them for a nice price. It never seems to be much of a problem, and the main thing is, you have effectively controlled swarming, with the minimum of work, and without significantly weakening your colonies. □

Gleanings Mail Box

(Continued From pg. 232)

the bus going to the airport I pulled an envelope from my luggage to get the bus tickets and left it lay on the seat. I didn't miss it until we were airborne. We had several $100.00 bills and also several hundred in traveler's checks, along with our paid hotel bill.

A very fine lady from Island Holiday Tours, Clarie Clock, had found our money and had tried paging us at the airport. She then turned the money over to Hawaiian Airlines for safekeeping until we would return.

By that afternoon I knew from phone calls that our money was safe and we both were able to breathe easier. When we returned to Honolulu they presented us with our money. I feel this lady should be recognized by our fellow beekeepers as a very honest person.

Bill W. Johnson
Independence, MO

Dear Editor:

I was amazed to find that no one under 18 responded to your reader's survey. I would have liked to have reported, but was loath to take a page out of my issue of *Gleanings*. You may want to add this to your statisitics. I am 16 and have been beekeeping for two years now. I now have four colonies, but come April I hope to have ten. I myself am not a gardener but my mother is an enthusiastic gardener and appreciates the bees' presence. I do not sell honey as of yet because I am still in the expanding stage.

I do not belong to a beekeeping organization nor have I attended any classes because of our rural location.

In my opinion, the biggest problem faced by beekeepers in this area is the lack of good bee forage. The vast amount of Toyon here is excellent for the bees, but the taste for this honey must be acquired.

This survey tells us what has happened to some of our younger generation. Thev have been lost to the more popular and quite often less rewarding undertakings. Many people my age would not "waste" the time or money on such a thing as bees. Hopefully, beekeeping can survivie such a drought of newcomers into this very interesting and fulfilling occupation.

Eric Larson.
Pine Grove, CA

Dear Editor:

This is to inform your readers that the offer for Bee Bee Tree seeds is still on. I will refill orders where the packets of seeds were crushed in mailing if 25¢ or a stamped envelope is sent. A stamped self-addressed envelope, plus 25¢ in coin or equal amount in stamps will bring you a packet of Bee Bee (*Evodia*) tree seeds.

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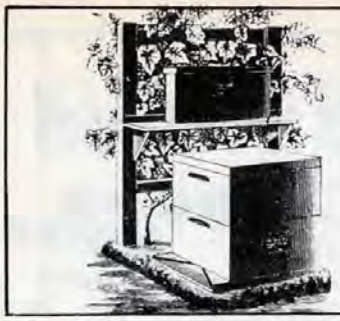

Bees and Gardens

I recently received an interesting letter from Garry De Young of De Young & Sons, Nurserymen, Plant Propagators and Seedsmen of Box 14, Rt. 2 (Perkins), Hull, Iowa 51239. He wishes to thank the beekeepers who have ordered their nectar producing Siberian Pea Trees (*Caragana arborescens*) from them. The availability of this stock was called to our attention by Jeane Roberts of St. Paul, MN via a letter to our *Gleanings* Mail box published in the February issue of *Gleanings*. Mr. De Young also included copies of his newsletter, along with price lists and other useful information. Also included in the mailing was a copy of his booklet (22 pages of mimeographed 8″ x 11″ pages) titled *Money Marketing Gardening*, subtitled "The Idiot's Handbook for Gardeners." It is available from De Young & Sons, nurserymen, for $2.00 per copy, postpaid.

Money Making Gardening is a fascinating collection of information about many subjects, all written with an intriguing style of humor that will not let you put this booklet down until you have read it through.

With the author's permission we would like to quote a section from *Money Making Gardening* concerning starting seeds. Beekeepers frequently have the opportunity to collect the seeds of honey plants but getting them to germinate and survive as seedlings is another matter.

There are a few simple rules to follow in starting seeds. They are:

1. adequate moisture
2. adequate heat
3. proper light conditions
4. stratification
5. scarification

For all practical purposes this covers all bases.

Few seeds will germinate unless they are provided with some moisture. Too much moisture can cause the growth of certain fungi which cause dampening off. This means that the seed may not even emerge through the surface of the soil, or if it does, it is "pinched" at the base of the stem by the fungus and falls over dead. If your soil is not too wet you can usually overcome this problem although it is common and can be serious.

From my experience I would say that the most critical factor in starting most seeds is the one involving the temperature of the seed bed. Some plants (seeds) will germinate at 55 degrees F. while others need temperatures in the 70 to 75 degree range. You can experiment, but it is easier to get a book which lists the best germination temperature for each particular seed.

Some seeds will not germinate unless they are exposed to light while others will not germinate unless exposed to dark. Here again, you should do a little research into a good seed reference to find out which seeds need light and which ones do not. Don't try reinventing the wheel, it has been invented—go on to inventing something else.

Stratification means that some seeds will not germinate unless they are first exposed to cold or to heat or to some other variable before they will germinate. Most seeds which require stratification can

(Continued On pg. 240)

Capping The News

THE EDITORS

"Beekeeping Small Talk"

ntry Of Origin Regula- n For Imported Honey

inning in June, 1983, the U.S. ms Service will implement a regula- equiring clear marking of the country gin on all retail packages of honey. s a change from the existing regula- which requires clear marking on entering the U.S. from abroad, but not require such marking to extend honey is repackaged in the U.S.

ording to Anthony Piazza, deputy or of Customs Entry Procedures and ies Division, the regulation will be ve and enforceable, due in large o the fact that violators will be sub- substantial fraud charges. Mr. Piaz- o interprets the regulation as being able even if foreign honey is blend- h domestic honey. Blending or mix- es not constitute a basic change in ported item, and country of origin gs would remain mandatory.

rather interesting to note that, dur- e period set aside for public com- on the proposal of this regualation, than 1200 comments were received Customs Service, but not one came a beekeeper or representative of a business. However, it is possible, time to petition the Customs Ser- or Special Policy rulings should a tion be regarded, in some form, to clear, to Mr. Anthony Piazza. U.S. ms Service, Entry Procedures and ies Division, Washington, D.C.

appreciate the efforts of Alan King, president of the Indiana State epers' Association, who first nt this regulation to our attention.

keepers And The Law

case against Wilhelm Gollub of ond, Virginia, is in a state of nement. Gollub, who has been by an allergy victim, for selling without a label warning about le allergic reactions, feels op- c about the eventual outcome. He nsulted both state and federal food ing agencies who have verified that el, which included the name of his ss, an identification of the product s weight, met labeling standards. he-less, Gollub has added a cau- tion to his new labels stating: "To avoid sudden metabolic imbalance, gradually build up pollen intake. Start with one pellet, double amount each day. One to three teaspoons for daily health. In doubt consult physician." Gollub, who had a mild allergic reaction, himself, when first trying pollen, believes such a warning to be a wise marketing practice.

M.D. Levin Appointed To Tucson Research Lab

M.D. Levin has been appointed Director of the Carl T. Hayden Bee Research Center, Tucson, Arizona. As of February 22, 1983, Dr. Levin resumed a position he held in 1969, when he was transferred to Beltsville, Maryland to serve as Chief of the Apiculture Research Branch in the Entomology Research Divsion of the Agricultural Research Service, U.S.D.A.

While in the east, Dr. Levin occupied several positions of increasing responsibility. In 1972, when a reorganization of ARS created the National Program Staff, he became the National Research Program Leader for Crop Pollination and Bees. In 1975, he was appointed Deputy Assistant Administrator for Plant and Entomological Sciences. Later, after another reorganization, he became Chief, Crop Protection Staff, and then Chief, Crop Sciences Staff.

Another reorganization of the National Program Staff in June 1982, eliminated the Crop Sciences Staff and provided an opportunity for Dr. Levine to opt to return to research as Director of the Hayden Bee Research Center. After a four month temporary assignment in Fresno, California as Acting Area Director, Dr. Levin reported for duty in Tucson, Arizona on February 22, 1983. In addition to relieving Dr. Martha Gillman of her Acting Director responsibilities, at her request, he also assumed the responsibility of Research Leader of the Honey Bee Nutrition Unit.

As Director, Dr. Levin leads a staff of eight scientists conducting basic and applied research on pollination and bee behavior and nutrition. It is anticipated that by this fall, the Honey Bee Pesticide Research Lab from Laramie, Wyoming will be in Tucson, forming a third research unit under Dr. Levin's direction.

Dr. Levin received an A.B. degree from the University of Minnesota, and has 33 years of professional experience in conducting, managing, and administering biological research in the Department.

Honeybees & Pollution Research

An Associated Press news story in an Everett, Washington newspaper with a date of February 23, 1983 outlined the role of honeybees in pollution studies. The story revealed the disturbing levels of fluoride and arsenic which had been found in the fields and flowers of the Seattle-Tacoma area. The honeybee has been a key agent in making the discovery.

Dr. Jerry Bromenshenk, an entomologist at the University of Montana has been working with beekeepers who cooperated with surveys he had designed and implemented.

"The pollutants can be traced to areas where smelters are processing ore, where coal is mined and burned, and where chemical fertilizers are producing," said Bromenshenk. He said his studies in the past year, funded in part by the Federal Environmental Protection Agency, have found fluoride levels in bees to be as high as 182 parts per million and arsenic at 12.5 parts per million.

In control areas elsewhere in Washington state, more normal readings of 5 to 10 ppm of fluoride and from .5 to 10 ppm of arsenic have been documented.

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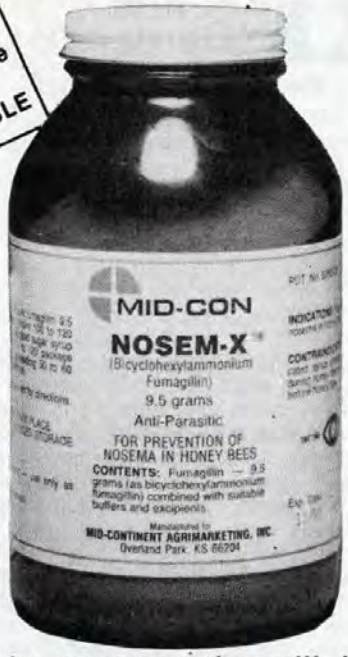

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Bees and Gardens

(Continued From pg. 237)

meet this requirement by putting them into a paper bag and then putting them into your refrigerator for a couple of months. But here again, you should refer to a good seed reference if you want to know for certain.

Some seeds have very hard seed coats and won't grow unless that coat is softened (with water, or sulphuric acid for some seeds) or chipped so the seed can emerge through the seed coat. One example of this is the sweet pea. Unless you take a knife and nick the end of the sweet pea seed it may not be able to germinate. We play safe and first soak the seeds and then nick them. A bit of work, but we get sweet peas.

Most seeds are pretty tough and can break through even packed soil but that is not true of all seeds so I suggest that you play safe and get a good seed starting medium such as the Luther Burbank mix (which is what we use) or one of the many fine commercial seed starting mixes available to professional growers but seldom sold to consumers. We also use our own mix and you can do this too, with a little experience.

We have even used sand, but sand will pack so we use a mixture of sand, humus (or dirt mixed with peat moss), vermiculite and bone meal and we get good results from this combination,

For bottom heat, if you cannot obtain a commercial propagating mat, is to just use an ordinary heating pad under your propagating box. The temperature generated by these heating pads is usually about 55 degrees F. and suitable for most seeds although you may not be able to germinate peppers or some other garden vegetables which require a 70-75 degree temperature.

Information about the seed treatments for individual honey plants, particularly the nectar producing trees, is listed on page 42 of the 38th edition of the *ABC and XYZ of Bee Culture* (A.I. Root Company, publishers).,This information was compiled by Bernie Hayes of Wellsville, New York.□

L. Goltz

(Continued From pg. 229)

dant and brood rearing is high. Feeding of sugar syrup has been extensive. Season is ahead at beginning of April. Retail honey market has been stable, prices holding and sales are good. No honey available for wholesale market in Kentucky or Tennessee. Alabama has had adequate moisture through March. Prospects at end of March are for good tulip poplar and clover honey flows. Supplies of queens and package bees are good in Alabama.

Region #7

Brood rearing in advance of normal at end of March in Oklahoma. Winter loss was very light. Some feeding, but bees in very good condition. Honey sales slow. Very little local honey left. Unlikely to be large increase in colony numbers in this area.

Region #8

March snow storms brought moisture to plains and mountains of Montana. Bees building up well at end of March as pollen has been available. Honey sales improving with the approach of spring. Brood rearing began early in Colorado. Food supplies are still ample in Colorado in early April although some feeding may be needed to stimulate continuous brood rearing. Honey sales are good in Colorado. Packers keeping low inventory

Region #9

Honey sales slow in Oregon. Pollination of almonds in California was restricted due to weather conditions but bees were flying during approach to peak bloom during period of February 19-22 in Stockton area. There seems to be a fair set in almond despite the weather conditions which have made it difficult for beekeepers and bees. Rainfall in Sacramento area has been over 60 inches since July 1, 1982, most of which has fallen since November 1st. Large scale queen grafting was delayed. Bees seem to be in good condition and nectar will be available if weather settles down. Honey sales are firm. Some packers importing large amounts of Mexican light amber in light of favorable exchange rates.□

Capping The News

THE EDITORS
"Beekeeping Small Talk"

(Continued From pg. 238)

Arsenic levels in bees were found to be as high as 13 ppm east of Seattle, 10 ppm on the tip of Vashon and 8.6 ppm in a Lakewood area checkpoint.

Bees are so good as indicators of toxic pollutants, Bromenshenk said, that they absorbed traces of fallout from the Chinese nuclear tests that drifted across the U.S. a few years ago.

More than 70 beekeepers in the Puget Sound area participated in the tests.

Based on toxin levels found in bees in laboratory tests, Bromenshenk predicted with great accuracy what level of toxins would be found in vegetation in Tacoma, Seattle and on Vashon Island.

The tests on vegetation toxin levels were taken by a Washington state agency and then compared to Bromenshenk's predictions.

"But," said the scientist, "I didn't expect to see levels as high as they were as far as we were from possible sources."

