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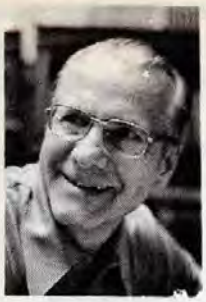

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COVER STORY

A unique exhibit designed and built by James Johnson shown at the Eastern Apicultural Society meeting in Morgantown, West Virginia may suggest an idea for other states to use at exhibits and meetings. Photo by John Root.

Gleanings in Bee Culture

January 1983 (ISSN 0017-114X) Vol. 111, No. 1
Created to Help Beekeepers Succeed
110 Years Continuous Publication by the Same Organization

CONTENTS

Gleanings Mail Box

Source of Bee Bee Trees

Dear Editor,

I just happned to flip through the November *Gleanings* Issue again and saw Daune Bisher's question about Bee Bee Tree. Also just received a marvelous catalog today by chance which lists it: *Evodia danielii*, available in two-inch pots from Forestfarm, 990 Tetherow Road, Williams, Oregon 97544 (Ray and Peg Prag, the nurserymen).

Sylvia Thompson
Box 145
Idyllwild, CA 92349

Wants Stealing Made A Felony

Dear Editor,

Many of the state law makers will be assembled in January so why wouldn't that be a good time to promote some beekeeper legislation?

A law that makes it a felony to molest, distrub, or tamper with a bee hive (or bee yard) would discourage some of the otherwise smart people. An offender may be brought back to the state on a felony charge and this would help some of those jokers think twice before starting.

JACOBSEN
P.O. Box 16
Watford City, ND 58854

Wants Information on Pollen

Dear Editor,

May I appeal to you to ask a competent, well trained and academically qualified nutritionist to write an article for *Gleanings* about the nutritional value of eating pollen? I've read or heard somewhere that the human body cannot utilize the protein in the form it enters the body as raw pollen. I know some American beekeepers are gearing up to make money from raw pollen. I know the testimonials can persuade many of the value. But I would not like to see our industry make some bucks off the public and them have the health and nutrition experts give us a spanking because we took advantage of the gullible and uninformed. I would appreciate a documented and reliable article on whether raw pollen can be well utilized by the body. I realize this request may make some of your better advertisers mad, but the truth is always best for every one concerned. The truth may be that it is of great nitritional value to the human body.

Tom D. Blake, President
Wilson County Area Beekeepers Assoication
Rt. 10, Box 64
Lebanon, TN 37087

Use Honey In Baking

Dear Editor,

It always surprises me when I attend a beekeeper's meeting that many apiarists and their families use honey only as a spread for toast and a sweetner for tea. In spite of the boom in the "natural food" industry honey has been poorly promoted. In the *Health Food Dictionary* Anstice Carroll and Embree De Persiis Vona praise the healthful attributes of eating honey but say, "Cooking with honey is unfortunately quite a problem. Cookies won't be as crunchy, cakes won't be as light, and preserves won't jell as firmly." They go on to tell us to use it in bread making and on toast and in tea! My beekeeper friends tend to agree, I do not.

Thirteen years ago our family moved to a rural area and launched a program of restoring a house and growing our own vegetables. Next came chickens, then a pig. We made the decision to avoid sugar, salt and preservatives as much as possible. At our local co-op we found ourselves buying three pound, five pound, then gallon jars of local honey. The logical answer to this expense? Bees of our own! A hive!

The one hive has multiplied to seven, the honey supply has increased and we use no sugar. My success in cooking with honey has improved. I have learned to transpose cake, cookie, pickle and jam recipies from sugar to honey. *The Wonderful World of Honey* by Joe Parkhill is my kitchen reference book.

The "secret" I found in making a light cake is to combine the butter, eggs, and honey and beat them a long time. Add dry ingredients and milk and beat until the batter is very light and fluffy.

Here is a basic cake recipe:
3/4 cup honey
1/2 cup shortening
2 eggs
1/2 cup milk
2 teaspoon baking powder
2 cups flour
1 teaspoon vanilla

Cream the shortening, honey and eggs — Beat a long time.
Sift the dry ingredients and add alternately with the milk and vanilla. Beat until very light. Bake in a greased 8x8 pan at 350° for 45 min.

Try this warm, served with "Egg Sauce".

Beat a large egg and add 1 cup of honey and a dash of nutmeg. Beat well!

Barbara O'Brien (Hill)
RD **#1, Box 351**
Remsen, NY 13438

Orcutt print courtesy of Washington State Game Department
(From Poelker and Hartwell, Black Bear of Washington, 1973)

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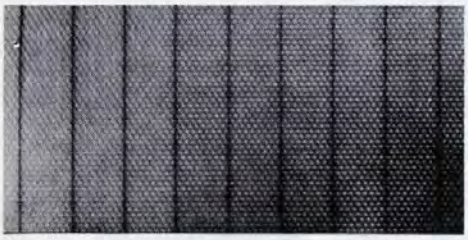

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How to . . . Load and Move Bees

By THURBER

Part I — Modifying the hives, lids and bottoms and installing hooks for tie ropes

If you observe people's reactions, you know they think beekeepers are either weird or touched in the head. People vaguely realize, finally, that bees are necessary for pollination, but they do not consider them the "angels of agriculture". They think of them as a perhaps necessary evil. Furthermore, when they think of bees, the first thing they think of is the fact that bees sting. With that image you can appreciate that the too many newspaper and TV items of bees falling off trucks or bees flying out from trucks because they were not screened in or covered with netting are giving all of us a black eye. If you personally are involved, if they fly off from your truck, I think you could be sued and probably you asked for it! This is the first of four installments on:

1. Modifying the hives tops and bottoms.
2. Making top and entrance screens.
3. Fastening hives together.
4. Tying the load.

Since hopefully commercial beekeepers either know how to move bees or have a standard routine, I addres the hobbyists and sideliners most of whom use pick-ups, and have no mechanical aids such as fork lifts, power tail gates or booms.

Now why move bees anyway? Well, if you live near areas where agricultural crops are grown, you move in order to keep bees from being killed by pesticides. For that matter you can have an insecticide problem right in a big city so you should know how and be prepared to move. It is too late to learn and make preparations when the spray truck is across the street. You might also move to follow high yield plants go get bigger honey crops or you might move because you want to pollinate. At any rate let me repeat you should be prepared to move bees before you have to.

In order to move succesfully, I think, the hives should be modified, and you should have tops and bottoms that are suitable. Our hives are all 20 inches long (or maybe 19-7/8 depending on the manufacturer). Stock bottom boards are twenty-two inches long and standard migratory tops are also twenty-two inches long. So, since the weight of the hives is in the boxes not the tops and bottoms, something has to be done so that if you have to stomp on the brakes the hives do not shift and peel the boxes off the bottoms or break up the bottoms or tops. Now you can make your modifications either by lengthening the boxes or by shortening the tops and bottoms or by doing both. I personally do both, but I have seen hives that only lengthen the boxes and possibly that is the easiest and cheapest solution. Let's talk about that. Suppose you use telescopic covers and standard inner covers and reversible bottom boards. OK, if you will get some two by two stock, cut it to 16-1/8 inches long and nail lift cleats on the front and back of each super, you then have boxes that are twenty-three inches long (20 + 1½ + 1½). If you nail the two by twos at precisely the same place on all your supers, and I recommend the top of the lift cleat be measured three inches down from the top of each box, you have, if all your bottom boards are identical (as they should be), boxes that when loaded on a truck touch each other at the lift cleats, and there is one inch space between each bottom board and the one in front of it or behind it. Slam on the brakes and nothing moves backwards or forwards if properly lashed. Now most British bee hobbyists and sideliners apparently move bees and I guess some American hobbyists do too with telescopic lids. Boy, they must like to suffer! The length of half a dozen store bought telescopic lids I just measured runs from 22 to 22-1/8 to 22-1/4 inches long. With the one and a half inches square lift cleats that is OK but what is not OK is their width. They are all about 18 inches wide. Sure you can load hives with telescopic covers but those 18 inch wide tops take up too much width. You just cannot do a good job maximizing the number of hives per pick-up load and for that matter they are too wide for a maximum load on a flat bed. However, if you insist on moving bees with telescopic covers, you can cut more pieces of two by twos say 18 inches long. Then you drive a fence staple in one end of each. You tie a piece of stout nylon string through one staple. Then you lift off the lid and run the string across the moving screen and tie it so one piece of two by two hangs on one side of the hive and one on the other side. You need two of these pairs of two by twos for each interior hive when you look at them loaded side by side. Since you will not be able to load more than three hives with telescopic lids in your pick-up, you will need at the most 8 of these pairs of two by twos because your maximum load will be 12 hives of any pick-up and most pick-ups will only carry 10 because of the wheel wells intruding into the pick up box. Now what the two by twos do is fill the space between the sides of a hive and the adjacent hive so that the hives cannot shift from side to side in the truck. When the hives cannot move backwards, forwards or from side to side when lashed, they can't break the bottom boards or tops in a panic stop of collision and let screened bees escape.

Well, my own opinion is that moving with telescopic covers is for the birds not only because they take up space needed from side by side, but also you cannot add water through the top screens in case of a break down in hot weather. Accordingly I recommend you buy or make migratory lids. In summer I like four cleat lids, but two cleat lids are OK too and for that matter since people mostly move bees in summer and bring them home in the fall, two cleat tops can be made of one half inch waterproof plywood and one by two cleats, if you do not want to stack hives more than one layer high and if you do not use ratcheting buckles and nylon webbing straps.

Now you have to be able to tie your hives to the truck so they cannot move in any direction, and since it is best to move bees with the entrances to the rear, you should provide truck hooks which you bolt to the exterior sides of the truck box. The first pair of hooks are screwed eleven inches away from the front of the truck bed (nearest the cab). The second pair twenty-two inches from the first set, and the third set twenty-two inches from the second set, etc. I do not believe in buying the cheapest hooks I can find. I personally paid an arm and a leg for commercial truck hooks not because they are needed for strength but because when you pull the ropes to maximum tension, the larger diameter truck hooks are not as hard on the fibers in the ropes as hooks of smaller diameter stock. Before you install hooks it is probably best to actually place bottom boards in the truck bed and see how they have to be placed to maximize the load. Yes, I know I said it is best to have the hives placed with all entrances to the rear, but if you have an odd size bed, you may want to place some lengthwise and sidewise. In my old 1960 four wheel drive Ford the space between the wheel wells is narrow. I also have an in-the-box mounted spare tire so I have to set my hives like this: three lengthwise behind the cab, then 4 pairs sidewise and then four across the back of the box lengthwise. Total 11 hives. I am not happy about this because if I slam on the brakes the frames in the sidewise hives have a tendency to swing. That has cost me queens as they get squashed.

Well, follower boards are a thing of the past so what I do is to keep the frames from swinging is keep 10 frame in the brood boxs. I keep the propolis scraped from the Hoffman ears, and then push the frames tight against one wall. Then I have almost 3/4 inch of space. In it I jam a piece of 3/4 x 3/4 say 4 inches long there between the top bar and the wall. Does this work? Well, I have dropped a hive off the tailgate once or twice and I have stumbled into hives at night and toppled them in the dark. With the 3/4 x 3/4 jammed in the frames have not swung and squashed bees and queens.

Now, I mentioned earlier that you could also modify your tops and bottoms. If you do not like two by two lift cleats on all supers, you can use one by twos. That makes a hive super 20 + 3/4 + 3/4 or 21½ inches. Then you modify your bottom boards by cutting them to 21-3/8 and finally, make migratory tops of 21-3/8. To make two cleat 21-3/8 tops I cut the plywod to 21-3/8 inches and my end cleats, which set at the end of and below the plywood, are 5/8 x 1½ inch lumber. Where do I get 5/8 wide lumber? I rip it from two by 12's.

In closing even if you never plan to move bees, you might have to in order to save them from pesticides so you should be prepared. In addition if you have never worked hives with lift cleats or have never carried a hive with lift cleats, I recommend that you put lift cleats on one hive including both brood supers and all the additional supers you need for it in a good summer. Cleats make such a difference I suspect you will never work hives again without them.

Hive bodies with lift cleats, on a 21-3/8" bottom and 21-3/8" four cleat top, box entrance screen and strapped with AGM Cargo Tie. Hive is ready to move.

