Gleanings in

APRIL 1980

BEE CULTURE

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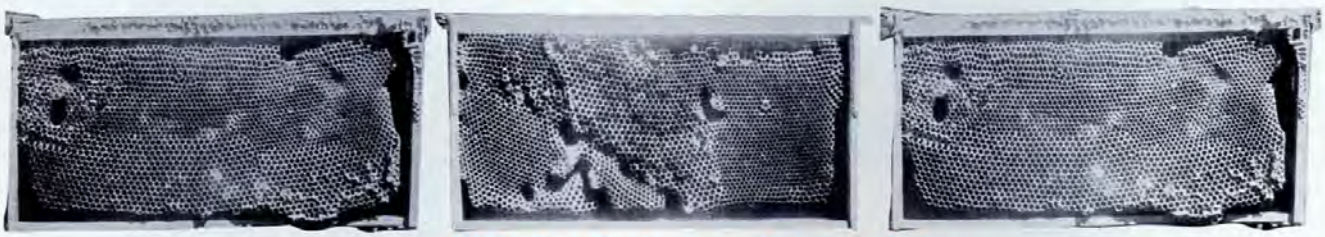

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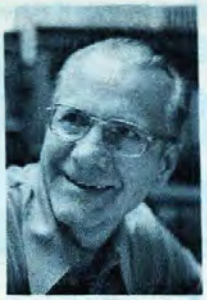

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Cover Story

Klaas Bosch of Haileybury, Ontario, Canada prepares to install a package of bees at his Busy Bee Apiaries.

Gleanings in Bee Culture

April 1980 (ISSN 0017-114X) Vol. 108, No.4
Created to Help Beekeepers Succeed
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CONTENTS

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Monthly HONEY Report

LAWRENCE GOLTZ

March 10, 1980

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	30.00	33.00			38.40		28.80	29.00
60 lbs. (per can) Amber	45.00	28.20	30.00			34.80		27.60	28.00
55 gal. drum (per lb.) White		.50		.53		.58		.51	.53
55 gal. drum (per lb.) Amber		.47		.52		.52		.49	.48
1 lb. jar (case of 24)		22.40	23.00	19.25	33.60	22.00		22.10	23.30
2 lb. jar (case of 12)		21.15		19.00	33.00	21.00	21.00	19.75	20.35
5 lb. jar (case of 6)						23.50		20.75	24.25
Retail Honey Prices									
½ lb.	.90			.72	.72	.75		.69	.85
12 oz. Squeeze Bottle	1.35	1.10	1.15	.97	1.50	1.05		1.10	1.25
1 lb.	1.35	1.25	1.16	1.10	1.75	1.15		1.20	1.35
2 lb.	2.55	2.35		1.99	3.45	2.15	2.50	2.10	2.65
3 lb.	3.80			2.98	4.95	3.40	3.50	3.00	3.89
4 lb.	5.00	4.49		3.89	6.35	4.35	4.50	4.10	
5 lb.	6.00		4.95			5.00	5.50	5.05	5.15
1 lb. Creamed								1.29	1.45
1 lb. Comb					1.87	1.65			
Round Plastic Comb	1.50						1.50		
Beeswax (Light)	3.00	1.80		1.85	1.75	1.80		1.80	1.85
Beeswax (Dark)	3.00	1.70		1.75	1.65	1.75		1.70	1.80

Region 1

Costs are up, sales and profits are down but expect things to change soon. Holding of honey stocks by producer and light buying by packers seems to be the trend. Beekeepers may have to start feeding early because of the warm winter. Sugar is going up again.

Region 2

We are finally having some cold and snow; bees should come through winter fine.

Region 3

Bees are wintering well. Having colder weather. Beekeepers are checking colonies early because of experiences of last two winters. Good clusters of bees and some brood rearing started. Moisture conditions good. Orders for packages and queens are good.

Region 4

March starting off cold but overall a mild winter with early brood rearing. Supplemental feeding may be necessary. February was warmer in Nebraska than in 1979, bees had a good flight on the 25th. Retail honey sales slow, small sizes of packs selling better than larger sizes.

Region 5

Winter loss was very low due to mild winter. End of February and early March has been cold with much snow. Most hives will require some feeding. Red maple and willows will start blooming about March 20th in Carolinas.

Region 6

Below normal temperatures and rainfall for February but bees received good cleansing flight in late February. Feeding and brood rearing underway in Kentucky. Early maples ready to bloom middle of March. Winter loss appears to be light in Kentucky.

Region 7

Great variations in temperatures make it rough on bees rearing brood. Honey sales slow. About half of all local honey is sold in Oklahoma. Bees in good condition but some feeding.

Region 8

Mild winter in eastern Idaho and early spring check in Colorado shows brood rearing in early March, excellent overwintering with adequate honey supply. Winter loss is light. Comsumer demand for honey is good. Packers are keeping low inventory and are reluctant to buy due to high interest rates on money. Honey selling on an orderly basis but a good amount still on hand with producers.

Region 9

Bees appear to be in good condition in Oregon. In California adverse weather conditions have greatly limited bee flight for pollination of almond crop. Nectar producing plants are in exellent condition due to abundant rainfall. Trading between beekeepers and honey handlers has continued slow. Honey prices have leveled off in face of light buying and offering prices from Mainland China, Canada and Mexico are very competitive. Rental per colony of bees for alfalfa is contracted at around $15.00 to $18.00. U.S. import duty on honey drops from 3¢ to 1¢ per pound.

Gleanings Mail Box

Dear Editor:

Who cares about the obituaries of persons unknown?

Vernon Hathcock
Kannapolis, N.C. 28081

You are right, our reader survey showed the lowest reader response to obituaries of all the features of **Gleanings**. It is true obituaries do not entertain or add to our knowledge of bees but as part of our service to our readers we feel that this last acknowledgment of a person's contributions to the beekeeping community is the least we can do in remembrance. What we do day by day is too often ignored and forgotten. The best we can often hope for from friends and associates is to be noted in passing. (Editor)

Dear Editor:

Some duplicate material held by the Phillips Memorial Library at Cornell University was recently donated to the Agricultural Technical Institute library.

This gift consisted of **Gleanings In Bee Culture** published from 1905 to 1972, and numerous volumes of the **American Bee Journal** which will greatly increase the holdings of the library. In addition, there were quite a few books, including a copy of **ABC of Bee Culture**, copyrighted in 1891. A collection of leaflets and reprints of work published at Cornell was also included.

Dr. H. Shimanuki of the Bee Bioenvironmental Laboratory at Beltsville, Maryland, was also gracious enough to contribute duplicate copies of publications held by the U.S.D.A. library. Many very old bee supply catalogs were a part of the donation.

Gifts such as these are sincerely appreciated. Obviously, developing a good beekeeping library is a long and expensive process. Any other donations of books, journals, or other beekeeping materials to the ATI beekeeping library would be received with gratitude.

James Tew
Technology Coordinator
Commercial Beekeeping
Agricultural Technical Institute
Wooster, Ohio 44691
Phone: 216-264-3911

Dear Editor:

I am writing concerning the questions and answers section in the February 1980 issue of **Gleanings**.

Your response to L.L. of Tennessee's question on anything on the killer bees is very unprofessional and the off-hand reply is a disservice to apiculture. You may believe that the publicity concerning those bees has been very much overdone, but you present nothing factual to the readers to substantiate your educated belief.

The general public's unfounded fears of the honeybees are constantly being set to peace by beekeepers, and were it not for their untiring efforts, the swarming season would be the exterminator's haven for maximum profits. I feel you owe L.L., and others, a better update of the South American Bee than another article on Requeening, or other topics written up over ... over ... and over.

Did you, perchance see the Wall Street-Journal, January 15th, 1980, article on the "Killers"? If a financial newspaper, hardpressed for space, can find the justification to bring the businessman up to date of the state of affairs on the "Killer Bee", then why cannot a magazine dedicated to apiculture not find it appropriate to educate its readers?

Please will you forward the Wall Street Journal article to L.L. as my contribution to his intellectual curiosity. Let me conclude by saying that despite my obvious criticism of your attitude on this subject, I hold your publication in high esteem, and enjoy it more than any other subscriptions

I have relative to apiculture. Keep up the good work. (But don't be in a hurry and overlook improvement.)

Igor Shwabe
24006 N. Dobson Rd.
Pinnacle Peak Village, Arizona 85255

(The Wall Street Journal article referred to above, Vol. CII No. 10, 1/15/80, says "there's even a happy ending to this story of the Brazilian-African honeybee, A.M. adansonii — : Killer bees — or reformed killer bees — are prodigious workers and at least a fourth more productive than other bees." The Wall Street Journal reporter, E. G. Martin, visited Brazil, talked to the president of the Brazilian Beekeeping Federation, a Mr. Wiese, who told him the bees are only half as hostile as before but they still have their aggressive moments, particularly when aroused. At the end of the Journal article the word from Mr. Wiese, via the reporter was "please tell American beekeepers that they have nothing to worry about."

Now in regard to Mr. Shwabe's letter: As your **Gleanings** editor, who answered the question "off hand and unprofessionally", I acknowledge my limitations. I have not had the advantage of observing and studying the African-Brazilian bee firsthand. I do know, however, that there are disagreements about the present status of the bees in South America, even among the professional apiculturists who have studied the bees there. A report by Dr. Orley Taylor at the American Beekeeping Federation in January, 1980 differs with the opinions of other scientists and beekeepers who have either worked with and/or studied the hybrid bees, or, are honey producers or queen breeders in close touch with the possiblities of haveing to contend with the adansonii hybrids at a future date. The opinion of this latter group of scientists and beekeepers is, according to one leading apiculturist and scientist, that the Africanized bees do pose some problems to South American beekeepers but beekeepers in Brazil have demonstrated it is possible to cope with them. There is also a sharp difference of opinion, even among the best informed, about how to handle publicity concerning the status of the bees and whether they will be of future concern to the United States. There also seems to be conflicting reports of their productivity.

You are right, Mr Shwabe, I gave nothing factual to **Gleanings** readers in my answer to the question by L.L. of Tennessee, but you are wrong in respect to it being an "educated belief". Quite to the contrary, I am as unknowing as the rest of you and am frankly rather skeptical of most of what I hear on the subject. (Editor)

Dear Editor:

Since I cannot thank every individual personally, I would like to take this opportunity to express my appreciation to all who have supported my father's campaign for getting a United States postal item honoring the honeybee. During the many years since the earliest suggestion, your hundreds of letters have gone into a file that has become impressive in quality, as well as quantity. From school children to U.S. Presidents, and practically every level of influence between, those letters urged the U.S. Postal Service to take note of the importance of the honeybee to the production of the world's food supply.

From the thousands of subjects suggested each year for commemoratives, the Stamp Advisory Committee selects a relatively few to be thus honored. The tenacity of those, who continued to press their requests, eventually brought about the announcement that the honeybee had been placed on the list to be honored in 1980. First issue of the embossed envelope will be in Paris, Illinois, during the month of October, the exact date to be announced later.

Eugene E. Killion
Supervisor, Apiary Inspection
Illinois Dept. of Agr.

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That Old Problem — Swarming

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

EVERY YEAR I try to write something that will help beginners deal with the problem of swarming.

Any beekeeper who doesn't take any preventive measures against swarming is going to be plagued with it. The reason for swarming is the instinctual desire of every strong honeybee colony to divide itself if it can. That's Nature's way of avoiding a decline in the number of colonies in existence in any given area.

What are some of the factors that encourage swarming? Crowding is one. If the size of the cavity in which the colony is housed is small, crowding is more certain. The presence of stores promotes swarming. The oncoming of a nectar flow helps to trigger it. So does the presence at the head of the colony of a queen that is more than a year old. The season itself is a prompter.

Let's take each one of these factors and see what we can do about it. I mentioned crowding first. A friend of mine here in Florida where I am writing this article has a thriving colony of honeybees in his back yard that occupies a home-made bird's nest which is nailed to a tree. It measures less that twelve inches square. An owl once lived in it so you can know that it has an entrance larger than a colony of bees needs.

If my friend wanted to do so, he could bore a hole in the top of this bird box, nail over it a piece of zinc queen excluder, and put some type of container above the hole and harvest all the honey he desires. But he doesn't understand bees. He isn't too keen about honey (a rare attitude) so he does nothing. And do those bees swarm? They swarm several times each season because they're abnormally crowded.

But bees can conclude they're crowded even when they have the dimensions of two standard size Langstroth hive bodies available to them. This is especially true in the cool of the spring weather if the lower entrance of the hive is large enough to admit considerable cold air. The presence of cool air at the entrance of the hive, and inside the entrance, discourages the queen and her workers from raising brood near there.

Accordingly, the colony tends in the cool of the spring and early summer to confine its brood rearing to the upper hive body, and to those parts of the lower hive body which are rather far removed from the entrance.

This is the reason why I advocate keeping the entrance small until the chilling weather with its cool nights are past. In our area of New York the nighttime temperatures in June often get down into the 40's

When the bees are inclined to confine their brood rearing to one hive body — the upper one — they may get a "feeling" that they are crowded. They may be fooled into swarming.

It is for this reason that many beekeepers try to learn when the upper hive body is pretty much full of brood and eggs. When they find it is, they reverse the two hive bodies that comprise the nest. That is, they put the upper one down on the bottom board, and elevate the one that was below.

The queen then normally confines her egg laying to the upper of the two. When that upper hive body becomes crowded, just as the other one was some ten days ago, many operators reverse the two hive bodies again so that now they're back where they were earlier. Some operators execute even a third reversal.

Other Preventive Measures May Be Necessary

There is little of magic about the reversing method. It certainly is not a cure-all for swarming. Many beekeepers feel that the presence of more than about three frames of capped brood in the nest is sufficient to signal to the leaders among the workers that the colony could swarm successfully.

It is my belief that at anytime the factors present in the hive signal to the mature workers that a swarming venture could succeed, they are likely to try it.

They evidently need a combination of factors to give them the signals: crowding, which suggests numerical strength; the presence of a laying queen more than a year old that appears capable of surviving the rigors of a trip to a new nesting site (often a mile or more away); sufficient unhatched brood in the old nest to build up a new colony; stores adequate to stock the swarming members with food for the trip.

If any one of these signal-giving conditions is absent, the experienced workers are not likely to promote a swarming venture.

The presence of capped brood is usually one of the basic requirements to signal the likelihood of success in swarming. It is for this reason that many operators remove brood from strong colonies when more than three frames have been accumulated.

Such operators use the surplus brood to make up nuclei, or to strengthen neighboring weak colonies. Some operators prefer to keep their colonies strong by elevating all frames of brood and adhering bees beyond the number of three to a third or fourth hive body. There they either give such brood and its adhering bees a new queen, or a capped queen cell, or permit the unit above to raise their own queen.

Experienced beekeepers in many cases feel that conditions are seldom all favorable in such circumstances to raising a superior queen. The reasons are that it requires some time before such an elevated unit is aware of its queenlessness; it may not have available an adequate supply of eggs or larvae of appropriately young age; it is often somewhat disorganized at first; or it may lack adequate numbers for feeding the larvae that are planned to become queens.

Some operators rob the strong to strengthen the weak. Almost every bee yard harbors colonies that are able to benefit from a gift of a frame or more of brood. The wiser operators, however, try to assure themselves in advance that those to be strengthened have a queen of sufficiently high quality to justify such a munificent present.

Other beekeepers count on this annual occasion to form nuclei. In such instances queens must have been ordered far in advance to assure their being available on the day needed.

Still others merely separate the two hive bodies of a colony temporarily with the intention of reuniting them as the main flow of nectar begins. Care in such instances (i.e., of separating the two) is necessary to make certain that both units have adequate supplies of honey and pollen, else one of them has to be fed. It makes little difference which one of the

two retains the old queen. Of course, if at the time of setting one of the hive bodies on a separate bottom board young queens are not immediately available cells can be cut later and queens installed.

When elevating brood and young bees into a third or fourth hive body above the two hive bodies of the old nest, an inner cover should be installed as a bottom board beneath the elevated frames. Provision should be made for a separate entrance to this upper unit in some manner such as to cut a notch in the rim of the cover.

Green grass should be rather firmly stuffed into this small upper entrance to allow the bees that have been elevated sufficient time to become familiar with their new surroundings, and to encourage them to come to regard themselves as a separate and new unit.

It is my experience that it does not pay, when establishing nuclei, to make them either too strong or too weak. If too strong, and they reject an introduced new queen, their excessive strength has been wasted. If too weak, they have difficulty in giving the queen adequate support to enable her to get off to a good beginning at producing brood.

I prefer to strengthen a colony **after** it proves that it's viable. I'd suggest 3-5 frames for nucleus at the beginning, one to three of them containing some brood, not a full complement, and the rest made up of honey. Plenty of young bees are desirable. Pollen is just as essential to the food needs of a nucleus as honey. It is not always readily available.

Nuclei often have (**usually** have) some difficulty in providing adequate heat to protect the brood that is already present, and to encourage the queen to lay liberally.

It is to assure a ready and free supply of heat that many operators place nuclei above strong colonies, using an inner cover as a divider with the center hole screened both above and below the hole so that queens and workers from the different units do not have an opportunity for physical contact that might lead to conflict. One gets a spelendid idea of how tenacious a bee can be about identifying and using the entrance to her own nest entrance which is so close to another used by a greater number.

The operator needs to perform in accordance with the purpose he has in mind in starting nuclei. Does he plan merely to keep them in reserve to use chiefly as a means of introducing new queens to queenless colonies; or does the operator plan to build them up for use the following spring; or are they expected to produce enough food to enable them to winter?

In starting nuclei some operators prefer to use regular size hive bodies, particularly for the purpose of avoiding the need to transfer bees and furniture in the future. Others like to employ five-frame nucleus boxes. For many purposes, nucleus boxes are ideal but transfer of frames and bees must be made when they are united with other bees. If, however, regular size hive bodies are used, whatever part of their interior area is not needed by the young colony should be stuffed with some material such as crumpled newspaper in order to aid the young unit in keeping itself warm without undue expenditure of energy. A dividing board is desirable in such a case but is not absolutlely essential.

Some operators like to keep their nuclei in a yard separate from that in which they may be used for uniting purposes. This plan has the disadvantage of making them less accessible when needed; but it does reduce loss from drifting by the field bees of a nucleus that is transferred to another colony. Such loss is by no means total since the field bees will become permanent members of some hive in the yard, though not always of the one to which they have been transferred.

Field bees that have established their guide lines to a particular nest site do not always readily make the transfer to the new location.

A nucleus needs some minimum measure of caution from its founder in order to avoid loss from theft by stronger units, predation by skunks, and dwindling of numbers from drifting. It is usually advisable to restrict the size of the entrance of a nucleus. It will profit from frequent examination to assure that skunks are not plundering it. It deserves a location that will discourage its members from drifting to other units, especially strong ones. It is a good time to make sure that disease is not present.

Using Queen Cells to Start Nuclei

Amateur beekeepers need not be fearful of securing new queens by using cells from colonies that threaten to swarm. Some observers have contended that to employ such cells is to breed in and encourage the tendency to swarm. Bees have been building swarm cells for many thousands of years. I doubt if any one beekeeper need fear that he is accentuating the swarming tendency by using swarm cells. Such cells can be placed in very small nuclei so that if they do not succeed, not too much has been invested. If the cell yields a promising queen, the nucleus can be enlarged.

Uniting Units

Probably every beekeeper is familiar with the so-called newspaper method of uniting one colony with another. Under this plan the unit containing the queen which the operator wishes to have survive is placed in the upper position with a single sheet of newspaper between the two. A few holes of small size are torn into the paper to permit circulation of air and to encourage rather prompt intermingling.

The method is used also to unite a nucleus with a strong unit that is queenless. In such instances the workers above will make every effort to protect their queen. But I should not recommend asking a tiny nucleus to do so in opposition to an extremely strong unit.

In one or two instances when I have ventured to investigate promptly to see how the union has worked out, I have found the queen from the upper unit already traveling over the brood nest of the lower unit — all within a few minutes. I do not believe this is common practice but I'm not sure. There may be venturesome queens that are willing to hazard their lives by entering the confines of the other unit more promptly than is ordinarily advisable.

We know that the workers of a nucleus will ordinarily attempt to defend their queen, but I would not advise placing an overwhelming burden upon them.

The above obeservations lead me to suggest to all amateurs who are serious about the consequences of their manipulations that they early form the habit of marking their queens in some practical manner in order that in such instances as the union of two units they are able definitely to indentify the queen, to know what happened. Unless the operator can know definitely what happens to his queens, he is not in a good position to judge the quality of his manipulations.

The On-Coming of Spring

Near the beginning of this article I spoke of the season of the year as a prompter of swarming. Although an individual swarm may, on occasion, swarm out of season — even when there is no hope of its effort succeeding — it is in the springtime that colonies normally swarm.