Patterns on maps distributed by Bromenshenk showed toxin levels high in areas appearing to be natural air-flow channels from Tacoma's industrial area along the Tideflats and around Lake Washington in Seattle.

The scientist plans to meet with local, state and national environmental groups in an effort to convince them his work with honeybees has proven more studies are necessary for the protection of public health in the Puget Sound area.

Beekeeper Assistance Program Announced

William Fishbeck, Chairman of the Washtenaw (Michigan) soil conservation district has announced that an apiary registration and information program has been started by the District. The purpose of the program is to promote communication between beekeepers and pesticide applicators in order to reduce bee kills from pesticide spraying.

According to Fishbeck, Washtenaw County beekeepers are being asked to voluntarily register their hive locations with the Soil Conservation District. Pesticide applicators (such as farmers, orchardists, camp ground managers and government agencies) are encouraged to obtain this hive location and owner information prior to conducting a spray operation, by simply telephoning the District Office. They can then notify the beekeepers who might be affected of spray date(s), time(s), exact area(s), insects to be controlled, chemical, dosage, application method, and any other pertinent information. This should allow the applicator and the beekeeper to discuss spraying plans and take appropriate action to protect hives.

Gleanings congratulates the Washtenaw, Michigan Soil Conservation Service for this action.

Washington Report

From Steve Forrest, a member of the Executive Board of the American Honey Producers and Southern States Beekeepers Federation President comes word that there will be more information given to the bee journals on developments in our nation's captitol. This report will cover the activities related to the beekeeping industry that are of interest and of importance to the whole industry. Often, in the past, information of this nature reached only a portion of the people involved in beekeeping, mostly those who had a commercial stake in producing or in processing honey. We wish to thank Mr. Forrest and others involved in the Washington activities for relaying information of this nature to *Gleanings* in the future.

The nation's capitol has thousands of full time and part time lobbyists who are engaged in monitoring and promoting many interests and causes. Although sometimes regarded with misgivings, lobbying is a fact of American political and business life; it is often the only course available for promoting action on very worthwhile endeavors that benefit many people. *Gleanings* readers may look forward to reading of the many interesting and intensive efforts being made by some of the industry leaders to improve the position of the beekeepers in these difficult times. We hope that the efforts of those leaders in Washington will be supported by all beekeeping organizations who stand to benefit by favorable legislative action.

Pest Control

The following interesting information comes from *The Virginia Beekeeper*, a publication of the Virginia State Beekeeper's Association. (Vol. 3, No. 1). The information comes from Homer "Pat" Powers, state apiarist of Virginia.

Parasitic bee mites: PBM, as they are now known, include the acarine mite, the one that clogs bee tracheae, now in Mexico; Tropelalaps, an external mite that is said to be worse than Asian mite and Varroa, the Asian mite which lowers colony vigor by maiming young bees.

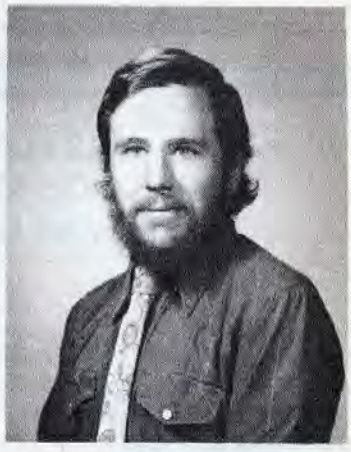
African Bees: The name is now *Apis mellifera scutellata* (Lepeletier). This honeybee has 16 chromosomes, the same number your bees have, the same number found in the Canadian's bees and the French and English, and so on.

Off-shore honey: the tonnage of honey imported into the United States in 1982 was roughly the same as the tonnage of United States produced honey that beekeepers put under loan from ASCS.

March, 1983 Sale Of CCC Honey

The Commodity Credit Corporation (CCC) in its March 21st sale of unprocessed honey for unrestricted use, awarded bids to Hartland Honey of Florida, Hignite, of Texas, Pollination Service of Janesville, Wisconsin and Hubbard Apiaries of Onsted, Michigan. A total of 674,464 pounds of honey was sold at prices ranging between 35½ cents to 43 cents per pound.

Dr. John D. Vandenberg Joins Bioenvironmental Bee Laboratory Staff At Beltsville



A new addition to the Bioenvironmental Bee Laboratory professional staff is Research Entomologist John D. Vandenberg of Oregon State University. Dr. Vandenberg joined the Bioenvironmenal Laboratory, Plant Protection Institute Agricultural Research Service, U.S. Department of Agriculture, in Beltsville, Maryland in January of this year.

Prior to his appointment with the USDA, Dr. Vandenberg was a Postdoctoral Research Associate at the Insect Pathology Resource Center, Boyce Thompson Institute at Cornell University, Ithaca, New York. The subjects of his research there were the clear-winged grasshopper and a species of fungus which attacks it. The study included field

(Continued On pg. 246)

SOFT DRINK SYRUP MAY BE TOXIC TO HONEY BEES

By E.W. HERBERT JR.,
and
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Honey bees will consume solutions made from a number of sugars, but because there are many that are toxic to bees, beekeepers should not feed bees sugar syrups of unknown compostion. The sugars most readily accepted by honey bees are found naturally in either nectar (glucose, fructose, and sucrose) or in honeydew (melezitose and maltose). Sugars that are toxic to bees or reduce the longevity of bees include mannose, lactose, galactose and raffinose. Lactose is found in milk and milk products and raffinose occurs naturally in soybeans.

Historically, beekeepers have fed bees sucrose solution in various concentrations. Other sugar formulations purchased commercially by beekeepers include divert sugar (92% sucrose and 8% invert sugar), Type 50 sugar syrup (77% glucose-fructose and 23% water), and various concentrations of high fructose corn syrup. High fructose corn syrup is gaining in popularity since it is less expensive than sucrose and is readily obtainable.

It has recently come to our attention that beekeepers in increasing numbers are feeding colonies of bees waste soft drink syrup. This syrup is less expensive than high fructose corn syrup and is readily available. Unfortunately, little information is available on the effect of this syrup on colony development in spite of the fact that increasing amounts of syrup are being fed.

We were interested in determining the effects of feeding a soft drink syrup on the longevity of bees confined in cages maintained in the laboratory. Eight cages (Fig. 1), each containing approximately 70 bees of unknown ages were established on February 15th, 1983. Four cages of bees were offered a sucrose solution (57% solids) and four cages a soft drink syrup (57% solids). Each cage was also provided with a vial of water. The dead bees were counted daily until an LT-50 and LT-90 (time for 50% and 90%, respectively, of the bees to die) was determined for each treatment. The LT-50 in all four cages fed the soft drink syrup was 2.0 days, and the LT-90, 4.8 days. The LT-50 of bees offered sucrose syrup was 7.5 days, and the LT-90, 13.0 days. We did not determine the cause for the toxicity of soft drink syrup in this study. We did, however, determine that the syrup was very acid (pH 3.61) compared to the pH of sucrose syrup (pH 6.36). This low pH is the result of phosphoric acid, citric acid, lactic acid and quinine hydrochloride in the syrup.

A similar bioassay was begun on February 23rd 1983 using a soft drink syrup from a different source. This sample was more acidic than the first sample (pH 1.92 vs. 3.61) and contained 53% solids vs. 57% solids for the first sample. Cages of bees fed a 53% sucrose syrup were used as controls. The LT-50 for bees in the test cages was 4.0 days and the LT-90, 6.0 days in the second study. The LT-50 of bees offerd sucrose syrup was 11.5 days and the LT-90, 16.5 days.

The moribund bees fed the soft drink syrup were removed from the cage and examined. The abdomens of the individual bees were greatly distended. The cages were covered with "bee droppings," as if the bees had dysentery.

Based on these studies, we recommend that beekeepers exercise caution before feeding large numbers of colonies any soft drink syrup. The low price is very attractive, but because 50% of our bees died within two days in one test, the survival of the colony may be in question if these waste sugars are fed. We do not mean to imply that all such syrups are toxic to honey bees, but rather to caution beekeepers about feeding bees sugar solutions of unknown composition merely because they are inexpensive. □

Capping The News

THE EDITORS
"Beekeeping Small Talk"

(Continued From pg. 242)

work in eastern Arizona and Laboratory work at Boyce Thompson under the direction of Dr. Richard Soper.

Dr. Vandenberg's graduate research at Oregon State University was on chalkbrood in the alfalfa leafcutting bee with Professor W. P. Stephen and his research for his M.S. degree at the University of Maine in Orono was on fungus pathogens of the spruce budworm.

The focus of Dr. Vandenberg's research at the Bioenvironmental Bee Laboratory will be European foulbrood in the honey bee and control of the wax moth with biological agents.

California Bee Loss Heavy In Flooding

The Sacramento Valley of California has been hit hard by flooding. Rivers are carrying unusually heavy runoff from the heavy rains which have swept the Pacific Coast States.

Beekeepers are reported to have lost some 8,000 colonies. The flooding came at the peak of the almond pollination period when large numbers of bees are brought into California orchards.

The Sacramento Valley, which contains one-third of the state's 350 to 400 commercial beekeepers producing honey, has growers who hire many pollinating colonies of bees and has bee breeders who produce a large volume of package bees and queens.

One of the worst reported losses was suffered by Ray Olivarez of Orland, California. He reported a loss of 1,800 colonies valued at $394,000. He said, "I grew up along the Sacramento River and I have never seen it so high. We lost everything in one night. I'm ruined," he said.

The river current was so fast that it broke levels along the upper part of the river, uprooting trees in almond orchards and flooding lowlands on which truck crops are grown. Some land was still under two or three feet of water the middle of March.

With continuing snows accumulating in the Sierra Nevada mountains to the east the threat of more flooding exists when the snow melts later in the spring. As the snow melts, a high volume of water will enter the west flowing rivers, including the Sacramento. For many years the levees have held back the floods but never before have residents seen such an onslaught as has occurred recently. Other beekeepers have suffered similar losses as has beekeeper Olivarez.

How to . . . Load and Move Bees

By THURBER

Part V

By THURBER

I thought the four installments on "How to Load and Move Bees" were adequate, and then would you believe some glutton for punishment wanted some information on how to get the hives on a truck without getting a hernia.

Okay, hang on. The Prairie View Honey Company makes a carrier of pipe that lets two persons lift and carry a hive by its lift cleats or by its hand holds if you persist on not putting the lift cleats on. With lift cleats you can not only lift off supers but lift entire hives and carry them for a long distance. I think the decision as to whether or not you use a carrier made of pipe or of wood depends not only on the distance you have to carry a hive but on the footing. If you have level ground, don't have to worry about flights of steps, holes, rocks, stumps or whatever, carry the hive on the lift cleats if you want. If in addition you have no honey to speak of in a hive and have no lift cleats, then carry the hive by holding it under the bottom board. If you have honey in the hive, it will be top heavy and carrying it by the bottom board means you are carrying a top heavy, tippy load which I do not think is so smart. Many people throw their backs out or get a hernia, not because the load was too heavy, but they lurched off balance with often quite a light load.

I and my three bee buddies look for level ground when we migrate. If we can get level ground in a suitable blackberry or fireweed location we use the carrier for sure. We also take not only weed cutters but also pruners, maybe a chain saw, a shovel, a hoe and a rake. Then, before we put up an electric fence and apron, we clean up the outyard and at least expose treacherous footing if we can not level or remove the hazard. If we can, with reasonable effort, we improve the footing so we can use a hand truck with a large diameter wide tread wheels like Walter Kelley stocks. It is no pleasure to lug full honey supers over to the truck. Here let me point out what may not be obvious. A hand truck suitable for use on hard surfaces such as blacktop, concrete or wooden floors usually has narrow treads which will sink out of sight on wet dirt or turf. Furthermore you just cannot push a hand truck with small diameter wheels on irregular ground. I wish someone could sell hand trucks with four or five inch wide 12 inch diameter semi pneumatic wheels at a reasonable price, but the way everything costs now I doubt they could.

5 full western (6⅝th) supers weighing more than 300 pounds, moved with ease and efficiency with the help of a truck ramp.

Now if you locate a flat ground outyard or can make one so you can use a hand truck, the matter of ramps comes to mind. I have used ramps. Some were store bought. Handsome light weight magnesium ramps are a joy to behold and perhaps to use in good dry climates. Perhaps you can even justify their considerable cost, but I know here in a wet country they are darn dangerous.

I might say I made a ramp of marine grade ⅜" plywood. I made it sort of like a truss and on completely dry days it was fine. On slightly damp days it was OK too because I faced it with a 3M product to keep it from getting slippery, but it did not take me long to realize it was extremely hazardous to use in rainy weather. When there was a mud build-up on the ramp, and I tried to push a several hundred pound hive up it, I lost my footing and fell. The hand truck and hive came crashing down on me, and I was lucky I did not get seriously hurt. Similar accidents have and, I am sure, will continue to occur with long ramps, but how about a ramp you walk on? They have been made — always, I think, homemade, and one has to be made and used before anyone would believe they work. Truly, they are cheap, useful, and you are unlikely to get into an accident situation with one.

How do you make one and where did I see and use one? Well, I guess it was in 1971. Jim Bach and I went to the University of California at Davis on other business and we were idling around when Jerry Marston, who then and now is the bee technician at the Bee Biology Lab, drove in with a pickup full of western supers full of honey. As he started unloading the truck with a hand truck and this weird looking ramp, Jim Bach, who is now Washington State's chief apiary inspector, and I stood amazed. Jerry was unloading stacks of five westerns with a Kelley Nose truck with ease. Hey, those stacks weighed 300 pounds each! To shorten this account we observed and then had to try to use the equipment. In just a very few minutes we got the hang of how to and were unloading and loading with ease.