Research Review

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

Spores Causing Botulism Found in Corn Syrup

In 1976 infant botulism was identified as the cause of a small fraction of the reported incidents of crib death, the sudden death of infants. Spores of the bacteria that cause the disease are widespread in nature. They have been found in garden soil, in vacuum cleaner dust and on raw vegetables. They have also been found in a small number of jars of honey.

Children and adults commonly consume these spores with no ill effects. Apparently the bacteria cannot survive in the normal human digestive system, but we don't know why. Unfortunately, however, in some infants the protective mechanism is not present before the age of six months. These rare babies may become seriously ill and even die if they eat anything containing the botulism-causing spores.

Until recently, honey was the only packaged food that had undergone nationwide scrutiny for these spores. The Food and Drug Administration has now examined 10 different foods normally fed to infants. Spores were found in two of 100 samples of honey and eight of the first 40 samples of corn syrup examined. In further tests of corn syrup the incidence was much less but some were found in samples from all regions of the country.

The FDA report states, "The reason for the susceptibility of some infants to botulism is unknown; therefore, FDA avoidance of such foods as honey and corn syrup for infants since they are not essential in infant feeding"

This report makes it clear that finding the spores that cause botulism does not violate food processing regulations. They are normally found on many raw garden foods.

No infant over six months of age has been reported as being affected by infant botulism. Probably some of us consume spores every day, obviously without trouble. I feel it is important to determine why only infants suffer from this problem. Until we know the answer to that question, we are forced to live with the FDA statement. The fact that the spores have been found in another packaged food is no consolation but does indicate we are not alone in having a problem.

References

Kautter, D,A,, T. Lilly Jr., H.M. Solomon and R.K. Lynt. *Clostridium botulinum* spores found in infant food: a survey. *Journal of Food Protection* 45: 1028-9 1982.

American Foulbrood in California

The number of colonies of honeybees being inspected for AFB in California has declined in recent years and this has caused concern. In 1982, the California Department of Food and Agriculture made a random inspection of 3,462 colonies in 12 counties and found a disease incidence of 5.8 percent. In states with routine inspection and control programs the rate is rarely above two percent and usually much lower. These findings should serve as a warning as to what can happen in states where inspection is not thorough.

There is nothing new about American foulbrood disease control. There are two good ways of coping with the problem. One is to burn all infected equipment. The other is to use a carefully controlled drug program. A third possible way, which needs more exploration, is the use of disease-resistant stock.

American foulbrood will not go away. The California lesson should be heeded by all beekeepers.

References

Mussen, E,C, Incidence of American Foulbrood in California. From the U.C. Apiaries, August-October 1982, pages 1 & 2.

More on Iron-containing Cells in Honeybees

Four years ago it was reported that iron-containing compounds were present in honeybee abdomens. It has been suggested that they enable bees to sense magnetic fields. It has been shown that some honeybee behaviors are affected by variations in the earth's magnetic field. A new report, cited below, indicates there are "bands of cells in each abdominal segment" of worker honeybees and that these cells contain "numerous iron-rich granules."

These cells can be treated with Prussian blue, a well-known stain, and seen with an ordinary dissecting microscope. Furthermore, nerves from the central nervous system contact these iron-containing cells which makes it probable that they indeed play some role in bee behavior.

It is difficult to visualize exactly how these iron-containing cells might be used by bees but it is encouraging to see more research on the topic. It will be an interesting subject to follow.

References

Kuterback, D.A., B. Walcott, R.J. Reeder and R.B. Frankel Iron-containing cells in the honeybee (*Apis mellifera*). Science 218: 695-7. 1982.

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Exhibit by California honey industry.

Honey Exhibit For California

California's honey industry is very proud of the results of a cooperative effort to place a 20-foot exhibit on honey and the industry in the California fair system.

Through the efforts of the manager of the California Honey Advisory Board, Marilyn Kiser, contact was made with the California division of Fairs. The Division of Fairs allocated $4,500.00 toward the project. The Honey Advisory Board $2,500.00 and the California State Beekeeper's Association, $3,500.00.

With these funds the exhibit was constructed at a cost of $7,000.00. The balance of the funds will be used for a leaflet to accompany the exhibit for distribution to fairgoers, maintenance and some travel.

The exhibit is very colorful with moving parts on three of the panels. Each 4-foot wide section has a six line explanation at the bottom which is easily read. The sections may be used independently, placed in a line or staggered. The entire exhibit rests on a platform surrounded by a "bee" design fence.

California has 84 fairs and 9 expositions each year. Over the lifetime of the exhibit we hope that fairgoers at every fair have the educational opportunity to see the exhibit and learn more about the honey industry in California.

California Honey Advisory Board News Release.

Cell Orientation and Comb Strength in Honeybee Colonies

By ROGER A. MORSE

Department of Entomology
Cornell University
Ithaca, NY

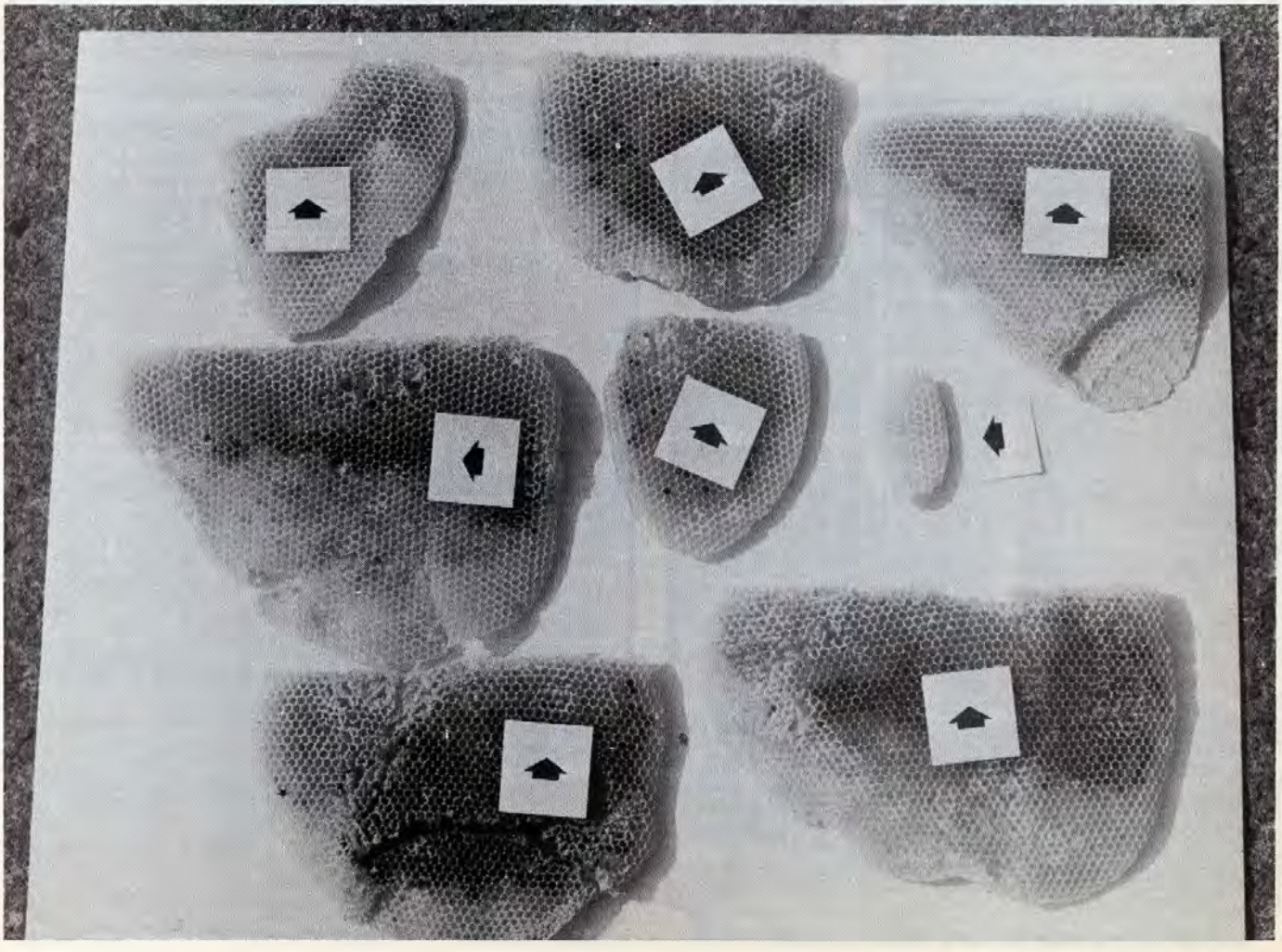
The efficient use of space in a nest or living area requires the use of cells or compartments that are triangles, squares, rectangles, or hexagons such as we find in honeycomb. Any other configuration leaves empty, unusable spaces between or around the units. The regular hexagonal cells provide greater strength to comb than would squares or triangles. One-and-one-half ounces of wax comb can support over 40 times its weight (four pounds) of honey (von Frisch and von Frisch, 1974).

The general orientation of these six-sided cells in the comb may be classified according to the approximate tilt of a pair of opposite sides using as a reference the top bar in a man-made frame or the topmost point of attachment in a wild nest. Cells with a pair of sides parallel to the top bar are designated "horizontal," while those perpendicular are called "vertical." Apparently, honeybees adapt to either configuration equally well and there are no reports of brood rearing or honey storage being affected by cell orientation. In most of the beekeeping world the orientation of cells is (unthinkingly) controlled by humans using sheets of beeswax foundation on which the comb cell bases are already embossed. The foundation is usually placed in the wooden frames so that each cell is in the vertical mode, with a peaked ceiling between two walls perpendicular to the top of the frame. However, in those few countries where beekeepers prefer elongated, narrower hives, sheets of foundation are shifted 90 degrees and the cells have the opposite orientation.

Two recent papers prompt the question of which arrangement, if

(Continued on page 14)

These eight pieces of natural comb came from a single bait hive in the Ithaca area. The arrow on each comb indicates the cell orientation (cell peak). The combs are quite different from each other yet each comb, by itself, is uniform.



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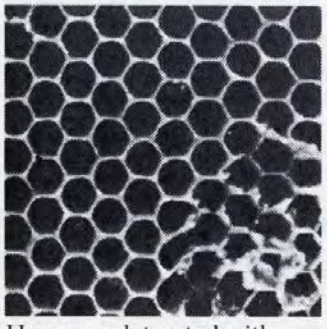
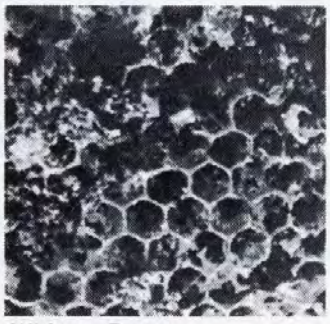


Honeycomb treated with Certan.



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Monthly HONEY Report

LAWRENCE GOLTZ

December 10, 1982

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	42.00	26.80	33.60	35.50	35.00	40.00		36.00	34.00
60 lbs. (per can) Amber	42.00	25.50	31.20	34.00	34.50	37.50			33.50
55 gal. drum (per lb.) White		.55	.56	.60	.61			.53	
55 gal. drum (per lb.) Amber	.62	.46	.52	.55	.56				
Case lots — Wholesale									
1 lb. jar (case of 24)	30.00	24.90	25.80	26.50	28.50	24.50		25.50	24.10
2 lb. jar (case of 12)	29.50	23.30	24.20	25.20	28.00	23.00		23.00	23.50
5 lb. jar (case of 6)	32.00	27.80	26.25	27.75	29.00	25.50		26.00	26.20
Retail Honey Prices									
½ lb.	.90		.90	.88	.89	.90		.89	.97
12 oz. Squeeze Bottle	1.50	1.20	1.50	1.39	1.25	1.35		1.39	1.39
1 lb.	1.60	1.40	1.50	1.49	1.35	1.55		1.59	1.69
2 lb.	2.70	2.59	2.85	2.59	2.60	2.60	3.25	2.49	2.69
2½ lb.	3.35			3.39		3.25		3.35	
3 lb.	4.00			3.79		3.85	4.50	3.99	4.09
4 lb.	5.00	4.95		4.79		4.90		5.00	
5 lb.	6.00		6.00	5.79	5.50	5.80		5.95	6.59
1 lb. Creamed			1.55	1.59				1.59	1.69
1 lb. Comb	2.25		2.25	1.99		1.85		2.09	
Round Plastic Comb	1.75		1.85	1.69				1.69	
Beeswax (Light)	1.65	1.35	1.25	1.75	1.60	1.40		1.25	2.00
Beeswax (Dark)	1.50	1.25	1.25	1.70	1.50	1.30		1.15	1.90
Pollination Fee (Ave. Per Colony)	25.00		27.50	18.00	18.00		25.00	20.00	18.00

Misc. Comments

Region 1

Bees in good condition in New England and heavy with honey. Should not require extensive feeding in spring. Honey sales about average. Soil moisture conditions are good.