(Continued on page 224)

There is No New Thing Under the Sun

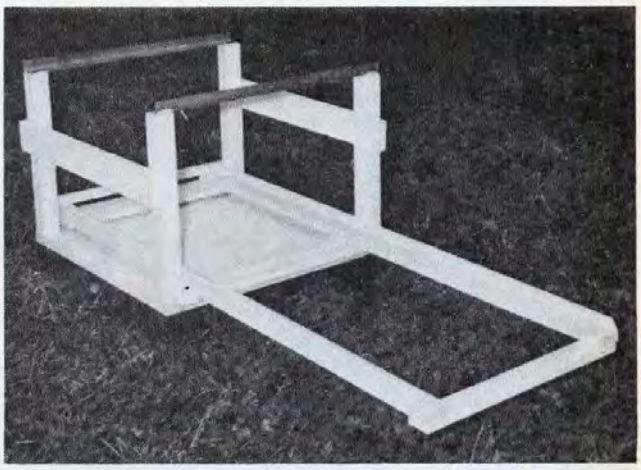
By H. C. MATHEWS
Midlothian, VA

SO WROTE THE author of Ecclesiastes in verse 9 of Chapter 1. But maybe that was just a Bibical figure of speech.

When I found that due to a heart attack I was no longer able to lift hive bodies or supers of honey, I studied the alternatives and figured out a new way of supporting the upper parts of the hive while the bottom hive body (where the brood usually is found) could be slid from under the rest of the hive. Then I could pull up a few frames and find out what was going on in that hive without having to call on someone else for help. There were persons glad to do the lifting for me, but it was not always possible to get them when the weather and other conditions were favorable for working with bees.

Then it occurred to me that anyone handling bees, disabled or not, would find this a great work and time saver. So after experimenting for two years with the frame-work I had designed, I finally applied for a patent for what I call my E-Z-XAM* hive stand.

The patent search revealed that over the past 100 years there had been a number of patents issued on modified hives to accomplish the same purpose: that is, to get at the brood chamber without having to first remove all the hive parts above it. As all beekeepers know, this can be one of the most time-consuming, laborious, and sting-producing chores of beekeeping.



E-Z-XAM hive stand.

E-Z-XAM hive stand installed

E-Z-XAM hive stand opened to allow inspection of brood nest.

But I've never seen any of these old patented hives in use. Looking over copies of the drawings submitted with their applications, it's easy to see why. First, most of these designs require drastic changes in the standard hive now used nearly everywhere, making the cost prohibitive. Second, all the gadgets dreamed up, such as drawers, hinged doors, sliding metal supports for the ends of frames holding the combs, etc., must have been prime targets for the bees' instinct to tightly glue everthing within the hive to the next object less than about one-fourth inch from it.

In contrast, my supporting E-Z-XAM does not call for any modification whatever in any part of the standard hive, from the bottom board to the cover. Thus there is no hindrance to swarm control manipulation, as there would be with hive bodies featuring the complicated parts shown in these old drawings. In fact, my device makes control measures simpler due to the ease with which the bottom hive body can be removed and returned, or replaced.

Besides making the beekeeper's work easier, more pleasant, and more profitable, the E-Z-XAM helps the bees, too. There is less disruption of their work than with the old way of lifting off supers

one by one. And no matter how much care is used in handling these supers, some bees always get crushed or crippled. This released the alarm odor, then stinging begins.

Another advantage in not moving the supers off the hive is that those bees working in them don't get panicky and start uncapping honey. My theory is that the necessary smoking while the supers are being handled prompts them to load up with honey just in case what appears to be such a threat to their present home may require a search for another. So they prepare to carry along as much of their treasure as possible.

I've seen some beautifully capped honey badly damaged this way. Of course, after the supers are put back on the hive and things quiet down, they get busy and repair the comb. But instead of refilling the cells they so hastily emptied, bees often just smooth over the ragged edges and leave them blank. This I learned the hard way.

Perhaps old King Solomon meant that there were no new problems, just old ones in different circumstances. At any rate, it appears that I have found an acceptable answer to a problem that has been with us for a long time.

So with all its advantages the E-Z-XAM should be a big help to my fellow beekeepers.

***Patent applied for.**

Don't Miss That Swarm Call!

By BRYCE H. HAMMOND
Rives Jct., Mich.

I'M SURE EVERY beekeeper has, at one time or another, been the recipient of this cheerful greeting; "Oh, guess what!!? You just missed a phone call — someone has a swarm of bees on their place and they want you to get out there right away and take care of them.!" She was really excited — said, "it was as big as a bushel basket ... and to **please** hurry!"

Sounds like good news, right? And whose mouth wouldn't be watering at the mention of a swarm that big?!! Funny thing though, bee fever makes perfectly normal, rational people, highly excitable and sometimes they don't always write down important information.

It was with this in mind (and not having the location of that "bushel basket of bees"), that I prepared the following chart for those of you with just such problems. Several copies of these could be placed near the phone at home, work, or wherever you're frequently at — but not, at the "big moment." It would also be a good idea to share some of these, with a beekeeping friend.

CALLS FOR BEE SWARMS FOR (your name here.)
(Be sure to talk calmly and to reassure them.)

1. The person's name who is calling:

2. Location of the bees: (Street address and town)

3. Phone number at which they can be reached: (The beekeeper may have to get back in touch)

4. How large is the swarm? (circle one): softball size, football size, basketball size and bushel basket?

5. Are the bees on: (circle one) A. side of a house? B. in or on a tree? C. on a fence or a hedge? D. elsewhere — specify

6. How high up are the bees? (circle one): on the ground, 3 feet, 6 feet, 10 feet or higher?

7. If the bees are too high, do you have a ladder, or could one be borrowed? (circle one) Yes or No

8. If the bees are on a limb, could permisson be obtained if it had to be trimmed? (circle one) Yes or No

9. If you live beyond a 10 mile radius, or are outside the city limits, there is a $5.00 travel charge.

10. (Your name) won't be back until: 10 A.M., 11 A.M, 12 noon, 1 P.M., 2 P.M., 3 P.M., 4 P.M., 5P.M. or 6 P.M. (circle one before **YOU** leave)

11. If you can wait, the beekeeper will be out shortly — otherwise, I can give you the name and number of another beekeeper. Thank you very much for calling. (Your friends' name & number)

Explanations to the various items, are for the most part, self-explanatory, however:
Numbers 5, 6, and 7 are important, since, if you're not equipped to carry a ladder, you'll probably need one at the site.
Number 8 many times circumstances dictate that some tree surgury is called for. It's important that permission be obtained, preferably, in writing.
Number 9 is strictly optional, though with todays' ever increasing gas prices, charging a fee is definitely not out of line. You may be gettin a "free" swarm, but your vechicle, gas and time are not. Remember, you're performing a special service that exterminators would charge **far** more for. As to the fee or the distance, these are up to each beekeepers' descretion, but be fair about it.

I know how hard that last item number 11 might be to some of you, (especially if there **is** a swarm the size of a bushel basket!) but if you're not going to be around for an hour or two, it's far better to have that beekeeper friend pick it up rather than risk having it fly away and no one getting it. If you work together you can always pick up the ones he can't!

One more thing, make sure you always take some honey with you; there's the possibilty of a sale and a future honey market.

Sierra Bee Supply Closes Door

SIERRA BEE SUPPLY, at 1515 Tollhouse Road, Clovis, Calif. 93612, owned and operated by Tom Laury announces the closing of warehouse and production facilities as of January 31, 1980. Machinery, equipment, and inventory will be merged with Walker's Los Angeles Honey Company at 15598 Road 29, Madera, Calif. 93637. Phone 209-673-1361. It is understood this transaction took place for an undisclosed value to up-date methods of operation at Madera, modernize, and to continue serving the beekeeping industry more efficiently.

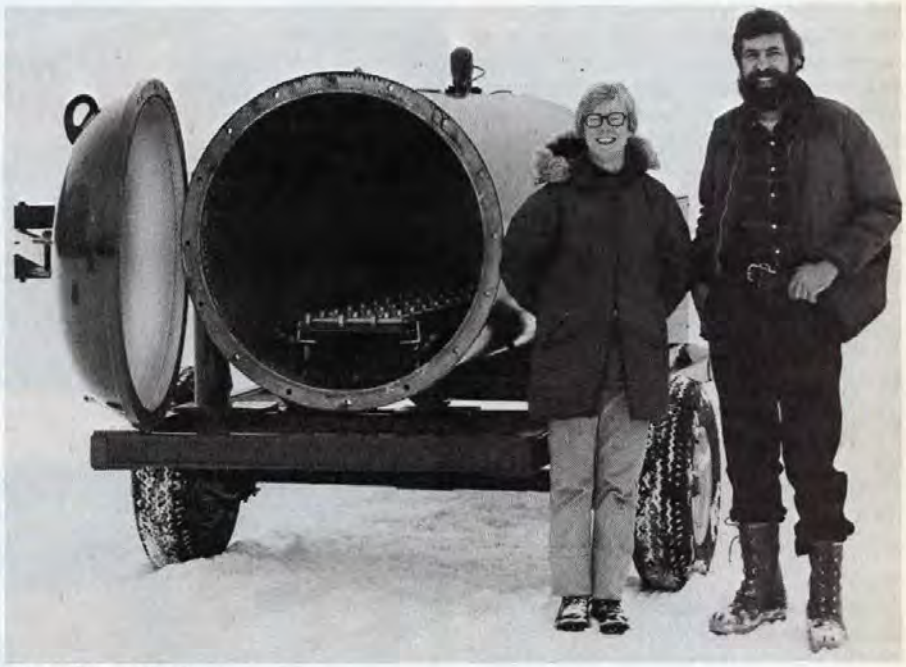
Ethylene Oxide — How it was And Where It Is

By P. F. THURBER
Kirkland, WA

IN WORLD WAR II as in World War I steam sterilizers exploded so the Army instituted research to find an alternative for steam to sterilize medical supplies and equipment. The work was undertaken at Fort Detrick, Md., and it was not too long before ethylene oxide gas was investigated and found effective for all bacterial matter. In the 1960's the USDA and others became interested in ETO as a possible alternative to burning hives with AFB and several papers on research appeared in the bee press. A bit earlier ETO began to be used in hopitals and by 1960 its use was widespread.

Bee researchers took two approaches. One used steel or stainless steel vacuum chambers in which supers with combs containing AFB etc. were placed; a vacuum drawn and heat applied. When the proper temperature was attained, the ethylene oxide gas in specified amounts was introduced into the chambers, and after a specified time the gas allowed to escape. Then the supers are aired and bees installed again. If properly done and properly aired, the method works and is safe. If safety precautions, care and attention to details are not scrupulously followed not only is the fumigation unsuccessful but also the life of the operator can be endangered. Ethylene oxide gas is toxic. It can be lethal, and some formulations are highly explosive. As a matter of fact the USAF has an ethylene oxide high explosive bomb!

The other approach was tarpaulin fumigation. This provides that a tarpaulin be put on the ground, then pallets then supers. Tops and bottoms are criss cross stacked on the pallet. Then the additional tarpaulin which acts as a cover is installed. The top and bottom tarpaulin's edges are folded over together to hold them in place. Customarily one uses a "snake", which is a canvas tube filled with sand, to secure the edges. Tarpaulin fumigation should have worked, and I am sure I could successfully do tarpaulin fumigation, but fail it did because no provision was made to keep the temperature at the desired level of 100 degrees F. and the tarps were porous so they leaked gas badly. Thus, the required temperature, gas concentration, and time of exposure were not obtained. When you realize that often



The Miskoe Fumigator

in hospitals medical supplies and equipment which were fumigated were sealed inside polyethylene sheeting, you can understand that using similar material in the tarps there was no way the tarpaulin funigation as attempted could be successful. Again safety precautions are vital.

Now, I got into ETO in 1969 because my feelings inadvertantly got hurt and I complained bitterly to Dr. Carl Johansen at Washington State University. He obtained a cylinder of gas and called me to tell me I should come get it or he would ship it to me. Frankly I panicked! First I had suggested that he do the fumigation and use a tree I would build, and second, I knew no more about ETO than you possibly do. However, I had opened my big mouth so I started obtaining information and studying it like my life depended on it ... and I feared it might!

Controls of the Miskoe Fumigator.

The first set back came when I found the gas Dr. Johansen had obtained for the work was, in my opinion, the wrong gas. The stuff was under 750 pounds per square inch pressure and the manufacturer, Union Carbide, said it must not be run through a gas regulator (which I had) so I swapped it for another mixture which, like the first, was non explosive and non flammable but was under a maximum pressure of 70 pounds per square inch. Then having made the "tree" which would screw into the bung hole in the removable top of a 55 gallon drum, I was in business. I put the 55 gallon drum on three concrete blocks, wrapped the drum with insulation, and surrounded the blocks with sheet metal so heat from an old electric hot plate would not all escape instead of heating the drum. The power to the hot plate was controlled by a thermostat built into the tree. The tree also had a pilot light to show when the power was on to the hot plate and of course the

tree had a valve so I could add the gas. A thermometer screwed into another hole in the drum top. A friend and I put 39 deep frames full of scale and dead brood in the drum, added the top and top clamp, covered the top and waited till we got enough heat in the drum at which time we added the gas. This occurred about supper time. In the morning we added more gas and that evening we vented the gas and stacked the frames into supers which had been sterilized with 525 degree steam. After airing for 24 hours, we installed bees. In all we fumigated enough to start up 13 or 14 hives and although we really started too late in the fall, only one or two hives did not make it through the winter. Since neither my friend nor I had the expertise to check the combs after fumigation, I sent samples to bee labs. One found 100% kill and the other lab indicated a very high kill but slight remaining viability of some bacteria. An opinion from that lab researcher was that while the kill rate was not quite 100%, he felt we had so weakened the few still living bacteria that they would not cause American foulbrood. This turned out to be the case. We were successful!

The author inspects his fumigator.

J. C. Matthenius, Supervisor of Bee Culture, N.J. Dept. of Agr. checks a load of bee equipment inside the New Jersey Fumigator.

Elated, I wrote up the work and sent the article to **Gleanings** where it was promptly rejected because the editor and Mr. John Root thought publication could get someone hurt or killed! I wrote **Gleanings** back and said that in the article I had not spelled out all the safety precautions we had taken and had not listed the safety bulletins available, etc., that I had studied. I said if I would rewrite the article would they at least read it? The answer came back affirmative so a complete rewrite was made. Finally **Gleanings** decided to print the article, but with understandably a disclaimer.

Meanwhile prepublication drafts had been circulated to 10 people — researchers and my State Chief Inspector. He wrote and said what we had done was interesting but why didn't I do something practical! Accordingly, while **Gleanings** ran the first article in three installments ("Operation Faint Hope"), I had found and purchased a steel ammunition deck chest off a World War II freighter that was being scrapped. I made it into a trailer mounted ETO fumigator that holds 6 deep supers, 3 tops and 3 bottoms and some little stuff like hive tools, gloves and beehive smoker. This contraption worked and the following year **Gleanings** published "Building A Beehive Fumigator".

About that time NASA had an expensive stainless steel steam fumigator which Jack Matthenius, Supervisor of Bee Culture for New Jersey, accepted gratefully. Using volunteers from the N.J. Bee Association, it was successfully converted to ETO and works beautifully. While it is owned and operated by New Jersey from time to time there was, I understand, a few out of state dead-outs fumigated. In New Jersey ETO is an ongoing highly successful operation. It has saved many hundreds, perhaps thousands, of hive bodies from the fire and subsequent burial of the ashes.

About the same time, or shortly thereafter, I received a call from a man in western Washington. He had a need to fumigate, if I remember, over 400 hive bodies and related equipment. Since my little fumigator was obviously too small and the man could weld, I found him a chest which he stood on end, sliced in half and deepened so it would do 14-15 hive bodies at a time. The man, now a good friend, built the fumigator. It worked and still does. Actually, I think, it runs over 200 days a year and has been doing so since it was built in 1972.

Now, as I understand it, Dr. George

Cantwell of the USDA promoted the fumigator for New Jersey. He also tried to get a nationwide program started. Why he was unsuccessful I do not know — maybe the time was not ripe. Anyway Dr. Dave Newton came up with something unique. He built an all plywood fumigator that worked. The design was most ingenious, and although it used first CO_2 gas and then 100% ETO (which is very dangerous) rather than a mixture, he engineered it properly so the ETO would not explode or catch fire.

In the same time frame Pat Powers, the very capable Chief Inspector for Virginia, made two fumigators. They too work well and have saved thousands of supers from the fire. While I am leary of the gas mix he uses because it is a mite dangerous, when Pat and his crew run their fumigators I know there is minimal hazard. On the other hand I shudder at the thought of a do-it-yourselfer using gas mix Virginia uses. Incidentally, the Union Carbide Corporation agrees with me 100% that the safest gas mixture available is the one we use here and in New Jersey. That is Oxyfume 12 or equivalent. It is a mix of 12% Ethylene Oxide and 88% Halycarbon 12 and 22. That mix is absolutely fire and explosion proof and as mentioned before is under a maximum pressure of 70 pounds per square inch so ordinary plumbing valves and piping can be used safely. Plumbing valves for your information are rated to work at 125 pounds per square inch pressure.

Also in the time frame from 1970 to 1975 the New Hampshire beekeepers wanted a fumigator. They had in mind a firm that built, I believe, diving equipment in Concord, N.H. so they approached that firm, Miskoe Engineering, who designed one. Next, Joe Baldwin, then president of NHBKA, marshalled his troops and got the legislature to ante up the $5000-$6000 for a trailer mounted fumigator. Frankly I do not like the fumigator. It is too expensive, too complicated and there are half a dozen other things I do not like, but it works and works well. My main complaint is it uses the 750 lb/sq. in. mix of 10% ETO and 90% CO_2 and that is a slight but unnecessary hazard. However, it can, I am positive, be used with Oxyfume 12 gas mix and should be, I think. Unfortunately New Hampshire did not provide for funds to operate the fumigator so too often it has sat unused with AFB dead outs accumulating in barns and garages. The same problem exists in Oregon. They have a Miskoe unit and no operating funds. For this reason, I think, fumigators should be privately owned and operated but under the supervision of the appropriate state's chief inspector.

General view of one of the two fumigation units now being used in Quebec, Canada.

Rear end view of the unit, with inner gas-tight door closed. One of the exhaust valves can be seen above the door.

Washington's state inspector agrees in case you would like to know.

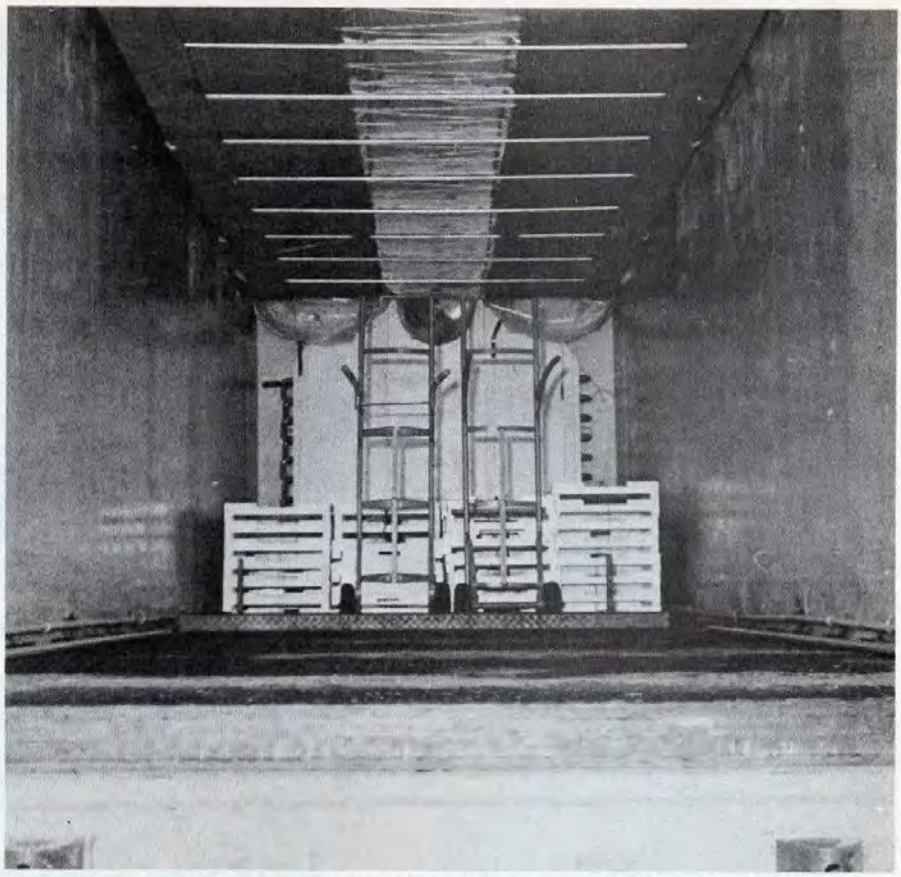
Now it should be said that just because I do not personally like features of the Miskoe fumigator I should not knock it. Let's face it — mine or the one 40 miles to the north of here and the British Columbia fumigators are light weight and if some one were careless and let the vacuum pump run too long they would collapse inward and be severely damaged. Also if some one used the 750 lb/sq. in. ETO CO_2 mix and was not very careful the pressure would undoubtedly pop the box open and bits and pieces might fly! Miskoe engineered his so it is darn near idiot proof, as well he might, with product liability laws and everyone so quick to sue. I do not want to belabor the point but I will

relate that while mine was on loan in California, they ran out of Oxyfume 12. The salesman who did not know what they wanted to use the gas for suggested instead the CO_2 mix because it is a bit cheaper. Fortunately the young man operating the fumigator was skeptical and called me so there was no unhappy incident. I shook for days after that because the borrower is and has been a dear friend and what might have happened unnerved me.