How do you make it? You start with a piece of ¾" plywood cut three feet square. Then you come in from the right hand side one foot draw a line to a point on the bottom of the square 6" from the lower right hand corner. Then draw a line from the lower right hand corner upwards parallel to the first line. Finally you draw a line parallel to the bottom or top of the board 18" from the bottom or top (see sketch) and cut. Next you get a piece of ⅛" thick steel sheet galvanized, if possible, cut 5 x 24". Have it bent along its length with about a thirty degree bend. Sorry I can not be more specific about the bend because the bend depends on the height of your truck tail gate above the ground. The sheet metal rests against the tail gate to hold the ramp up. Bend a little and with the sheet metal positioned with clamps, check and adjust the angle so the steel lays flat on the tail gate. Now when the angle is correct, bolt the metal to the top of the ramp. Use stove not machinebolts.

(Continued On pg. 249)

How To Load & Move Bees

(Continued From pg. 248)

How do you use it? Get your hand truck and put on a stack of empty supers; push the load towards the ramp and at last second turn the hand truck hard left so it is at right angles to the truck bed. Step backwards and upwards with your left foot and get your left foot on the step on the ramp. (Yes, you are walking backwards.) When your right foot steps on the tail gate, bring your left foot up and you are now standing on the tail gate. Give a jerk and a grunt and the hand truck rolls up the ramp and onto the truck bed. That does it.

I know the description makes the loading up the ramp sequence sound awkward but with a little practice it becomes almost a smooth dance step. I might also tell you the turn of the hand truck to the left, reverse step up and jerk up, should be continuous. You need the momentum of the rolling truck to help roll it up the ramp. When you are practiced so you do not miss the step, this is an easy way to load hives and since you do not step on a wet muddy slanting surface, I think it is safe.

I guess that is about it, but I warn you that this truck ramp is only, I think, suitable for two wheel drive pickups. The 4-wheel drive rigs are set so high you can not make the backward two steps unless you are a giraffe in which case you should not keep bees anyway.□

Beekeeping Technology

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

The Miller Plan — A Good Way To Produce A Few Queen Cells

Numerous techniques for producing queen cells are found throughout beekeeping literature. Selecting a procedure, accumulating the specialized equipment and developing the required skill are prerequisites one must meet when establishing a queen cell production procedure.

Since so many beekeepers, both large and small, have shown an interest in cell production, it seemed an innocent enough topic on which to write a short article: Immediately, questions began to develop. Which method would be most appropriate for producing a few queen cells? Grafting (ie. transferring larvae from a worker cell to a queen cup) seems to intimidate many people, not to mention involving a considerable quantity of beekeeping equipment. Simply using natural swarm cells will surely result in readers' comments concerning the propagation of swarming. Removing the queen from a producing colony will inspire remarks from others that bees sometimes select larvae that are too old. With all this in mind, I referred to the published information on the topic in order to find a good simple, technique for producing a few cells.

The mass of books and scientific information on queen rearing is mind boggling.

Even though we produce many queens per year at ATI, our system is standardized and not particularly difficult to set up. If I do not allow myself a large inventory of colonies for breeders, starters, cell builders and mating nucs along with considerable assistance from technicians and students, producing a few queens can become "simply complicated".

A closer examination of the literature reveals several basic procedures and a great number of variations. A technique that has great potential for a hobby beekeeper that is in the "basic procedure" catagory is the time honored Miller Method as described by Dr. C.C. Miller so many years ago. Beekeepers attempting to rear queen cells for the first time should find the procedure to require only minimal amounts of equipment and skill. Significantly, grafting is not part of the system. This feature eliminates the requirement of transferring small larvae to special queen cups.

The Miller Method Of Producing A Few Queen Cells

(With Occasional Variations Offered)

Time Of Year — Obviously great variation will occur depending on the beekeeper's area. An easy rule of thumb would be to proceed with queen cell production when drones or drone brood is present. Certainly, queens may be produced when the beekeeper sees some of his colonies preparing to swarm. In reality queen rearing can be started earlier than drone or swarming time, but colony management for cell production is more difficult.

Breed From The Best — Beekeepers having only a few hives may not be troubled by this point. Essentially, breeding stock should come from colonies that winter well, are gentle, not inclined to swarm, and are good honey producers.

Establishing A Nucleus Colony For The Breeder Queen — The Miller plan suggests keeping the breeder queen in a 2-frame nucleus colony with two to three pounds of worker bees. The main components of the nucleus colony should be the breeder queen and two frames of older brood. The brood frames should contain honey and be thickly covered with worker bees.

Variation — The nucleus colony can be housed in standard equipment with the entrance reduced to approximately one inch. If the beekeeper desires, the remaining empty space in the nucleus colony may be filled with either empty frames or combs of honey. However, more brood should not be added since it will encourage bees to produce drone cells on the special brood frame that will be placed in the colony for queen cell production. It would help if the nucleus colony were fed sugar syrup during times of nectar dearths.

The Miller Frame And Its Deployment — An empty frame (no comb, no foundation) should be fitted with two to four strips of foundation. Strips should measure two inches wide and should come to an equilateral point within two inches of the bottom bar. The frame, with accompanying foundation strips is placed between the two brood combs in the nucleus colony. In a bit more than a week, the frame will be filled with comb containing eggs and larvae.

Queen Cell Production — the Miller brood frame, containing eggs and young larvae is removed from the nucleus colony. A sharp knife is used to trim off most of the comb containing eggs. Consequently, young larvae are located very near the bottom and side edge of the newly produced comb. The frame, with trimmed comb, is placed in the brood nest center of a strong recently (2-4 hours) dequeened colony. Dr. Miller reported most of the queen cells produced would be on the Miller frame. Numerous locations for queen cell production and new plyable beeswax comb were reasons cited for the bees favoring the new brood frame.

Approximately ten days later, queen cells can be removed from comb edges. The mature cells may be used in whatever manner the beekeeper desires.

Variation — If only a few queen cells are desired, the original colony that was dequeened to form the breeder queen nucleus colony can be used to construct queen cells. All natural cells, that have been started, should be destroyed. The Miller frame is placed with two frames of emerging brood. The number of cells produced will not be as great, but a few cells will always result.

There are many advantages to the Miller Method of queen cell production. Normally, two strong hives are all that's required. Under very economically minded conditions when only a very few cells are desired, one hive may be enough. Transferring larvae (grafting) to artificial cups is not required. Neither are complicated schedules or sophisticated equipment.

Producing your own queens is an exciting and rewarding aspect of beekeeping. If you have not tried it, even if it's just for the fun of it, you should. □

Suggested Readings

Laidlaw, Harry H., Jr. 1979. *Contemporary Queen Rearing*. Dadant & Sons, Hamilton, Ill. 199 pages.

Morse, Roger A. 1979. *Rearing Queen Honey Bees*. Wicwas Press, 425 Hanshaw Rd., Ithaca, NY 14850. 128 pages.

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.

A bill, currently pending in the Wisconsin State Legislature, would, if enacted, create a beekeeper indemnity program to be administered by the Department of Agriculture, Trade and Consumer Protection. Eligible beekeepers could, under this program, receive indemnity payments for losses due to pesticide damage. The program would be funded by a surcharge of 2% imposed on the sales price of pesticides sold in Wisconsin. This would result in approximaely $1,400,000 yearly, of which $950,000 would be used in claim payments, the rest in research and administration. A complete copy of this proposal is available through the office of Lary J. Swoboda, chairman,, Assembly Agriculture Committee, Room 11 West, Capitol Building, Box 8953, Madison, WI 53708. We thank Rep. Swoboda, WEX entomologist, Walter Gojmerac and Wisconsin beekeeper, Don Haak and providing us information on this subject. Because of this bill's possible implications to the rest olf the country we present the following ——————

CON

Argument Opposed To Indemnity Bill

In recent years, only about 48 of the 20,000 Wisconsin beekeepers, on the average, suffered variable insecticide losses, collecting an approximate total of $75,000 per year. But beekeepers, on occasion, incur other kinds of unavoidable losses such as bear, skunk and disease damage.

A broad based tax could provide reimbursement funds for beekeepers suffering unavoidable damages, and also provide funds for much needed research. Such a tax, however, should be assessed to honey and hive products sold in Wisconsin. Other types of farmers already have similar programs. The tax would be borne by consumers and not beekeepers or neighboring farmers who already provide forage for bees and use insecticides properly to raise crops.

It is unjust that farmers should pay for beekeepers' losses. Honey production is not a riskless business and beekeepers must recognize the hazards of locating in an insecticide area. If payments are to be made for losses and research, it is fair that funding be generated by the consumers who use the end product: honey.

PRO

Argument in Favor of Indemnity Bill

Due to the use of pesticides in agricultue, an increasing amount of damage is being caused to the beekeeping industry. The destruction of crop pests has also caused the destruction of beneficial insects, namely the honeybee. This burden, in the past, has been sustained solely by the beekeeper through colony, pollination and product loss.

An indemnification program to reimburse the beekeeper is truly needed. A modest surcharge of 2% on pesticide sales within the state would cost the average pesticide user only approximately $15 dollars yearly.

From this program the beekeeper would be reimbursed on a scale depending on the amount of damage. Unused funds, at the end of the fiscal year, would be channeled into bee/pesticide research in an attempt to alleviate the problem entirely.

Other side benefits from such research would be: lower user cost, new methods and pollution reduction.

Given the necessary contribution of the honeybee, to all of agriculture, it is only fair to expect that those who cause damage should also share in helping to rebuild.

This month's BEEKEEPERS FORUM was developed from a synthesis of information gleaned from two sides of one issue. In the future, we would like to publish point/counterpoint arguments written and directly submitted by individuals. On occasion, issues with multiple arguments will be presented. All suggestions and contributions are welcome. However, for those interested in immediate participation, we are currently collecting opinion statements on these subjects: the honey price support system, tariffs against imported honey, possible solutions to the Africanized Bee problem, the issue of burning as a disease control method, the right of inspectors to check bees without owner notification, the viability of ETO (ethylene oxide) as a control substance, labeling responsibilities of honey and hive product producers, and controversial management topics such as: the feeding of antibiotics, the most efficient number of brood chambers, the need for pollen substitutes in areas with abundant nectar sources and which way to face a hive. The editors reserve the right to use expressed opinions in what they feel to be the most effective presentation befitting the format of THE BEEKEEPER'S FORUM.

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Questions and Answers

Q. Last summer while checking my hives I found one hive had no worker brood. It had very scattered brood and that was all drone. I assumed I had laying workers and would re-check it later. Ten days later I found the same scattered drone brood but also three capped queen cells. I went ahead and joined the hive with another hive. My question is, would a queenless hive attempt to build queen cells with only drone brood. R.F., Minn.

A. The three capped queen cells indicated that the colony was aware of it's condition of having either a failing queen or was without a queen. It is unlikely that a colony will attempt to build queen cells with an unfertilized egg so that may have indicated that a queen laid at least a few fertile eggs before she became primarily or entirely a drone layer. You were correct in your move to unite this with another colony. Regardless of whether you had an infertile egg laying queen or laying workers there is a good possibility that at least a portion of the working force of the afflicted colony could be salvaged.

Q. I have read in several articles that sourwood honey is the best tasting of all the honeys. I was wondering, can sourwood be grown in north-central Ohio? If so, where can I send away for sourwood? D.D., Ohio

A. The sourwood tree (or shrub) will grow only as far north as northern West Virginia and Kentucky.

Q. Would you know what value the Jerusalem Artichoke would be as a honey plant? W.K., Kentucky

A. The sunflower-like Jerusalem Artichoke, (*Helianthus tyberosus*), is generally regarded as a fair honey plant where it grows in abundance. Like most of the other wild sunflower types, the flower yields a rather dark strong honey that may not be the best table grade. Of course the quality may be better in some years than others or the quality may be better in some localities than in others.

Q. I have been a beekeeper for several years and presently have three hives. I recently moved and now am having a problem. My neighbor has a swimming pool, and all summer long, the bees drank from the pool and bothered them. The hives are over 100 yards from the pool. What can I do? Will this always be a problem? V.S., New York.

A. We are sorry to hear of your difficulties with your bees flying to your neighbor's swimming pool for water. It may be possible to do something if the following procedure is initiated at once. Set up a container with fresh water and allow the water to drip out slowly into a pan of absorbant material which will retain the mositure and be available for the bees to gather at any time of the day. As the need for water increases during hot weather the bees will come to depend on this source rather than the swimming pool. This may not solve the problem but is very likely to distract some of the bees from nearby water sources where they are unwelcome. You can then go to the neighbor and explain the measures which you have taken and perhaps explain to them that the few bees which come to the pools are unlikely to sting or cause any other problems.

Q. I have read in several bee books and magazines about feeding bees frames of honey at certain times, such as when there is a dearth of nectar or the colony is weak. My question is, if my surplus honey is all produced in shallow frames, how would I feed it to the bees who are housed in deep hive bodies? J.H., Mass.

A. We suggest that you place the shallow super of honey under the two story deep hive bodies. The bees will use the honey as required by carrying it up into the brood chamber.

Q. We live on one acre of land on the edge of town. We would like to plant a small grove of Black Locust trees. Can you possibly advise us where we might be able to purchase seedling trees? Thank you for your assistance. R.H., Kansas

A. *The following information came from Bernie Hays of Wellsville, NY.*

Seed of this variety is not expensive and most of it usually germinates very well. To do this, proceed as follows:

Pour boiling hot water over the seed and let stand until all the seed has popped its hard seed coat then pour off the water and pick out the seed. Continue this process until the best of the seed has been selected and plant at once in an outdoor seed bed or in a indoor flat.

Seedlings do well in outdoor rows planted fairly thick the first year and transplanted the second year, or third year.

Soil should not be acid, a neutral (7.0) or sweeter is best. Add some lime or ashes if soil needs it. Vegetable garden soil is usually sweet enough where plants grow normally but best results are obtained with lime or ashes added to a pH of at least 8.0.

Solid plantings of Locust often are infested with borers and it may be best to keep a grove sprayed with insecticide to prevent this trouble.

The Locust sprouts seedlings readily and they can be transplanted easily.

Usually about one year in three the nectar is very plentiful.

The so-called honey locust is a fair nectar producer but is not commonly planted due to its long sharp thorns, but it is resistant to the borers. It is named "honey" due to the sweetness of its seed pods.

Locust make the best fence posts, lasting for at least 20 years.

For post wood plant quite close together but for nectar plant at least 20 ft. apart.