Adverse publicity about honey in some health magazines continues, hurting honey sales.

Many beekeepers have stopped producing comb honey due to unprofitability. Suggest at least $2.25 per box as being fair to producer.

Region 2

Bees in good condition and heavy with honey due to good fall honeyflow. Very warm through November and early December. Retail honey sales fair, wholesale market is soft.

Region 3

Honey sales slow at retail and wholesale business very slow in November-December. Bee went into winter with large clusters and much honey. Not much feeding will be needed if conditions remain good for wintering. We need to begin helping our industry by clamping down on imports as a start.

Region 5

Much above normal temperatures in Florida. Bees have little to work on during November and December but some pollen coming in. Honey stores being used up fairly fast, colonies very strong, and above average amount of brood. Bees in good condition in North Carolina with ample stores. Weather unusually warm early in December, giving bees plenty of cleansing flights. Honey selling well as holidays approach.

Region 6

Warm weather allowed beekeepers to complete feeding light colonies in late fall. Bees in generally good condition in Kentucky. Heavy rainfall in November relieved drouth in fall. Honey sales at retail are good.

Region 7

Very little local honey for sale in Oklahoma, Bees in good condition at present but may need some feeding in spring. Fresh trapped and frozen pollen selling well.

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Cell Orientation And Comb Strength in Honeybee Colonies

Continued from page 10

any, is naturally preferred by bees. There is also a related question of whether cell orientation affects the strength of the comb. In natural comb the greatest stress is on those cells where the comb is attached.

Hepburn and Rigby (1981) tested six different types of foundation and found "an additional 30% increase in foundation-in-frame strength" for the horizontal orientation over the vertical. No theoretical calculations were made; the tests were conducted in a laboratory by stressing samples until they stretched or broke. I have read the paper carefully and the experimental methods appear sound. However, their extrapolation that comb built from horizontal-type foundation is also stronger is not based on any direct testing. Another paper, by von Oelsen and Rademacher (1979), stated that "learning processes are greatly involved" in comb building and that the orientation of the cell in which a bee was raised affects the type of comb it builds. They also found that the comb building process can be affected by gravity. For example, bees reared in round cells in a horizontal (flat) position were unable to construct comb.

The thought that there might be a best way to install foundation and encourage bees to build comb caused me, as it has so many others, to search the literature on the subject and to make observations of nests in nature. The place to start whenever questions about wax and comb are concerned is with Huber, the blind Swiss, who with his assistant Burnens recorded so many excellent observations about honeybee natural history. His book, written in French and published in 1814, has been translated into English several times, though it is agreed that the best translation is that made by C.P. Dadant and first published in 1926.

In Huber's time the scientific method as we know it was by no means uniformly practiced. Many "scientists" of the time blindly or faithfully repeated old wives' tales and other equally ridiculous and unsubstantiated beliefs. In contrast, Huber trained Burnens to record precisely what he saw. Huber was fascinated by the natural beauty and construction of comb by bees. He fashioned a hive with a glass floor and Burnens watched as the bees from a swarm built comb. Huber recorded accurately that the first cells attached to the top of the hive were not hexagons but pentagons (five-sided). It is interesting that, as Huber noted, the two vertical walls of these topmost cells are elongate so they have at least as much volume as normal cells; they can be used for either food stroage or brood rearing. The pointed bottoms of such cells, when used as sides of the next row of cells, led to the construction of cells of the vertical type. It is a curious fact that though Huber devoted a large part of his book (67 pages in Dadant's translation) to observations and discussion of wax comb, the question of cell orientation did not arise! If Huber saw any other orientation he did not mention it. All of his figures show vertical cells.

The next logical source to search was the work of the father of American beekeeping, L.L. Lanstroth. The first and second editions of his *The Hive and the Honeybee* contain no plates or figures other than the frontispiece, a drawing of a queen and several workers on a piece of comb in which the cells are in the vertical orientation. Figures first appeared in the third edition (1859) and here we find two plates (XIV and XV) in which, using the queen cells shown as a reference, the cells are in the horizontal orientation. These same plates are found in all later editions through 1883. One may argue that by 1859 Langstroth had made a sufficient number of hives and manipulations, including transferring comb from wild colonies into new frames, that he could have unwittingly turned some comb 90° and brought about an other-than-vertical orientation. However, like Huber, Langstroth made no mention of cell orientation.

Charles Darwin (1959) devoted 12 pages in *The Origin of Species* to the subject of honeycomb and its evolution. He betrayed a certain prejudice by writing, "He must be a dull man who can examine the exquisite structure of comb, so beautifully adapted to its end, without enthusiastic admiration." He continued, "We hear from mathematicians that bees have practically solved a recondite problem, and have made their cells of the proper shape to hold the greatest possible amount of honey, with the least possible consumption of precious wax in their construction." This kind of language suggests that Darwin was entrapped in 19th century thinking and expected perfection from bees, a viewpoint not universally accepted today. In any case, Darwin did not address the question of cell orientation.

I examined books of a few older authors. Among these was Rusden (1679), whose frontispiece and two illustrations (pages 67 and 77) show cells with a vertical cell orientation. Miner (1849) was no different.

Cheshire (1886) is one of those writers we all respect and to whom we often turn when we seek documentation on some subject pertaining to bees. Well known for his devotion to detail, he wrote a whole chapter on "Secretion of wax and bee architecture." That chapter includes three pictures of a piece of comb, and there is at least one more in an earlier chapter (page 17). All show cells with vetical side walls; furthermore, in this chapter I can find no mention that bees might build comb in any other fashion, though the fact that cells are not uniform, and that transition cells are of varying shapes, is dealt with, in detail.

Vertical Horizontal Tilted

For several years the question of cell orientation and how a sheet of foundation should be positioned in a frame was a "hot" subject. It was fueled and refueled, expecially in the late 1920's. Digges (1904) illustrated the "right" and "wrong" ways to fix foundation into frames. His reasoning was that it had been concluded by Huber and Cheshire "and indeed by everyone who has carefully examined a honey comb, that it is customary for bees to build their cells with two of the six sides perpendicular [i.e., "vertical"]. I can only presume that this conclusion by Digges was based on

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HONEY FOR HEALTH

Cell Orientation And Comb Strength in Honeybee Colonies

Continued from page 14

their illustrations, since they did not write on the subject. However, in the last (16th) edition of this popular book that I have (1950), I find no discussion of cell orientation.

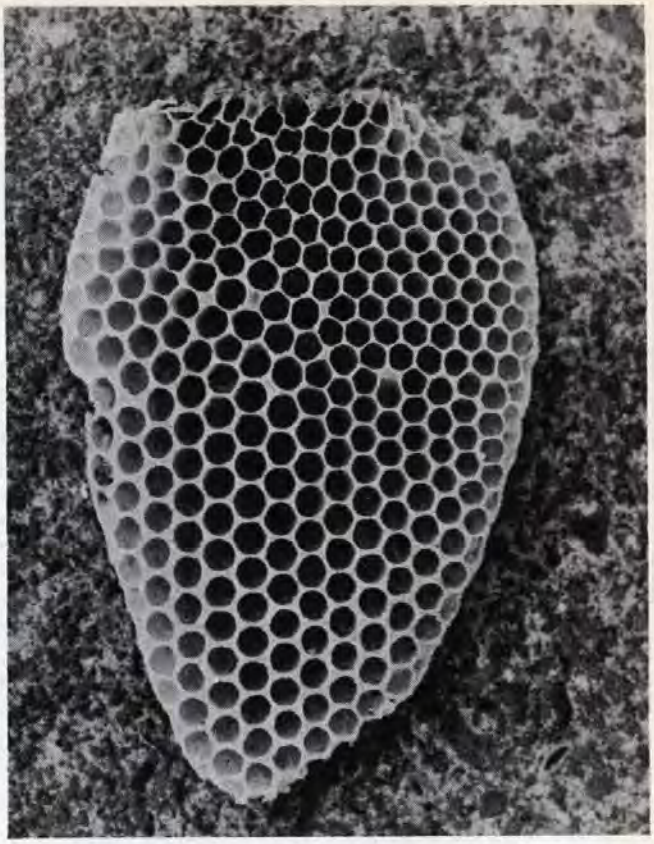
Wedmore (1929), Betts, (1929), and Thompson (1930), have written interesting discussions of cell orientation, and it is apparent from their articles that comb built either way was commonly seen, at least in England. Thompson examined 268 pieces of what he called natural comb and reported as follows:

Combs with vertical sides — 131
Combs with horizontal sides — 123
Combs with both ways up at once — 1
Combs intermediate with no truly vertical or horizontal sides — 13

Thomson noted that in one case combs with different orientations occurred in the same nest. Contrary to the data and speculation presented by Hepburn and Rigby (1981) are statements by Dadant (1946) that tests using foundation in both orientations in the Dadant apiaries indicated there was no advantage in either. Von Frisch asked an engineer friend if the orientation made a difference in strength and reported (von Frisch and von Frisch, 1974) that theoretical calculations indicate there is no difference. Root (1951) said he was convinced the bees prefer comb with cells with a vertical orientation but he was aware that both orientations were common. He pictured a frame with comb built without foundation in which both orientations could be used.

We are still left with the question of which arrangement is "natural." Comb foundation was first made in 1857, though there is a single claim that an attempt at foundation making was made in Germany in 1843 (Pellett, 1938). However, the use of foundation did not become widespread until about 1880 (Johansson and Johansson, 1969).

Soon after the Langstroth hive came into existence beekeepers found they could cut comb from a wide nest in a tree or building and tie it into a wooden frame; the bees would add wax, fixing the comb in place, and chew away the string. When carefully done the beekeeper had a movable frame with a reasonably uniform surface. Cook (1883) illustrated the technique and we can presume that from about 1855 on it was widespread. Cook made no mention of cell orientation. The crude drawing in his book (page 160) suggests the comb was fitted into place without regard to cell orientation.



This single piece of comb built between two widely spaced man-made combs in a langstroth hive has cells with two orientations; it is not clear how bees make a change such as this in the middle of a single comb.

Taber and Owens (1970) avoided the question of cell orientation and concentrated on a wider question, that of cell configuration and uniformity. Their study of 32 nests in which bees were forced to build natural comb with no aids from man showed that while nests have a relatively consistent shape and mode of construction there are a great number of irregular and misshapen cells. They point out that most 18th and 19th century biologists gave teleological explanations for variations that occurred in comb construction rather than accepting the fact that a certain number of cells are more poorly made than they might be. It would appear that the early biologists, because of their strong training in mathematics, and perhaps wishing for orderliness in nature, expected perfection from a creature so noble and advanced as the honeybee.

Cell Orientation by Asian Bees

There are four species of honeybees on earth; one (*Apis mellifera*) is native to Europe and Africa and, transplanted to North America, is the species we use in beekeeping. The other three are *Apis florea* (the dwarf bee), *Apis cerana* (the Indian bee), and *Apis dorsata* (the giant or rock bee). All three are Asian. *Apis cerana* is found throughout Asia while the other two species are restricted to the tropical parts of that continent. The biology of *Apis cerana* is much like that of our own bee; for example, it builds nests of parallel combs in cavities. Nests of *Apis florea* and *Apis dorsata* consist of single combs built in the open, attached to tree limbs or rocks. I turned to an examination of comb built by the three Asian species to determine the possible preferences in cell orientation.