Going on I would be remiss not to mention the monster fumigator owned by Quebec. It is by far the largest — a whole semi-trailer is devoted to the fumigation chamber and the small control and gas storage room. It works not at vacuum but at atmospheric pressure with an ingenious bladder built into the ceiling. While I am not sure about the matter, I suspect Quebec designers had a careful look at the wooden fumigator Dave Newton built in Connecticut. Incidentally Quebec is building another, a duplicate of the first. The Quebec fumigator was featured in a 1979 article in the bee press.

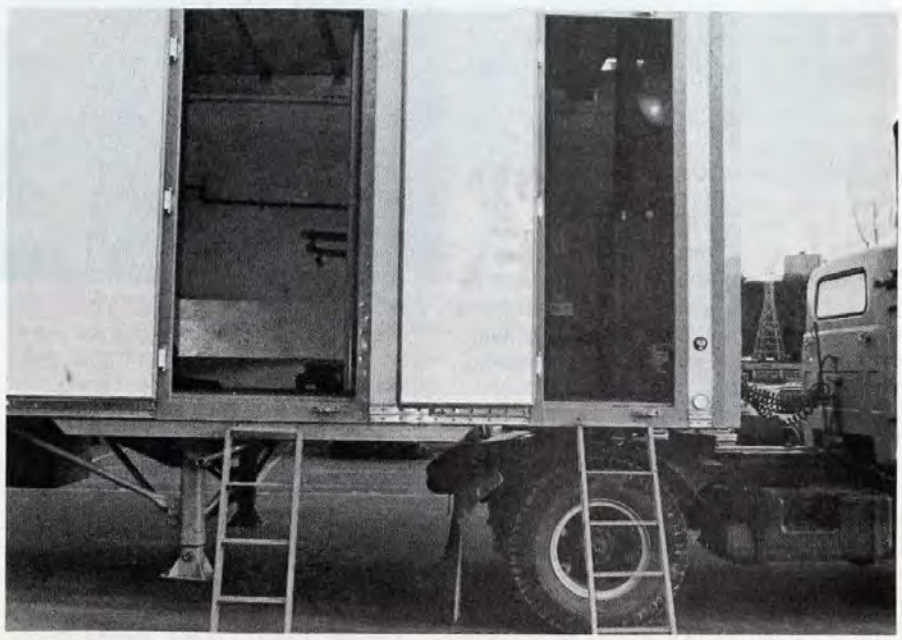
Slowly the use of fumigators is spreading. We have three in Washington and had a fourth which was made out of an overseas shipping container 8x8x20. To prime the pump I loaned mine twice to people in California and recently they got a Mikoe unit to evaluate fumigation. They will then decide on big ones. The beekeeper friends I have in California want fumigators that will do 800-1000 hive bodies at a time. They want them more to kill organisms which cause chalkbrood and Nosema than AFB or EFB. I also loaned my fumigator to British Columbia then found them chests. Now they have two small ones and after they use them a year or two plan perhaps to build larger units. Alberta has $140,000 to do research on fumigation and is building a fumigator. Manitoba, I think, is getting ready to spend some money too. In all, as best as I can ascertain, ten states have EPA labels and fumigators. There are additional reports of fumigators in New York, Texas, etc., but no EPA labels, which are not needed for experimental purposes anyway, to the best of my knowlege.

Well, I guess that is mostly it. ETO is on its way, but far from universal after 10 years perhaps because there is a problem you should know about. It is not an insurmountable problem. It is called dessication. Extremely dessicated or dried out combs absolutely require the uncapping of all dead brood and then the dead brood cells have to be fogged with water. In case you have the idea you can put dessicated



Inside view of the fumigation chamber. At the far end (front) we can see the cabinet holding the heating fins. Above the protecting device along the ceiling, in the center, we see the air circulating tube and on each side are the "lungs" i.e. two huge plastic bags to allow for gas expansion. The CO_2 is introduced in the chamber through the two tubes seen at the base of side walls.

Side view of the front end of the unit showing the boiler room and the gas cylinder and control room.

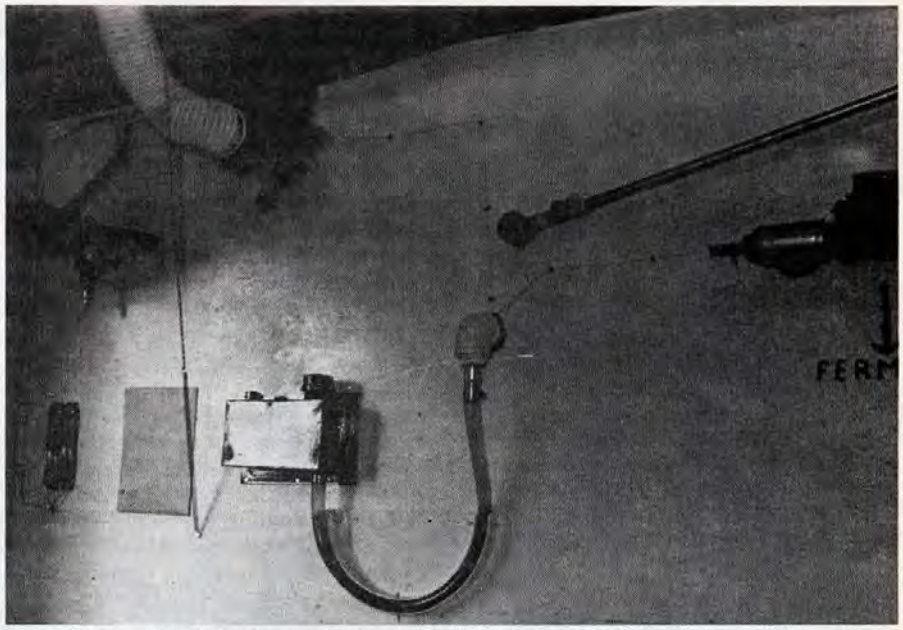


comb in a high humidity area and that will take care of dessication — forget it! Once the microcrystaline structure is formed mere humidity is not enough. On the other hand I have never found any necessity to extract honey from AFB hives before fumigation.

Now perhaps you are wondering, could you build one? Possibly. Can you weld and do you have the money? One homemade unit could cost $2000-3000 for a 24 super capacity. Do you have enough sense to put some time and effort to digging out the references and applying the safety principles? Ask yourself, what would your widow do with one? Bury you in it? Hell no, I am not kidding! I'm serious. Also, would your State University Department of Enotomology and your Chief Inspector let you run it if you built one? Better find out before you plunge in. Can you make money with an ETO fumigator? Well, yes — not much, but enough to pay you wages and reimburse you for the cost of the gas and its cost if there is enough AFB etc., around. Oh yes, I think a reasonable price to fumigate a super and its frames is about $3. That is less than the cost of the foundation and frames, let alone the labor cost to assemble the frames, wire the frames and set the wax and embed it. So, if there is a disease problem around and you do good careful work a path will be beaten to your door.

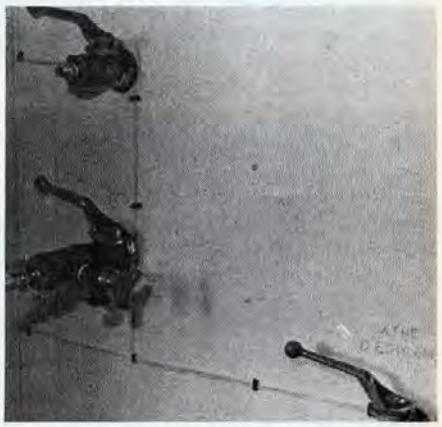
In closing I hope this has been informative. My library is far from complete so I will list only my articles on ETO that appeared in **Gleanings**. Dig them out and use the references following the first two articles for absolutely essential additional reading should you seriously consider building one!

Since this article is primarily intended to be a background for the more recent beekeepers who have not been exposed to the subject of ETO fumigation, it does not go into details. For the same reason I have not tried to obtain photographs of all the fumigators in existance. Some owners I know would deny theirs exist and would not permit photographs because their fumigators are their competitive advantage over other beekeepers. This is valid. You do get bigger crops from bees working in fumigated equipment. Also, one can save time and money by reduced disease prevention medication and manipulation in the field.



Part of the controls in the control room. Note the grounding wire.

In the control room: CO_2 and Ethylene oxide valves.



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Operation Faint Hope — May-June-July 1970

Building a Beehive Fumigator — March-April-May 1971

Experiences and Thoughts on a Beehive Fumigator — April-May 1973

Another Fumigator — August 1973

Avoiding Failure of Reestablishment of Bees on Fumigated Equipment — January 1975

USDA Proposes Loan & Purchase Program For 1980-Crop Honey

HONEY PRODUCERS would continue to be eligible for government loans on their honey or would be able to sell it directly to the government, under a proposal announced today by Ray Fitzgerald, administrator of the U.S. Department of Agriculture's Agricultural Stabilization and Conservation Service.

Under the 1979 honey program, producers are offered loans and purchases on honey stored in bulk and other eligible containers, on or off farms. Producers have until March 31 to request loans that will mature on June 30. Eligible producers may sell their honey to the Commodity Credit Corporation by contacting their ASCS county office before June 30.

Fitzgerald invited the public to make recommendations about the 1980 loan and purchase rates, program availability dates and general operating provisions.

The recommendations should be addressed to the director, production adjustment division, USDA-ASCS, room 3630, South building, P.O. Box 2415, Washington, D.C., 20013, and should be received by April 14.

The comments will be available for public inspection in that office during regular business hours.

Details of today's proposal will be in the Feb. 14 Federal Register.

Analysis — Bee Business Report — By The Bee Broker

By DAVID PROWELL
Merced, CA

FROM MY VIEWPOINT **Gleanings In Bee Culture** provides a very good service to the bee industry when they publish every April "Who's Who In Apiculture." It's valuable to me and to others to know the names and addresses of people, state and national association officers, government and academic personnel, all of whom are involved in making an active contribution to beekeeping.

Not too often, however, do most readers pay strict attention to the first page of the "Who's Who" report. This part lists states and provinces and has the two following columns: (a) Bees on Combs Admitted, and (b) Apiary Registration Required and Fee. This is important to me in my job as a location finder, which, as a business specialty, is as unique as my other bee services, bee broker and pollination contractor.

Location finding is very vital to all beekeepers, large and small, in every state and province. Most clients do not own or financially control the land on which their colonies are placed; yet, having a place, or a "home", or a location is fundamental. Whether for pleasure or profit bees are kept on an anticipatory basis — that is, we have them today, or we are planning on acquiring them for what our colonies will provide us in the future, near or far.

My location finding work started almost ten years ago in California in connection with almond pollination contracting there. Then, as now, the colony numbers registered every November in the Golden State was almost constant. On the other hand the acreage of bearing almond trees was increasing every spring and is still increasing 5 to 10% annually as more trees are planted in the San Joaquin and Sacramento Valleys. In response to orchardists' demands for more bees every year, pollination rental fees were higher. Also, growers were willing to pre-contract two to six months in advance to be assured of a colony supply during the February-March bloom period. In order to meet this market situation nearby foothill holding yard locations had to be secured to receive bees from the outside colder regions in late fall. Since these colony movement months in California are times of heaviest rain, good access was a necessary part of every good "winter" yard.

In natural order, there after, it followed that when the almond pollination was over at the third week of March additional places had to be found for units previously in orchards. A lot of the colonies could not return immediately to their outside areas of origin because it was still winter there; spring "build-up" yards had to be provided by me, as a location finder. Even "marshalling" yards had to be obtained for beekeepers who were going to distant points for northwest apple pollination or to Idaho-Utah for the early dandelion honey flow. Large blacktop areas were paid for and used as collection points for small truck loads of bees. At these places a truck with semi-trailers would arrive to load up the colonies for the long haul to distant points.

The experience thusly acquired, particularly that of using written land lease agreements for bee use, was found to be useful to those who wanted summer honey locations in and out of California. It was then that the **Gleanings** "Who's Who" list became meaningful to me as a location finder in different states, Canada and Puerto Rico. It was quite eye-opening in a short time to learn of restrictions in many forms which limit beekeepers' access to locations. As examples: (a) four states which have and are still using two and three mile "location apart" laws as an economic weapon; (b) Bureau of Land Management, Forest Service, local and state pulbic land use rules which give bee use permit preferences to the beekeeper who had it last year; (c) state laws, such as in Nevada, which define in general "resident" or "non-resident" beekeepers and limit movements of beekeepers in each calssification and have differential fees for each; and (d) the surprising "protectionist" attitude of many beekeepers about sharing the range with another beekeeper. At times these negative feelings are expressed in emotional tones. Somehow, in this writer's view, it's still very worthwhile to keep free enterprise going and, in my opinion you don't move forward by denying to other beekeepers through restrictive laws that to which you have free access or have through a priviledged position.

Even after a decade of business service in the bee industry I find location finding to be very interesting. One continuing project is the "saving" of bees in the northern regions that are normally gassed in the fall after the honey flow is over. These bees could be used in a few months in California almond pollination or in spring package bee-queen production. So far the limitation is economic — the cost is too high; yet, they are needed to boost almond production. It does seem possible, however, that in the years ahead locations in mild climates can be utilized as winter holding yards and "save the bees" for another period of use. The challenge is there to all of us.

Pellett Memorial Woodland Is Dedicated As State Preserve

AN IOWA woodland called the Frank C. Pellett Memorial Woodland has been officially designated as a State of Iowa Preserve. Frank C. Pellett was a former editor of **The American Bee Journal** and the author of a number of books on nature including his **American Honey Plants** published in 1920 and recently reprinted. In all, Frank Pellett authored 13 books on subjects as beekeeping, birds and wildflowers.

Mr. Pellett was also a nurseryman and the family homestead, across the road from the recently dedicated memorial woodland is the location of Pellett Gardens, a nursery devoted to propagating and growing many common honey plants. The nursery is being operated by a son, Melvin Pellett. The nursery and Memorial Woodland is located 3½ miles northeast of Atlantic, Iowa. The mailing address is Pellett Gardens, Atlantic, Iowa 50022. A 1980 catalog on honey plants is now available on request of plants and seeds valuable to beekeepers.

The Frank C. Pellett Memorial Woodland has always been a protected area and the woodland community contains many species of flowers, trees shrubs, vines and animal life that have disappeared from the intensively farmed area surrounding the woodland.

Powers Apiaries, Inc., of Parma, Idaho

By JOSEPH O. MOFFETT*
Cushing, OK

IRVIN POWERS (1894-1977) built Powers Apiaries into the largest beekeeing company in the United States. In 1976 the corporation owned 28,000 colonies and produced 3.8 million pounds of honey. The bees are kept in several states and Powers Apiaries has branches in Parker, Arizona; Babson Park, Florida, Kona, Hawaii; Bismarck, North Dakota; and Oakes, North Dakota.

Jim Powers writes, "In 1978 we produced 5,000,000 pounds of honey with 29,000 colonies of bees. Also, on January 1st., 1979 we purchased 5,000 colonies of bees from Les Walling at Jamestown and Williston, North Dakota. Therefore, in 1979 we plan to run 33,000 colonies of bees and operate eight extracting plants."

Powers Apiaries also have one-half interest in the Kona Queen Company with Weaver Apiaries of Navasota, Texas the other company involved. This company produces queens in Hawaii for sale in the continental United States. Powers also have a half interest in the Malokii Honey Company which is located on the Hawaiian Island of Malokii.

Irvin Powers was born in Wallowa, Oregon, but his parents moved near Parma and homesteaded in 1898. Irvin's nephew, Ben Gahley, now farms the original homestead.

Irvin's father, Francis Ashbury Powers, kept about 100 colonies of bees, invented a pump that is still manufactured, and developed a strain of wheat that was widely grown for many years.

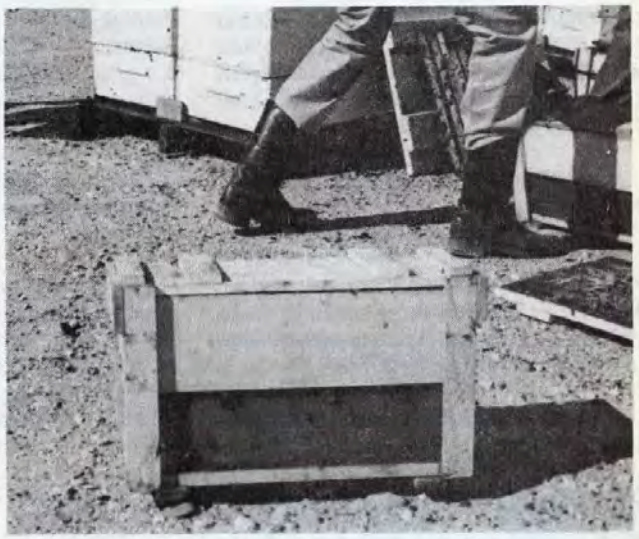
When he was 16, Irvin purchased 100 colonies from his father. Starting in 1916, he operated bees in partnership with Herman Crowther and Howard West. During World War I, Irvin Powers served in the Artillery Branch of the Army.

In 1919 he moved his share of the bees to Emmett, Idaho, and ran bees there until returning to Parma in 1932.

Irvin developed a self-spacing frame and extractor in 1927, which made it

*From "Some Beekeepers and Associates" pp. 86-88 Moffett Publishing Co. 1979

Albert Allred of Madera, California and James Powers, president of Powers Apiaries, at the 1978 convention of the American Beekeeping Federation. Allred was California beekeeper of the year in 1977.



Four frame nuclei are made in Arizona and Florida by Powers Apiaries in the winter and spring to restock their apiaries in the north. The lower half or the nuclei boxes are screened to provide ventilation when the bees are being moved. Slats can be inserted to close the screened opening when necessary.

Making nuclei in a Powers' apiary in Arizona. After the nuclei are made, they are loaded on a truck with fork lifts and moved to a separate yard. Then they are given mature queen cells.

possible to extract the combs while they are in the supers. This extractor is widely used in the West and Mid-west. He produced comb honey until 1927. By 1939 Powers was operating 8,000 colonies around Parma. In the same year Irvin, the Brandshaws, and Howard Vanderford started a branch bee operation in Ellensburg, Washington, which was later sold. In 1943, 1,200 colonies were purchased in the lower Colorado Indian Reservation near Parker, Arizona. Later they were expanded to 5,000. Powers bought one-third interest in the Cloverdale Honey Company at Manhattan, Montana in 1945. This interest was sold in 1970.

The Bismarck branch was established in 1955, and between 4,000 and 7,000 colonies are kept there depending on the moisture conditions. The Oakes branch was started in 1961, and between 5,000 and 7,000 colonies are run there. In 1963 the Babson Park, Florida operation was begun. The company runs 5,000 colonies there, and all the bees are moved to North Dakota for the summer.

In 1973 Powers moved to the large island of Hawaii when they purchased 1,200 colonies from Woodrow Miller. Now they keep 4,000 colonies on the island. The same year the Kona Queen Company was started. Later, the Molokii Company was established.

Almost all the colonies are kept on pallets, and Bobcats are used to load and unload their trucks. About one-half the North Dakota colonies are moved to Florida each year, and the rest killed. About six to seven thousand nuclei are made in Florida and Arizona each year to restock the North Dakota branches.

Powers' colonies are requeened each year by killing the old queen and then introducing a nine to ten day old queen cell to the colony. The Powers overwinter in a regular and a shallow super. Only shallow supers are used as honey supers. The shallow super is put on the bottom in August. Therefore, in the spring the brood is raised in the regular super and only standard frames are used to make nuclei. Also, the shallow super does not have to be removed each time the colony is examined. In the spring when the colony has seven to eight frames of brood, the shallow super is put back on top.

Finished queen cells being removed from a colony in one of Powers' queen rearing apiaries. Powers raise their own queens for their 33,000 colonies, and they also have a large queen rearing company, Kona Queens, in partnership with Weaver Apiaries in Hawaii.

The Powers' method of preparing a queen raising unit is described under Joe Stewart. Another feature of their queen building colonies is that sheets of foundation are put on both sides of the two frames of grafted queen cells given each colony and replaced with new foundation when it is partly drawn. This helps prevent the bees from building burr comb around the queen cells.

Powers uses four frame nuclei boxes with the lower half of each side screened to provide ventilation when the nuclei are being moved. Slats can be inserted to close the screen opening when necessary. Two nuclei are fastened together with steel bands for easier handling. The nucleus boxes are painted different colors to help the bees orient and reduce drifting.

Each nucleus is given a frame of honey, a frame of capped brood with adhering bees, bees shaken from two frames, two empty frames, and a mature queen cell. The queens are clipped after they start to lay. Before the nuclei arrive in North Dakota, five frames are placed in regular hive bodies with a space left for four frames in the middle. When the nuclei arrive in North Dakota, a clamp is used to transfer the four frames as a unit to the standard hive bodies without disturbing the cluster.