If your soil is gravel forget about the pH because gravel is sweet enough for the tree. Locust will grow on spoil coal banks even though it will test acid.

Black Locust seed and seedlings can be supplied by Mellinger's Nursery, North Lima, Ohio 44452, who offers a free catalog.

Prices are as follows:
12-18# Seedlings, $6.25/10, $36.00/100
Seed: Pkt. $1.25; 1 oz. $1.50; 4 oz. $2.00
One pound $4.00

Q. Will the insect *Trichogramma* get into bee hives? They are supposed to kill many insects including those which are harmful to fruit trees. If they could be used near the bees and thereby reduce spraying it might improve the bees and fruit growing relationship. The *Trichogramma* are supposed to kill insects by laying eggs in larvae. E.K., Washington.

A. I asked for information on this parasite insect from Cornell University. The economic entomologists at the Insect and Plant Disease Diagnostic Laboratory at Cornell University have little information on *Trichogramma* or what it will parasitize except mention of T. evanescens and T. minutem, which parasitize the eggs of many serious pests such as Codling Moth, Tent Caterpillar, Oriental Fruit Moth, Cotton Moth and Brown Tail Moth.

Apparently this is the extent of information at the present time.

Q. I have a single hive of bees I transferred in 1979 from an old rotted, abandoned, hive left on our farm. To this date it has not produced a pound of honey.

(Continued On pg. 259)

PREVENTING SWARMS

By GRANT D. MORSE, Ph.D.
Saugerties, NY

MAY IS THE BEGINNING OF THE SWARM SEASON. BECAUSE OF A COMPARATIVELY MILD WINTER, 1983 MIGHT BE A PRIME SWARM YEAR. IN THIS ARTICLE, DR. MORSE DETAILS THE CAUSE AND PREVENTION OF THIS NATURAL OCCURENCE.

There is no greater challenge to a beekeeper than bringing a colony to full strength without encouraging it to swarm.

Every beekeeper wants a maximum surplus from every colony. But can it be secured without bringing on swarming? The best research we have tells us that swarming is encouraged when the unit attains great strength in numbers of workers.

We are told, too, that queen substance, a combination of the glandular secretions of the queen, must be distributed to every working member of the colony. Otherwise, the worker regards her failure to receive queen substance as a signal that the colony is too populous. It can also signal impending queen failure and thus prompt a move to supersede the queen. This occurs in about 40% of the instances in which a colony builds queen cells.

Honey bee workers probably don't do much abstract thinking, but they obviously are capable of drawing a conclusion from a stimulus. For example, a scout bee at a potential new nest site is able to examine the premises and draw a definite conclusion as to whether it has the right orientation, the correct height above the ground, the appropriate size entrance, the desirable degree of sunshine, and so on.

So too, with conditions in the nest. Each worker is evidently able to conclude from certain signals whether swarming is likely to succeed. Bees usually respond favorably to such a signal since it is instinctually natural for them to want to swarm. The worker reaches her conclusion, evidently, on the basis of such factors as: Is the nest so overcrowded that the colony can afford to divide numbers and yet assure success for both parent unit and swarm? She is influenced on her decision, too, by judging whether the queen is capable of going out with the swarm, and flying to the new nest site, possibly a considerable distance away.

Workers in a colony are also very sensitive to the presence or absence, or a liberal quantity of brood. If it is lacking, they are usually disinclined to swarm. The presence of a good quantity of brood is doubtless a further signal to the worker that the queen is adequate.

So, here we have the origins of the signals to the worker that an attempt at swarming is likely to succeed. If a beekeeper can bring a colony to desirable strength and still not allow these signals to prompt the workers to swarm, success has been achieved.

Young Queens

First let us consider the signal that the queen sends when her production of queen substance is inadequate to reach every worker. The best counterplay is to maintain only young queens that are capable of giving off adequate queen substance. Queens in their first years of life definitely swarm less frequently. Maintaining only first year queens is not easy to do, though; it is expensive to requeen and is time consuming.

Depending on supersedure for queen replacement is even more expensive since approximately 60% of colonies that build cells attempt to swarm, regardless of what their original intent may have been.

Brood As A Swarm Signal

Probably there is no other clearer signal to the worker in the colony of its ability to swarm successfully than the presence of liberal quantities of brood. It is a clear sign that the queen is strong, and the future numerical strength of parent colony is assured.

Manipulation of brood is therefore the basis of most moves made by beekeepers to prevent or control swarming. Manipulation of brood is more often employed than providing young queens.

Reversing is the simplest and usually the first manipulation made. It consists merely of exchanging the positions of the two hivebodies that normally make up a colony, placing the upper of the two stories down on the bottom board, and locating the lower hivebody above. This manipulation has the effect of making empty cells available to the queen in the upper part of the nest where she usually prefers to lay. To a minor degree the move somewhat reduces congestion, especially if an upper exit is provided. My experience is that reversing is less often needed if the main entrance closure is not removed too early in the season. The queen is disinclined to lay in comb areas close to the entrance because it is difficult to maintain brood rearing temperatures there. Don't let the warm temperatures of midday make you forget that temperatures in some geographical areas drop nearly to freezing even in June when night comes on.

The Demaree Method

Another method of reducing the sense by the bees of the presence of much brood is to Demaree. This consists of confining the queen and one or two frames of brood to the one or two hivebodies of drawn comb below a queen excluder above which all of the rest of the brood is elevated.

Since queen cells will often be started in this top super, it may be necessary after a few days to cut them. Most operators also provide an exit from the upper super, small in size, to furnish ventilation and to avoid the need for all the workers to congest the lower part of the hive.

Other Methods of Swarm Prevention

One of the essential steps to preventing swarming is to give each colony plenty of room before and during the swarm season, often three or four hivebodies. A super will accomodate about 15,000 bees, so a real strong unit needs more than three hivebodies.

Exchanging locations between weak and strong colonies will help reduce swarming, and undoubtedly increase the yield from a yard of colonies. The exchange should be made during the warmer part of day when the bees are flying freely.

Removing frames of brood from strong colonies that might swarm is helpful in prevention. The frames can be used to start new units, or to strengthen weak ones. But Demareeing is just as effective in most cases, and has the benefit of providing strong colonies when the honey flow begins. Experts sometimes try two-queen colonies.

Early spring is a splendid time to start nuclei. Almost every beekeeper needs nucs at some time as starters of new colonies, or to use during the warm months for requeening purposes.

If a beekeepers realizes how a bee thinks — or reacts to stimuli, he or she is in a better position to take effective steps to prevent swarming. □

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.

Beekeepers Initiative in Solving the Pesticide Problem

By JOHN T. AMBROSE

Pesticides, imported honey, the honey loan support program, adulterated honey; the list of problems facing the nation's beekeepers goes on and on. Sometimes it seems that the list is never ending and that the future of the beekeeping industry is very bleak. However, the way to deal with a multitude of problems is to concentrate on the solution of one or two, and not to spin your wheels making piecemeal attempts to solve the vast array of problems, or even worse, to simply sit back and complain. The Southern States Beekeepers Federation has decided to devote its resources to the reduction of at least one of the beekeeper's problems, and that problem is pesticides. The effort is entitled "Save the Bees."

The SSBF effort to reduce the pesticide problem of the beekeeping industry is a major media campaign to educate the public as to the importance of honey bees and the pesticide problem. Undoubtedly part of our pesticide problem is due to the federal and state laws which govern pesticide usuage, but the ultimate applicator of the pesticide itself is the general public or his agent. By educating the general public as to the safe use of pesticides in relation to honey bees, we have the potential for greatly reducing our pesticide problem. Pesticides which are dangerous to bees usually have some type of warning statement on the label, and simply educating the public to read and follow those label precautions will go a long way towards reducing the annual destruction of bees by pesticides.

It is reliably estimated that pesticide useage in the U.S. each year results in the destruction of 10% of our nation's colonies of bees and some degree of damage to another 10%. These beekeeping losses cost the industry approximately $50 million each year or close to ⅓ of the industry's annual value of honey and beeswax production.

A particularly impressive but shocking statistic is that California with over 500,000 colonies of bees has reported the complete loss of 89,000 colonies of bees in some years. The importance of these bee losses is not just to the beekeeper and honey production, but more important is the loss of available bees for crop pollination. Approximately ⅓ of the typical American's daily diet comes from food that are insect pollinated, and honey bees are the most important of the insect pollinators.

Bee losses to pesticides can occur in many ways from the aerial application of a chemical to thousands of acres of a crop or forestland to the application of a few ounces of chemical by homeowner to control a pest in his backyard. Generally, we think of the large scale application of pesticides to be the major problem, but a significant number of bees are also being killed by the homeowner or the backyard gardener. These people who use pesticides, from the farmer with a thousand acres to the homeowner with a half acre, comprise the general public; and those are the people that must be made aware of the importance of honey bees and how they can help to reduce the often needless destruction of these valuable insects. That is the goal of the SSBF in its media campaign.

The SSBF media campaign is the brainchild of the Federation's President, Steve Forrest, and he has developed the campaign to cover the entire media, including television, radio and newspapers. The campaign is basically scheduled for the months of April and May this year. The media coverage is nationwide. The SSBF is very interested in broadening its area coverage for furture efforts and will gladly cooperate with any of the other regional or national beekeeping associations.

Please Save The Bees...

Without bees your gardens won't produce squash, cucumbers, apples, pears, melons, pumpkins, sunflowers, raspberries – and we won't make any honey, says the Southern States Beekeepers Federation.

TO PROTECT YOUR GARDEN FROM INSECTS AND AVOID KILLING BEES

1. Identify what your pest problem is. Less than 1% of all the insects are harmful and I P M (Integrated Pest Management) has proved that treating only the problem insects saves time & money.

2. Try to find as many alternatives as possible. The world of insecticides is very complicated. Don't be afraid to ask for help from a variety of people ... your Agricultural Extension Agent, a neighbor who gardens, a local garden club, an I P M advisor, local beekeepers, your state university (Ag. School) or even a local farm supply dealer.

3. If you must use an insecticide, please use the lowest effective dosage and make a minimum of applications. STAY AWAY FROM DUST – USE SPRAYS OR GRANULES.

4. Never spray any insecticide on blooming flowers even if they are in the grass or weeds.

5. Spray late in the afternoon after the bees have stopped working.

The 200,000 beekeepers in the U.S. currently operate just over 4 million colonies of bees, and these bees contribute over 14 billion dollars to the Agricultural economy of the U.S. Over 94% of these beekeepers are hobbyists and there is a good possibility that one of your neighbors could have bees within 2 miles from your garden and could be affected when you spray.

For further information on bees and pesticides, contact your state beekeeping association or your local Agriculture Extension agent.

Figure 1

Following is a description of the materials utilized by the SSBF for each media source.

Television: Mailings were made to TV stations nationwide with separate mailings going to each TV station's News Department and Public Service Department. The mailing packages were composed as follows:

1. **News Department**
   - — Media letter for SSBF explaining the promotion and the need for it.
   - — News release from SSBF documenting the pesticide problem encountered by the beekeeping industry.
   - — Ad Layout entitled "Please Save the Bees" (See Figure 1).

2. **Public Service Department**
   - — Media letter from SSBF explaining the promotion and the need for it.
   - — Public Service Announcement Layouts and slides (Each station will receive three 10 second ads, one 20 second ad, and a 30 second ad.) One of the 10 second ads is as follows:

VIDEO
Slide No. 2
(Gardener spraying his garden)
AUDIO
Announcer: It's a fact. Ten percent of the bee population of this country is killed by the misuse of insecticides. Use your insecticides wisely and sparingly. Bees are friends you'll miss if they're not around.

   - — Ad layout entitled "Please Save the Bees" (Figure 1).
   - — 30 second videotape entitled "Bee Spot".

This 30-second videotape was a cooperative effort between the SSBF and the N.C. Agricultural Extension Service and is one of the most important components of the campaign. This videotape depicts a picnic scene featuring foods produced through bee pollination. Then as the announcer describes the importance of bees and lists the foods, the foods disappear from the table or from a person's hands through the magic of a TV camera.

Radio: Mailings were made to approximately 3,000 radio stations in the SSBF membership area. Each packet contained the following:

- — Media letter from SSBF explaining the promotion and the need for it.
- — Public Service Audio Annoucements including six 10-second announcements, one 20-second announcement and one 30-second announcement. An example of a 10-second ad follows:

Announcer: Did you know your family garden may fail this summer because someone used too much of the wrong insecticide and killed the bees! Think before you spray. Please save the bees.

- — News release from SSBF documenting the pesticide problem encountered by the beekeeping industry.

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CHALKBROOD DISEASE AND HYGIENIC BEHAVIOR OF HONEY BEES

By

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Recently we investigated the relationship between genetically controlled nest-cleaning behavior of honey bees (*Apis millifera*) and chalkbrood disease. Since we have reported our results to a scientific journal (Gilliam et al., 1983), the following account is a less technical version for beekeepers.

Our impetus for this research was the fact that no effective chemotherapeutic agent is registered in the United States for use against chalkbrood disease. In addition, most attempts to control the disease by chemicals have been unsuccessful because of toxicity of the chemicals to bees, the unacceptability of the chemicals to bees, and the time and effort required to disinfect all parts of the hive. Thus, because of the difficulties involved in finding an effective chemical control agent and obtaining registration for use in the United States, we initiated a study to determine the possibility of developing resistance or control based on the hygienic (housecleaning) behavior of worker bees.

Rothenbuhler and co-workers (1968) found that one of the mechanisms of resistance to American foulbrood disease in honey bees involved removal of dead larvae from comb cells. This hygienic behavior is controlled by separate genes, one for uncapping and one for removal of larvae (Rothenbuhler, 1964). Since we had observed that some bee colonies are more adept at removing chalkbrood mummies than others, we thought it possible that hygienic behavior is also related to susceptibility or resistance to chalkbrood. Persistant uncapping and removal of mummies would reduce the spread of the fungal pathogen, *Ascosphaera apis*.