I examined Kodachromes of six *Apis dorsata* nests from the Philippines that I had taken in 1968. One of these is pictured in Michener (1974) on page 353; the comb is reasonably uniform and cells clearly have a horizontal orientation. The position of the queen cup, at the very bottom of the nest, which is typical of *Apis dorsata*, confirms that the comb is being held in its natural position. The way in which the cells are joined to the tree branch, which is at an angle of about 30° to the right of perpendicular, with five-sided cells, is similar to that described by Huber for *Apis mellifera* cells attached to a top bar. In examin-

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Cell Orientation And Comb Strength in Honeybee Colonies

Continued from page 16

ing pictures of three other nests of *A. dorsata* built on branches that were 30° to 60° from the perpendicular, I also found cells with horizontal side walls. Cell orientation can be determined in three *A. dorsata* combs in Morse and Laigo (1969); two of them are on limbs that are more or less horizontal while the position of the limb on which the third comb was pictured cannot be determined; all three combs have cells with vertical side walls. A single *Apis dorsata* nest I removed from under a building overhang in Burma in 1982 had cells with vertical side walls. Clearly, for *Apis dorsata* both types of cell orientations are common and "natural." Man has not been able to hive *Apis dorsata* or to get it to use comb or foundation provided for it. Probably we have had no effect on the cell orientation of this species.

I could find no pictures of natural *Apis cerana* comb. Beekeeping is practiced with this species and foundation is used in some areas, so one must exercise caution in drawing conclusions from pictures. In Burma in 1982, I examined two nests of *Apis cerana* in top bar hives started without foundation and observed both cell orientations in both nests. There was also a lack of uniformity from comb to comb as is reported below for *Apis mellifera* in Ithaca.

I also examined 11 swarms or nests of *Apis florea* in Burma in 1982; seven had comb. All the combs had cells with vertical sides and were remarkably uniform comb to comb. The bushes and other surfaces to which the comb was attached were all nearly horizontal, unlike many of the *Apis dorsata* nests examined. This caused me to think that cell orientation in all species might depend on the angle of the surface upon which the comb is built, an idea I have since discarded because of the observations described below.

Akratanakul (1977) pictures several *Apis florea* combs. Most of these show cells with vertical side walls and while none have comb containing cells with horizontal sides one sees some with a less-than-perfect, vertical orientation (figures 7b and 7c) and one with badly disoriented cells (12b). These few observations on *Apis florea* and the uniformity found with this species in two adjacent counties (examined in locations spread over about 300 miles north to south) suggest that a more thorough study of this species should be made.

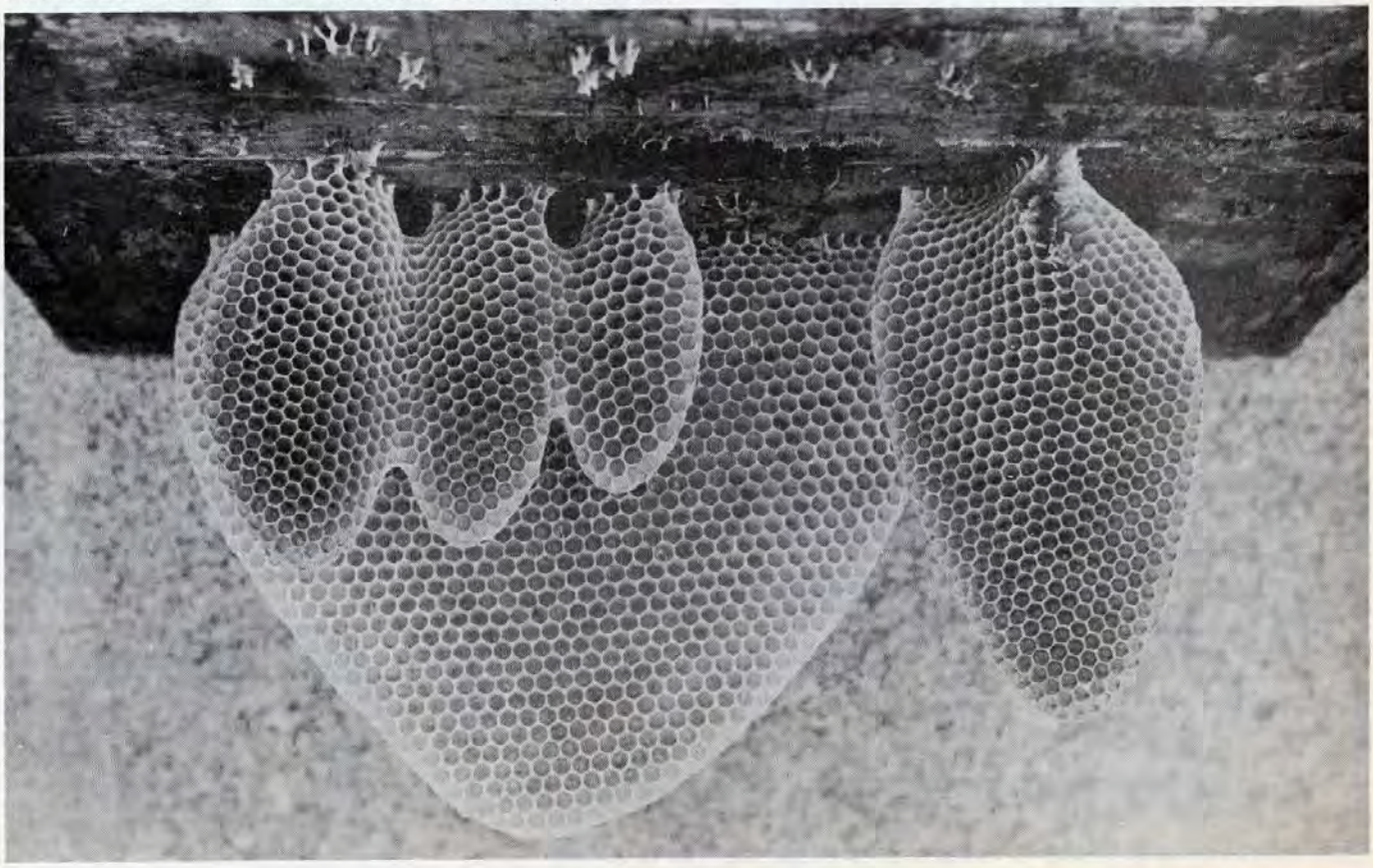
Apis mellifera: Observations on Bait Hive Comb

Around Ithaca, N.Y., I examined comb built by *Apis mellifera* in seven bait hives as well as that built in Langstroth hives in spaces without frames. All of this comb was built in June and July of 1982. The comb in two of the bait hives all had the same general orientation: the cells had vertical sides. The remaining five bait hives and the two hives with extra comb all had combs with both orientations. However, in few cases could it be said that the orientation was within five degrees of being either exactly vertical or exactly horizontal.

Conclusion

It seems that we like order and consistency in our lives and in things about us. Throughout history honeybees have been held up as examples of those good things we resepct. It is perhaps to be expected, then, that a work of such beauty as a honey comb should be perfect. Part of being perfect would be to have the cells in a comb all oriented in the same direction; obviously they are

Several pieces of comb on the underside of an innercover show different orientations. The comb on the right clearly shows the five-sided cells that attach to the top of a hive.



not and this has caused many people to be concerned. The underlying biological reason, if any exist, are not clear.

So far as I am aware, all foundation, at least in the United States, is made so that cells have vertical side walls. This may have to do with the machining of the mills. Curiously, in the all-metal comb with about half-inch deep cells made and sold from about 1918 through 1925, the cells had horizontal side walls. It is not clear why they never became popular but they were used widely with at least some success and the cell orientation was apparently not a problem.

Honey comb, with its six-sided cells, is a product of evolution. It has the advantage of making efficient use of space and providing great strength with minimum building material. However, there is obviously variety in cell construction and cell orientation. For a great number of years evolutionists looked for consistency and when a plant or animal showed variation they thought of it as being abnormal. It is now understood that variation is normal and a key to evolutionary success.

There is one little point that bothers me. The shape of a honeybee pupa, with its developing mouthparts and legs, seems to fit a cell with vertical sides and a peaked top much better than a horizontal-type cell. Obviously this cannot be of much importance, for bees develop normally in both types of cells, as well as in those that are somewhat askew.

As for the bees it would appear that they don't care, and after all the final decision is theirs!

*The drawing is found in his chapter on transferring bees but only in the eighth and late editions.

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Science fair winner USDA's bee lab

STEVE STAUFFER's summer internship with the U.S. Department of Agriculture's (USDA) Honey Bee Research Laboratory on the University of Wyoming campus appears to be developing into a much more prolonged visit to the area.

Stauffer, a 1982 graduate of Dallastown (PA) High School, was offered the USDA internship as a result of the impressive high school science fair exhibit he developed over a three year period and which also won an award of special merit (a plaque and cash prize) from the American Veterinary Medical association in international competition this year.

His exhibit demonstrated that the fungicide, benomyl, could be carried by honeybees from treated areas to their home hives.

The USDA annually offers internships to high school students with superior projects in agriculture-related areas competing at the international level. Stauffer was among those offered such an internship last spring and picked the UW-based lab from among six USDA bee labs in various parts of the U.S. The pesticide studies here matched his own interests.

His internship ends this month, but he intends to continue working at the lab through next summer and to enroll as a freshman in UW's biochemistry program next fall.

Stauffer works 40 hours weekly, part of the time as a research aide in the lab's studies of pesticides and their effects on honeybees throughout the region, and part of the time extracting honey produced by UW's seven "bee yards" west of town. His laboratory work is primarily analytical, utilizing various sensitive devices in the UW Biochemistry Department.

Stauffer is the first USDA science fair internship winner to pick the bee lab here for his employment.

"I was really glad to get the offer." he says. "Jobs are really scarce. I'm very happy to be working on active research projects and to get the experience in the laboratory even before starting college studies in this area. This is the nicest group I've ever worked with."

Stauffer comes by his interest in science and bees quite naturally. His father, Duane, a high school science teacher, also instructs marine biology part-time at nearby York College. The family keeps 20 hives of bees in the Dallastown area and Steve has shared in the operation for eight of his 18 years.

Bees and Gardens

THIS MONTH I would like to discuss a rather touchy subject about which beekeepers have very different views. For some beekeeper gardeners the chemical sprays have no place in insect control in the home garden, preferring to leave prevention and control of harmful insects and diseases to non-chemical measures. These measures include the use of predator insects; controls by mating interruption, as in irradiation and pheromone manipulation; the application of botannical controls such as nicotine, pyrethrum and rotenone; and the use of control organisms which are bred for this purpose, such as certain bacteria. Some of the materials and techniques used in this type of insect and disease control are not yet available for home gardeners. People who have confidence that these methods could replace the customary reliance on chemicals look to the future when these methods are perfected for both home and commercial use, thereby replacing chemicals, which of course could be retained for possible emergencies.

Other gardeners contend that building up the tilth and nutrients in garden soil, along with a number of beneficial and active soil organisms, such as bacteria and earthworms, and maintaining the soil at this level provides growing conditions which help to avoid serious diseases and insect damage. Compost, barnyard manure, green manure crops, cover crops, mulching and other organic fertilizers are used for soil building and conditioning. Cultivation adapted to this type of gardening is practiced. I refer to cultivation practices in the broad sense which could include such divergent and sometimes intensive practices as continuous or periodic irrigation, bedding, mulching, soil fumigation for nematode control, hydroponics, soil aeration and environmental controls such as heated enclosures. Some of these practices are aimed at providing growth conditions which minimize reliance on chemical controls.

Just prior to writing this column a communication was received from Robert N. Merz, Sr. of Reedley, California about growing garlic in the home garden and its value as an insecticide. Professor Merz says, "It has been only in the past few years that garlic" (as an insecticide and bactericide) "has been rediscovered. Researchers around the world have found that garlic has the uncanny ability to kill some of the most bothersome insects and their larvae, but does not seem to harm in the least some of the beneficial insects." A short paper, *Garlic, The Insecticide,* has been co-authored by Professor Merz and his assistant, Mindy Kirchman, which gives the results of experiments carried out this past year (see references).

At the other end of the opinion spectrum are those gardeners who show no hesitation about using chemical insecticides. There are the few who carry toxic spray use to the extreme by carelessly spreading insecticides over their gardens, trees, shrubs and lawn with usually a liberal drift to their neighbor's property. We prefer to believe that those who indulge in this manner of insecticide abuse are non-beekeepers.

Between these alternate approaches to insect control are some fairly effective measures that will prevent or greatly reduce the chances of bee loss if chemical insecticides are used.