Powers Apiaries overwinter their colonies in a deep and shallow super. The shallow super is placed under the deep super in August and is not put back on top until the colony has seven to eight frames of brood in the spring.

In early 1976 and 1977 the colonies in Arizona were severely damaged or killed from spraying Penncap-M on alfalfa to control aphids. Therefore, in 1978, 3,000 colonies were moved near Bakersfield, California for $10.50 a colony to pollinate almonds. When the pollination was over these bees were moved into the Arizona desert away from the irrigated areas. The other 1,000 Arizona colonies are on river locations which are not close to alfalfa fields. About 2,500 of the Parker colonies

(Continued on page 224)

That-A-Way, Braun

By MARGARET PRICE BRAUN
Hunt, TX

ABOUT SEVEN-THIRTY this morning the phone rang. "Mrs. Braun?"

"Yes."

"Is your husband a beekeeper?"

"Yes, he is."

"Thank goodness." The relief was obvious. "May I speak to him, please?"

It turned out to be another wild hive — this one in an awning which had been unrolled for the first time this summer.

"I'll be right over," I heard Bill say. I gathered up his things — smoker, gloves, jumpsuit, hat, and veil — while he grabbed a cup of coffee and found a box for the bees. As we loaded the truck, I couldn't help but laugh. "Remember the first swarm you got?" I asked.

"How could I forget," he replied. "No fancy equipment then."

"No fancy equipment?" I chided. "Why, you didn't have any equipment at all!" We were both still laughing as he backed out of the driveway and headed for town.

Bill is operations manager of a church camp, and several years ago the only thing he knew about bees was that they made honey. Then came the phone call much like the one he had received today, but this one opened a whole new chapter in his life.

"Braun?" It was his boss, Bill Henning, who was at that time the minister in charge of the camp. "Get up here — now! There is a swarm of bees in the old tree stump behind the dining hall, and the group from Dallas should start arriving any time now."

"I don't know anything about bees . . ."

Henning cut him off. "Look, Braun, just get yourself up here. **We'll** figure out something. I have faith in **you**."

Bill left, but in less than ten minutes he was back. "He's right," he said. "There are bees everywhere."

"What are you going to do?" I asked.

His jaw tightened; his eyes flashed, and I knew that his stomach was a hard knot which had risen up into his throat.

"I'm going to catch them."

I looked at him in total disbelief. "You don't know anything about bees," I practically shouted. "Why don't you just kill the bees and be done with it?"

"Kill the bees?" You would have thought that I had suggested that he commit murder. Immediately I thought of another suggestion.

I waited for an answer, but by then he had found the beekeeping section of the Sears and Roebuck catalog. He began talking to himself about such things as frames, supers, and foundation; and I knew at once that Bill and Bill were about to take another simple incident and turn it into a major production. Nothing I could say or do would stop the inevitable.

Bill called Sears and placed his order — one box, frames, and foundation. Then he turned his attentions back to me. "Everything I need will be here in five to seven days," he said. I hoped that proud look meant that he had already moved to Plan B.

"What, pray, are you going to do about the bees until then?" I asked, following him to the bookshelf in the living room. "Somehow I don't believe Henning is going to let those bees sit there until you can get the necessary equipment."

By then he had his head in the "B" encyclopedia, and I knew I might as well wait patiently until he finished reading. Finally he slammed the book closed, stood up, and looked me in the eye. "I'm going to catch them," he announced — for the second time, I believe — and he marched out of the room.

For the next fifteen minutes he gathered up the most unusual assortment of things: One western hat (the only kind he had), two pink chiffon scarves, a long-sleeved shirt, a pair of leather gloves, several rags, a wooden box, and some black strap molasses from Tennessee. He put on the shirt, the gloves, and the hat. Then he had me tie the rags around his wrists to hold the gloves and scarves together. Next I tied the scarves together and fit them down over the hat. I tucked the scarves into his shirt and tied another rag around his neck, under the collar of the shirt, to hold the "veil" and shirt together. He had me pour the molasses into the bottom of the box — a task I preformed unquestioningly — and then announced that he was ready to go.

Not wanting to miss any of what was to come, I picked up the box and offered to drive him up the hill to the cafeteria. "Maybe I can at least give moral support," I said, trying to sound as encouraging as possible.

Moral support was the last thing he needed. Bill Henning and Ruby, the camp secretary; Bea, the dietician; and two of Bill's helpers were all waiting by the tree. The minute Bill stepped out of his truck Ruby started to laugh. This started a chain reaction. Bill was scared to death, so I was glad to see that even he was laughing and that all the laughter had eased a great deal of tension. It took at least ten minutes for the laughter to subside, but finally we all knew that the moment of truth had arrived.

In contrast to the laughter, the silence was deafening. The "audience" moved into a semi-circle, a good one hundred fifty feet from the tree. Bill started toward the bees, box in hand. His jaw tightened; his eyes flashed, and I knew that his stomach was now a hard knot which had risen up into his throat. Nothing could be heard but the ever-increasing buzzing of the bees. Bill and the bees were each getting more nervous by the moment. He paused. He was thinking about the guests due to arrive anytime now, the hundreds of bees which were beginning to swarm around his head, and the eyes that were watching his every move.

"That-a-way, Braun." It was Bill Henning, trying his best to sound encouraging. "Doing good. Keep it up!"

Bill took several steps, paused again. "What in hell am I doing here?" he thought.

"That-a-way, Braun," Henning repeated; and once more Bill moved toward the bees.

Finally he arrived at the stump and immediately started scooping bees into the box. I will never know whether those bees

stayed in that box becaused they were drawn by the molasses or whether they simply stuck to it, but in no time at all the box was becoming full of bees. Bill seemed to be gaining confidence by the moment; the constant buzzing of the bees no longer bothered him, and he now felt sure the gloves and shirt and veil would keep the bees from his body.

Then, suddenly, the entire "campaign" began to fall apart. With all of his preparations, Bill had forgotten to take into consideration that the bees might be able to crawl up his pants legs. That is exactly what happened. Two bees found their way up his leg. He dropped the box, started dancing about and finally broke into a run. The minute his audience realized that the bees had gotten in control, they deserted him en masse, each person fleeing for his life. Once Bill was a safe distance from the stump, he stopped; and in front of God and everyone, without even a moment's hesitation, he tore off his pants, threw them on the ground, and started madly stomping on them as if putting out a fire.

The fear which had gripped his audience instantly disappeared, and everyone broke into uncontrollable laughter. There he stood in his boxer shorts, hat, and pink chiffon veil; two bees lay dead at his feet. With bees flying everywhere and his manly image shrinking fast, Bill managed to replace his pants — this time carefully tucking the legs into his boots — regain his composure, and resume his position at the tree, determined to conquer pride and bees.

By now Bill's supporters had gotten hold of themselves and with renewed confidence reformed into a semi-circle, their ranks increased by five kitchen staff members who had heard the commotion and come to investigate. Bill Henning was once again sending encouraging words to Bill. "That-a-way, Braun; hang in there."

In no time at all Bill had the box completely full of bees. Once he realized they were making no effort to leave, he put the lid on, backed off, and watched. The bees were crawling in the small hole he had made in the bottom. Bill, now in total control of the situation, removed his hat and chiffon scarves and turned to face his fellow employees with a sense of pride and accomplishment.

In six days his beginner's kit arrived from Sears, and a new career was launched. He first read the manual which came with the kit and sucessfully transferred his "hive" into their new home. Then he read every book and article he could find on bees and beekeeping. More hives were added — first by purchasing packaged bees, then by making his own splits and nucs. A bee hat and veil replaced the cowboy hat and scarves; bee gloves, the leather gloves and rags. Now, instead of Sears, he goes to San Antonio and deals with beekeeping supply companies. He has added a smoker, an uncapping knife, and an extractor to his inventory and has gained a great deal of confidence, no longer needing an audience to give him moral support.

He gets many calls to come and "rescue" people from bees. Some are profitable; some, like the one today, are not — as it turned out it was an extremely large wasp's nest in that awning. But, at least, Bill is now able to tell the difference.

He still lives and works at the church camp. His beekeeping business is small so he bottles and markets his own honey, but some day he hopes the bees will be able to support us. Until then Bill keeps studying and working and growing; and anytime anyone asks him, "How in the world did you get into the bee business?" he tells them just how it happened.

"All it takes is a little encouragement and a lot of hard work," he says.

That-a-way, Braun.

Varroa Update

By I. BARTON SMITH, JR.
State Apiary Inspector
Maryland Department of Agriculture
Annapolis, MD 21401

TWO MITES identified as *Varroa jacobsoni* reportedly were collected in Maryland during August of 1979. The mites were found on a single drone honeybee collected on a flower. The collection was made by a graduate student studying acarology at the University of Maryland. The student first noticed the mites in November when they were observed floating in the collecting vial of alcohol containing the drone bee. The mites were identified as *Varroa jacobsoni* at the USDA Acarology Lab. where the student is employed part-time.

During mild weather in early November, the Maryland Department of Agriculture Apiary Inspection Staff examined all bee colonies located within a two-mile radius of the reported mite collection site. No mite or evidence of mite damage was observed.

The Maryland Department of Agriculture Staff has held several meetings with personnel of the USDA, APHIS, University of Maryland and apiary inspectors from surrounding states to plan further surveys to determine if any mites are present in Maryland. It was decided that all colonies within a five-mile radius of the reported collection site should be checked.

Bee colonies will be examined during March and April of 1980. During inspections of colonies, adult bees will be observed for mites, brood will be checked for mites and mite damage and a sample of 500 bees will be taken from each colony for further examination. Two-thirds of these bees will be shaken in a detergent solution to dislodge any mites that then will be collected on a filter. The remaining one-third of the bees will be examined individually for mites.

A second survey presently is being conducted to examine the 168 colonies located in 49 apiaries within the same five-mile radius of the reported collection site. Colonies are being checked for any mites, if present, that have died during the winter. Paper attached under 8-mesh screen (the screen keeps bees from removing material that has fallen on the paper) has been placed on the bottom boards of colonies. Papers are being checked January through March for any mites that have died during the winter. Presently, no mite has been detected in any Maryland honeybee colony.

Updates on the status of the mite survey in Maryland will be provided in the future. For further information, contact I. Barton Smith, Jr., Maryland State Apiary Inspector.

Strictly Backlot

By CARL CALLENBACH
135 College Ave.
Elizabethtown, PA 17022

QUIETLY, LITTLE BY LITTLE, we inch toward a simpler life. I hesitate to use the phrase **natural life**—which was lately embraced by commercial enterprise and promptly lost all meaning. Rather, we move toward a more simple and sensible life—with a growing awareness and understanding of the basic law of ecology: everything is connected to everything else. To wit: wash your hair with freshly collected rain water. If you're in the Northeast and your eyes sting, say **hello** to eastern Ohio and/or western Pennsylvania. And add additional lime to your lawn and garden soil.

John N. Cole in a fine column in the new magazine **Rodale's New Shelter** (February 1980) writes of a landscape much larger than the Northeast, of answers to ecological problems more global than industrialized eastern Ohio and/or western Pennsylvania:

"We are traveling, all of us on Spaceship Earth, from an era of high energy mass production, mass consumption, and mass waste toward a time of appropriate energy, community production, careful consumption, and almost no waste. In the process we shall leave an age marked by the exploitation of nonrenewable resources, the pollution of life-support systems, and an adversary relationship with nature. As the eighties begin, we will turn toward an understanding of the wealth of our renewable resources, the protection of our life-support systems, and a harmonious relationship with nature."

Each of us needs to become what Edward Abbey—in one of his wild crazy books, painting with words his love affair with the (dying) West—calls an earthist. (The only **ist, ism,** or **ic** making any sense to me these days!)

What might an earthist backlot gardener and beekeeper do while traveling—a slow stroll is fine with me— toward a more simple and sensible life?

Try using canning jars to bottle the small amount of honey you sell or give away. These canning jars, pints and quarts, usually end up in someone's food storage shelves. Many of my friends to whom I sell or give honey are gardeners and can always use extra canning jars for processing garden produce.

Use organic fertilizers for your garden and houseplants. (Chemical fertilizers are petrol-based.) And grass clippings and leaves are always available for humus, trace minerals, and mulch. The simple trick is to learn the garbage disposal truck route in your community and be there first.

Hang a porch swing.

Read E.F. Schumacher's **Small Is Beautiful.**

Eliminate chemical insecticides from your garden pest control program. We have been spoiled in a perverted fashion by supermarket produce standards: the perfect, tasteless apple, the spotless head of cabbage, the exquisite bunch of celery--all laced with insecticides.

In our geographical area nuclear energy and agri-business reign, and I'm not sure which scares me more. Millions of chickens in gargantuan, smelly, "odorless" chicken houses are pumped full of hormones and chemicals on occasion literally blowing apart—heart attacks caused by growth stimulants.

Insecticides, like chemical fertilizers, are used religiously. It's little wonder that last summer the potato bugs and larva in our area were virtually immune to sevin and malathion. We are country-wide creating, I suspect, mutated insect monsters of wonderous possibility. This is no doubt an exciting challenge to insecticide research and manufacture.

And herbicides. My bees on the upstairs backporch have always told me when a local orchard manager is spraying insecticides in the spring. Last fall I was introduced to the effects of what must have been borough or county herbicide spraying of the brush and vegetation along the local streets and highways. My hive on the porch was perfectly fine one late August day; the next afternoon writhing bees were vomiting from the hive onto a pile of dead bees four or five inches deep. Everything is connected to everything else, remember?

Invent a sugarless salad dressing.

Carve a walking stick.

Plant bee forage trees and shrubs on your acreage, lot, or yard. Recently we ordered Vitex shrubs and seeds, Tartarian Honeysuckle, Russian Olives, and Pea Trees for our backyard, a temporary setting for them because we plan to move, hopefully before too long. For the flower garden we ordered the following perennials: Anise Hyssop, Nepeta Mussina, and Garden Hyssop. A kind reader from Arkansas sent us some Mountain Mint which we plant with our other mints, borage, and bee balm.

Give a friend a garden tool for a birthday present.

Make your own granola.

Make a dandelion salad.

Recycle aluminum foil.

Grow herbs indoors.

Most beehive material—bodies, frames, wax—comes from a renewable source: wood. Expensive but renewable! With time to tinker and no real need for standardized sizes, shapes or colors, the backlotter is free to use bits and scraps of wood scrounged from construction sites, to recycle wood garnered from dumps, garbage disposal routes, and friends. When I do go shopping for wood, I buy cypress from a local lumber yard, planed on one side, rough on the other—a full one-inch thick. Last year I discontinued painting the new cypress hive bodies and comb honey supers. I like the looks of weathered cypress; I no longer buy acrylic latex paint. (A logical next step would be to fasten the special box corners of the hives and supers with dowels and thus eliminate the galvanized nails.)

Watch the sun come up.

Throw away aerosol sprays.

Prepare a meal including brown rice and legumes.

Try not to drown yourself (and me) in plastic. Everything comes in plastic these days, including "natural plastic Christmas trees." For instance, gardening equipment: tools, seed trays, pots, mulch, sprayers, baskets, etc. Or bee equipment: the plastic rings and covers used to produce and package round comb honey bother me. I have some; I understand that bees produce comb honey faster and in greater quantity than with the traditional (Is there anything more beautiful?) square wood box—which I also use. It is quicker and tidier to use round comb equipment, no doubt about it. Is the oil furnace vs. wood stove a fair analogy? No matter: we are still left with those rings and covers—petrol products, non-renewable. How can we recycle them?

Build a food dryer; a solar wax melter.

Dip your own wax candles.

(Continued on page 226)

Siftings

By CHARLES MRAZ
Box 127
Middlebury, VT 05753

FEBRUARY, 1980 **Gleanings**, page 88 is an article by Larry Goltz, "Honey Under Siege", "There is no doubt, now,that honey is susceptable to possibly more types of contamination than hereto-fore suspected". As far as I am concerned, there is a great deal of doubt that there is any possibility of any pathogenic contamination in honey, including botulism. There is no question that various pathogenic spores can be found in honey, but they cannot grow or develop in the presence of honey due to its high acid values and the potent oxidizing effect of the H_2O_2 produced by the glucose oxidase in natural honey. All tests I have seen indicate honey is not only bacteriostatic, but also bactericidal. It not only can prevent growth but it can also kill many forms of pathogenic organisms. A distinction must be made with natural honey that contains active glucose oxidase and processed and filtered honey where this enzyme is destroyed or removed in the processing of honey for bottling.

I do not know the facts pertaining to tansy ragwort honey being carcinogenic, but I doubt it very much. Tansy however, has been known for many years to be a "natural insecticide", moth repellent, etc. The fact that it has a toxic pyrrolizidine alkaloid does not prove it is carcinogenic, while a synthetic form could very well be carcinogenic. Just slight, subtle differences in its structure between the natural and synthetic can make the difference if it is carcinogenic or not.

Actually, way back 30 years ago, in 1948, Dr. William A. Robinson of the USDA in feeding tests on mice with spontaneous mammary tumors found that 1 part pollen in 10,000 parts of their food, was anti-carcinogenic. It prevented, not caused cancer. So you see how wrong you can be.

If anyone wants to make any feeding tests with the pure natural honey, pollen, royal jelly, etc., they can have a lot of fun seeing the difference in natural honey in contrast to other carbohydrates. Some years ago I experimented feeding mice; honey, pollen, royal jelly, and injections of BV, usually known as the "shot gun" approach, try everything in one, big blast. This was done on a batch of 20 male Swiss mice implanted with sarcoma 180 tumors by Sloan-Kettering Inst. for Cancer Research. In one experiment I had 10 mice make complete recoveries from these vicious, toxic, solid tumors. The effect of this treatment was to encapsulate the tumors on the abdomen, that eventually dropped off. Some of these tumors grew to almost the same size as the body of the mice; then regressed, encapsulated, dropped off. Soon after, these mice gained weight and became completely healthy. Unfortunately, "medical science" is not interested in such results with natural products, and I gave up. But I have not forgotten. So unless you have actual experience, you really don't know. Reading the "literature" can be most misleading. I have read somewhere that you can get any kind of results that you are willing to pay for.

Personally, I believe the greatest virtue in natural honey is not that it might contain a few trace minerals and vitamins, but more important it does contain valuable enzymes and the natural forms of the two simple sugars, dextrose and levulose, in the form and proportion best adapted for human metabolism. The levulose in honey is of special interest, it requires no insulin for metabolism and it is stored in the liver as glycogen to be used by the body only as needed, avoiding a high blood sugar build up. Also a high level of glycogen in the liver protects the body against poisons.

Recently I received a newspaper article from Clarence Hummel of Michigan. When I commented on the California study on botulism in honey sometime ago I made the remark that artificial baby formulas are far more likely to cause botulism trouble than honey. In these articles, Page C-4, **The Flint Journal**, Flint Michigan are two articles: One by Susan Okie, "Brain Damage Feared to Babies On Formula", and one by Michael Flynn, "New Risk to Formula-Fed: Study". In the Flynn aticle it states: "California Health Dept. investigators who conducted the principal medical research to date on infant botulism emphasize they have no evidence that formulas cause infant botulism."

"But our findings suggest that either breast-feedilng confers some protection against the progression of the disease or that the formula-feeding may enhance the rapid onset and severity of the infection", said Dr. James Chin, chief of the infectious disease section of the Department. Not a word is mentioned about honey. Apparently any further research on the implication of honey in botulism has not panned out, it is the artificial formulas that are now suspect. And so it goes, eventually the truth will come out. One lesson we should learn from this is, when you want to bet where the truth lies, put your money on Mother Nature, she will never lie, even though there may be some that may try to make you think she does.

Page 76 is an article, "Beekeeping in Belize", by Jeffrey Lewis. This brings back memories, 15 years ago or more when I visited Belize to look over its honey production possibilities. There were very few modern hives there then, and no commercial beekeeping. The northern part should be excellent for honey production. We saw quite a bit of honey from what is called in Mexico, "campamilla", a type of morning glory plant that produces an excellent honey that does not crystallize. I believe they also have the coquite, or as they call it in Colombia, "Mata Raton", commonly used for fence posts that take root and grow. The leaves and the blossoms resemble those of the locust and produces a white, legume-type honey.

The southern part of Belize is very wet and no roads went south from Stan Creek so we did not see this area. Usually, in the tropics, wet areas are not as good for honey production. Stan Creek then had much citrus.

At the time we were there the Mennonites had just moved into the area and are really starting to develop the country, so rich in possibilities. At the time we were there almost all the food consumed at the Fort George Hotel was imported, except the papaya and pineapple. The most delicious of these two fruits I found in Belize, even better than that in Mexico; far better than any pineapple I ever tasted in Hawaii. At Cayo, way up in the jungle, the first thing we saw, as you see everywhere, was a Cola sign, the last place one would expect to find it.