In our experiments, we selected and bred bees for uncapping and removal of dead brood. Then bee colonies exhibiting either good or poor hygienic behavior were inoculated with *A. apis* and monitored for removal of chalkbrood mummies by housecleaning bees. At the end of the test, we examined brood, bees, and hive products for the presence of *A. apis*.

We tested 48 colonies for uncapping and removal of dead brood. Two tests were made simultaneously on each colony. In the first test for removal of dead brood, a 2-inch-square metal template, with an area delineating 100 cells, was placed on one side of a comb containing unsealed larvae. Powdered dry ice was sprinkled on the larvae within the template area to kill them. Daily observations were made on the number of dead larvae removed by the bees. In the second test, both uncapping and the removal behavior of the colonies were tested by cutting 2-inch-square sections containing 100 capped brood cells on each side from the brood combs of a healthy colony. The comb sections were placed in a freezer to kill the brood. At the same time that dry ice was sprinkled on the template area in the first test, a 2-inch-square section was cut from the brood comb of each of the colonies and replaced with a comb section containing frozen brood. The bees usually added sufficient wax to secure the test comb section in the comb within 24 hours. Daily observations were made on the number of cells uncapped and empty cells from which brood had been removed. Colonies were then classified as resistant or susceptible on the basis of good or poor uncapping and removal behavior, respectively. The resistant colonies uncapped and removed all the dead brood, and the susceptible one's uncapped and removed dead brood from less than 70% of the cells.

TABLE 1. Percentages of dead unsealed brood removed and dead sealed brood uncapped by susceptible and resistant colonies[a].

	Percent brood removed			Percent brood uncapped			
	Hours			Hours			
Colony	24	48	72	24	48	72	96
Resistant							
1	100			98	100		
2	100			98	100		
3	100			96	100		
4	100			100			
Susceptible							
5	99	100		35	58	67	68
6	100			31	36	84	86
7	99	100		14	18	--	20
8	93	100		58	82	92	96
9	99	99	100	54	70	--	87

[a] Percent dead brood removed was determined by killing 100 unsealed larvae with dry ice and determining the number that were removed by the bees. Percent brood uncapped was determined by inserting a comb section with 100 capped cells on each side that had been frozen to kill brood and then counting the number of cells that were uncapped by the bees.

TABLE 2. Efficiency ratios of resistant and susceptible bee colonies across eight weeks.

	Weeks								
Treatment group	1	2	3	4	5	6	7	8	Average
Resistant	0.56	1.43	1.94	2.16	2.31	2.28	3.35	3.23	2.16
Susceptible	0.91	0.74	0.92	1.47	1.72	1.76	4.44	1.98	1.74
Average	0.74	1.09	1.43	1.82	2.01	2.02	3.90	2.61	

Queens were reared from each of the colonies tested by grafting female larvae. Each virgin was artificially inseminated with three microliters of semen (usually requiring three drones) from drones of other colonies. The newly mated queens were used to head full-size colonies which were testted again for uncapping and removal behavior as described above.

Nine colonies (4 resistant and 5 susceptible) were selected for further experimentation with *A. apis*. These appeared to be

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Questions and Answers

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At first the bees were very hard to handle, mean, and made comb everywhere, between the frames and bottom board and also along sides and on top of the inner cover. Finally, in April 1982, I found the small queen, killed her, and introduced a Starline queen. Five days later the queen was gone and no eggs. The bees were uneasy so I introduced the last Starline queen I had on hand. Five days later I looked and could not find the queen Fifteen days later I found the queen but she was very small and had no eggs. I killed her and transferred a comb from another hive with plenty of eggs. They made their own queen and supposedly did very well to the point of filling the bottom hivebody with brood and honey.

On July 2nd, I put a queen excluder over the brood chamber and added a shallow super with 28 square sections with thin foundation. In September I took off the super. They had crawled all over it but refused to draw out the combs.

This is the second super I have tried on this hive and I had one each on two other hives and none of the three drew out any of the combs.

I wonder what I'm doing wrong. When I was young I had ten hives and produced over 1,053 pounds of extracted honey in a season plus some section honey. That was near Gallatin, MO. Maybe there are not enough flowers around here.

We are 17 miles north of Columbia, MO. I see Ross Rounds advertised and wonder if they would be better. However, I have 15 section supers for my five hives and no extractor so I cannot expand very much. J.M., Missouri.

A. You are no doubt correct that the number of flower sources of nectar are much less than formerly and perhaps less in the area where you now are. This would account for the colony's inability to complete the section honey supers. It may be to your advantage to substitute half depth frames for the sections, using the same thin foundation and see if the bees don't do a better job of drawing out and filling the combs. If they do, you can then cut the comb from the frame, the equal of section honey in wood sections, in the opinion of many. The plastic round sections should be given a trial to see if the bees complete the sections as easily as they do the half depth frames. It takes a combination of a strong colony and a strong honeyflow to draw out the comb and fill the small sections with honey. The strong colony must be forced to work in the section supers which means reducing a two story colony to one before adding the supers in many cases.

Your colony which refused the introduced queens apparently had a mind of their own, to use a common expression. Colonies of this inclination will continue to refuse any kind of introduced queen as long as they have almost any kind of queen, or larvae or eggs in the hive from which to attempt to raise a queen. The fact that the queen they attempt, and often succeed, in raising, is inferior to what you are trying to introduce does not seem to matter to them. The next time you attempt requeening try introducing the queen to a "nuc" of several combs of brood and honey before uniting with the colony you are requeening. After she has been accepted by the nuc, unite the two colonies by placing a newspaper betwen, after first killing the unsatisfactory queen.

Q. I understand royal jelly can be stored by freezing. My question is — how long can it be kept without freezing? If you removed the jelly from queen cells in the morning and kept at room temperature, would it be effective for priming queen cells that afternoon? Also, could it be stored at hive temperature? J.D., Miss.

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YOU BE THE JUDGE: THE STATE OF ALABAMA vs WILLIS SMITH

By ROLLIN MOSELEY
Scottsboro, AL

RECENTLY THERE HAS BEEN INCREASED CONTROVERSY ABOUT CLAIMS THAT HIVE PRODUCTS POSSESS EXCEPTIONAL THERAPUETIC HEALTH VALUES. IN THIS SPECIFIC CASE YOU CAN FORM YOUR OWN DECISIONS ABOUT THE LEGAL AND MEDICAL FACTORS INVOLVED.

Willis Smith says he has a honey of a deal — a special elixir that he claims can cure colds, arthritis, constipation and nervousness, as well as perhaps pep up a slow sex life.

A Chambers County, Alabama, beekeeper, Smith, 69, developed a rememdy about three years ago and began to bottle and sell it under the name of "Antique Honey Medicine (AHM)" to supplement his Social Security income.

But Smith's product has kicked off yet another battle between old beliefs and new thought, putting the laboratory test tube against what many older people believe are time-tried and tested home cures for both minor and serious ailments.

The Alabama State Board of Pharmacy questions some of Smith's claims about AHM's curative powers and has ordered the remedy off the market until he can prove them.

The U.S. Dispensatory, a textbook used frequently by pharmacists, says flatly that "none of the therapeutic claims for honey has been substantiated by adequate controlled experiments."

But Smith, a retiree who lives primarily off his monthly $370 Social Security check, is taking his fight for AHM to the U.S. Food and Drug Administration.

His main "proof of the pudding," as he puts it, is in the satisfaction of his customers, along with his own claim of relief from arthritis since he started taking the mixture.

"I've seen people with lung congestion, croup, anything like that — coughed until their eyes bugged — take two or three doses of this and it cleared them right up," he declares.

"I'm getting orders for it from some of my customers, but I can't fill them since the Board of Pharmacy made me quit selling it," he said.

Principal ingredents in AHM, Smith says, are honey, apple vinegar, alcohol (17 percent), peppermint oil and kelp, a type of seaweed.

He was charging $3 for a nine-ounce bottle. Sales were running betwen two dozen and three dozen bottles per week when the product was taken off the shelves.

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Questions and Answers

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A. At least for grafting purposes, royal jelly is not highly perishable. I would not hesitate to use royal jelly that has been kept at room temperature for 8 hours as long as it has not dried out. Royal jelly apparently keeps for at least 4 or 5 days in a colony, so from that one might infer that it can be stored for a similar duration at brood temperature (95°F) in an incubator. However, royal jelly is probably preserved in a colony despite the warm temperature rather than because of it. Therefore, if you are not storing royal jelly below freezing, it is probably best to keep it as cold as possible.

How long can it be kept without freezing? According to the *ABC and XYZ of Bee Culture*, it keeps for a least one year at refrigerator temperature.

The Citizen Beekeeper

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- Ad Layout entitled "Please Save the Bees" (Figure 1)
- Page of honey bee trivia

Newspaper: Mailings were made to over 900 newspapers in the SSBF area. Each packet contained the following:

- Media letter from SSBF explaining the promotion and need for it.
- News release from the SSBF documenting the pesticide problem encountered by the beekeeping industry.
- Ad Layout entitled "Please Save the Bees" (See Figure 1) to be used by the newspapers.

SSBF Membership: In addition to the mailings to the media, there was also a mailing to the SSBF membership (members of any state beekeeping association in the SSBF membership area are automatically members of the SSBF) to explain the promotion and ask each of the beekeepers to work with his local media to promote the pesticide campaign, "Save the Bees."

It should be apparent that the Southern States Beekeepers Federation's promotional campaign, "Save the Bees", is a very ambitious undertaking. Only time will tell whether the campaign was successful. However, Steve Forrest, the SSBF President, believes that the only way for some of the beekeeping problems to be solved is for the beekeepers themselves to take the initiative. Taking the initiative is the major emphasis of this SSBF campaign and Steve Forrest welcomes the cooperation of any and all of the other beekeeping organizations in future undertakings of this type.

His address is: Rt. 1, Box 135, Moravian Falls, NC 28654.

Heads Of Grain From Different Fields

A Guest Column

By JOHN BURGHARDT
New Ulm, MN

FEEDING HONEYBEES DRY GRANULATED BEET ORCANE SUGAR IN PLACE OF SUGAR SYRUP.

I started with a few hives back in 1914 when I was 16 years old and have just about lived with the bees for 65 years. I am now going on 85, and others have taken over the bees. I have produced honey in Nebraska, Iowa and southern Minnesota.

The experimenting with dry sugar, all happened during the month of May. We had a warm favorable spring, while the bees gathered plenty of pollen and nectar from early blooms and built up rapidly, only to be followed by two or three weeks of cold, windy, damp weather. At that time the only way to keep bees from starving was to feed plenty of sugar syrup, but I was confronted with a problem of feeding all the hives in the out yards a pail of syrup. That would be a lot of expense, and extra labor. If the weather changed in a few days and the bees got back to work we would be left with all the feeders, partly full. Or, if empty, the syrup would be in the combs, mixed with the first extracting of the early honey, and if it was not taken out of the bee feeders we would have to throw it away because of souring.

So I tried something new, by just pouring a quart of dry sugar between the inner and outer covers leaving the hole in the inner cover open so the bees could come up and eat the sugar. The bees ate about half the sugar while the left-over was put back in sacks to be used some other time. We have found, when feeding dry sugar, they only consume about ¼ the amount as if it were made up into syrup. When syrup is fed the bees work it over, taking it from the feeder and putting it in the combs, and the largest part of it just simply disappears.

The next question is: how do bees eat sugar? My answer is that it's very much the same as when one gives a herd of cattle a block or two of hard salt. They simply lick it until their hunger is satisfied. The bees will not store it in the combs like they do syrup.

It's so very seldom one finds a recipe in a bee magazine on how to make sugar candy, but so many recipes and ways of feeding syrup. I have found there is so little practical difference between granulated sugar and candy. It just is not worth the extra work to make candy. When it is placed between the covers the dampness is the hive causes the sugar to cake or congeal. The longer is is left the harder it gets. I am sure many of you are saying, "but I feed syrup not so much to keep bees from starving as to promote brood rearing." Well now, do you really?

Although the bees work and hustle much better on sugar than when fed syrup, they depend more upon it. I realize that a bee magazine covers a large range of country and can differ very much from where we are located in Minnesota. There could be some locations where there is an abundance of fresh pollen and very little or no fresh nectar. In such a location, perhaps, syrup could stimulate brood rearing effectively.

One of the best ways to stimulate brood rearing in April and May is to have plenty of water in the hive so bees don't have to leave on such cool windy days. Since I now have only a few hives in my back yard it is very simple on cold windy days to just pour a pint or so of water between the two covers or down around the outside of the brood nest and see how fast those thirsty bees lick it up. This is very simple with a few hives in the back yard, but quite a problem for out yards far from home. I believe that in place of so many methods of feeding syrup, if some wise man could only invent a simple way to supply water inside the hives in the out yards, it sure would give spring brood rearing a great boost.

Dry Sugar Feeding For Long Cold Winters

Many of us have been confronted with this problem of poor honey crops where one just cannot find enough full hive bodies of well ripened sealed combs of early honey for each wintering hive. We winter our hives in two standard 10-frame hive bodies with nine combs in each body, and a good full box on top regardless of how much honey or pollen is in the lower body. I simply saw out a frame 1½ inches deep to fit on top of a 10-frame inner cover with the bee escape hole open, preferably in the center of the cover. One can place a piece of paper over the escape hole with a few small holes in it to prevent too much of the dry sugar from flowing in down onto the top hive body. This frame holds 20 pounds of sugar and sustains a strong colony from October to April first. Next, put a ½ inch fiber insulation board over the sugar. This keeps the bees warm and dry during cold weather. Next, slip the winter carton over the entire hive, now the top is folded together and the outer cover placed on top. We also arrange a top entance for the bees. In the spring when we unpack, what sugar is left over will be from a soft to a hard cake, but is not wasted. If one has a small amount it can be placed in a container. Most any kind of a stomper can be used to bring it back in shape so it can be used again. In case one has a ton or more most farmers will run it through a feed mill for a small fee. We have used this method of feeding bees sugar for 40 years and find it both labor saving and much less sugar is consumed.