Except under extraordinary conditions most plants are subject to some form of attack by disease organisms or harmful insects. Almost anyone who has had any experience at gardening will attest to that fact. How to cope with this possibility is an individual decision. Recommendations written by most Agricultural Extension Service publications for home gardeners advocate some form of chemical controls.

Fortunately, the unwise use of insecticides by home gardeners, when it occurs, is usually not as destructive to bees as may be imagined. The usual one or two application controls used by home gardeners are usually of only moderate toxicity to honeybees. The general purpose sprays sold through retail outlets are usually modified formulas, marketed by manufacturers with the caution in mind that they will be used by non-certified applicators. Usually much more deadly to apiaries are the aerial and high volume ground sprays in the hands of applicators who disregard or are unaware of the presence of hives in the sprayed area. Too, hobby beekeepers, who are safely out of the range of the application of toxic sprays to commercial orchard and truck crops, are sometimes hit unexpectedly by chemicals sprayed over the community for other purposes, such as mosquito control.

Detailed discussion of the various insecticides, fungicides, miticides and herbicides available is far beyond the capability of this column, so the

recommendations you follow, whether they include chemicals or not, are those of your own choice. Neither this choice, or what the effects are of chemicals applied to food crops on the human body will be discussed in this column. Truthfully, I don't think we can be certain, during the time in which crop chemicals have been used, of what the long term effects on humans has been. Some short term effects on birds and animals suggest, or prove, that certain chemicals can be very lethal; that others bear close watching and that some are fairly harmless. What we must maintain is a reliable monitoring system, combined with the authority to bann or restrict chemicals which threaten human health or the existance of an industry such as beekeeping.

Things To Consider When Using Hazardous Pesticides Around Honeybees

1. The kind and amount of pesticide used are important. Use the proper dosage of the safest material (on bees) that will give good pest control. Read the label and follow approved local, state, and federal recommendations.

2. When using materials hazardous to bees, notify the beekeeper so that he may protect his bees.

3. With few exceptions, dusts are more hazardous to bees than sprays.

4. Airplane applications are more hazardous to bees than ground equipment applications.

5. Treating large areas and repeating applications may cause greater bee losses.

6. Time of applications is important and depends on blooming period and attractiveness of crop. Treatments when bees are foraging in the field are usually the most hazardous. Treatments over colonies in hot weather when bees are clustering on the outside may cause severe losses. Treatments during the night and early morning before bees are foraging are the safest.

7. Treating a non-blooming crop with a hazardous material when cover crops, weeds, or wild flowers are in bloom in the field or close by may cause heavy bee losses. Drift of pesticides to neighboring fields attractive to bees also may cause losses.

8. Location of bees is important. Colonies located in the field and treated over may sustain more losses than colonies not treated over at the edge or outside of the field. Colonies moved into the field after treatment may escape damage.

Our purpose then, in writing about insect and disease control in home gardens is to provide information which will help a beekeeper-gardener to identify the highly toxic insecticides. There is no longer compensation for bee loss from insecticide applications, and when there was, there were few claims made by hobby beekeepers. This leaves the hobby beekeeper-gardeners in a position, as always, of having to rely on self-help to avoid serious pesticide losses. Cooperative action, through a beekeeping organization, is proving to be hepful to individuals when faced with possible insecticide spraying that is harmful to bees in the neighborhood. To carry out this objective one of the first steps is to identify the spray used or what is proposed to be used as an insecticide. Following is a list of highly toxic insecticides along with some applications that may help to identify them. The wording is copied from the publication in which the descriptions of the various pesticides appear.

Highly Toxic

Carbaryl (Sevin) is a carbamate chemical and is effective against codling moth, leafroller, aphids, apple maggot, periodical cicada, grape berry moth, Japanese beetle, oriental fruit moth and other fruit insects, as a foliage insecticide on garden vegetables starting at emergence and continuing at regular intervals. The most dangerous period for honeybees is during blossom time which is during most of the summer on melons, for example, making its use a high risk around bees. It is effective against Colorado potato beetle and the Mexican bean beetle which pose less of a risk to bees but may contaminate nearby nectar plants which are being worked by bees.

Lead arsenate is commonly used in the form of acid lead arsenate but much less used than formerly. Used in fruit orchards, forest and shade trees and on shrubs for chewing insects.

Parathion (ethyl) belongs to the group of organophosphorus insecticides which are synthetic compounds. Parathion is highly toxic to both insects and mammals but is a very effective insecticide for plants. It is used against leafroller, aphids, oriental fruit moth and numerous other insects on fruit trees and on vegetables and field crops. Very dangerous to use.

Parathion (methyl) is an organophosphorus insecticide, less hazardous than parathion (ethyl) to mammals but has the same toxicity to insects. It is manufactured in large quantities in the United States, being widely used in fruit, vegetables and field crops, on cotton where it replaced DDT. Penncap M is an encapsulated form of methyl parathion. Encapsulation makes the insecticide safer for handling but much more deadly to honeybees.

Diazinon is a phosphate insecticide that has shown some activity against aphids, apple maggot and many other fruit insects. It is not an effective miticide. Less dangerous to use than some insecticides but highly toxic to bees.

Dimethoate (Cygon) is a systemic miticide/insecticide which is approved for use on apples and pears.

Imidan (Phosmet) is a phosphate-based material that is effective against many pests such as the codling moth, apple maggot, plum curculio, aphids, oriental fruit moth and leafrollers. It usually supresses European red mites and two-spotted mites when used in a seasonal program. It is moderately toxic to humans.

Azinphosmethyl (Guthion) is a phosphate-based material that is used against most orchard pests including codling moth, apple maggot, aphids, plum curculio, leafrollers, European fruit lecanium scale and some mites. *Azinphosmethyl* is a highly toxic material.

Malathion is a phosphate-based material that is relatively safe for general use and can be used up to a few days of harvest. It is less toxic to insects and so must be used at higher doses.

Phosdrin

The above is not a complete list as other insecticides are placed in the "highly toxic to honeybees" catagory by other publications. We suggest that you contact your nearest Agricultural Extension Office for more information about pesticide toxicity in respect to bee hazards.

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Cook & Bake With Honey

By AMOS ARBEE

Cooking and baking with honey is really worth whatever extra effort may be necessary to put together your recipe.

Someone once said, "Some people know the price tag on everything, and the absolute value of nothing."

I think this could easily sum up honey's role insofar as cooking and baking of nutritious and delicious foods are concerned.

In conclusion, along with a favorite recipe using honey, a few words of precaution which most people who have been using honey are already aware of. Usually its a good rule of thumb to lower the baking temperature used in the recipe by about 25 to 30 degrees F. In most cake and cookie recipes the use of a mild flavored honey such as clover or alfalfa is ideal. Now for a favorite recipe;

"Honey — Gingerbread"

Sift together and set aside:
2½ Cups sifted flour
1½ teaspoons baking soda
1 teaspoon cinnamon
1 teaspoon ginger
½ teaspoon salt
¼ teaspoon cloves

Combine and set aside

1 Cup boiling water
½ Cup molasses
½ Cup honey

Place ½ Cup of vegetable shortening into your mixing bowl and add gradually, creaming well ½ cup sugar and one egg, well beaten.

Then beating only until smooth, the dry ingredients in fourths, and the liquids in thirds to the creamed mixture. (Do Not Overbeat)

Bake at 325 degrees F. for about 50 minutes.

Hint: Serve warm with Orange blossom honey drizzled over the servings.

When New Year Comes (We Look to Spring)

By JOHN BOLF
Lake Oswego, OR

The January skies are gray and low clouds blur yonder hills. Naked trees stand gaunt against the cold of winter, and deserving soils sleep under a mat of molding leaves. Oregon drizzles and careless colds are yet in the offing while wild creatures tolerate, try to survive, and wonder how long.

No matter how deep we are into winter or how raw the day, it is because of the urging of a habit that I trace my footsteps across the lawn into the bee yard in the thickets beyond. The bees are not flying, will not even appear in the entrances to greet my coming. But I stop by each of the hives to while away a little time and to see what I had seen when I was here only a couple of days ago. Reminiscences awaken here and I can see again the apple blossoms of April, recall my wanderings across the hillside meadows under the summer sun, and smell the spicy aromas in the October air. In these adventures I gather jewels of observations and experiences worthy of entries into my bee journal.

Of these memoirs one outstanding incident comes to mind. It is that concerning hive #2. Because of my oversight in proper hive manipulations it was to contribute to broadening my knowledge in bee behavior, yet deterring nothing from a good honey yield.

In the fall the bees were given a shallow super full of sealed honey below the single brood chamber where it would be easier for them to reach. In early April I placed the super above the brood nest because there was an abundance of nectar blossoms and the weather was ideal.

A week later the shallow super was well started with new honey. I wanted to put an excluder below the shallow so I looked for the possible presence of the queen. The combs were full of bees and I was unable to find the queen among them, so I presumed that she must be in the brood nest below. I placed the excluder on the deep hive body, set the shallow on top and added another shallow super. Two weeks later I checked the supers and was dismayed to find that the queen had been trapped above the excluder and had brood started in the first shallow super. There was little to do but to place the excluder above the first shallow super. This resulted in a colony with a 1½ story brood nest.

Three or four years ago I reverted to the single brood system of bee management. You who have been readers of *Gleanings* for a few years will probably remember Charles Koover who was a dedicated beekeeper and a talented columnist. His articles have been appearing in this publication for quite a while. In his column in *Gleanings* of 1977, page 540, he states: "One single deep brood is all the queen needs to lay all the eggs she can possibly lay in a 21-day laying cycle."

I had a liking for the one-hive body idea and after working with both, the one-hive and the two-hive colonies, I failed to prove to myself that the two-hive body brood nests could be credited with greater honey yields. However, the two-body nests are favored by most beekeepers and I am sure there are qualified reasons.

None-the-less, I now had a 1½ story colony without planning it that way.

In June I took three supers full of comb honey from #2 and the honey flow was still strong. I was so elated with the yields that I began musing over the idea of going to the one deep and one shallow bodies for the brood nest. However, one cannot base too much logic on untried and unproven principles, but it appeared this merited some study. My enthusiasm could not contain itself, so one day while working with the supers I decided to look into the brood. I pulled out a frame from the shallow and was astonished at what I saw—a gleaming white capped comb full of honey. The entire shallow "brood nest" was filled with the golden treasure. And the deep below had the most beautiful brood I had ever seen. Evidently the queen was satisified with only a single deep brood chamber. Or was it that the workers had decided to store honey below the excluder in preference to squeezing through it? That got me to thinking, and I'm still thinking because I haven't arrived at an answer.

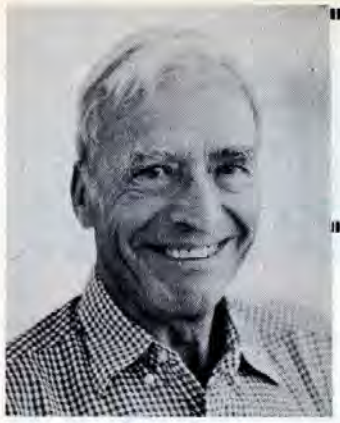
No. 2 colony hadn't swarmed and produced six shallow supers full of honey and one about three-quarters full. Two of these were reserved for their winter use.

On these days when the wind comes from the frigid North and crystal castles form overnight in the shrubs along Oswego Lake, we think of the mysteries and wonders that come with this season. There are no sounds but the whispering of the breeze and the complainings of ice encrusted branches. Life is reluctant. Only the birds are stirring. They depend upon the feeders under the fir trees by the house. Sometimes the lonesome hoot of an owl in the back woods breaks the solitude in the somber shadows in the night.

We look to everything that is good. There is goodness in the soil soon to awaken to new growths and in the days now getting longer. The silver catkins of pussy willows will be opening on slender whips like tiny dancing stars, brown aments hanging like tassels in filbert trees in precise orchard rows and in hazelnut shrubs along winding country roads. When the clouds part to let in the sun the bees will be flying for their first sources of nectar and pollen.

The bees are staying indoors because there is nothing outside for them to do. But the beekeepers read periodicals and books, get equipment into shape, and mingle where beekeepers come together. From these activities, mental nuggets are garnered for the pages of my bee journal.

They are the treasures and delights of beekeeping.