In questions and answers, page 87, B.M., New York, asks "When are we going to have a reprint of Dr. Miller's **Fifty Years Among the Bees**? Upon talking to Jim Powers one day (Jim is perhaps the largest beekeeper in the world today) he said, "There are really only two books on beekeeping, Langstroth's the original **Hive and the Honey Bee**, and Dr. Miller's **Fifty Years Among the Bees**. After 60 years in beekeeping, I agree with Jim completely. All other bee books are but copies of these two great works on beekeeping. The only way to learn more than what you can read in these two books is to learn from the bees themselves. We need a reprint not only of Dr. Miller's **Fifty Years Among the Bees** but also a reprint of **Bee Venom Therapy** by Bodog F. Beck, M.D., the real classic on this subject, printed in 1935. The book is very scarce and I've heard quotations for an original copy at $200.00! With the renewed interest in BV therapy this book would be of special value to those interested. Eventually let us hope these two valuable books will be available again.

Bee Talk

By RICHARD TAYLOR
Rt. 89, R.D. 3
Trumansburg, NY 14886

I THOUGHT I had seen about everything when, last summer, I saw some round section comb honey, with my label on it, priced at two ninety-nine ($2.99) in a supermarket up in Rochester. I had gotten ninety cents each for them, and they had gone through a middleman or two on their way to the store. So I have the feeling some fast talking salesman got about as much for them as I did. Well, good for him, if he can do it; but it does make one stop and think. Then the other day I was in another store in Rochester and saw round section comb honey piled up there, marked three fifty-nine ($3.59) each! That just seemed unreal. That honey had my friend Duane's label on it, so I asked him what he had gotten, from the first purchaser, and he said a dollar fifteen ($1.15). Quite a markup. I think next summer Duane or I had better go around to those stores ourselves.

I don't think those prices are realistic, and readers should not start getting out their pencils to see how rich they can get raising comb honey, based on those figures. Still, the managers of those stores are no dumbells, and they must think people are ready to pay a good price for nice comb honey.

Which brings me to exactly what I want to talk about this time, and that is marketing comb honey. Then this will be the last time I'll talk about comb honey for awhile.

I've never found that comb honey sold very well in regular supermarkets. You can usually get the manager to stock it, but it doesn't move very fast. People walk right by it, with their shopping lists. It is a specialty or "impulse" item, that is something people see and buy on the spur of moment, and they don't notice it in supermarkets.

So the best way to sell it is to get it on roadside stands, or into health food stores, or into specialty shops, or what are sometimes called "gourmet" shops. Sometimes regular food stores have a "gourmet corner," and that's where the comb honey should go.

But roadside stands are the very best. People like to feel that they are getting something right straight from the farm or garden, and if you've got comb honey piled up there they will buy it, even if they have never seen it before. Here is where round sections are best. You can stack them up, about eight to a pile. Someone picks off the top one, looks at it, and three times out of four buys it.

Another way to sell it is through the mail. I used to sell tons of extracted honey through the mail. In fact I sold almost my entire crop that way every year, and it took only one classified ad, in an organic gardening magazine, to get me my customers — customers who kept ordering every year, and telling their friends about me too. That was before I set up my roadside stand. I've never tried selling much comb honey that way, because until recently I didn't raise much, but I'm thinking of doing it this year. I have a feeling I could sell a thousand by mail without much trouble, and with only one ad. The round sections mail fairly well. Square ones don't; the honey breaks loose in the square box too easily. But even when round sections get damaged in shipment, which doesn't happen very often, the container itself is nice and tight, so no great damage is done, and the honey doesn't leak out.

There are two things you've got to watchout for in marketing comb honey. One is wax worms, and the other is granulation. As for granulation, you won't have much trouble with basswood honey, because it granulates very slowly. There are other honeys, especially those from trees, which are similarly slow to granulate. Also, you can keep comb honey where it is very cold and it will not granulate. I've never tried keeping it very long in a freezer, but my friend Bill Clarke has, and he says it works fine for keeping it from granulating. This winter I left quite a lot of comb honey in my cold honey house, and I notice that there has been virtually no graulation, even though some of it seems to be alfalfa. But the best way of all to cope with granulation is to get your comb honey harvested early — start getting it off in July around here — and get it sold before the cool weather comes. Honey granulates fastest in **cool** temperatures. It granulates very slowly in **cold** (freezing) temperatures.

Now about wax worms. I've got to admit that the round sections are more vulnerable to them than the square ones. The worm that attacks comb honey is very small, hardly fatter than a toothpick when full grown, and the adult moth somewhat resembles a clothes moth. The reason they are a problem with round sections is that there are lots of spaces in the plastic frames that the bees can't get at — perfect hiding places for moths and larvae. After you harvest the honey the eggs laid there hatch and the worms get into the sections, and in a couple of weeks the cappings are riddled with tiny pin holes.

But this is very easy to control. After bringing the supers home I leave them stacked in the warm honey house for several days. That gives any eggs a chance to hatch. Then I pack up the comb honey, put it in plastic bags, about twenty-five sections per bag, and pop them into a deep freezer that goes down below zero (F.) The larvae are at this point too tiny to be noticeable, but the cold kills every one of them, before they damage the honey. A temperature that low will also kill eggs. But merely taking them down below freezing (32° F.) will not kill the eggs. You put a thermometer right in the freezer, and when, after a day or two, it has gone back down to zero, you take out the bags of honey, leaving the sections bagged until they are back to room temperature, so that frost will not gather on them. It collects on the outside of the bags instead.

You can deal with an awful lot of comb honey that way, even with a small freezer. Even an average size freezer is adequate for a considerable commerical production, since the honey is left in it only for a couple of days.

Next time I'll think of something else to talk about. But that shouldn't be hard, for spring will be in the air then, and it will be hard to think or talk about anything but bees.

Who's Who in Apiculture

To supply a handy reference of the names and addresses of state and provincial apiary inspectors, secretaries of beekeepers' associations, extension workers in beekeeping, and other information often needed by our readers, we have corrected our Who's Who in Apiculture as of March 1, 1980

State or Province	Bees on Combs Admitted	Apiary Registration Req.	Fee	Secretary State Association Address
Ala.	Not Allowed	Yes	Yes	Mrs. R.V. Harrell, Hayneville 36040
Alaska	None	No		Cook Inlet Beekeepers Assoc., P.O. Box 8-173, Anchorage 99508
Alta.*	Not Allowed	Yes	No	Mrs. Eric Abell, Box 87, Gibbons T0A 1N0
Ariz.	Cer. & Per.	Yes	No	Clarence L. Benson, Box 858, Oracle 85623
Ark.	Cer. & Per.	Yes	No	W.R. Sterling, Jr., 1600 S. Tyler, Little Rock 72204
B.C.*	Not Allowed	Yes	No	J.N. Robertson, Box 14, Site 55 RR#1, Lantzville V0R 2H0
Calif.*	Certificate	Yes	No	Frank Johnson, 2114 Westminster Dr., Riverside 92506
Colo.*	Cer. & Per.	Yes	Yes	Mrs. Genevieve Sherbenski, 11046 Isabelle Rd., Lafayette 80026
Conn.*	Certificate	Yes	Yes	N. Dana Lovell, 16 Rose Terrace, Trumbull 06611
Del.*	Cer. & Per.	Yes	No	William Sipple, 10th & Arch., Seaford 19973
Fla.*	Cer. & Per.	No	No	Edwin Hancock, 7410 Hancock Rd., Riverview 33569
Ga.*	Cer. & Per.	Yes	No	Lee Russell, P.O. Box 291, 100 Madison St., Comer 30629
Hawaii	Not Allowed	No	No	No Association
Idaho*	Certificate	Yes	Yes	Golden Millet, Rt. 1 Box 8 Bee, Marsing 83639
Ills.*	Cer. & Per.	Yes	No	Hoyt Taylor, Rt. 2, Pleasant Plains 62677
Ind.*	Cer. & Per.	Yes	No	Claude F. Wade, Room 613, State Office Bldg., Indianapolis 46204
Iowa*	Cer. & Per.	Yes	No	Glen L. Stanley, Agric. Dept., Wallace Bldg., Des Moines 50319
Kans.*	Cer. & Per.	Optional		Duane Levin, Box 5, Stuttgart 67670
Ky.*	Cer. & Per.	Yes	Yes	Allen Holt, Rt. 2, Box 314, Frankfort 40601
La.	Not Allowed	Yes	No	Doug Lambertsen, Forest Hill, LA 71430
Man.*	Not Allowed	Yes	No	Don Dixon, 910 Norguay Bldg., Winnipeg R3C 0P8
Me.*	Certificate	Yes	Yes	Erasmus Hoch, RD #5, Augusta 04330
Md.*	Permit	Yes	No	John Romanik, 3200 Pine Orchard Lane, Ellicot City 21043
Mass.*	Not Allowed	No	No	Milo R. Bacon, 8 Gardner Rd., Norwood 02062
Mich.*	Not Allowed	Yes	No	Sharon Kussmaul, 12447 Mathews Hwy., Clinton 49236
Minn.*	Cer. & Per.	Yes	Yes	Fred Holte, 2185 W. County Rd., B, Roseville 55113
Miss.*	Cer. & Per.	No		Harry R. Fulton, P.O. Box 5207, State College 39762
Mo*	Cer. & Per.	No		Marilyn Kay Smith, 4301 Walnut Tree, St. Charles 63301
Mont.*	Cer. & Per.	Yes	Yes	JoAnne Speelman, 210 Harmony Rd., Kalispell 59901
Nebr.*	Cer. & Per.	Yes	No	Jim Olingle, Loop City 68853
Nev.	Permit	Yes	Yes	Mrs. Alma Nygren, 1225 Lovelock Hwy., Fallon 89406
N.B.*	Not Allowed	Yes	Yes	Mrs. Eva G. Logan, Box 9, Stanley E0H 1T0
N.H.*	Certificate	No		Franics W. Dodge, P.O. Box 91, Goffstown 03045
N.J.*	Certificate	No		Mrs. Elizabeth Rodrigues, 157 5 Point Rd., Colts Neck 07722
N.M.	Certificate	Yes	Yes	Mrs. Alice Stubben, 6621 Arno N.E., Albuquerque 87107
N.Y.*	Certificate	Yes	No	Jon MacDonald, Paris Hill Road, Sauquoit 13456
N.C.*	Cer. & Per.	No		Mrs. Sara Lewallen, Rt. 3, Box 184AA, Siler City 27344
N.D.	Cer. & Per.	Yes	Yes	Dewey Robson, 338 Joal Dr., Carrington 58421
N.S.*	Not Allowed	Yes	No	G. G. Smeltzer, 148 Belcher St., Kentville B4N 1C9
Ohio*	Cer. & Per.	Yes	Yes	Nancy Osborn, 1411 Winona Dr. Middletown 45042
Okla.*	Certificate	Yes	No	Glenda Ross, Rt. 2, Minco 73059
Ont.*	Permit	Yes	No	P. W. Burke, Dept. of Env. Biology, Graham Hall, Univ. of Guelph N1G 2W1
Oreg.*	Certificate	Yes	Yes	Diana & John Van Dresche, Rt 1, Box 162 Jefferson 97352
Pa.*	Cer. & Per.	No	No	Mrs. Glenn Crimbring, R. D. 1, Canton 17724
P.E.I.*	Not Allowed	No	No	Dave McLean, 64 Brackley Rt. Road, Charlottetown
P. Rico	Not Allowed	No	No	No Association
Que.*	Not Allowed	No	No	Yves Gauvin, R.R. 1, Chemin Giard, Ste. Rosalie
R.I.*	Certificate	Yes	No	Richard K. McKeen, 24 Superior Street, Warwick 02886
Sask.*	Not Allowed	No	No	John Gruszka, 196 9th St. E., Prince Albert S6V 0X5
S.C.	Certificate	No		Robert Cutler, 100 Shelton Drive, Spartanburg 29302
S.D.	Certificate	Yes	Yes	Jack Meyer, Jr., Box 61, Winfred 57076
Tenn.*	Cer. & Per.	Yes	No	Mrs. Helen Brock, Rt. 5, Box 433, Morristown 37814
Texas*	Cer. & Per.	Yes	No	Melinda Fuess, 443 Hughs, Irving 75061
Utah	Certificate	Yes	Yes	David S. Miller, Box 15807, Salt Lake City, 84115
Vt.*	Certificate	Yes	No	Todd D. Hardie, R.D. 1, Box 67F, Starksboro 05487
Va.	Cer. & Per.	No		Thomas G. Ragsdale, Jr., P.O. Box 24, Orange 22960
Wash.*	Certificate	Yes	No	Dianne Longaneeker, Rt. 2, Box 2075AA, Wapato 98951
W. Va.*	Cer. & Per.	Yes	No	Mrs. Sarah Hutchinson, Webster Springs 26288
Wisc.*	Cer. & Per.	No		Charles Kopf, Rt. 2, Box 225, Loganville 53943
Wyo.*	Certificate	Yes	No	Mrs. Kenneth Miller, Dubois 82513

*Publish a newsletter sent to State Association Members

State or Province	Professor in Charge of Beekeeping Course (Write Prof. of Apicultlture c/o State University)	Extension Personnel in Beekeeping (Write Beekeep. Exten. Spec. c/o State University)	Inspector State or Province Write c/o Dept. of Agric.) State Capitol
Ala.	Dr. Geo. H. Blake, Auburn	Carl Dennis, Auburn	Frank W. Randle, Montogomery 36109
Alaska		Wayne Vondre, Anchorage	None
Alta.			Don MacDonald, Falher T0H 1M0
Ariz.	Dr. Norbert Kauffeld, Tucson		R. W. Hancock, Phoenix 85005
Ark.	Wendell Phillips, Beebe	Dr. Gordon Barnes, Little Rock	Donald E. Bailey, Little Rock 72205
B.C.	Graham Drew, Vancouver	Douglas McCutcheon, Surrey	John Corner, Vernon V1T 4K7
Calif.	Dr. Norman Gary, Davis	Dr. Eric C. Mussen, Davis	Leo Vanderpool, Sacramento 95814
Colo.	Dr. J. W. Brewer, Ft. Collins		Gabe Patrick, Conifer 80433
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Del.	Dr. Charles E. Mason, Newark	Dr. Dale Bray, Newark	Phillip M. Bowman, Jr., Dover 19901
Fla.	Prof. Frank Robinson, Gainesville	Frank Robinson, Gainesville	James P. Herndon, Gainesville 32601
Ga.	Dr. Alfred Dietz, Athens	Rodney Coleman, Athens	James P. Harrow, Atlanta 30334
Hawaii			None
Idaho			Dr. Robt. C. Saunders, Boise 83707
Ills.	Dr. Elbert Jaycox, Urbana	Dr. Elbert Jaycox, Urbana	E. E. Killion, Paris 61944
Ind.	Dr. Todd Harris, W. Lafayette	Prof. D. L. Matthew, W. Lafayette	Claude F. Wade, Indianapolis 46204
Iowa	Richard Trump, Ames	G. Stanley & R. Wells	Glen L. Stanley, Des Moines 50319
Kans			Gary R. Ross, Topeka 66612
Ky.	J. W. Stocker, Richmond	Dr. R. Scheibner, Lexington	Wm. G. Eaton, Frankfort 40601
La.	Dr. Thomas Rinderer, Baton Rouge	Dale Pottet, Baton Rouge	Richard Carlton, Baton Rouge 70804
Me.			Paul Szott, Turner 04282
Man.	Dr. S. C. Jay, Fort Garry	Don Dixon, Winnipeg	Don Dixon, Winnipeg R3C 0P8
Md.	Dr. Dewey Caron, College Park	Dr. Dewey Caron, College Park	Barton Smith, Jr., Annapolis 21401
Mass.	Richard Bonney, Charlemont UMass.	Richard Bonney, Charlemont UMass.	P. C. Kuzmiski, Boston 02202
Mich.	Dr. Roger Hoopingarner, E. Lansing		
Minn.	Dr. Basil Furgala, St. Paul	David Noetzel, St. Paul	Richard A. Hyser, St. Paul 55155
Miss		James H. Jarratt, State College	Harry R. Fulton, State College 39762
Mo.			Joseph Francka, Jefferson City 65102
Mont.			Willard A. Kissinger, Helena 59601
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Nev.	Dr. W. Harold Arnett, Reno		Floyd Hilbig, Reno 89510
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N.H.			Robert H. Keating, Durham 03824
N.J.	Dr. Radcliffe B. Roberts, New Bruns.		Jack Matthenius Jr., Phillipsburg 08865
N . M .			Bob G. Cambell, Las Cruces 88003
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N.C.	Dr. John Ambrose, Raleigh	Dr. John Ambrose, Raleigh	James F. Greene, Raleigh 27611
N.D.			Bill Branvik, Bismarck 58505
N.S.		Lorne Crozier, Truro	Lorne Crozier, Truro
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Ont.	Dr. M.V. Smith, Guelph	Prof. P. W. Burke, Guelph	Prof. P. W. Burke, Guelph N1G 2W1
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S.C.	Dr. Rudy Holloway, Clemson	J. Howard Jr., Clemson	J. Howard Jr., Clemson 29621
S.D.	Dr. Robt. Walstrom, Brookings	Dr. Robt. Walstrom, Brookings	Ward Satterlee, Pierre 57501
Tenn.	Dr. Harry Williams, Knoxville	Dr. Harry E. Williams, Knoxville	Thomas Hart, Nashville 37204
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Vt.	Enoch H. Thompkins, Shelburne		Richard Drutchas, Montpelier 05602
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Wash.	Dr. Carl Johansen, Pullman	Dr. Carl Johansen, Pullman	James C. Back, Olympia 98501
W.Va.			Earl Cochran, Charleston 25305
Wisc.	Dr. Eric Erickson, Madison	Dr. Walter Gojmerac, Madison	Samuel B. Ferguson, Madison 53713
Wyo.	Dr. W. T. Wilson, Laramie		Walter Patch, Cheyenne 82002

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UNITED STATES MARKETING AID — U. S. Dept. of Agriculture, Washington, D. C. **MARKET DEVELOPMENT PROGRAMS,** Specialty Crops Branch, Fruit and Vegetable Division, Agricultural Marketing Service, USDA, Washington, D. C. 20250, James S. Miller. **HONEY MARKET NEWS,** Market Reports Section, Fruit and Vegetable Division, Market News Branch, 2503 South Building, Washington, D. C. 20250, **PRICE SUPPORT PROGRAM,** Production Adjustment Division Agricultural Stabilization and Conservation Service, USDA, Washington, D. C. 20013, Harry Sullivan.

EXTENSION — SEA (Federal) Paul W. Bergman, Pesticide: Use & Impact Assessment, USDA, Washington, D. C. 20250.

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AMERICAN HONEY INSTITUTE — President, Howard Foster, Box 239, Colusa, CA 95932; Vice President, Donald Schmidt, Rt 1, Winner, SD 57580; Secretary, Leslie Little, 831 Union Street, Shelbyville, TN 37160. A division of **HONEY INDUSTRY COUNCIL OF AMERICA.**

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AMERICAN HONEY QUEEN — 1980 -Miss Francis Bean, Texas

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BEEKEEPING CORRESPONDENCE COURSES are available in Tennessee, New York and Ohio.

NOTE: Where we did not hear from a state or organization we repeated last year's listing.

INTERATIONAL ORGANIZATIONS

INTERNATIONAL BEE RESEARCH ASSN. — Hill House, Chalfont St. Peter, Gerrards Cross, Buckinghamshire, England SL0 0NR.

APIMONDIA — Italy, Rome Corso Vittorio Emanuele 101.

Research Review

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

Honey in Baking

ABOUT HALF of the honey produced in the United States is sold to the baking industry and ends up in a great variety of breads, cakes, cookies and crackers. Honey is a relatively expensive commodity and one may reasonably ask why bakers are willing to pay for honey as they do. I checked our university library and found there are over 75 books, some old and some new, on various aspects of baking; many had references to honey.

Sugar in Baking

Sugar plays an important role in making baked goods. Cooked (carmelized) sugar helps to form the crust which retains the flavor and moisture within the product. Some sugars give baked goods a rich brown color, appealing to the eye.

Ordinary white table sugar, sometimes called cane or beet sugar depending upon its source, is more formally referred to as sucrose. Sucrose is the chief sugar in the nectar bees collect. Each molecule contains 12 carbon atoms. However, the bee, almost immediately upon collecting the nectar, adds an enzyme that breaks each sucrose molecule into two other sugar molecules, one fructose and one glucose. These are both six-carbon sugars.

Fructose has special virtues and honey's high fructose content is one of its chief attractions for bakers. Fructose gives a higher quality brown to a baked product. It is more heat sensitive than other sugars and therefore develops coloring materials more quickly, too. Developing the crust rapidly reduces the baking time, which prevents moisture loss during baking. Also, even after the food comes out of the oven, fructose retains moisture better than either sucrose or glucose. Baked goods with a high moisture content are softer and tastier, with a longer shelf life.

Fructose is also the sweetest of the three sugars. To put it all into one sentence, fructose is superior to other sugars in giving a richer crust color, retaining moisture, and providing a sweeter taste.

Isomerose

Isomerose is the new synthetic sugar made from corn. It is predominantly fructose and glucose, as is honey. The process for making isomerose was patented by the Japanese in the late 1960's. Some people have worried that isomerose might take much of the honey market. It has not and there are several reasons why honey is still preferred.