In my early years of honey production sugar syrup has cost me thousands of extra dollars and much extra labor. The last 40 years dry sugar has saved me thousands of dollars, and have not noticed any difference in the honey yields. If anything the bees work better, and I have yet to find one hive that starved with sugar between the covers. □

Gleanings "Guest Column" welcomes reader participation on any aspects of bees, beekeeping or beekeepers. Previously unpublished manuscripts writers, in particular, are invited to submit manuscripts.

****

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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.

****

Chalkbrood

(Continued From pg. 258)

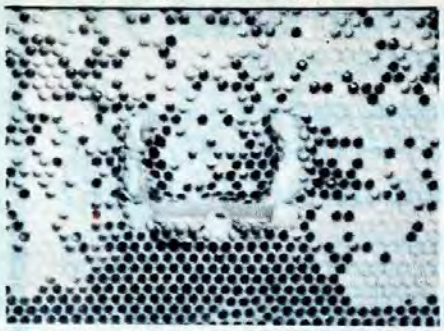

Figure 1. Comb section containing frozen brood placed in brood comb from test colony to determine rate of uncapping and removal of dead brood.

the most resistant (good housecleaning behavior) or most susceptible (poor housecleaning behavior) based on the number of cells that were uncapped and empty (Table 1.). All of the resistant colonies removed all the dead unsealed brood within 24 hours. Only one susceptible colony did this. All other susceptible colonies required 48-72 hours to remove all the dead brood.

In the test for uncapping behavior, one resistant colony uncapped all the cells within 24 hours, and the other resistant colonies did so within 48 hours. None of the susceptible colonies had uncapped all the cells by 96 hours. Only one had uncapped over 90% of the cells, and another had uncapped only 20%.

Therefore, it appeared that more of the bees possessed the gene for removal than the gene for uncapping. This would indicate that larvae dying in the unsealed cell stage would be removed by all the test colonies, although only the resistant colonies would quickly uncap all cells containing dead brood.

Dead bee traps (Atkins et al., 1970) were placed on each test colony. Then beginning March 16, the brood and the bees around the brood were sprayed three times a day on alternating days (Monday, Wednesday, and Friday) for two months with inocula prepared by homogenizing black or sporulated mummies in sucrose syrup.

From March 19 to May 17, mummies were collected daily (Monday through Friday) from the dead bee traps. Twice weekly (Tuesday and Thursday), mummies were collected from the landing boards and bottom boards. Also, twice a week (Tuesday and Thursday) mummies in uncapped cells in the combs were counted. At the same time, cells which were perforated or appeared abnormal in any way were uncapped with forceps to check for mummies, and these data were included in the count of mummies in combs. To evaluate the efficiency of removal of mummies for the four colonies classified as resistant and the five colonies classified as suseptible, statistical analyses were used to calculate percentage efficiencies of mummy removal.

TABLE 3. Cultural detection of Ascosphaera apis in bees and hive products of inoculated colonies.

Sample[a]	Number of positive samples S[b]	R[b]
Bee bread	24	13
Guts of nurse bees	16	5
Guts of foraging bees	3	2
Interior of larvae from capped cells	10	0
Interior of larvae from uncapped cells	4	1
Brood nest honey	10	0
Brood food	2	0
Body surface of uncapped larvae	1	0
Body surface of capped larvae	0	0
Body surface of nurse bees	0	0
Body surface of foraging bees	0	1
Guts of adult drones	0	1
Body surface of drones	0	0
Guts and body surface of queens	0	0

[a]25 total samples from S colonies; 20 from R colonies.

[b]S = susceptible; R = resistant

During this study, we collected a total of 19,959 mummies from dead bee traps, bottom boards, and landing boards of the test colonies. Seventy-five percent of the mummies were collected from the dead bee traps, 19% from bottom boards, and 6% from landing boards. Those mummies found on landing boards probably would have eventually been found in the dead bee traps. Thus, to make accurate counts of mummies, bottom boards as well as dead bee traps must be examined. Ninety-five percent of the mummies collected were workers, and 5% were drones.

Efficiency ratios obtained by one calculation are presented in Table 2. The ideal ratio would be 1.00 and would indicate that all mummies seen in the comb cells were found a day later in the dead bee trap. Thus, we probably underestimated the number of mummies in the comb cells, or the bees could detect the diseased larvae before we could and removed them. Unfortunately, enough variation from colony to colony existed so that the ratios for the two groups were not significantly different. The only significant difference was with the means across time. Thus, the longer the spraying of *A. apis* continued, the faster the bees removed the mummies. Even though the ratio of 4.4 for susceptible colonies at week seven is questionable, the relative differences between ratios of the two treatment groups favored the resistant colonies by a factor of almost two. Resistant colonies had higher efficiency ratios regardless of how the data were analyzed. Thus, we know that there were differences between susceptible and resistant colonies, but we cannot pove this statistically due to the small number of colonies used.

We also recognize that some variation between colonies might have resulted from insemination of queen bees with semen from more than one drone to obtain the required 3 microliters dose. We electeo not to attempt single-drone matings of all queens because of potential problems with egg-laying, brood, and queen loss.

We need better detection methods for diseased larvae in comb cells. The ratios obtained show that the bees can detect the abnormal larvae before we can since almost twice the number of mummies that we had observed were removed by the resistant colonies. More frequent counts of mummies in comb cells would have been advantageous to our calculations but disturbing to the bees.

At the end of the experiments, the following samples were obtained from each colony: 10 adult workers bees (five nurse bees, five foragers), 10 apparently healthy worker larvae, (five from sealed cells), queen bee, bee bread (stored pollen) from five cells (finished with layer of honey), uncapped brood nest honey from five cells, brood food from five cells, and five adult drones. These samples were tested for *A. Apis* by appropriate microbiological procedures. Guts and/or interiors of both bees and brood were examined.

Table 3 shows the results of examination of bees and hive products for *A. apis*. The highest number of samples positive for growth of *A. apis* in both resistant and

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Chalkbrood

(Continued From pg. 264)

susceptible colonies occurred in bee bread and guts of nurse bees. The presence of *A. apis* in guts of nurse bees would result from consumption of contaminated pollen. Higher percentages and more types of samples from susceptible colonies than from resistant colonies contained *A. apis*. The fungus was isolated from brood food and honey from susceptible colonies only. Thus, our limited data from colonies that were sprayed with *A. apis* indicated that the fungus contaminates more diverse substrates and survives better in bees and hive products from colonies that exhibit poor rather than good hygienic behavior.

In conclusion, good hygienic behavior of bees helps to control chalkbrood by increased removal of dead or diseased brood and also possibly by increased removal or decreased survival of the pathogen. Our techniques for testing hygienic behavior of bees may be useful to beekeepers. Replacement of queen bees whose progeny exhibits poor hygienic behavior would be advantageous not only in controlling chalkbrood but other brood diseases as well. A recent popular article described the technique in detail (Taber, 1982).□

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May Management Tip #3

If your bees swarm onto the property of someone else, the swarm is still your legal property. However, both you and your bees might legally be regarded as trespassers and permission is required, from the land owner, for you to enter his or her property to capture the swarm.

HABITAT 4B MULTI-FUNCTIONAL FRAME — THE BEEHIVE OF THE FUTURE?

FROM ISRAEL: AN INNOVATIVE CONCEPT IN BEEKEEPING EQUIPMENT. OBSERVATIONS OF THE EFFECTIVENESS OF PLASTIC STRUCTURES AND HORIZONTAL USE OF FRAMES

By AVNER AMIT
Israel

Owing to my rich experience as a beekeeper and queen rearer I became involved in an interesting experiment — so interesting in fact, that I wish to share it with you.

Two years ago the staff of "Huliot Plastics Industries" (in cooperation with the Department for Industrial Design of the "Bezalel" Academy of Arts and Crafts in Jerusalem and Israel Ministry of Agriculture) asked me to take part in the testing of their mulifunctional frame, considered by them to be the beehive of the future.

The idea of a versatile and multipurpose frame appealed to me and I agreed to take part in the experiment. Together with ten prominent Israeli beekeepers I was then invited to a meeting, where the concept was introduced to us by the man from Huliot as follows:

"Before we show you our sophisticated product, forget about all the boxes that are sitting in your storerooms, forget about the Langstroth boxes, the nuclei, the boxes for transfer of swarms the deep and the shallow frames and all the wooden equipment you have collected in the course of the years. From today you will use a frame made of plastic material to which you will connect an end-unit (in which a two litre plastic feeder of the same dimension as the frame can be placed) and a roof — and you will have a modular habitat, suitable for all the needs of the beekeeper."

A frame, and end-unit and a roof, and that's it? I turned to the speaker with considerable skepticism and asked:
"Surely you don't expect me to burn all my wooden boxes and to switch over immediately to your 'multifunctional frame', do you?" The man was prepared for this reaction:

"No, don't burn anything. The dimensions of our multifunctional frame are identical with those of the Langstroth frames that you are now using. You can use them as ordinary frames in the Langstroth boxes or as a brood chamber, on which you can lift the regular supers (10 frames) or as a habitat for the collection of honey (30 plus frames) or as nucleus for queen rearing (1-3 frames) or as a box for the transfer of swarms."

"And what about the advanced uncapping and extraction machines which I bought with good money?", asked another beekeeper. The man from Huliot replied:

"You will continue to use them. As I said before, the multifunctional frame has the same dimensions and it is uncapped and extracted in the same way as the regular wooden frame."

Habitat-4B nucleus or enlarged habitat.

The HABITAT 4B was brought into the room and all those present admired its graceful design.

The various objectives of the experiment in which we were about to take part were pointed out:

1. To find out how the horizontal structure and plastic materials agree with the bees.

2. Insulation and ventialtion in various climatic conditions, varying from 10 degrees to 120 degrees F.

3. Need of additional feeding.

4. Convenience in work.

"And wherever you put up one of the Habitats, please do so together with a regular Langstroth hive, so that we can compare all the data."

At the end of the meeting I decided that even if allowance was made for some exaggeration on the part of Huliot in their description of the expected advantages, the idea seemed a real breakthrough in apicultural equipment after more than a century's use of Langstroth's wooden hives, and it certainly appealed to me.

When the appointed time came, I arrived with my truck at one of Huliot's warehouses to receive my units. I loaded them on the truck and was pleasantly surprised by their light weight (about ⅔ of the regular hive's weight). But I was still more surprised when I had finished loading. I counted the frames over and over, for I could hardly believe I had received all the pieces allocated to me, so little space did they take up. I regretted I had come by truck and not by pick-up van. One third of the available space remained unused.

The Habitats were placed partly on stands I had prepared ahead of time, partly on wooden pallets and a few of them on scales.

The season was a regular spring. The bees built their nests beautifully on the Habitat frames that had been wax-coated. Weight readings showed that the same amount of honey was collected as in the Langstroth boxes.

While working with the Habitats on stands, I discovered an additional benefit that had nothing to do with bees. Although I suffer from a weak back, the pain troubled me much less now that I did not have to bend over constantly and could lift separate parts. It was particularly apparent when I moved the frames for extraction and could lift four or five of them together, as many as I was able to, instead of the heavy or shallow super.

The bees showed no special preference for one of the plastic materials, they functioned very well in all of them. Nor did the horizontal structure create problems for them.

Neighboring beekeepers who came tc observe the Habitat predicted failure. According to them bees need to climb vertically. In reply I removed the roof unit and

(Continued On pg. 269)

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Habitat 4B

(Continued From pg. 266)

Habitat-4B brood chamber with regular Langstroth supers on top.

showed them the strong and healthy swarm that filled the 30 frames linked together horizontally. The desirability of a vertical structure is based on misconception that has long ago been proved unfounded. The Russian hive as well as other horizontal hives (Hungary, Kenya, etc.) have shown this.

In the summer season I transferred several swarms in the Habitat to my customers. There was no need for them to bring their boxes days ahead in order to have the swarms put in. I just phoned them when the swarms were ready in my Habitats; they came and took them away and left empty units with me instead of the ones I had given them.

Queens were raised in the multifunctional frame with great success. I used two frames, two end units and a roof, and reared four queens in succession without bees between rearing cycles. The entire procedure was much more convenient and simple then before when I had reared queens and nuclei and Langstroth boxes.

I had been doubtful about the plastic materials' resistance in extreme climatic conditions, such as hot sun, low temperatures and high humidity. I was afraid that the material would deform and the humidity would rise and concentrate inside the Habitat. I foresaw problems of insulation and ventilation. None of these apprehensions materialized, neither in my case nor with any of the other beekeepers who took part in the experiment (assisted by experts of the Bee Division of the Ministry of Agriculture). The form of the structure was kept intact in various climatic conditions. Huliot's engineers made comprehensive tests in their laboratories and those of the Israel Standards Institute, and then concluded that

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Habitat 4B

(Continued From pg. 269)

the plastic material of which the Habitat is produced, will last well even in extreme conditions.

Insulation and ventilation is the Habitat are excellent and the colonies were very comfortable both in summer and winter.

A horizontally placed queen excluder allowed me to determine the position of the brood. In one instance I tried out the method of two queens, using additional excluders. This too worked very well.

I extracted twice during the year. When the frames were filled with honey, I changed the queen excluder into a porter (this can be done very easily with Huliot's excluder) and in three to four hours the Habitat was emptied of bees. I transferred the frames to my storeroom and uncapped the seals with an automatic uncapping machine. All this was done in the same way as with the wooden frames, with one small difference. I did not have to stop from time to time to take broken frames out of the machine, as happens with wooden frames. The entire procedure went smoothly.

Before I end my story, I wish to point out that the project is still under development.

Regular production and marketing are expected to start in the near future. □

You Be The Judge

Continued From page 260

Most of his customers are along his "honey route," which winds through several surrounding Alabama and Georgia counties. With the help of his son, Floyd, he sells 500-600 cases — 12 quarts to the case — of plain honey each year.

"I don't produce that much honey, so when I get my Social Security check each month I use it to buy honey from other beekeepers," said Smith, who operates under the name of Willis Smith & Son. "Then I hit the road and sell it to anybody who will buy it."

The main objection of AHM, said J.W. McLane, secretary of the Board of Pharmacy, is the fact that Smith didn't get a license with the Board.