Siftings

By CHARLES MRAZ
Box 127
Middlebury, VT 05753

Recently in Barre, Vermont, a meeting was held by people that knew Dr. Jarvis to tell how much he has influenced their lives, not only in health, but in music as well. When his book, *Folk Medicine* was published in 1958, just about every beekeeper knew about him because of the great interest his book generated in the use of honey. The book was also translated into Japanese where it also generated greatly increased use of honey that continues to this day. Japan, along with Germany is one of the largest honey importing nations.

For 2½ years his book was on the best seller list for non-fiction and it is still in print and available. It sold over 3 million copies and still selling today. It is time we beekeepers revived an interest in this book again, his remedy, honey and vinegar is still as effective for good health as it ever was. No doubt the economy has something to do with the reduced honey consumption, but if the use of honey means better health, the use of honey should increase, not decrease. I believe from personal experience that the use of honey in the diet instead of sugar can reduce the incidence of heart disease, as recent tests on rats by the USDA have indicated. With heart disease causing about 50% of the deaths today, even those in middle age, the use of honey to reduce this serious disease is worth considering.

If we are to counter statements by those with no experience that say honey is no different than sucrose in the diet, we need experimental research to prove there is a difference as has been proved by the USDA research. Feeding experiments on infant animals such as rats should reveal information on the difference between natural milk and honey, and artificial formulas for example. If such research will ever be carried out is the question. If it ever is, the beekeepers will have to do it. No one else will.

I believe that beekeepers themselves are also to blame for the drop in honey consumption, by producing poor quality honey with high moisture content. I pack and buy quite a lot of honey every year and one of the great problems is to find good quality honey. So much of the honey being sold is "green", unripe honey with a high moisture content that in time develops honey that will "burn" the throat when eaten, rather than the smooth, mellow flavor of well ripened honey. Good honey should have less than 17% moisture, preferably under 16.5%.

Much of the honey packed today is heated to a high temperature to kill the yeast to prevent fermentation in high moisture honey, and then filtered through plate filters that makes a very clear, sparkling honey that will not crystalize. Unfortunately honey so processed, can hardly be called honey anymore, but rather only a sweet syrup. The flavor and character of the honey is greatly reduced as well as most of the biotic enzymes.

Much of the honey we now pack is in the natural, crystalized form without heating or filtering above 110°F, so that it does not liquify. This retains much of the fragrance, character and biotic material of the honey just as it is collected by the bees. We constantly hear remarks from people that try this natural crystalized honey that it is the best honey they ever tasted. Many say they did not like honey until they tried the natural crystalized. Now they love honey and will not buy anything else. People do know the difference. The only way to increase consumption of honey is to pack honey that contains the fragrance and aroma of the flowers that produced it, honey that most people will love to eat, that will not "burn" their throats. If we can increase consumption of honey just one pound per person, per year, there will be a shortage of honey in the U.S. instead of a surplus we now have.

Invitations are now being sent out for the 29th Apimondia International Congress to be held in Hungary, August 25-31, 1983. There is no better way to visit another country than to attend a beekeeping congress. As a beekeeper, you are a member of the international family of beekeepers, rather than a "foreigner". You can then visit beekeepers on a personal basis where they live and work rather than looking through a cage.

So far, I have visited beekeepers in Russia, Romania, Mexico, Columbia, Germany, England, Czechoslovakia, Sweden, Hawaii. I hope it will be possible to add Hungary to the list as they are good beekeepers with a long history. If you ever have a chance to visit these countries, a new one every two years, you should by all means do so, and visit other parts of this world we live in.

By the time most beekeepers read this, the bees will be packed for winter, if you do any packing. The article on page 610 *Gleanings*, November 1982 by V. Shaparew on ventilating inner covers demonstrates again the importance of upper ventilation for wintering bees. Some beekeepers think the colder the climate the less ventilation they need to "conserve" heat. Actually the opposite is true, the colder the climate, the more ventilation is needed. The colder the climate, the more condensation there is of the moisture bees give off eating honey to keep warm. Cold does not kill bees, but moisture in the winter is deadly. L.L. Langstroth over 100 years ago strongly advocated plenty of ventilation for wintering bees. Yet it still has to be repeated every year to help prevent winter losses by those that do not have the experience.

Along with plenty of upper ventilation, Page 629 Staney Loyer of Maine advocates three or four hivebodies with honey for wintering. Three hivebodies is usually enough if they contain over 60 lbs. of honey. One hivebody for wintering is useless in New England. Two hivebodies if full of honey works well, but they lack room for early expansion for brood before the beekeeper can get around to put on more room in spring. Three hivebodies or its equivalant is the minumum for wintering strong colonies in the northern states and Canada.

(Continued on page 27)

Reader Survey

Promoting Honey Sales

By LARRY CONNOR, Ph.D. Director, Beekeeping Educ. Service Cheshire, CT

The following is a survey designed to be completed by readers of *Gleanings in Bee Culture*. I intend to summarize this information and publish the results in this publication to help a large number of groups, organizations, companies, and people like myself, make plans for the future.

RULES:

1. Only beekeepers and honey sellers should complete this survey.
2. Do not place your name and address on the survey, but do include it in the envelope, or on the envelope, to help with the statistical information.
3. Return by February 5th, 1983 to:

HONEY PROMOTION SURVEY
P.O. Box 817
Cheshire, CT 06410

4. Additional copies of the survey may be obtained by writing the above address, and including a suitable pre-stamped, pre-addressed envelope.

HONEY PROMOTION SURVEY

A. ABOUT YOUR HONEY SALES

1.	How many colonies do you operate?	_____	
2.	Are you actively involved in honey production?	yes	no
3.	Do you sell honey on a retail basis?	yes	no
4.	Do you sell **only** your own honey?	yes	no
5.	Do you buy and resell honey produced by other beekeepers?	yes	no
6.	In what state is most of your honey sold?	_____	
7.	Do you sell honey to bakeries or other food processors?	yes	no
8.	Do you ever have trouble finding enough honey to sell?	yes	no
	If yes, what time of year?	_____	
9.	How do you handle bulk honey?		
	55 gallon drums	yes	no
	60 pound cans	yes	no
	Other:	yes	no
10.	What **size** retail honey container sells the best for you? Rank.	No. 1 _____	
		No. 2 _____	
		No. 3 _____	
11.	Do you sell honey in any form other than liquid honey?	yes	no
12.	If yes, what forms:	_____	
		_____	
		_____	

B. WHERE DO YOU SELL YOUR HONEY?

1.	Do you sell honey at home?	yes	no
2.	Do you sell honey at a permanent display not at home?	yes	no
3.	Do you sell honey at work?	yes	no
4.	Do you sell honey through farm markets?	yes	no
5.	Do you sell honey through food stores (general)?	yes	no
6.	Do you sell honey through health food stores?	yes	no
7.	Do you sell honey through gift shops?	yes	no
8.	Do you sell honey through clubs, groups?	yes	no
9.	Other method:	_____	

C. HOW DO YOU PROMOTE HONEY SALES?

1.	Do you advertise your honey?	yes	no
2.	If yes, where:		
	local paper	yes	no
	local shopping guide	yes	no
	radio	yes	no
	TV	yes	no
	roadside signs	yes	no
	sign at driveway or door	yes	no
	yellow pages	yes	no
	other:	yes	no
3.	Do you display honey at local or state fairs?	yes	no
4.	Do you talk to school groups about bees and honey?	yes	no
5.	Do you talk to other non-beekeeping groups about bees and honey?	yes	no

D. PRINTED PROMOTIONAL MATERIALS

1.	Do you use any printed promotional material with your honey sales?	yes	no

2. If yes, what type:

National honey queen folder	yes	no
State honey queen folder	yes	no
"Free" honey information	yes	no
Low cost cookbooks (Under $2.)	yes	no
A promotional item you produced yourself (attach a copy)	yes	no
Other:	_____	

3. What type of display material do you use with honey sales?

None	yes	no
Poster on the honeybee	yes	no
Poster on honey	yes	no
Home-made poster or sign	yes	no
Photographs about bees	yes	no
Photographs about honey	yes	no
Other:	_____	

4. IF YOU WERE TO ORDER THEM TODAY, how much would you pay for **printed leaflets** to GIVE AWAY to potential customers: (Mark only one)

a No more than 3¢ each	a _____
b 3 to 6¢ each	b _____
c 6 to 10¢ each	c _____
d 10 to 15¢ each	d _____
e 15 to 25¢ each	e _____
f 25 to 50¢ each	f _____
g More than 50¢ each	g _____

5. IF YOU WERE TO ORDER THEM TODAY, how much would you pay for printed posters or photographs measuring about 11 x 17 inches, which may be placed at honey sale sites? (Mark one).

a Nothing	a _____
b Less than $1.00	b _____
c $1 to $2.00	c _____
d $2 to $3.00	d _____
e $3 to $5.00	e _____
f$5.00 or more	f _____

6. How many printed posters or photographs would you purchase at this price? _____
7. Are there other display items you could use? Explain: _____

E. AUDIO-VISUAL PROMOTIONAL MATERIALS

1. IF YOU WERE TO ORDER IT TODAY, which format listed below would you purchase to use in your display booth to promote honey?

a. Nothing	yes	no
b. Slides (35 mm) and notes	yes	no
c. Slide/Tape format (for programable playback equipment)	yes	no
d. Movie on continuous loop system, as used in Sears and other stores to feature certain products	yes	no
e. Video tape for playback equipment	yes	no
f. Other:	yes	no

Which of the following items should be included in a program about honey?

a. Facts about bees	yes	no
b. Facts about beekeeping	yes	no
c. How bees produce honey	yes	no
d. How honey is handled by beekeepers	yes	no
e. How to keep and store honey	yes	no
f. How to use honey at home	yes	no
g. "Medical" uses for honey	yes	no
h. How to liquify granulated honey	yes	no
i. Other:	_____	

3. IF YOU WERE TO ORDER TODAY, how much would you pay for the program you selected in No. 1 and outlined in No. 2? (Select only one).

a. No more than $ 15	a. _____
b. $ 15 to $ 25	b. _____
c. $ 25 to $ 50	c. _____
d. $ 50 to $ 75	d. _____
e. $ 75 to $100	e. _____
f. $100 to $200	f. _____
g. $200 or more.	g. _____

F. HONEY BOOKS

1. Do you sell books on honey, including honey cookbooks, in your honey sales area? yes no
2. If yes, please list the five best selling titles:
   - First _____
   - Second _____
   - Third _____
   - Fourth _____
   - Fifth _____

3. Is there a topic suitable for a honey book which you cannot find? What is it? _____

G. INDUSTRY WIDE PROMOTION

1. Would you write a check for 1¢ for every pound of honey you produced (but did not necessarily sell) to be used to promote honey on a national level? yes no
2. Would you support a tax on bees, packages, equipment, extracting equipment, etc. to help raise money for industry promotion? yes no
3. Do you think that one person, or a group, should be hired to promote honey nationally? yes no
4. How should such a person or group be paid?
   a. Industry contributions
   b. Tax on some aspect of honey industry
   c. Government support
   d. Other: _____
5. Would you contribute toward a SCHOLARSHIP program where college-aged individuals would be hired to promote honey in a certain area? yes no
6. How much would you write a check for today, if such a program were started? _____

H. MEDIA USE FOR PROMOTION

Radio and TV stations are required by law to run local public service announcements (PSA's) for causes in their area. However, thesePSA's cost money for production and duplication. The following questions deal with PSA's.

1. Would you use a set of PSA's if you could buy them and ship them to local media? yes no
2. Which media?
   TV yes no
   Radio yes no
   Newspapers yes no
3. How much would you pay for a service which mailed you such materials (press releases, radio, tapes, photographs, slides, etc.) for promotional media work, every three months?
   a. less than $ 10 per year
   b. $ 10 to $ 25 per year
   c. $ 25 to $ 50 per year
   d. $ 50 to $ 75 per year
   e. $ 75 to $100 per year
   f. More than $100 per year
4. Would you buy a honey promotional newsletter where ideas and suggestions are included for promotion? yes no
5. What would you pay for a monthly newsletter dealing for honey promotion?
   a. Under $ 10 per year
   b. $ 10 to $ 20 per year
   c. $ 20 to $ 30 per year
   d. $ 30 to $ 40 per year
   e. $ 40 to $ 50 per year
   f. More than $ 50 per year

YOU ARE COMPLETED. Cut or photocopy this form and mail it to the address below. Place you name and address on the envelope for statistical records. Thank you

MAIL TO: HONEY PROMOTION SURVEY, P.O. Box 817, Cheshire, CT 06410

Siftings

By CHARLES MRAZ
Box 127
Middlebury, VT 05753

Continued from page 24

Page 626 is an article on trapping pollen by beginners that should be seriously considered by those interested in the thereputic or health value of the various bee products. I do not have much experience with pollen in the diet, but I do use it myself and sell it to those that want it. I make no claims for it and there is no scientific evidence of its value in the U.S. at least, through considerable research has been carried out in European countries.