It is difficult to keep isomerose in solution unless the syrup is held at higher than room temperature. This is a nuisance, especially for small bakeries without special facilities. Furthermore, when isomerose forms crystals they are usually very hard and difficult to liquefy. In contrast if honey crystallizes it is much easier to liquefy. Finally, the flavor of honey cannot be imitated.

Flavor

The flavor of honey is very important in many products, especially in graham crackers. Only recently I heard a large honey packer say that a manufacturer of honey graham crackers would not hesitate to switch suppliers if the blend was not properly made. Blending honey for the baking trade is an art.

Sugars are sweet but have no flavor. One problem with honey is that the flavor varies depending upon the floral source. Not all the books I checked were complimentary in their comments about honey. It was clear that some of the authors had at one time or another purchased a honey with such a strong flavor that it had an adverse effect on the final product. Privet honey, which is indeed a foul-tasting honey, was singled out as being a problem. I don't think anyone would disagree. Fortunately there is very little privet honey produced, but I did meet a beekeeper who lived in a small village in the lower Hudson Valley where there were many privet hedges; he told me that he was about to give up keeping bees in his back yard because of the bad tasting honey the bees gathered there.

Honey, a Natural Food

We use a great many chemicals in our foods. Still, it is increasingly clear to me, and to many of us who work in agriculture, that when people are given a choice they prefer natural products, those without additives, over those which have been tampered with by man. I see our long-range goal in agriculture as producing wholesome, nutritious food as nearly like the natural product as possible. Honey remains honey and does not need additives or special treatment to retain its identity. In this regard the industry is most fortunate. When bakers use honey they are, in part, trying to convey to their customers that their goods are as nearly natural as is possible.

Honey's chief virtue is that it is a tasty source of carbohydrate. However if we compare honey with white sugar, we find a vast difference; honey contains protein, vitamins, minerals and other substances which ordinary table sugar does not have. All of these contribute to honey's flavor, too. No one would claim that honey is a complete food but it certainly does offer more than one gets from refined sugar. For these reasons, too, it would appear that honey will continue to command an important place in the bakery market.

Foreign Sales

It is interesting to me that much less honey is used in baked goods in Europe than in the U.S. On a recent trip through Poland some of the people I talked to were horrified that honey should be used in baked goods. It was too expensive, they said, to be used for that purpose. Almost all the honey produced in Poland is sold as table honey.

The Future

As world affluence and population grow, we may find honey too expensive for the bakery trade in our own country also. We are already expoliting the world's best honey producing areas. Pro-

(Continued on page 226)

Fundamentals for All

"Honey — Forty-one Dollars a Pound"

By W. A. STEPHEN, Professor Emeritus The Ohio State University

HONEY AT $41 a pound! Who ever heard of such a thing? If you were at the honey auction at the American Beekeepers Federation Convention at the Hyatt Regency Hotel, Dearborn, Michigan, you probably saw it being sold. It won't be that price in the grocery store until the end of the century, when if inflation continues at its present rate, "household technicians" — (plain ordinary hired girls on the farm, maids, or domestic help in the cities) will be getting one to two hundred dollars an hour.

The fact that a pound of honey sold for $41 seems not as remarkable to me as the fact that the man who prepared the honey for show has won top honors before with a different set of judges. In 1978, Mr. G. D. Hieronymus, Somerset, Ky., received a score of 100 points for chunk comb honey at the National Honey Show, American Beekeepers Federation, at Orlando, Fla. This time he received it for creamed honey. He has also won first with a 100-point score for extracted honey at the Kentucky State Fair.

Kentucky is not the sort of state from which you would expect such prize honey to come. Ask almost any beekeeper from the far mid-western states where first class honey is easily produced and he will tell you about the honey in his area. No, it is not as easy to produce first class honey in Kentucky, or any other eastern state, as it is in Montana, the Dakotas, Minnesota, Wisconsin, and other states of high temperatures and low humidities during the nectar-gathering period. That's where showmanship comes in. It's not just a case of taking what the bees give you and running it into a jar, or taking sections from the comb honey supers and putting them into boxes, or cutting a few pieces of comb and putting them into jars and running liquid honey around them. There is meticulous care at every step.

The American Beekeeping Federation has a committee preparing score sheets which will serve as a basis for the uniform scoring of honey and beeswax. Major points are awarded for flavor and this is the only characteristic of show honey which cannot be determined by man. An important exception would be strongly aromatic honeys, such as from basswood (*Tillia sp.*) which might be modified by standing for some time. Color determines the class into which the honey is to be exhibited. The exhibitor arbitrarily decides this. The rest of score is up to the beekeeper. It is a measure of his, or her, showmanship.

Density is determined by a refractometer. The bubble test is a very crude method of determination, but since honey of more than 18.6% of moisture (water content) may be disqualified (1) and, since change in viscosity between 16.0% and 18.6% is slight, it is impossible to judge accurately the moisture content without a refractometer. Often the top prizes are determined by differences of as little as 0.1 per cent.

I do not agree to the disqualification of honey of more than 18.6 per cent of moisture at state, or local fairs, but for a National Honey Show, no honey should have more than that. Chances of winning are nil, as a sufficient number of beekeepers will be showing honey of 16 per cent, or below, or slightly higher to take the top prizes. It is within the beekeeper's capability to produce such honey.

G. D. Hieronymus of Somerset, KY holding the creamed honey for which he received a score of 100 points.

For show honey, I have seen recommendations that it should not be run through the extractor, but drained from the comb — of course in a dust-free place and into stainless steel, or glass. It may not be necessay to go to this extreme, but by the use of the polariscope, the judge is able to pick up specks of dust, lint, and any other foreign material. He can even tell whether you have washed out the jars, or used a cheesecloth strainer. When he opens a jar, and looks for the reflected light from the surface, he may see dust particles, indicating lack of care in packing.

Tops without rust (you would be surpised to find an entry with rusty caps, but I've seen them — even at a National show), and jars without blemish, or stickiness, are a must. I have known a judge to say that if he could not get the top off a jar, that he would not judge it. I don't think that this is quite fair — but don't tighten caps too much.

All the jars and their contents entered in one class should be identical in all respects — flavor, color, clarity, cleanliness, and, of course, freedom from foam, bubbles, and foreign materials.

With regard to color, I once encountered an entry where only two jars were required. Both were the same color — extra white — but one was sourwood and the other basswood. As I recall, the entry won first place because its competitor lost points for factors under the exhibitor's control.

Sometimes when I see comb honey exhibited in sections, or frames, from which the propolis has not been scraped, I ask the question, "What would a cattle judge think of the exhibitor of an animal brought into the ring with muck of the barnyard on its hooves?"

All showmanship requires artistic ability, but there must be more of the artist in a beekeeper who can produce prize-winning section comb honey. I suspect

(Continued on page 224)

Notes From the Straw Skep

By BESS CLARKE
Canton, PA

A UNIQUE and beautiful wallhanging with a honeybee as its focal point was awarded first prize in the combination technique class in needlework at the Pennsylvania State Farm Show in January.

The hanging was made by Lois Fisher (Mrs. Allen) of Lake City for her brother-in law, Dan Fitzkee, who is a Lancaster County beekeeper. Fitzkee commissioned the work last summer with plans to use it as part of his individual honey exhibit at the show. However he decided it should be given individual attention and entered it in the needlework section without telling Mrs. Fisher.

A telephone call with the news that she had won the blue ribbon was Mrs. Fisher's first knowledge that she had competed. Several nights later she was pleased and excited to see her entry on a state wide television broadcast from the show.

The wall hanging is a combination of crewel and quilting work. The 45 inch square picture has a honeybee, worked in crewel yarns, on a large center square of unbleached muslin. Calico in orange, brown, and honey-gold is alternated with muslin in the border. A honeycomb pattern is quilted around the central figure. Bees, skeps, and flowers are quilted into the border. The piece is padded, backed with a warm beige fabric, and bound with the calico. The back is as beautiful as the front because the quilting shows clearly.

Mrs. Fisher said it took her about 40 hours of work to complete the project. She studied anatomical charts for accuracy in representation of the bee. An inspiration for using netting for the wings provided a major breakthrough, she said, and after that it was easy. The fuzzy thorax is made of a stitch called turkeywork.

Mrs. Fisher is an advertising supervisor for the American Sterilizer Co. in Erie. Needlework is a hobby and she is so good at it that she teaches classes in quilting. How do I know she's good? She told me she does ten stitches to the inch and is trying to get eleven. That's how!

I've just been reading about the new Fannie Farmer Cookbook. This is the twelfth edition and it has been completely rewritten. The first cookbook written by Ms. Farmer was published in 1896 as a text for her cooking school. It was immediately popular and for many years was the standard volume of cookery in the United States.

Fannie's greatest contribution to American cooking was accurate measurement for recipes. She insisted that her students use regulation size cups and spoons, making it possible to reproduce a given recipe with some degree of success that was almost hopeless when the amateur cook was directed to use a teacup ful of sugar or a handful of flour.

Critics of Ms. Farmer say she is largely responsible for the American addiction to sugar. She used it in excess, often unnecessarily. The recipes in the new edition have been pared down to meet the present day lower calorie needs.

One of the recipes is an **Oatmeal Bread** which calls for molasses. There is a suggestion that honey might be substituted so I tried it and it is good.

Oatmeal Bread: 2 cups boiling water, 1 cup oldfashioned oat flakes (uncooked), 1 tablespoon dry yeast, ⅓ cup honey, 2 teaspoons salt, 1 tablespoon margarine, 5 to 6 cups enriched white flour. Pour boiling water over oats in a mixing bowl. Add salt and margarine and cool to lukewarm. Dissolve yeast in ¼ cup warm water and add. Stir in flour 2 cups at a time until the dough pulls away from the sides of the bowl. Turn out onto a floured surface and kneed until the dough is smooth and elastic, adding more flour as needed. Place in a greased bowl, turning to grease top, and let rise until double in bulk. (Isn't it funny how it always says, "in a warm place"? It really isn't necessary to have a warm place, as you know if you've made refrigerator rolls. The dough rises whether its warm or cold. It just takes longer if it's cold.) To get back to the bread; when it has doubled in bulk punch it down and shape it into two loaves. Set in greased loaf pans, grease tops of loaves, and let rise again. Bake in a preheated oven at 375° for 45 minutes. Remove from pans and cool on racks.

Questions and Answers

Q. I have a small but growing apiary. I am thinking of using purple martins to control the mosquitoes and wonder if they feed on bees and if so to what extent. B.S., South Carolina.

A. It is the opinion of most of the beekeepers we have heard from on the subject that the value of having the purple martins far exceeds that of any bees that may be lost to them and not everyone is convinced that they feed on bees at all. Perhaps they do on occasion, slow flying drones, some beekeepers say, but the loss should not deter you from encouraging their presence. The bee loss, if any, is certainly insignificant compared to the number of bees lost through poison sprays and neglect. The greatest problem, we are told, is when insect eating birds catch young queens on mating flights near queen yards. The kingbird is known to do this.

★★★★★

Q. I enjoy producing comb honey, however the drawback is that it needs to be sold as soon as possible to avoid granulation. Have you or your readers had any experience with freezing comb honey? I have frozen small quantities of comb honey for several months with good results. Would it not be possible to freeze a portion of your crop, taking it from the freezer as you anticipate selling it? S.M., Missouri.

A. Freezing is often recommended as a method of preserving honey in the comb, and we feel that it is practical to the degree that freezer space is available. The comb must be kept at the minimum temperature in the freezer until they are removed. This prevents granulation and does not affect the quality. See the column "Bee Talk" by Richard Taylor in this issue. His method allows more efficient use of the freezer and also protects the comb honey from damage by wax moths.

★★★★★

Q. Is it possible to tell which queen leaves the hive when they swarm, the old queen or the new queen? What about the professional's opinion about using queen and drone traps. Are they good or bad? R.R., Texas.

A. In answer to your first question, it is always the old queen that leaves the hive with the first or prime swarm. Secondary, or after swarms may have one or several newly hatched and unmated queens with each swarm.

Queen and drone traps are specialized pieces of beekeeping equipment not generally used by commercial beekeepers. It is not a question of whether such equipment is good or bad that determines their value to the professional beekeeper, but whether the investment in that particular piece of equipment is worth the benefit received and if there is an alternative. Queen traps, properly used, may save the loss of some swarms. Commercial beekeepers use other methods, which are based on hive manipulations, to prevent or reduce swarming.

Drone trapping devices are not generally used by commercial beekeepers. From experience a beekeeper learns that the number of drones in a hive is determined by the need of the colony and adjustments in the drone population is apparently controlled by the biological needs of the moment. The mechanical removal of some drones does not have much effect on the circumstances which initiated the impulse to raise a surplus of drones. The management methods used by commercial beekeepers to avoid large drone populations are directed toward having large populations of worker bees, these coming from vigorous, young queens and having the best possible combs in the hive, combs as free of drone cells as possible.

★★★★★

Q. After a colony swarms should they be examined for other queen cells? If queen cells are found, should all but one be removed?

In establishing a two queen colony when the second queen is introduced above a double screened inner cover how long a time interval should take place before the cover is removed and a queen excluder put in its place? J.O., Iowa.

A. After a colony swarms, there are usually several queen cells left occupied by unhatched queens. Normally, the first one to hatch out will destroy the remaining cells leaving only one queen in the hive. You may do this same thing yourself, although there is usually no need to do so as this takes place in a normal manner in most intances. Occasionally it does not and there will be several after swarms.

There should be a 10-day to 2-week period after the second unit is established before the double screened cover is removed and replaced with a queen excluder, if this is the system you use. This gives the queen an opportunity to begin brood rearing and the colony to orgainze itself into a functioning unit.

★★★★★

Q. I didn't realize that sunflowers provided food for bees — do they get pollen and nectar? H.L., Illinois.

A. Sunflowers provide both nectar and pollen for honeybees. Bees provide essential pollination that improves the yield and the quality of sunflowers.

★★★★★

Q. Can artists' acrylic paints (especially titanium white) be safely and efficiently used to mark queen bees? D.C., Illinois.

A. As far as we can determine artists' acrylic paints are satisfactory for marking queens.

★★★★★

Q. I am starting a beehive. I am now taking a class on beekeeping and I was informed that if I wrote to you asking for some information on the hobby you would send me a catalog. I also need to know where the best locations are to put a hive, as I live in the country, but in a development. If I put a hive of bees in my yard would they endanger my neighbors or my neighbors' pets in any way? C.L., North Carolina

A. Bees may be kept in residential neighborhoods without danger to neighbors or to their pets, but you must still give some consideration to the possiblity of objections on the part of neighbors. Your decision on whether to keep bees on your lot, should be based on your previous experience with your neighbors and how well your lot can accommodate bees. Your decision as to whether or not to keep bees should be based on your assessment of these circumstances not on what your neighbors may decide. You must also first check for existing ordinances against beekeeping or limitations on the number and placement of hives in your yard.

Some points to consider in keeping bees in a residential neighborhood are:

1. Obtain gentle bees.
2. Keep your bees out of sight, if possible.
3. Don't work your bees if your close neighbors are outdoors.
4. Don't overpopulate your lot with bees.
5. Learn to keep your bees calm.

If you decide against keeping bees on your city lot there is always the possibility of finding a place for them on a farm or other rural area, usually a very satisfactory arrangement for both the beekeeper and the landowner.

Mountain Mint (*P. Pilosum*) — The Beekeeper's Favorite Plant

By BERNIE HAYES
121 Miller Street
Wellsville, NY 14895

IF YOUR BEES hum right by chivirico or vitex try mountain mint for experienced beekeepers are finding it one of the best of bee plants.

Of course being a member of the fragrant mint family does give this plant an edge — but it deserves it with its long lasting profuse blooms and plentiful nectar.

While it is a perennial (comes up every year) it will often blossom lightly the first year, then put on a real show the second year and it does keep at it from mid-June until late fall when the first frost appears.

It is a vigorous grower, in a good growing year sending large flat-topped sprays of small white flowers up to five foot high. Fortunately, it is shade tolerant so it will grow and spread easily. The fine roots adapt to most soils, either acid or alkaline.

This member of the numerous mint family is well equipped to get around since its plentiful fine seed is carried by the wind when dispersed. The seed, similar to that of goldenrod, easily penetrates weed or grass cover, such as pastures, and establishes itself in a season or two.

The plant is a wild species, though possibly not recognized in many states, therefore it has the vigor of the wild species and is not of domestic origin.

Beekeeper E. E. Flippo, of De Queen, Arkansas, has grown this heavily flowered bee plant for some time and he recently wrote how he starts the fine seed.

"Sprout the seed by shaking them lightly over a prepared flat of fine soil, vermiculite or peat moss, then watering the seed in lightly but do not cover with soil. To keep the seed damp so it will not dry out it is best to cover the flat with cloth or dampened paper until the seed has sprouted. Seed may also be started in shallow rows, about ¼" deep, and kept well watered.

After the plants are about two inches high, they can be easily transplanted to the permanent bed.

Honey house and mountain mint 5′ tall. Still blooming. Aug. 26th 1979. Mr. Flippo is 6′1″ tall.

Of all the other bee plants which I grow mountain mint seems to be the best with bees working the plant from daylight to dusk, when the weather is good."

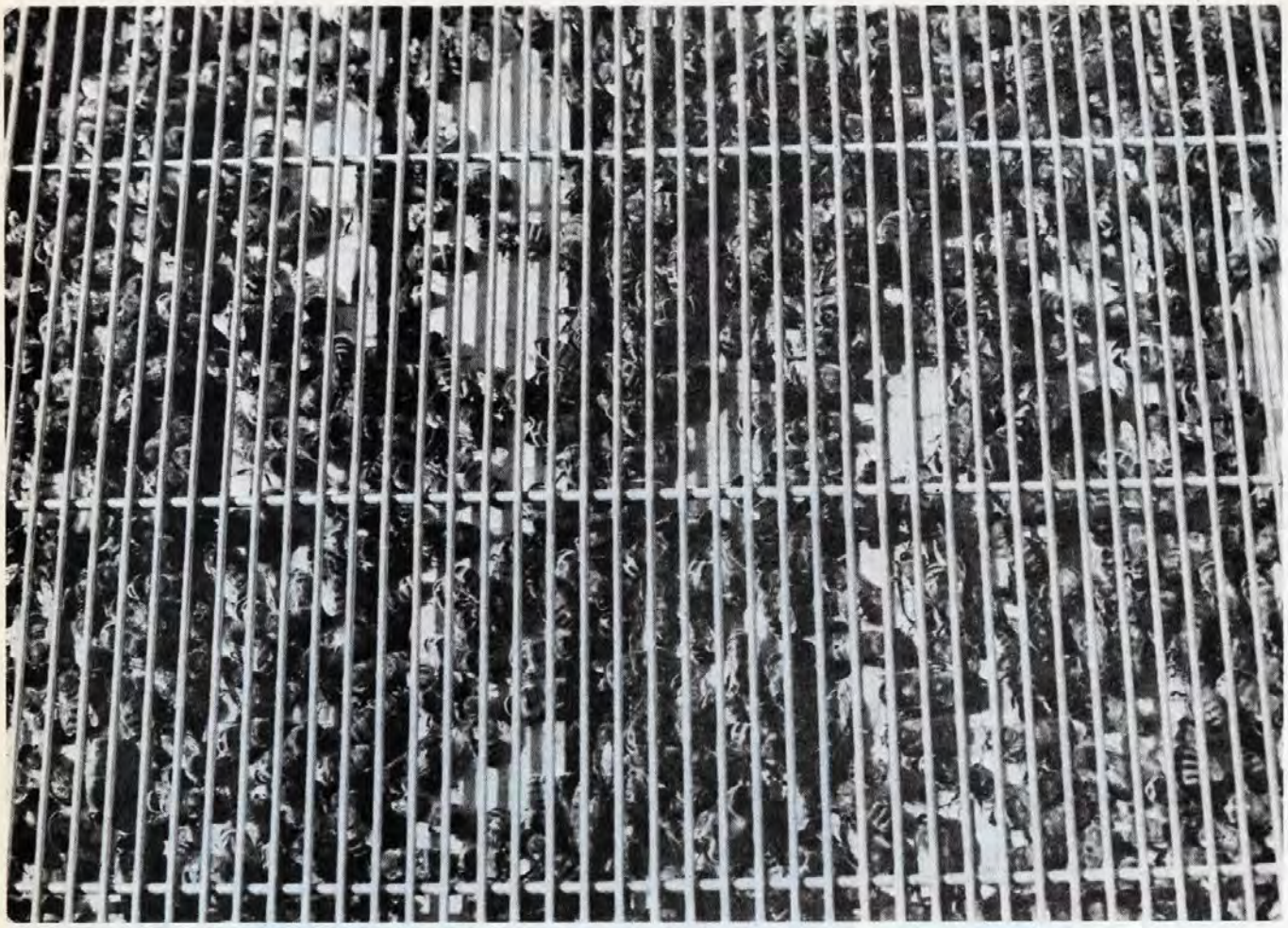
Another beekeeper, in New York State, Herb Keller of Lackawaxen, Pa., writes of his success with this plant as follows: "Yes, mountain mint is very good. Mine bloomed the first time this year and was a great success. Bees swarmed all over it even though it was just a little patch. I could always count at least 30 bees on it and sometimes more.