The Board must first approve a product before it is offered for sale to the public as a medicine, he said.

Smith said he got a vendor's license from the state on the advice of an FDA official in Montgomery.

Smith said he went to the FDA mainly to try getting a permit to bottle and sell "honey mead wine" that he forments in his modest, wood-frame home.

"There were too many qualifications to meet for the wine, like I had to keep 5,000 gallons on hand to be tested and all that," he said. "But when I asked about my Honey Antique Medicine, the official told me all I had to do was return to Chambers County and get a license from the Probate Judge. I thought I was clear until this man from the Board of Pharmacy came by asking questions about it."

The label on AHM, in part, recommends the bottle's ingredients be used for relief of "arthritis, colds, constipation and nervousness." Also, the remedy "helps you to be lovely, wealthy and wise," the label reads.

Another objection of the Board of Pharmacy is a leaflet promoting the remedy, which, among other things, claims that honey is a sexual stimulant and "furnishes ALL VITAMINS and contains six medical ingredients."

The leaflet, in the form of a letter to "Dear Abby," suggests that by "using honey, raw eggs and Antique Honey Medicine" one can "enjoy a honeymoon at any age in adult life."

Three of the six medical ingredients in honey, said Smith, are acid, alcohol and sulphur. "The other three are long medical terms that I can't even pronounce," added Smith who began "dabbling" in honey after retiring in the early 1970's.

Donna E. Henderson, a lawyer with Legal Service Inc., who is handling Smith's case, said Smith may have to change the label and sell the product as a food rather than a medicine.

"He really believes in what he is doing and that it (AHM) could benefit the public and certain people," said Henderson. "He has been using similar home remedies since a child and still wants to put it out as medicine."

In order to package and sell his remedy as medicine, Smith must prove to the FDA that it will do what he claims.

Smith offers himself as living proof that AHM works. "I am 69, thank God I'm not dead . . . not yet," he writes in the leaflet.

Smith, who frequently refers to the Bible in his stand on the healing powers of honey, points out that a "Dr. Jarvis from Vermont 30 or 40 years ago put out a book that honey and vinegar was good for arthritis."

"I'm one of them it helped," Smith said. "And some of my customers have gotten relief from their arthritis by taking AHM."

Honey is good for constipation in that it makes a person drink more water and liquids, Smith contends. "Anytime you consume honey or table salt it means you're going to drink more water."

"And good gracious alive, anybody who knows anything about alcohol knows it can calm a person, help nervousness. Even Jesus said wine was good for the stomach."

Smith added, "From a practical point, if you take a spoonful of this stuff — or just alcohol itself — it has to have an effect on your nervous system."

You be the judge.□

BEEKEEPING FOLK ARTS

HONEY HIVE PRODUCTS FOR COOKING AND OTHER HOME USES

By AMOS ARBEE

There is an old Chinese Proverb which reads: "*If I hear, I will be sure to forget, If I see, I probably will remember, but If I do the thing I will understand.*" In regard to using honey in cooking and baking, I am a diehard believer in the last segment of the Chinese Proverb.

Once you have acquired the "Breaking of the Ice", only then will "honey's" true colors begin to show-up in the results of your cooking and baking with honey. Honey is actually no real problem to work with in preparing your favorite recipes. However, a good rule of thumb in most recipes is that is usually to your advantage is to use a mild flavored type honey.

Good luck with another of my favorite recipes:

"Lemon Honeys

Sift and set aside, 1½ cups flour and 1½ teaspoons baking powder. Cream thoroughly ½ cup shortening and ¼ cup honey. Add one tablespoon real lemon juice. Add one egg well beaten. Blend in the dry ingredients.

Drop by teaspoon onto lightly greased cookie sheets and bake in oven at about 400 degrees F for 10 to 12 minutes. A perfect treat to be served with your next tea or card party.

"That Nagging Cough and Cold"

Quite often in cold wet weather one is bothered with some form of a cold, flu or related ailment. So next time it hits you, fret not, but instead try cutting a grapefruit in half and drizzle honey onto it sparingly and then eat. It seems to aid in breaking-up the cold and also offers some relief to its symptoms. Also, if the throat is somewhat dry and scratchy, try swallowing a teaspoonful of honey every hour or so from time to time throughout the course of the day. Sometimes it proves to be of some comfort.

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.

Clipping Queens' Wings

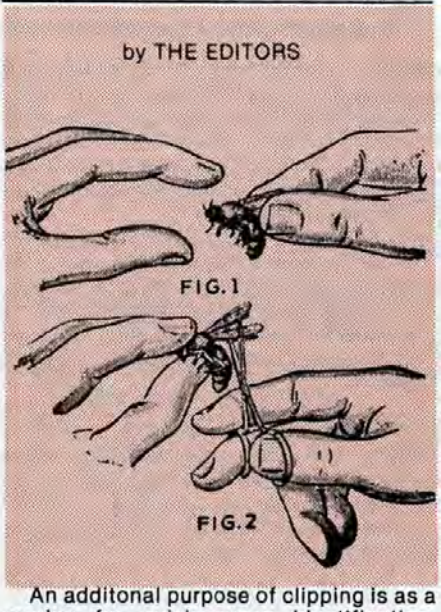
by THE EDITORS

As beekeepers all over the country wait out the final cold days in anticipation of good things to come in spring, it's a safe bet that of all beekeeping challenges brought into being with warm weather, the least missed is swarm control.

Among the many aspects of that task is the practice of clipping queens' wings.

As with so many other techniques of bee management, misconceptions about wing clipping do exist. Many persons, for example, assume that if a queen cannot fly, a colony will not swarm because it has no leader. That is not true. Colonies with a wing-clipped queen do swarm, and their queen is often lost when she leads the exodus by running out into the grass surrounding the hive.

What wing clipping does accomplish is to make escape of the swarm less likely. Swarms, realizing they are suddenly without a queen, are apt to return to the hive they just abandoned. Losing a queen is less traumatic than losing a queen and a swarm, but the beekeeper whose colony swarm has returned to the hive without the queen, must immediately and carefully remove all but one existing queen cells. To neglect that procedure would result in the imminent emergence of a young queen and could motivate another swarm, Other swarm prevention measures to relieve likely hive congestion should also be taken. On occasion, the returning swarm will find the lost queen, outside the hive, and cluster around her. Although that queen can be used in reinstalling the swarm, requeening should soon take place to circumvent what is probably a swarming tendency in that queen.



An additonal purpose of clipping is as a marker for quick queen identification. Beekeepers who requeen every other year often clip the queen's right side wings on even numbered years, and the left side wings on odd years, as a system of keeping track of the queen's age.

Clipping is accomplished by first selecting a nonvirgin queen. Virgins, in order to produce fertile eggs, must make a mating flight, usually from 4-10 days after their emergence; an activity which is impossible to perform with clipped wings.

Gently capture the queen by holding her wings so that she can be grasped, in one hand, with a forefinger over her head and a thumb beneath her thorax (the middle section of her body). Extreme care should be exercised so as not to risk abdominal damage. An injured queen might be incapable of necessary egg production and heightens the likelihood of supercedure. It is advisable to practice on drones until the technique of holding becomes comfortable and natural.

Using manicure scissors, both the front and hind wing on only one side of the bee should be clipped, at a slight angle, at about half of each wing's total length.

Generally, the queen can be kept outside the colony for as much as 10 minutes without her being missed. There is very little danger of being stung because, although the queen has that capacity, she rarely uses it except to eliminate rival queens.

There has, occasionally, been some discussion of whether or not clipping hurts the queen. Although minimal nerve sensitivity might exist, all evidence suggests that any suffering is brief and that both life span and productivity of clipped queens are equal to nonclipped queens.

Ultimately, the decision to clip a queen's wings will probably be based on the extent of swarming in a given bee population. If swarms are prevalent, perhaps this technique is desirable to inhibit escapes. If swarming is only periodic, the effort involved probably would not be worth the time.□

NEWS AND EVENTS

ARIZONA

First International Symposium & Conference of "Apimondia"

The First International Symposium & Conference Of "Apimondia" and the International Federation of Associates of Apiculture, will be held June 5th through June 12th, in Scottsdale, AZ. The purpose will be to gather together all the world's scientific research dealing with the products of the beehive. Under the sponsorship of the C.C. Pollen Co., the first seminar will be restricted to papers, lectures and discussions on the results of the ingestion of bee pollen by humans; the results of feeding pollen to animals; the use of bee pollen extracts and the results from the uses of propolis. For additional information write: Apimondia, c/o the C.C. Pollen Co., 7000 E. Camelback Rd., Suite 33, Scottsdale, AZ 85251. Ph: 602-947-8011. Outside Arizona call: 800-348-8888.

Miss Jennifer A. Riedel was crowned the new Minnesota Honey Queen at the winter banquet of the Minesota Honey Producers. The daughter of Dr. and Mrs. Robert Riedel of Marshall, Jennifer attends Moorhead State University where she is majoring in Speech Pathology.

CALIFORNIA

Bee Schools

Davis — "Queenrearing." Saturday, May 14. This course gives a foundation and explanatory review of the principles of queenrearing, followed by demonstrations of practical techniques. Each student, individually for some operations and in small groups for others, performs all operations involved with queenrearing: making cell cups, grafting, feeding, caging, and preparing for shipment. Artificial insemination of queen bees is not included. Students should bring sack lunch. Map of location sent upon enrollment.

Instructors: Christine Peng, PhD, assistant professor; and Jerry Marston, BS, staff research associate, entomology department, UC Davis.

Davis — "Instrumental Insemination in Bees." Saturday, May 21. This practical one-day class is designed to teach the instrumental insemination of bees. Using video aids, lectures and demonstrations, the instructors will cover the problems and techniques of successful instrumental insemination of queen bees. Dexterity equivalent to the grafting of queen larvae is needed for successful instrumental insemination and students must bring their own Mackensen Insemination Apparatus with syringe and tips to class. Queens, drones, and carbon dioxide will be furnished by the instructor. Limited to 12 students.

Instructors: Christine Peng, PhD; and Jerry Marston, BS.

(824E32) Davis: Bee Biology Building, Hutchinson Dr., near University Airport, off Highway 113/Saturday 9 am to 5 pm/May 21/1 meeting/$180/Limited enrollment/Enroll by May 13/NC.

Dr. Basil Furgala (left), from the University of Minnesota, is shown receiving the "Apiary Inspectors Of America Apiculture Research Award, 1983" for his research efforts in prevention and control of Nosema Disease.

GEORGIA

Beekeeping Short Course

The annual beekeepers short course for beginners and more experienced beekeepers will be held on Saturday, June 4, 1983, at the University of Georgia in Athens, Georgia.

Topics and demonstrations will include honey bee biology and behavior, bee disease, management for honey production including comb honey, honey house operation, queen rearing and package bee installation.

The teaching staff will consist of several specialists including honey and queen and package bee producers. The course fee is $20 per person. Advanced registration is requested by June 3, 1983.

Requests for additional information, program and registration forms should be addressed to Dr. Alfred Dietz, Dept. of Entemology, University of Georgia, Athens, Georgia 30602. Telephone (404) 542-2816 or 542-8711.

INDIANA

Notice of Upcoming Meeting

The Indiana State Beekeepers Association wil hold its spring meeting on May 21, 1983 at Nappanee, Indiana. Local Amish bee man there, Earl Shmucker, will host the gathering which will feature a dinner with Amish flavor — home cooked chicken and homemade bread. Dinner reservations ($2.25) are required and those participating should bring a side dish and table service. Registration will begin at 9 a.m. For directions and further information contact Claude Wade, 613 State Office Bldg., Indpls., IN 46204, Ph: 317-232-4120.

NEW JERSEY

Speakers' Bureau

At a recent NJBA State Meeting, George Coyne of South Plainfield was appointed Chairman of a newly formed Speakers' Bureau. This committee and speakers' bureau would like to provide a goodwill service (at no cost to the user) which would be to: schools, church groups, senior citizens groups, Scouts, libraries, Nature Centers, etc.

Many of the NJBA members are already performing such services during mornings, afternoon, evening, weekends, etc.

If you are interested in becoming part of this bureau, please list county or counties in which you would be willing to cover. Briefly describe your past experience at public speaking. Or, what type of format you use? Such as: lecture, slides, film, live bee demonstrations, or whatever.

Would you be willing to help a school, or a Nature Center, to set up and maintain an observation bee hive, if materials were provided?

(Continued On pg. 276)

News & Events

(Continued From pg. 274)

Would you be interested in attending a public speaking improvement session if such was offered?

The NJBA cannot assume any financial responsibilities for travel costs, meals or materials used by volunteer speakers.

If you are interested contact Liz Rodrigues for an application form. George Coyne has prepared a listing of FREE Audio/Visual Materials (slides & films) that are available on bees, beekeeping and honey. Please contact Liz Rodrigues for this listing. 157 Five Point Rd., Colts Neck, New Jersey 07722.

NEW YORK

Club Meeting

The May meeting of the Southeastern Beekeepers Club will be held Sunday May 15th starting at 2 p.m. at the home of Mr. and Mrs. Walter Kowal, Pulaski Highway, Pine Island, N.Y. Raising queens on a small scale and two and three queen systems will be discussed. For further information contact Jim Conklin at 914-986-3289.

NORTH CAROLINA

Advanced Beekeeping Short Course

The second level of the North Carolina Master Beekeeper Program is the Journeyman Level Beekeeper which also has the requirements of a written examination and a practical test. A series of advanced beekeeping short courses will be offered for those individuals who plan to advance from the Certified Beekeeper Level to the Journeyman Level of the program and the first course scheduled for that purpose is as follows:

Short Course, Greensboro (Guilford Co.), May 11, 18, and 25th. Contact Ross Williams 919-375-5876.

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 cetificate 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.