Personally, I question the need of scientific evidence in such cases with natural products. For the past several years, many people have told me of the value of pollen for lowering high blood pressure, sometimes even when drugs did not prove helpful. At least pollen is harmless while some drugs can cause serious side effects, especially kidney damage. Others have told of the great relief pollen has given them for prostrate problems and asthmatic conditions. One thing is certain, a teaspoon of pollen a day is a lot cheaper than a heart attack or a prostate operation and worth trying. At least no harm is done if you try it. Anyone that tries pollen along with honey in the diet, should have some interesting results. As with Dr. Jarvis, the only way we can learn to keep healthy with these "Folk Medicines", is to try them. Dr. Jarvis tried them not only on his patients, but also on animals. The best "scientific proof" there is, is what it will do for you. If bee products such as pollen and honey can make and keep you well, that is all the "scientific" proof you need. □

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$9.95 Honeyhouse ½ Suit

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50 pounds (treats 12,500 colonies)		**$150.00**	
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5 pounds (treats 2500 colonies)		**$ 30.00**	
25 pounds (treats 12,500 colonies)		**$145.00**	

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608-

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		100	1000
(All millwork guaranteed 15/100" tolerance)	9 1/8"	29¢ ea.	28¢ ea.
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Grade		
size 9 1/8 or 6 1/4	36½¢ ea.	35½¢ ea.
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	12½ lb. box	25 lb. box
d	$49.00	$85.00
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Capping The News

THE EDITORS

"Beekeeping Small Talk"

Tigers Reduce Honey Production

BACK IN 1974 a report was published in *World Crops* which described a problem which threatened honey production in India. It read as follows: "India's production of honev and beeswax dropped by 50% in 1972 and conservationists must take the blame, according to the Minister of Forests, Mr. Mahato. The fall in production reflects problems caused by the ban on the hunting of tigers. As a result of the ban, in 1972, no less than 29 honey and beeswax collectors were devoured by man-eating tigers which in former days would have been shot. The number of tigers in India's forest now is estimated at 2,000 and doubtless their numbers will be allowed to increase until they make a meal of a prominent conservationist instead of a humble beeswax collector."

The Pesticide Lobby

An article under the above title appeared in *The Laramie* (Wyoming) *Daily Boomerang* on November 6, 1982. We have not additional information on the status of the legislation at this time, in early December. Bees are not mentioned in the article but the effects of any of the proposed weakening of the pesticide regulations, should they be passed, would certainly affect beekeeping. Here, in part, is the article.

"From Hawaii's Oahu Island on the west to New York's Long Island on the east, the 1.7 billion pounds of pesticides sold annually poses continuing health and safety hazards to the nation's citizens.

Before Congress adjourns for the year, it is scheduled to approve a two-year reauthorization of the Federal Insecticide Fungicide and Rodenticide Act, which gives the Environmental Protection Agency authority to regulate pesticides.

Seeking to substantialy weaken the law during the reauthorization process is an industry coalition that includes the National Agricultural Chemicals Association, Pesticide Producers Association and American Farm Bureau Federation.

Attempting to defend and strengthen the law is the National Coalition Against Misuse of Pesticides, whose work is supported by the American Public Health Association, March of Dimes and National Farmers Union as well as numberous labor, environmental and consumer organizations.

"Pesticides are so expensive," says Jay Feldman, national coordinator of the coaltion, "because of all the money the industry spends on lobbying, political contributions and image building, not simply product development."

The industry wants to amend the law to strip the individual states of their right to require health and safety data from pesticide manufacturers, tailor their regulatory programs to meet specialized local situaitons and impose requirements stricter than those in federal law.

Opposed by the industry is a proposal to grant individuals who believe they have been harmed by pesticides the right seek relief by filing civil suits in federal courts. That privilege now is extended only to lawsuits filed in state courts. Although pesticide producers can turn to the federal courts to protect their trade secrets, that access is denied to the 800,000 individuals injured and the families of the 800 people killed every year in pesticide related incidents.

Finally, the industry seeks to suppress the dissemination and discussion of all data — including health and safety information — related to "new or innovative technology." even though such innovations enjoy patent protection.

The March of Dimes says it "believes that putting a restriction on public information would severely limit the free exchange of scientific thought" and possibly lead to future birth defects by "exposing the unborn to harmful chemicals."

The House resoundingly rejected all of the industry positions after its members offered disturbing accounts of pesticide damage to food, air, water and people.

With 45,000 commercial pesticide products containing 1,200 different chemical ingredients new on the market, the nation needs more — not less — protection for its citizens.

Something New

You have no doubt by now noticed the new cover design of *Gleanings*. The design was worked out by our resident artist Pat Krueger. This design will permit greater flexibility in the use of photographs for the cover.

Along with the new cover you will note that we are introducing two new columnists.

P.F. "Roy" Thurber of Kirkland, Washington is a familiar name to readers of the bee journals. Roy, if you know him, has some very interesting ideas about beekeeping. As long as Mrs. Thurber (Louise) lends her cooperation in typing Roy's manuscripts we will be OK. Roy's handwriting can be a little perplexing to the uninitiated. Those of you who have been taking *Gleanings* over the years may remember the outstanding series of articles by Roy describing the construction of a mobile ETO fumigation chamber. Experience as a beekeeper, apiary inspector and practical experimentor has given Roy a background in beekeeping that will be of great value to his column.

Roy thurber was given the Outstanding Service Award by members of the Western Apicultural Society in 1981. Roy was recognized for his dedication and numerous contributions to the beekeeping industry. He edited the Washington State Newsletter for a time and presently is editor of the Puget Sound Beekeepers Association Newsletter. He has authored several State Extension Bulletins.

Roy and his wife, Louise, have been married for forty-one years. He is a retired banker who began beekeeping as a hobby many years ago.

We welcome "How To - - - by Thurber" to *Gleanings*.

Another new column you will see in

this issue is "Cooking and Baking with Honey - - - by Amos Arbee. This will please many readers who wish to utilize their honey to the fullest, by using it in preparing various recipes, at home. The popularity of honey recipe books is amazing, and of course this is heartening to the beekeeper who is interested in the possiblitities of marketing honey to the baking trade. This market could be expanded with more promotion, once the advatages of using honey in a recipe is recognized. A good place to begin this promotion of using honey in cooking and baking is in the homes of beekeepers.

We hope that our new columns will bring pleasure and information to our readers who look to *Gleanings* for full coverage of what is happening everywhere.

New Cookbook Available

While on the subject of honey recipes we will mention a new cookbook to be published soon by the Alberta Beekeepers Association of Canada. The books may be ordered through the Alberta Beekeepers Association, 5808-137 Ave., Edmonton, Alberta, Canada, T5A 1C9. The price is $7.95 plus $1.50 postage to Canadian residents.

Survey

We ask your cooperation in returning the Reader Survey in this issue to Honey Promotion Survey, P.O. Box 817, Cheshire, Connecticut 06410. This is your opportunity to contribute valuable information to the honey industry. Honey and other beekeeping products and services do not sell themselves as producers and processors of other agricultural products have long ago found out. Honey promotion is not free, or even cheap if handled professionally and expertly, which is the most effective approach. Even if the initial cost is high the returns from an effective promotional campaign will more than compensate for each beekeeper's contribution. First, however, there must be some basis of obtaining information that can guide the effective use of any dollars directed to this purpose; or, if the industry feels that such an advertising campaign is a good investment and how to go about raising the funds.

The N.C. State Beekeepers Association's 1983 Beekeeping Calendar

AS IN PAST years, the N.C. State Beekeepers Association (NCSBA) has again produced a beekeeping calendar. This 1983 calendar combines the usefulness of a wall calendar with the information and trivia that are of interest to the beekeeper. The calendar measures 8½ by 11 inches and increases to 17 by 11 inches when opened to the individual months.

The NCSBA produces the calendar as a service to its members who receive a free copy each year that they belong to the Association. In addition to producing enough copies of the calendars for its members, the NCSBA also produces an additional quantity for sale to beekeepers outside of North Carolina. Even though some of the beekeeping information in the calendar is geared to conditions in North Carolina, there seems to be enough information of general interest that the calendar has always sold well out of state.

The primary reason the NCSBA offers the calendar for sale outside of North Carolina is to raise funds for its Apiculture Science Fund. That fund is used to provide financial assistance to the graduate students in apiculture who work in Dr. John Ambrose's program at NCSU. Since the fund's crea-

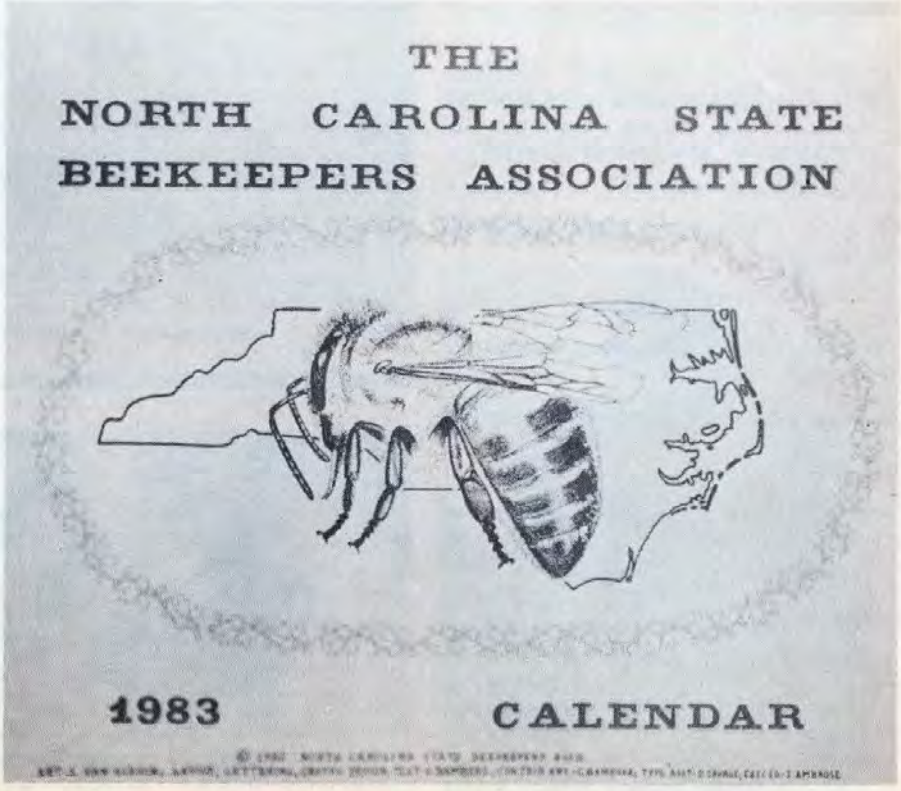


Figure 1. Cover of the NCSBA 1983 Beekeeping Calendar

tion in 1976, the N.C. State Beekeepers Association has raised over $22,000.00 for that purpose through a number of activities including calendar sales. The profits from the sale of the 1983 Beekeeping Calendar will be donated to that fund.

In addition to serving as a functional wall calendar, the NCSBA Beekeeping Calendar provides the following types of beekeeping information on a monthly basis:

1. The blooming dates of the major nectar and pollen sources for N.C. as they occur in each of the major sections of the state.

2. Management advice for each month.

3. Sketches and photographs of the various nectar and pollen plants to aid the beekeeper in their identification.

4. Dates for many of the national and regional beekeeping meetings.

5. In-depth articles on beekeeping topics of general interest such as the growing and uses of herbs that also serve as nectar sources for bees, the use of honey in cooking and selected award winning recipes, the processing of beeswax and candlemaking and more.