It did not bloom until the second year and grew to almost four feet but soon fell down and became bushy sending up many more shoots each with many blossoms."

It is obvious that plants growing in such warm states as Arkansas, in zone 7, will mature enough to blossom the first year while colder New York, zone 5, may not do so.

My opinion of this plant is that it is under-rated and certainly deserves to be more extensively planted. I anticipate starting the seed in early spring following Mr. Flippo's directions. He is also very much interested in having other beekeepers grow mint and has provided a pound of seed for distribution in my continuing "Johnny Appleseed" activity. Those that want a trial small packet of seed should provide a SSAE for return mailing.

Plants and larger amounts of seed are available from Pelletts Gardens, the originators of this fine bee plant.



A queen excluder grid must have accurate spacing.

Wire Solved Apiary Problem

FORMERLY BEE excluders were manufactured by perforating zinc sheets. The process was fast and relatively inexpensive, but the product had one major defect: The ragged edges of the holes injured the workers' wings.

The problem has been corrected. Since the early thirties excluders have been made of wire. The changeover came when Les Killian, founding president of Acme Wire and Steel Company, received a call from a representative of Diamond Match Company (now Diamond International). Acme Wire was a new company struggling in a depression economy and Les Killian was responsive to the needs of any potential customer. Diamond's apiary equipment department had received numerous complaints from beekeepers who had found workers with frayed wings. The problem was traced to the ragged edges in the excluders.

Les Killian designed and patented an excluder from wire mesh which presented no ragged surfaces to the bee traffic to and from the hive. The precision of the bee ports greatly increased quality and quantity of the honey. The design proved so successful that it has been in constant use by the apicultural industry thoughout the United States, Canada, Israel and New Zealand.

Les Killian recalls the problem. In order to achieve the exact tolerances necessary, he had to construct a roller attachment for welders to produce the excluders. "The rotary welding process is critical with the excluders," Les explains. The problem rested on the choice of wire raw material employed in the manufacture. Some wire suppliers were unsuitable because "they put too much drawing compound on their wire. We found a local supplier, Davis Walker of Los Angeles, who could supply us exactly the right quality, and we've stayed with them."

Les went on to explain that wire is a cold-worked process by which a rod of metal is reduced in diameter by being drawn through a cone-shaped diamond die. Various lubricants are used to facilitate the process and one of those lubricants is lime. If the wire is not thoroughly cleaned after the drawing process, residues remain which later act as an insulator when the wire is welded together to form the wire mesh of the excluders. Some spots may not receive a solid weld and with use will come apart, bend and enlarge one port at the expense of its four neighbors. An even grid means higher honey production and a sharp reduction in swarming.

Heather Honey In Britain

By THOMAS HOWARD
Manchester, England

BEEKEEPING IN Britain is on the whole an arduous business. British beekeepers have to be a persevering lot, working their bees under black skies and in cold winds, ever hoping for good foraging either which, however, rarely turns up. Reading about beekeeping in America, where honey crops are regular, really emphasizes the limitations of beekeeping in this country.

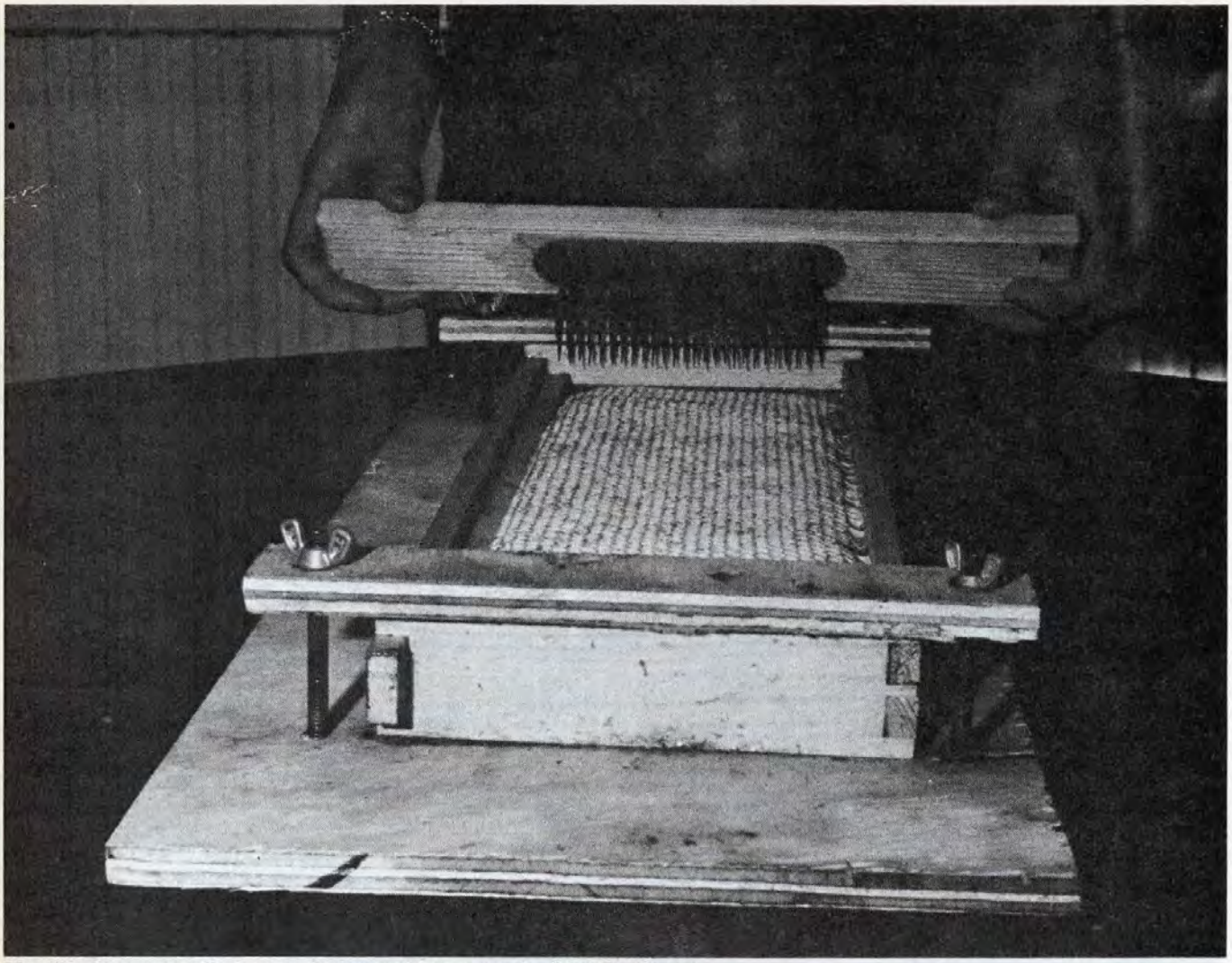
However, there is one important branch of beekeeping in Britain which seems to be completely absent in America: That is the moving of bees to the heather moors in the fall. Heather (*Calluna vulgaris*) covers vast areas of hillside in England, Wales and especially in Scotland, and for that we beekeepers must be eternally grateful. Heather is a bushy perennial with small purple flowers which, when in bloom, causes miles of hillside to take on its color. Its scent is everywhere.

"Heather honey tastes like no other honey, looks like no other honey and has properties completely lacking in other honey."

There are various kinds of heather, but the species which produces genuine heather honey is the *Calluna vulgais*. Other heathers under the family *Erica* secrete nectar but the honey from these plants, although of good quality, fades into insignificance when compared with real heather honey because heather honey is very special indeed.

This is not an overstatement. Heather honey tastes like no other honey, looks like no other honey and has properties completely lacking in other honeys. For these reasons it is greatly sought after, a real connoisseur's honey and it consistently commands a higher price in the market place. It is quite unique in that it is not a liquid honey at all, but a jelly or to be technical, it is "thixotropic". It is dark amber in color and has a very strong flavor and aroma. Air bubbles will not rise in it but stay suspended and, should any wax find its way into the honey, it too stays suspended and will not rise.

The author with some of his hives at the heather moors in Derbyshire, England.



The "Perforextractor" about to be inserted into a comb of heather honey.

In health food shops, it sells for about $2.50 per 1 lb. but can be found selling at a much higher price than this. I have seen it on sale for twice this amount in a freeway service station (where everything costs more anyway). That particular jar of heather honey had a label with a tartan background with the magic words SCOTTISH heather honey printed on it. This explained the high price because popular tradition has it that Scottish heather honey is superior to any other, although I fail to see why. However, reason plays little part in the mind of a tourist faced with this kind of propaganda, especially if the label can show a Scottish glen and a stag's head too!

Because it is dark, some producers in Europe have had difficulty in the past selling their heather honey to consumers. In Landes in France, a good heather area, all honey was sold formally to make gingerbread, but now it is sold as table honey for the German market. The French themselves are developing an interest in heather honey as a table honey. There seems never to have been any resistance to the color of heather honey in the British Isles.

So, here we have a honey which is good in every way and commands a high price. Surely, you are thinking, there must be a catch somewhere. There is! It is in the extracting of the honey. How do you go about getting a thixotropic honey out of the combs and into jars?

It is not an easy thing to do. One method is to uncap the combs, scrape the honey and wax down to the foundation, put the whole lot into a linen bag and place it in a honey press where the honey is squeezed from the wax and is filtered through the linen bag. I have never tried a honey press but it is extensively used and seems to give good results. I use another method which does away with scraping the combs. It takes advantage of another unique property of heather honey: When heather honey is agitated for a few seconds, it turns into a liquid state and after a short period sets into a jelly again. In order to agitate the honey in the cells, a forbidding instrument called a "perforextractor" is used. This is a bar of wood 3" x 2" x 10" which has a bunch of long sharp needles embedded in it. The frame is uncapped, and placed on a board. Then the needles are inserted into the open cells, pushed through the foundation until the needles touch the wooden board under the frame. The needles are then juggled about in the cells. This operation is carried out about 5 times per frame. The frames are then put in a tangential extractor and extracted in the normal manner. A radial extractor will not throw out the honey no matter how fast it turns. This method works provided the frames are warm (80°F.). If they are cool, the comb collapses. Needless to say, the process is slow and messy. A commercial operator in Scotland has a machine with spring loaded needles to do the job. I wish I had one.

A lot of beekeepers balk at the prospect of all that work and produce sections or cut comb instead. If it can be done successfully, it is probably worth while since

bees at the heather cap their honey with pure white wax which is very pleasant to look at. Comb honey, of course, commands a higher price than bottled honey.

So much for the honey itself, now how do we get it in the first place? Unfortunately, it is not simply a matter of moving colonies from one place to another and leaving them to get on with it. Much more care and planning is needed, the root of the trouble being the unpredictable climate we have to put up with in Britain.

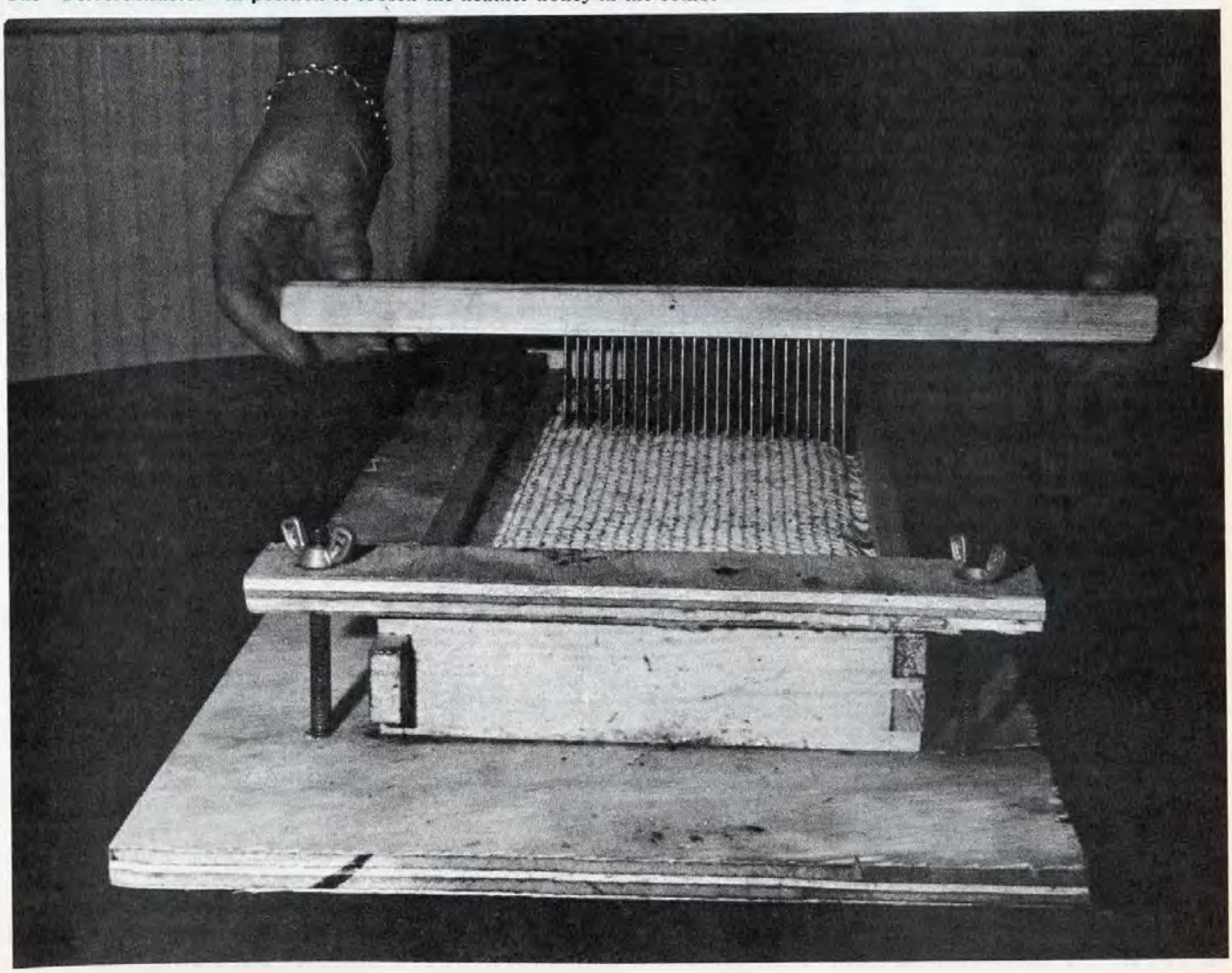
Colonies can be in trouble soon after they arrive at the heather if, as is often the case, the weather turns rough. Unless each colony has enough stored honey to last them a fortnight after they arrive, they can be in trouble before they have a chance to collect any nectar. I came across this problem myself this year. Having put the hives on the heather in mid-August on a typically cool, dark, wet and windy day, I left them with what I thought was enough food to see them through a bad spell, bearing in mind that the supers containing the main summer crop had been removed before departure. The bad weather continued and to my horror, at my next visit 27th August, I found two colonies throwing out their young. They were destitute. On returning home, I mixed syrup ready to take back the next day.There was no need: The weather changed and we had four full days of sunshine. However, it was enough to teach me a lesson.

Another problem arises from the fact the heather blooms at the very end of the season. Colonies have already done their year's work during the main flow. They have normally passed their peak and if they have to work hard at the heather, colonies can go into the winter with worn-out bees which cannot cope with the perilous spring weather we normally experience here. To counteract this, some beekeepers use artificial swarms made up in May or early June. If given a new queen, the breeding cycle should be at its peak by the time of the heather flow. Failing this, some manipulation of the colonies is required to ensure that they go to the heather with young queens and as much capped brood as can be spared from other colonies. This way, a good supply of young bees and brood is guaranteed during the heather season.

This is all the beekeeper can do. The rest is completely out of his hands. According to R. O. B. Manley (author of **Bee Farming in Britain** and **Beekeeping in Britain**) one of our greatest beekeepers but now sadly dead, the heather produces enough honey to provide winter food nine years out of ten, some of these years producing a surplus. The tenth year is a disaster. Bearing in mind that autumn feeding is generally unavoidable in this country (sometimes heavy feeding at that) it seems worth all the trouble involved.

Although the heather blooms for a full month, it secretes honey erratically, and not at all if the wind blows from the north east. It all depends on the weather again. This year, for instance, it was cold until

The "Perforextractor" in position to loosen the heather honey in the comb.



the 27th August and it looked as if it was going to be the "tenth disastrous year" Manley was talking about. Then followed four days of good weather. That was enough. In those four days my colonies put on 60 lbs. in weight. A few reasonably warm days in early September gave me surplus and a very small sugar bill for winter syrup. It is normal practice to feed all colonies which return from the heather a gallon of sugar syrup. The reason for this is that heather honey has a high mineral content and this can cause problems for wintering bees. If they are confined to the hive for long periods, the waste matter from the heather honey builds up in the rectum and can cause dysentery more readily than ordinary honey. The sugar syrup is stored close to the center of the hive and is used up first. Since it is estimated that bees comsume only 10 lbs. of honey before Christmas, during their most dormant period, there is less chance of dysentery breaking out. The heather honey is consumed when bees have more chance to get out for a cleansing flight.

The whole business of procuring heather honey is no simple matter if done seriously, and it is not surprising that Brother Adam remarks in his book **Beekeeping at Buckfast Abbey**: "Success in heather honey production will come only to the determined and persevering beekeeper .... I cannot recollect a single beekeeper who persisted over many years."

However, Brother Adam and those like him who have persevered have proved that the rewards of heather honey production can be great.

Equipment Going To Mississippi For Nucs Must Be Certified

THE WINTER OF 1979-1980 has brought an unusual number of requests from out-of-state beekeepers to bring combs, nuc boxes, frames, etc. into Mississippi to be stocked as nucs. Many such requests have been made without proper inspection and certification. Under the provisions of the Mississippi Bee Disease Act and the regulations adopted thereunder, no honeybees on combs, honeycombs, and/or used beehives, frames or other beekeeping fixtures can enter Mississippi without a permit. Such permits are only obtained after a certificate of inspection has been received from the state of origin based on an inspection within 60 days preceding the date of shipment at a time when the bees were actively rearing brood, and still yet that the apiaries of the shipper have been inspected annually to support a two year disease free history.

Due to management practices associated with stocking nucs whereby frames, combs, and other equipment are often swapped from one beekeeper to another, we can see where the potential for disease outbreaks is great. Consequently, we intend not to allow any equipment into Mississippi which has not been certified and permits issued.

Beekeepers should be educated enough to at least know to contact states concerning entry requirements. Mississippi will surely not issue permits for bees or equipment if the owners bees have not been inspected, at least within the last season. Beekeepers must see that their bees are inspected annually.

Mississippi is sticking to its laws and regulations. **All bees and equipment coming into Mississippi will be certified!** Any bees and equipment found not properly certified shall be seized and destroyed or escorted from the state and the violator will be subject to prosecution. Ignorance of the Law is no excuse.

Job Openings To Be Posted At A.T.I.

STUDENTS AND faculty from the Agricultural Technical Institute's Commercial Beekeeping program recently manned a booth at the American Beekeeping Federation meeting, January 21 to 25, 1980. Students had opportunities to meet industry personnel and become acquainted with current apicultural developments. Numerous students received job offers from various beekeeping companies.

Seveal students were not advanced enough in their studies to consider employment, but they will be available within six months to a year. Since ATI students are completing studies at almost any given time of the year, vacancies in the beekeeping industry could very well be filled by some of these students.

Students successfully completing the program have training in all phases of commerical beekeeping and have commerical experience.

If one wishes to have positions posted at ATI, please send a job description, salary range, fringe benefit possibilities, and a complete return address and telephone number. Please indicate if the position is full-time or seasonal. Posted positions are regularly updated and are presented to potential employees as long as the employer desires. James E. Tew

Commercial Beekeeping Technology
Agricultural Technical Institute
of the Ohio State University
Wooster, Ohio 44691

NEWS and EVENTS

NEBRASKA
Radio Program

Beginning on Thursday, February 21, 1980, and continuing on the third Thursday of each subsequent month, Radio Station KRVN, 880 AM in Lexington, Nebraska will broadcast a seven-minute program about honeybees, pollination, avoiding spray damage to honeybee colonies and other topics of interest to beekeepers, farmers, pesticide applicators, and the general public. This program will be broadcast at 12:35 p.m. as part of the station's "Inside Agriculture" Program. KRVN is a powerful station that can be picked up throughout Nebraska and the surrounding states. KRVN is a farmer-oriented station with a large listening audience.

The program is being initiated in response to a request from the Nebraska Honey Producers Association to the station.

GEORGIA
North Georgia Beekeepers Association

The next meeting of the North Georgia Beekeepers' Association will be held on Tuesday, April 8, 7:00 p.m., at the Toco Hills branch of Decatur Federal Savings & Loan. This meeting will feature a panel discussion on re-queening, swarm control and supering. For more information call 404-255-6436

GEORGIA
Beekeeping Course

Floyd Junior College, Rome, Georgia is offering the two following courses in apiculture.