PUERTO RICO

Apicultural Conference

The first Conference of Apiculture is in Puerto Rico, starting May 27 thru 29, 1983 in San Juan, Puerto Rico. During this period speakers will discuss problems common to beekeeping in the tropical world, at the same time we would like to receive proposed talks, new findings and present information of value to all of our beekeepers. For further information write:

Desarrollo Apicola Colectivo
Suite 6-D COND. LOS LIRIOS
Santurce, P.R. 00905
PH: 722-8584 OR 723-9589

WASHINGTON

Beekeepers Set Sights On Forming An Industry Commission

Realizing that a dependence upon voluntary support has resulted in restricting their industry's advancement, members of the Washington State Beekeepers' Association (WSBA) appointed a special committee to examine the feasibility of forming an industry commission.

Operated and controlled by a board which is elected from the industry by affected industry members, the commissions's main purpose is to increase the net return to producers.

A commission enables an industry to achieve this net return objective by several means—creating a better demand for the product (or service), devising and using indentifying standards of size or quality, developing more efficiency in production and marketing, distributing timely information, etc.—with the exact activities being determined by the commission board.

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, 25 — Italian Queens or more $5.95 ea., 25 — 5-frame Nucs or more 24.95 ea., 25 — 5-frame exchanged w/wax 19.95 ea., 20 — 10-frame Colonies, new hives dipped 39.00 ea., 100 — 9-5/8 Hive Bodies empty, 345.00. 1000 9-1/8 deep frames, 275.00, 100 — migratory flat covers or bottom boards, 220.00, **Hubbard Honey Inc.,** P.O. Box 726, Belleview, FL 32620, Ph: 904-245-1106, L.M. Hubbard Since 1918. 7/83

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

8 x 20 goose neck trailer 27' boom $4,295.00, 8 x 16 trailer $2,295.00, 100 2-story colonies@$60.00, PH: (4)8) 779-6164 5/83

For Sale — Used Equipment, 300 bottom boards, 900 9-5/8" 10-frame drawn comb brood supers, 900 9-5/8" 9-frame drawn comb extracting supers, 300 telescoping covers and inner covers, Tom Tylee, 2205 Hillview Dr., Menomonie, WI 54751, Ph: 715-235-5632, Dick 714-235-0788 4/83

For Sale: HIGH FRUCTOSE SYRUP — Tankers or Drums in stock. PURE SWEET HONEY FARM, Barneveld, WI 608-924-3255 5/83

For Sale: 8½ acres located near Avon Park Florida in Orange Country. 6 Bedroom, 3 bath home. 19,900 sq. foot warehouse, equipped for bee operation. Mel Eisley, 1621 S. Forth, Louisville, KY 40208, Ph: (502) 637-3711 5/83

For Sale: 12 acres of land in Minnesota 45 miles from Minneapolis. Interstate I-94. 3 bedroom home, 6,804 sq. ft. warehouse, equipped for bee opertion. Mel Eisley, 1621 S. Forth, Louisville, KY 40208, Ph: (502) 637-3711 5/83

INSEMINATION 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

20 colonies of bees, 125 6⅝ honey supers, 100 undrawn duragilt deeps. 200 deep supers, extracting equipment. 712-366-0425 or 366-1927 MS 5/83

Mixed Clover Honey in Gallon glass jars. Ralph Oswald, Tiffin, Ohio 5/83

Honeybees & Supplies For Sale. 20 single story 2-super hives plus equipment for 150 hives. 419-331-2170. Gilbert Sneary, 260 N. Eastown Rd., Lima, Ohio 5/83

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 MMay 15. Glenmont Woods Honey Farm, 6137 Ely Rd., Wooster, OH 44691" 6/83

150 Hives For Sale. Ronald Werling, Rt. 2, Box 19, Wapakoneta, Ohio, Ph: 419-738-4969 5/83

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

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

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

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

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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

Four frame nucs and singles available early in May in north-central Illinois. Tannes Orchard, Speer, Illinois 61479. Ph: 309-493-7781 or 309-493-5442 5/83

Bee Comb foundation, Wholesale prices. Free List. Wilborn Supplies, Route 6, Box 235, Guntersville, Alabama 35976 5/83

400 — 500 colony (all or part) automatic uncapper, melter, (2) extractors, truck, 30' flatbed trailer with Kelley loader — one man operation — Lake Region NYS., W. Eshleman, Box 44, Moravia, NY 13118, PH: 1-315-497-1258 5/83

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

Pollen Traps — Heavy Duty for the front of a standard hive — $24.95. Hive Monitor for closer control — $14.95. Wooden Nuc Boxes — $5.95 postpaid. K.B. Honey House, R.D. #2, Box 261, Saltsburg, PA 15681 5/83

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

"BEEKEEPING BASICS", Larry Connor's interactive home study program, $38. Eight Color Beekeeping Postcards, $5. Box 817, Cheshire, Connecticut, 06410-0817. TF

CLASSIC REPRINTS: Miller's *Fifty Years Among The Bees*, $7.95 softcover, $12.50 hard, $1.00 shipping. Root's 1890 *ABC of Bee Culture*, $11.50 softcover, $17.95 hard, $1.25 shipping. NY residents add 6% tax. Molly Yes Press, RD 3, New Berlin, NY 13411. TF

OLD, NEW BEE BOOKS. June list: 80¢ stamps. Orn Apicultural Library/2, 4701 San Leandro St, Oakland, CA 94601 5/83

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.

ONE HUNDRED full 10 frame colonies of bees $40.00 — $50.00. Heavy with honey. State inspected with 3 stainless storage tanks. Phone 904-245-2461. L.M. Hubbard, Belleview, FL 32620. TF

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

500 colonies of bees on good Spring Buildup locations with or without supers. Also nuclei, package bees and queens. G.C. Walker, Jr., Rogers, Texas 76569, 817-983-2891. 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

Package Bees and Queens, delivery mid April, BUFFINGTON'S HONEY FARM, R.D. #2, Box 189, Halifax, PA 17032, (717) 896-8637 5/83

For Sale: Quality 5-frame nucs — $36.00 per nuc. Italian Bees — placed in your equipment at Belmont N.Y. after May 1st. $5.00 deposit per nuc at time of order. Dick's Bees, 716-268-5310 5/83

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

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Westfork Bee Company, Rt. 2, Box 54, Dept. 2, Federalsburg, ND 21632, (301) 754-8301 Carniolan — Italian — Queens $6.60 5/83

ITALIAN QUEENS — Shipments starting March 15th — May 15th. 1 — 50, $6.00; 50 — 100, $5.50; 100 — up, $5.00. Orders larger than 100 require 10% to book. BEE NATURAL HONEY FARM, H.T. Baker, 4415 Dalton Dr., Vidor, TX 77662, PH; 786-1660 5/83

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 15. **GOLDEN WEST BEES, 436 Norvin, Grass Valley, CA 95945, (916) 273-4606** TF

"Italian Queens For Sale, $6.00. 322 Russ St., Marianna, Florida 32446. Ph: (904) 482-5682 5/83

Ten two story hives $60.00 each. Also some extra equipment — Excluders, Supers. Located Western Pennsylvania. PH: (412) 533-4354 5/83

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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

HELP WANTED

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

Wanted: Commercial outfit needs hired help for 1983 season. Golden Valley Apiaries, Rt. 1, Box 48, Fairmont, Nebraska 68354 5/83

Wanted — Single man for seasonal employment in Apiary, John Wilson, Lakeside, Nebraska 69351 5/83

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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

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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.

ONE HUNDRED full 10 frame colonies of bees $40.00 — $50.00. Heavy with honey. State inspected with 3 stainless storage tanks. Phone 904-245-2461. L.M. Hubbard, Belleview, FL 32620. TF

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

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3 frame Nucs, laying Queen, E.A. Jones, Stillwaters Apiaries, Rt. 2, Box 10-A, Keysville, Va., Ph: 804-736-9885 7/83

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MISCELLANEOUS

For Sale — 500 Colonies of bees in 8-frame hives. Also extra supers. Jelinek Apiaries, 130 E. Filion Rd., Filion, MI 48432. Ph: 517-874-4355 5/83

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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

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OHIO BEEKEEPERS let us run your bees on shares on your locations any place in Ohio. Hillcrest Honey Farms, Rt. 1, Harrad, Oh. 35850. Jim Kerchenfaut, Manager, Ph: (419) 648-5175 5/83

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

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

Installing The Bees

First this: a thousand bees
balled up in one black heart,
a loud wind, a fist of heat,
locked in their thin cage,
edgy with energy.

You carry them out to the hive,
gently, their delicate balance
locked in your dangerous hands,
gorged with your sweet words,
the sky buzzing with dusk.

Then this: the hive like a white thumb
stump on the frozen land.
You open it slowly
and pour the bees out,
as if an escarpment, a sluice.

Now the bees seethe and roil.
You slap down the cover, suddenly
frightened at the weight
that falls from your arms,
the splash of dark waters.

You lift your white hands
to your eyes, waxen, honeyed,
pale lilies, mums, the dead man's
flowers, a thousand bees buzzing
in your wrists.

by RON WALLACE

From: *Plums, Stones, Kisses & Hooks.* **University of Missouri, 1981.**

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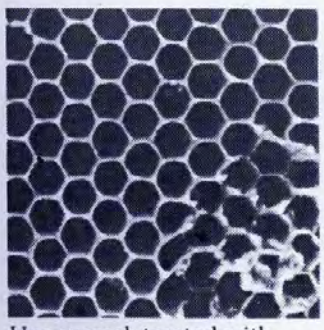
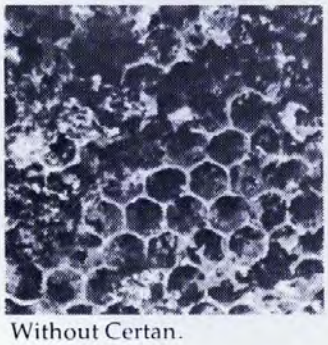
GIVE WAX MOTH LARVAE THE TREATMENT!



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.

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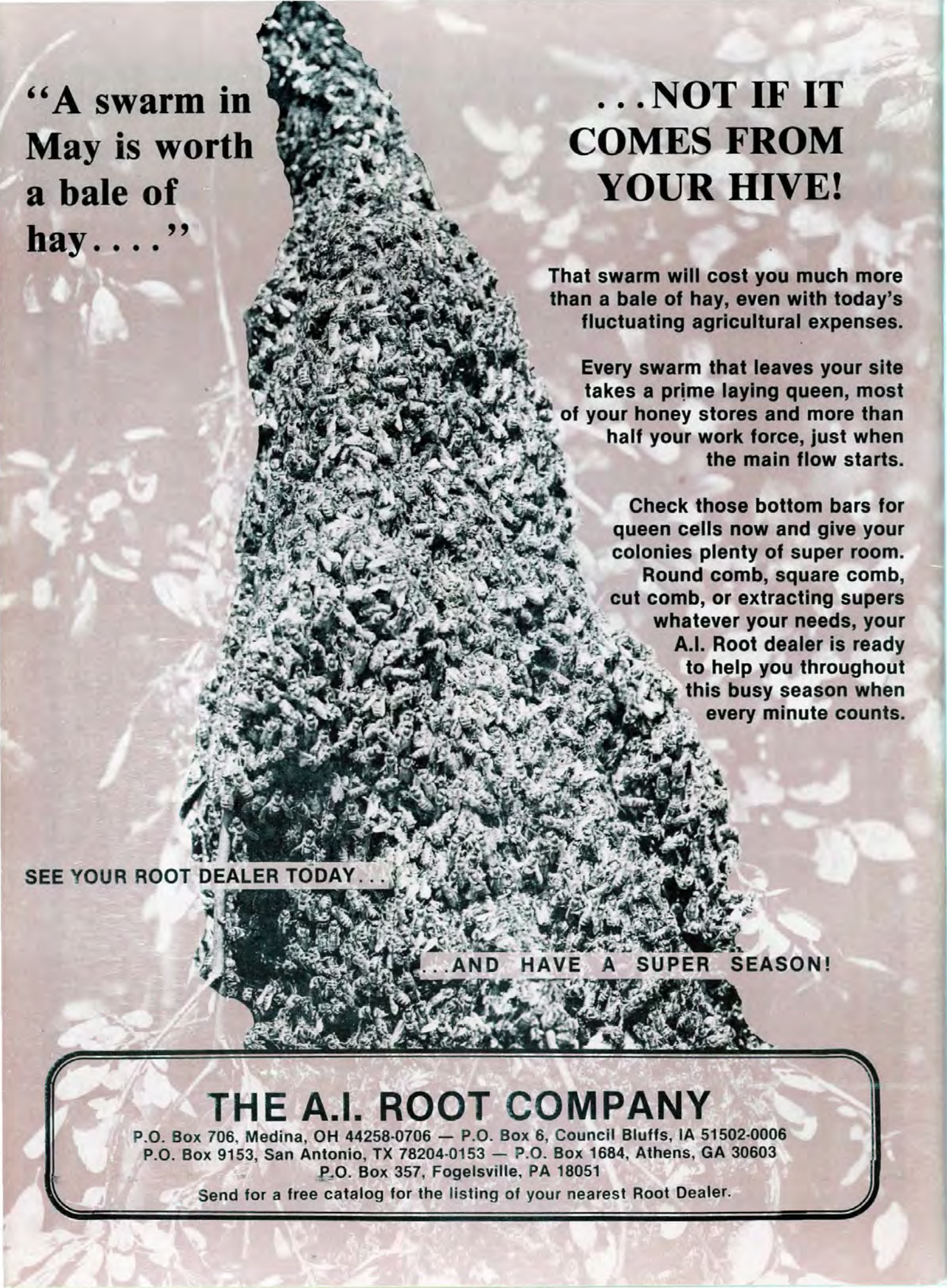
Use pesticides effectively. Read and follow label directions carefully.



"A swarm in May is worth a bale of hay. . . ."

. . . NOT IF IT COMES FROM YOUR HIVE!

That swarm will cost you much more than a bale of hay, even with today's fluctuating agricultural expenses.

Every swarm that leaves your site takes a prime laying queen, most of your honey stores and more than half your work force, just when the main flow starts.

Check those bottom bars for queen cells now and give your colonies plenty of super room. Round comb, square comb, cut comb, or extracting supers whatever your needs, your A.I. Root dealer is ready to help you throughout this busy season when every minute counts.

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. . . AND HAVE A SUPER SEASON!

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