BEEKEEPING I
March 25 — April 15, 7:00 — 9:00 p.m. Fee: $15.00. Learn how to begin and maintain your own beehives. Topics covered in this exciting program will include — how to start with bees, the construction and assembly of beehives, how to requeen the hive, removing the honey, and preparing the bees for the winter.

BEEKEEPING II
March 27 — April 17, 1980, 7:00 — 9:00 p.m., Fee $15. This course is designed to teach the more advanced beekeeper the techniques of making artificial queen cells, the grafting of larva into queen cells, making up the swarm box, making queen mating nucs, the storing of the queen bee, and the building up and division for increase. No pre-requisite necessary.

OHIO
Beginning Beekeeping offered at CCC

A course in basic beekeeping, designed to give the beginning hobbyist and sideline professional competence in beekeeping and honey production in northeastern Ohio, will be offered by Cuyahoga Community College's Lifelong Learning Institute.

Basic Beekeeping will be offered at CCC's Western Campus, 11000 Pleasant Valley Rd., Parma, on Thursday from 6:00 — 7:30 p.m. from April 17 through June 5. The fee for the eight-week course is $25.

The course includes lectures, video tapes and a field demonstration on equipment, bee biology, nutrition, package bees, making increases, requeening, building up colonies, pollen and nectar sources, harvesting the crop and diseases and pests.

William Conley is the course instructor. The class is limited to 30 students so early enrollment is suggested.

For further information, contact the Lifelong Learning Institute, 845-4000, ext. 424.

MONTANA
Beekeeping Course

The New Horizons Division of Rocky Mountain College, Billings, Montana will conduct a beekeeping short course on Monday evenings between 7:00 — 9:00 p.m. The course will last for six sessions with field trips to bee yards for hive manipulation. It will be designed to furnish the beginner, serious amateur and professional beekeeper information, technical knowledge and bee colony management to successfully keep bees and produce honey. The course will include field trips to manipulate bee colonies as well as interesting classroom sessions.

Interested students can contact Lorri Keck, New Horizons, Rocky Mountain College, 1511 Poly Drive, Billings, Montana 59102, for registration. The course will begin Arpil 7, 1980, tuition will be $25.00 and the instructor is Albert G. Bell.

CONNECTICUT
Connecticut Beekeepers' Association

The Annual Meeting of the Connecticut Beekeepers Association will be held on Saturday, April 26, 1980 in the Donald F. Jones Auditorium of the Connecticut Agricultural Experiment Station, 123 Huntington St., New Haven, starting at 10:00 a.m.

The election of officers for the coming twelve months will take place at the opening business session.

The Speaker of the Day will be Dr. David DeJong, Research Associate of the Dept. of Entomology of the Division of Agricultural & Life Sciences, University of Maryland, College Park, Maryland.

Dr. DeJong will give a talk in the morning and another in the afternoon after the luncheon break. He will discuss "The Varroa Mite" as well as the "Delicious Problem".

Our always delicious potluck lunch will be served at noon. Bring somthing you enjoy for the buffet table. Coffee is still "on the house".

WISCONSIN
Wisconsin Counties Organize

The Door-Kewaunee County Beekeepers Association has been created to promote the bee industry in these two northeastern Wisconsin counties. The elected officers are Jack Hilbert of Sturgeon Bay as president, Bruce Casarotto of Kewaunee as vice-president, and Doug McCain of Ellison Bay as secretary-teasurer. All beekeepers from these counties are invited to join the association and attend the regular meetings. Inquiries should be directed to Jack Hilbert, Rte. 4, Snake Island Rd., Sturgeon Bay, Wisconsin, 54235, 743-9783.

CONNECTICUT
Connecticut Beekeeping Course

A three credit, 200 level course, The Biology of the Honeybee, will be offered this summer at the University of Connecticut Waterbury Campus. The course will run for six weeks and begins on May 19th. The instructor will be Professor Alphonse Avitabile, co-author of the **Beekeeper's Handbook**.

The structure and function in the honeybee and its colonies with emphasis on chemical communication and practical aspects of beekeeping will be the topics of the course. For further information, call Mr. Losey, 757-1231, ext. 27 or Mr. Avitabile, 757-1231, ext. 38.

MICHIGAN
Central Apicultural Society

For a number of months, beekeepers have been talking about forming an organization to facilitate the exchange of ideas and solve some of the beekeeping problems in our area. It would be similiar to the Eastern and Western Apicultural organizations which are currently active in the states on the east and west coasts of the United States.

Such an organization in the mid-west could provide many opportunities for beekeepers. A yearly conference in August at one of the college campuses could be held. These would be of the workshop variety so that beekeepers could get involved in the learning process. The first one will be held at Michigan State University, East Lansing, Michigan, during the first week of this August, 1980. Watch this magazine for the exact date.

The built-in advantages for having an active regional beekeeping group would be many. It could publish a "how-to-do-it" informational magazine to which the apicultural personnel of the region would contribute. Both hobby and commerical interests would be served. It would make possible a yearly site for exhibits of beekeeping books and printed materials, as well as displays of apiary equipment and honeybee products. There could be tours of local beekeeping facilities both college oriented and commerical.

If interested in becoming a charter member of C.A.S. write to Dr. Roger Hoopingarner, Entomology Department, Michigan State University, East Lansing, MI 48824, giving your name and address and the number of colonies of bees you have.

CANADA
Fanshawe College Workshop

A beekeeping workshop series at Fanshawe College, London, Ontario, Canada will again be held on Saturday afternoons at monthly intervals starting April 19th, 1980. There will be six three hour sessions in the apiary of the instructor, Harold Killins, BSA. The course will conclude in November. Some of the subjects covered will be, spring management, re-queening, swarm control, supering, extracting, disease control and wintering.

Each person registering is required to come equipped with a bee veil.

Apply to Mr. Dan Link, Fanshawe College, Department of Continuing Education, 520 First Street, London, Ontario, Canada or phone (519) 452-4425.

Dr. Roger Hoopingarner MSU, and Jack Engelhardt who will work to form the Central Apicultural Society.

IOWA
Entomology Centennial Symposium

A two day celebration, June 4 and 5, 1980 commemorating 100 years of entomology instruction at Iowa State University of Science and Technology in Ames is of special interest to entomologists. Of particular interest to beekeepers are the honors in Apiculture to Dr. Oscar W. Park. Dr. Walter C. Rothenbuhler of The Ohio State University will be the speaker honoring Dr. Park.

NEW YORK
Northern New York Beekeeping Seminar

A Beekeeping Day will be held at the Miner Institute, Rt. 191, Chazy, New York on Saturday, April 26 from 10:00 a.m. to 3:00 p.m.

Guest speaker will be Dr. Roger A. Morse, Professor of Apiculture Cornell University. Dr. Morse will be available from 8:30 a.m. on the 26th to discuss individual beekeeping problems. Other speakers will b Geoffrey C. Yates and John Barrett.

There is no admission charge and a box lunch will be available. The program should be of interest to both experienced and beginning beekeepers and is sponsored by William H. Miner Agricultural Research Institute and Cooperative Extension.

CANADA
Kemptville College Bee Course

A practical beekeeping course is being offered at Kemptville College of Agricultural Technology in the spring. Courses are being offered at Belleville and at Kemptville. At Kemptville the class starting date will be on Saturday April 12th, from 9:30 a.m. to noon. The classes at Belleville will begin April 10th, 7:30 to 10:00 p.m. The registration fee will be $100.00. Information and registration forms may be obtained by writing to Coordinator of Continuing Education, Kemptville College of Agricultural Technology, Kemptville, Ont. K0G 1J0 (Ph. 258-3411). The Belleville Course will be given at Green Hive Apiaries, Rt.#6, Belleville, Ont. Information about this course may obtained by calling the Agricultural Office in Stirling at 395-3393.

OKLAHOMA
Oklahoma State Beekeepers' Association

The Oklahoma State Beekeepers' Association (OSBA) will hold its spring meeting Saturday, May 3, 1980 in Pryor, Oklahoma. The meeting will be held in the Mayes County Agriculture Center. It will begin at 9:00 a.m. and run until 4:00 p.m. with a one-hour break for a covered dish lunch.

M. L. Lashbrook, President of OSBA, has directed that the entire program address beginning or hobbyist beekeepers. Bee supply firms are invited to attend or send their literature to Ted Legako, 122 State Capitol, Oklahoma City, Oklahoma 73105, for distribution at the meeting.

Raymond Lane, President of the Green Country Beekeepers' Association at Pryor will hold his local association meeting Friday, May 2, 1980 in the same building. He has invited all out-of-town guests for the OSBA meeting to attend his organization's meeting, at 7:00 p.m.

NEW YORK
Beekeeping Course

A course in practical beekeeping, taught by Dr. Richard Taylor, will be given this spring in Rochester, N.Y. Dates are evenings of April 17, 24, May 1, 8, plus a field trip May 10. For information write Office of Cummunity Services, Monroe Community College, 1000 E. Henrietta Rd., Rochester, N.Y., 14623.

CALIFORNIA
Two Day Short Course at Los Angeles

A weekend short course on the Life of Bees and Beekeeping will be taught by Dr.

Norman Gary, who teaches beekeeping at the University of California, Davis Campus. The course is scheduled for Saturday and Sunday (9 a.m. to 5 p.m.). April 12 and 13, at the UCLA Campus.

The course will cover the biology, behavior, diseases, management of bees for honey production and pollination, simple procedures for home processing of honey, and other topics. Books, veils, or other equipment are not needed because this is a lecture course.

Pre-enrollment information may be obtained from the Department of Biological and Physical Sciences, P.O. Box 24902, UCLA Extension, Los Angeles, CA 90024. Out-of-state- people are welcome too. The course fee is $45. You may enroll at the door if space is available. However, early pre-enrollment is advisable. If you have questions, call 213-825-7093

WISCONSIN
Maxine Harp Retires

Maxine Harp, Secretary since September 1941, three years after the North Central States Bee Laboratory was established at Madison in 1938, has indicated her desire to retire. She is the only secretary to have served this laboratory.

In her 38 years at this facility, Maxine has provided the finest possible clerical and administrative support to three laboratory leaders — Drs. Farrar, Moeller, and Erickson. She served as Branch Secretary while Dr. Farrar was Branch Chief in residence at Madison. During her tenure, she has received several service awards, the most recent in 1979. Her competence and knowledge of apicultural research and the beekeeping industry are widely recognized.

Obituaries

Samuel E. McGregor

MR. SAMUEL E. McGREGOR, called "Mac" to his associates and friends, died February 4, 1980. He was 74 years of age and still at work four weeks prior to his death as a Collaborator at the U.S. Department of Agriculture's Carl Hayden Bee Research Center, Tucson, Arizona.

Mr. McGregor was born in Milano, Texas on January 3, 1906. During his early boyhood, on his father's farm, he helped manage honeybees that were maintained for honey production and crop pollination. He pursued his interest in beekeeping at Texas A&M College from which he received a B.S. degree in 1931. He was awarded the M.S. degree by Louisiana State University in 1936.

His first professional job in the field of apiculture was in 1925, when he became a State Apiary Inspector in Texas. In 1930, he moved to New York State, where he continued in inspection work, returning to Texas a year later as a State Apiary Inspector. For two years, he kept bees commercially in Texas before he began to work for the U.S. Department of Agriculture in 1934. His first assignment was at Baton Rouge, LA where he remained for five years, followed by five years in Arkansas, one year in Wisconsin, and one year in Texas. In 1949, he was assigned to the Bee Research Laboratory at Tucson, AZ to work with the late Frank Todd on research on pesticide problems of honeybees. Later the emphasis of his work shifted to pollination of melons, alfalfa, citrus and cotton. In 1961, he was appointed to head the Bee Research Laboratory at Tucson, AZ. From 1965-69, he served as Chief of the Apiculture Research Branch, and directed the Bee Research Program of the Entomology Research Division, Agricultural Research Service at Beltsville, MD. In 1970, he returned to Tucson to utilize the library facilities to write a book entitled, **"Insect Pollination of Cultivated Crop Plants"**. This treatise on plant pollination by insects was not only of immediate value to agriculturists but clearly showed the value of insect pollinators to mankind's total environment.

In June 1973, Mr McGregor retired from his position in the United States Department of Agriculture but remained active as a Collaborator at the Tucson Bee Research Laboratory.

Mr. McGregor's entire professional career was in apiculture. He conducted research on almost every aspect of apiculture, but he is best known for his research on honey bee pollination of cultivated crop plants. His research on crop pollination provided many significant contributions, and he was recognized as a world authority on insect pollination of crop plants.

Mr. McGregor's list of bee research and pollination publications, the result of some 45 years of work with bees, is lengthy. Among the most important are those that appeared in **"Annual Review of Entomology"**, **"USDA's Yearbook of Agriculture"**, and the **"Encyclopedia Britannica"**.

He received many honors from professional and farmer groups in recognition of his contributions to the beekeeping and agricultural industry, including being named a fellow of the American Association for the Advancement of Science and receiving the J.I. Hambleton Award from the Eastern Apicultural Society. Mr. McGregor was a member of the American Museum of Natural History, Signa Xi, the Entomological Society of America, the American Honey Producers Association, the American Beekeeping Federation, the Arizona Beekeepers Association, and other professional groups. He was an active member of the Pollination Section of International Commission for Bee Botany of the International Union of Biological Sciences, and the Standing Commission on Melliferous Flora and Pollination of Apimondia, the President of the IV International Symposium on Pollination held at College Park, MD in 1978, and an Asssociate Editor of the **"Journal of Apicultural Research"**. He was also an active member of the First Baptist Church in Tucson.

He is survived by his wife, Nora, and two daughters and their families. It was an honor to know, and work with, this man.

M.B. (Miklovcic) Nickelson

MATHEW (MATT) NICKELSON died January 5, 1980 in San Diego, California. Mr. Nickelson was born in the Slovenian provice of Austria October 21, 1888. He graduated from the University of Vienna with a degree in Apiculture and teaching. He came to America in 1914. He supervised beekeeping operations in Min-

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FUNDAMENTALS FOR ALL

(Continued from page 212)

that much of the popularity of the round sections is the result of not requiring as much of the technique of the artist to produce them.

The same might be said of beeswax, only more so. The judging of beeswax is more subjective than with honey, so the factors within the control of the beekeeper count for more.

Incidentally, Dr. "Jack" White told me at Dearborn that tests conducted when he was in charge of the Eastern Regional Laboratory, Philadelphia, Pa., showed that wax heated in all metals except stainless steel, or monel metal, would be darkened. We have always been warned to avoid having wax come in contact with copper, but it was a surprise to learn that enamelware was almost as bad.

I submit the following not because of it's poetry — which it isn't — but to bring home to you how much care in preparation means:

If you exhibit honey
And expect to be in the money,
The foregoing facts are true.
You're exhibiting, not honey but you.
These revealing facts
Also apply to wax.

Your honey may not bring $41.00 a pound in the market place for many years, but honey is a quality food that demands respect. The National Honey Show had some very respectable honey this year!

(1) **The Hive and the Honey Bee** 1975 p. 516 Dadant and Sons.

THAT OLD PROBLEM — SWARMING

(Continued from page 192)

The period depends somewhat on the geography of the location, but, generally speaking, it takes place periodically during the spring build-up and in the majority of cases slightly precedes the oncoming of the initial strong nectar flow. In substance, it occurs when it is likely to bring success to the swarm in getting established in a new nest in time to store food adequate to last during the winter season.

Many students of bees today believe that the bees may be counted on to base most of their performances on signals or events that serve as prompters to which they instinctually respond. Therefore, they swarm as a response to circumstances that augur success, such circumstances as: time of year (largely temperature); crowding; age and quality of queen; availability of nectar and pollen; presence of food and brood in the nest.

Your success and mine in controlling swarming will depend upon our understanding these facts and dealing with them intelligently.

POWERS APIARIES, INC., OF PARMA, IDAHO

(Continued from page 202)

are rented each year to pollinate cantaloupes.

In 1977 spraying of supericide to control head moth on sunflowers caused serious damage to thousands of Powers' North Dakota colonies. A few of the North Dakota bees are rented to produce hybrid sunflower seed for $20.00 per colony.

Powers Apiaries, Inc. is a small business corporation with James Powers, Irvin's son, serving as president and Blaine Simpson as the general manager. The company is a member of the Sioux Honey Association and Jim Powers is a Sioux director.

Carl Powers, Irvin's brother, has worked for Powers Apiaries since 1927, and has owned an eighth of the company since the early 1930's

OBITUARIES

(Continued from page 223)

nesota and Texas until 1925 when he moved a large commercial beekeeping operation from El Paso, TX to La Jara, CO. He operated Evergreen Apiaries until 1962. During those years he worked with various researchers and as Conejos County bee inspector.

In 1975 his children gave him a fund to commemorate eighty years of active bee work.

Mr. Nickelson corresponded with Slovenian beekeepers who considered him an authority on American methods, and wrote articles for the Slovenian bee journals.

Mrs. Nickelson died in 1978. He is survived by three daughters and eight grandchildren.

Floyd H. Sandt

FLOYD H. SANDT, 87 prominent throughout Pennsylvania as a beekeeper, died in Easton Hospital.

A beekeeper for 57 years, he operated Sandt's Honey Business, Forks Township.

Mr. Sandt was a member and past president of the Lehigh Valley Beekeepers Association. He won numerous blue ribbons as an exhibitor at the State Farm Show, Harrisburg; the Allentown Fair and Nazareth Farm Show. He also received trophies at the annual honey show at Cornell University, Ithaca, NY

He worked as a salesman for D.D. Wagner Orchards from 1905 until 1948.

Surviving in addition to his wife are two daughters, Mrs. Raymond Hulshizer, Wilson, and Mrs. Lewis Link, West Easton; Two sons, Richard H. of Boca Raton, Fla., and James G. of Venice, Fla.; 11 grandchildren and 19 great-grandchildren.

STRICTLY BACKLOT

(Continued from page 205)

Install insulated night shutters over large windows.

Have a bonfire singalong.

About bees and antibiotics. What is a sensible use of antibiotics? This past fall I was introduced to both herbicide poisoning and American foulbrood. After hearing arguments for treating the diseased hive with terramycin and listening to equally dispassionate positions supporting destroying the hive, I burned and buried it. (I was once forced to destroy an Airedale terrier; the hive burning was not much easier.) Later, after taking off the honey from the other hives in that particular lot, I fed terramycin. (I did not feed antibiotics to the hives in other areas.) I plan to feed the same hives early in the spring.

But I'm troubled. In the near future I'd like to do a column presenting (1) arguments against the use of antibiotics; and (2) arguments for routine feeding of antibiotics, fall and spring. May I hear from those of you who feel strongly—either way! I know I must do some more reading; sometimes this is difficult going because I am neither a trained scientist nor a medical expert.

In the meantime: Brew up some applemint tea and show your children some wildflowers.

RESEARCH REVIEW

(Continued from page 211)

ducing honey is not like growing corn. Beekeepers don't plant honey plants; they move to areas where these plants abound. If we want to produce more honey on earth we must bring into production some areas which we now think of as secondary. This is costly. All this suggests the price of honey will continue to be higher than other sweeteners that bakers can buy. However, for the reasons given, it would appear there will continue to be a good market for bakery honey.

A comparison of propolis with tree bud secretions showed that their biological properties are similar; certain compounds are present in both, but additional components in propolis originate from honeybees. From Pchelovodstovo (1977) No. 8, 21-23, USSR.

Acetic acid, added to sugar (0,3ml/kg) in making syrup to give to bees at the end of August, helps bees overwinter and accelerates spring build-up, according to S.Ya. Boldyrev of the USSR writing in Pchelovodstvo (1977) No. 8, 7-8.

A cover photo on the Wisconsin Badger Bee (Jan. 1980) using photos on loan from the U.S.D.A. bee lab. in Madison compared the visual image of several flowers as seen by man and the honeybee.

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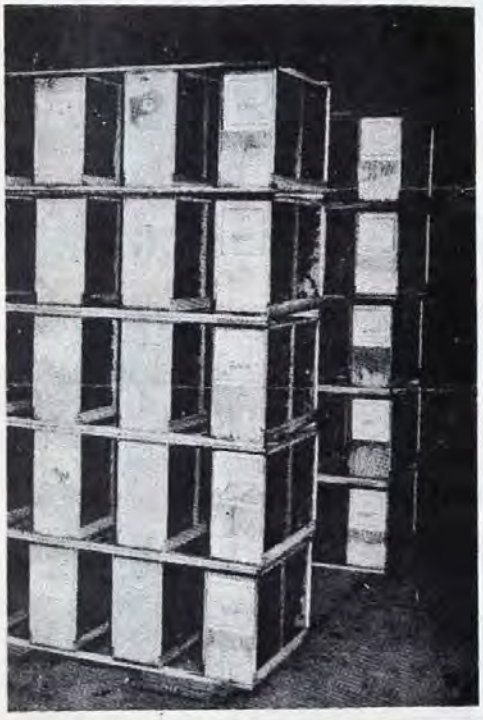

APRIL 1980

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

MAY 1980

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	0	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JUNE 1980

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
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