6. Bee and beekeeping trivia.

Copies of the 1983 NCSBA Beekeeping Calendar are available at the following prices, postpaid to anywhere in the United States or Canada.

Single Copy — $3.00 including postage.

Multiple Copies

5-10 — $2.75 per copy including postage.

Over 10 — $2.00 per copy including postage.

Checks should be made out to the N.C. State Beekeepers Association, 1403 Varsity Drive, Raleigh, NC 27606.

Anyone interested in joining the N.C. State Beekeepers Associaiton may submit $6.00 for the 1983 dues which will entitle them to a free 1983 calendar as well as a free 1984 calendar when they are printed next year. Please indicate on your check if you are submitting dues to the NCSBA.

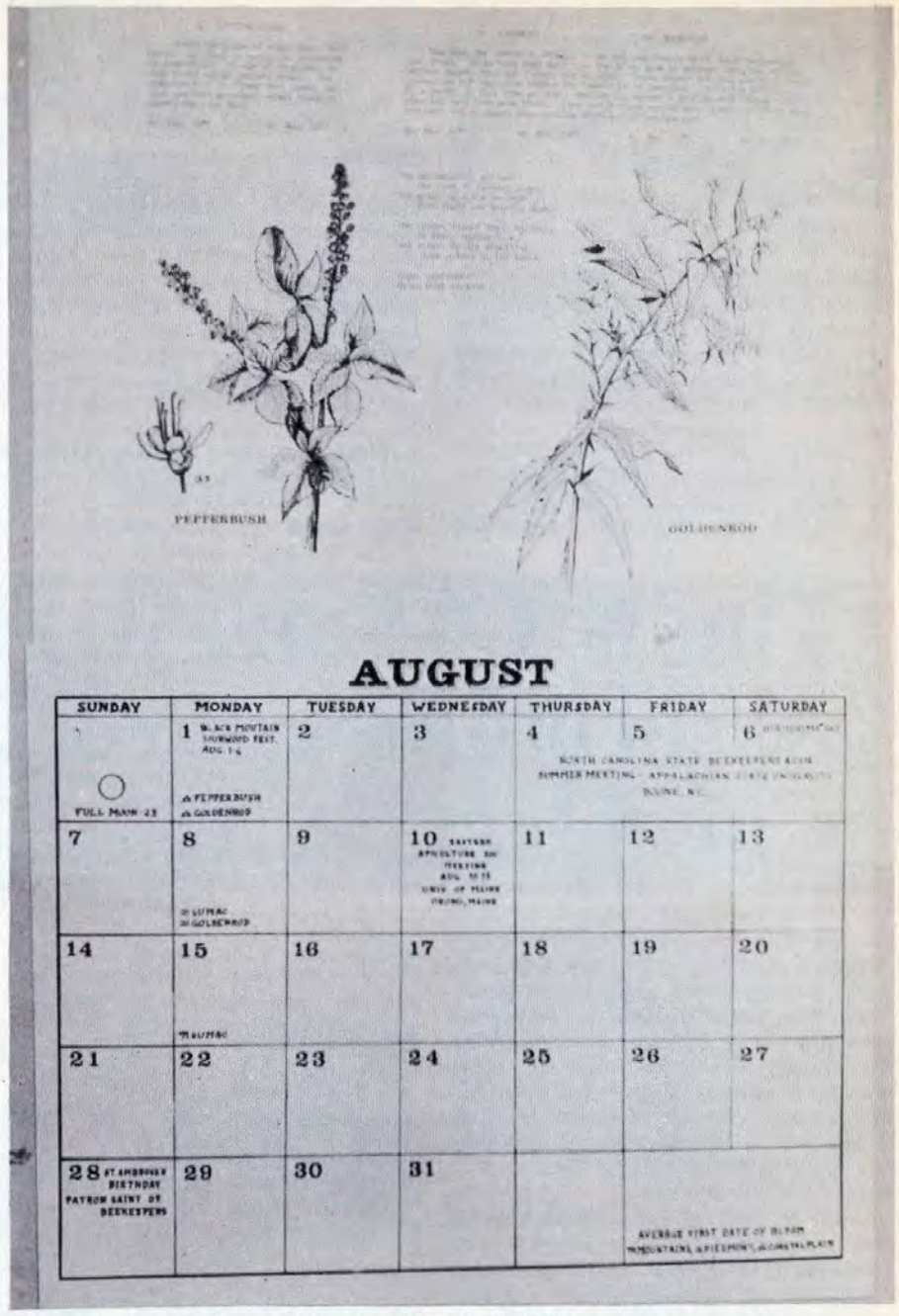


Figure 2. A typical month in the NCSBA 1983 Beekeeping Calendar

Bartens Honored

Henry and Elsie Barten, Clearbrook, B.C., are presented a plaque by John Corner, Director B.C. Apiary Branch. On October 27, 1982, over 100 persons paid tribute to the Bartens at a surprise dinner. The many donations received are assisting them in their holiday plans for early 1983. Henry, a leading beekeeper since the 1950's is active in beekeeping organizations, a sought after instructor, and until recently a provincial apiary inspector.

Bee Talk

By RICHARD TAYLOR
Route #3
Trumansburg, NY 14886

A backlot beekeeper is in a position to do something no one else can do, and that is, produce a really super quality honey. By that I do not mean that commercially produced honey is not good. It certainly is, and much of it is excellent. Still, commercial methods of production and packing do require certain steps and shortcuts that have a clearly negative effect on quality, and the backlotter can easily avoid these.

I have seen honey houses where combs containing patches of brood were run through the uncapping machine, the brood then getting spun out and mingled with the honey, to get strained out again later. And it is very common in commercial honey houses — and, alas! even in small, backlotter extracting plants — to find honey being warmed in a sump mingled with cappings. The most commonest contributors to the degradation of honey, however, are extracting from combs that have been darkened by brood rearing, and heating it to retard granulation.

I am not going to suggest that all these practices should be abandoned, although certainly the first two should. There is no excuse for allowing brood to become mingled with honey, ever, nor is there any reason for warming honey in the presence of cappings. As for the other two factors just mentioned — extracting from darkened combs, and heating honey to retard granulation — these cannot, I think, be avoided by a large, commercial beekeeper. If you are going to make your living producing honey commercially, then you have to produce as much as you can with the minimum of cost and labor. This means that you cannot be too fussy about what combs you spin it out of, and whoever finally packs it has got to be sure it won't granulate on the shelf.

Then why, if those shortcuts and procedures are okay for people who make their living keeping bees, should not the backlotter follow their example? Because he will thereby miss the opportunity to produce a truly exquisite product, and one that will, as more and more people learn of it, be eagerly sought, and dearly purchased. There are always people who will go to a lot of extra trouble and cost to get something that is in fact exceptional, something that is really good and hard to find. Those are the customers the backlotter should go after. Offer a honey that is **better** than the commercially packed honey in the stores, and over the course of time, there will be people beating a path to your door to get it. And they will keep coming back, bringing their friends, year after year. You will not, of course, sell your honey in ton lots, the way the big commercial people do, but you will sell a lot of it, just the same, and you will get two or three times as much for it.

I mentioned last time the first essential step to that end, namely, to extract only from virgin combs, that is combs that have never been used for brood rearing. And that should be taken quite literally; that is, **never** been used for brood. It has been found in experiments that combs that have been only slightly darkened, by having only one cycle of brood raised in them, darken the honey that is extracted from them. This means, that you have got to adapt your method of management to the use of queen excluders, if you are raising extracted honey. Of course you will not need excluders normally, if you go in for comb honey, as I do.

There has always been a lot of controversy about queen excluders, but it has always focused on the wrong point. The controversy is always over whether or not they obstruct the bees and whether, acccordingly, they reduce the crop, or perhaps stimulate swarming. The more important question is whether they improve the quality of honey, and this they certainly do. To get the top quality honey, you have got to spin it from combs that the queen has never visited, and that means, combs that have been isolated from the queen by an excluder. Such combs are aptly called *virgin* combs, and your extracting supers should contain nothing else.

This brings us to the question of heating honey, which is too large a topic to discuss in the space that remains here. Obviously you shouldn't heat honey at all if you can help it. A backlot beekeeper, selling honey at his door, can explain to customers that honey is supposed to granulate, and that they can restore it to liquid by warming it if they want to, but that it will taste better if they do not. Usually, people who taste unheated, granulated honey for the first time are so delighted that they have no interest in liquefying it. And if it is our mission, as a backlotter, to produce only the very **best** honey, then stick to it, let the honey granulate, and let people discover that this is, indeed, the best honey, from the standpoint of flavor. It pays off, in the long run.

Next time I'm going to address, once again, the whole question of heating honey. My message is, that it is not going to do you much good to have the fanciest and most expensive extracting equipment in the world if you are then going to turn around and use it to warm your honey in any kind of sump or warming tank in the presence of cappings, depending then on some kind of strainer to get it clarified again. The only acceptable way to warm honey is with a flash warmer, free from cappings; but more on that later.

That's Incredible

The Bee Beard Contest held at Wooster, Ohio will be shown on "That's Incredible," January, 10th, 1983.

Shown is a winner, James Thompson of Smithville, Ohio.

Bill Wilson Receives Annual WAS Award

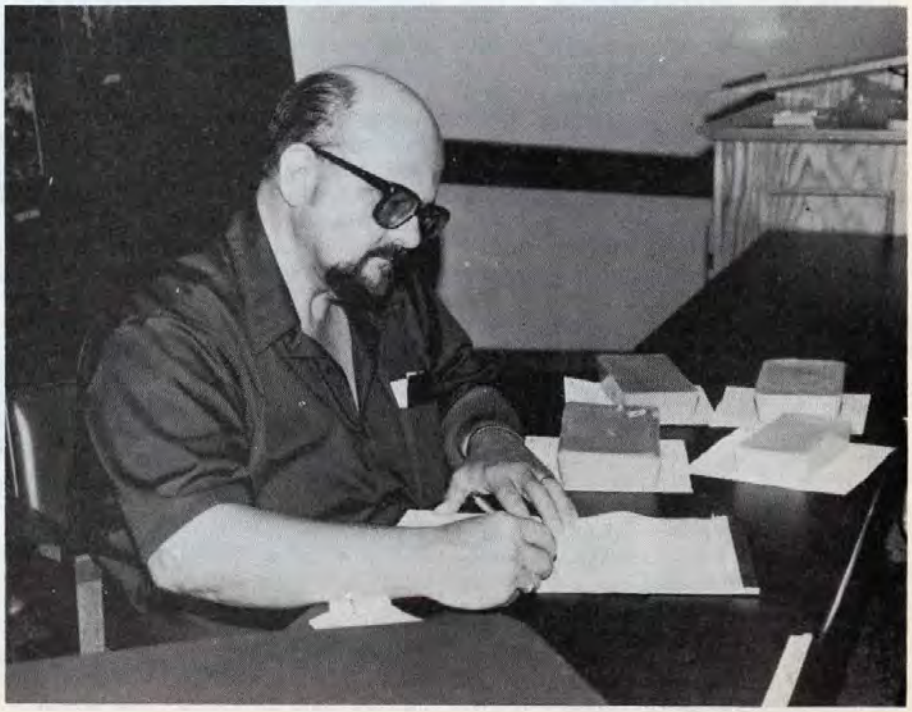
THE PRESENTATION OF the 1982 Western Apicultural Society Award, for Outstanding Contributions to Beekeeping, to Dr. Wiliam T. Wilson culminated the 5th Annual WAS Conference held at Utah State University, Logan, Utah from August 17 to 19, 1982. Bill Wilson currently is Research Leader of the U.S.D.A. Honey Bee Pesticides/Diseases Research Laboratory in Laramie, Wyoming. Bill has devoted a good deal of his time to studying methods of protecting bees from nearby insecticide applications, methods for obtaining better control of American foulbrood (extender patties), effect of molds on combs and honey bees, and honey bee foraging behavior on naturally occurring and cultivated plants. While studying enzyme relationship between various subspecies of bees, Bill discovered that some of his frozen bees from Mexico contained *Acarapis woodi*, a mite which currently is not found in U.S. bees. In addition to his work, Bill has participated on national committees, at technical conferences, and spoken to many beekeepers organizations. Congratulations are extended to Bill in recognition of his many achievements.

Special invited guests and speakers included the American Honey Queen, Kari Olson, who described her interesting and varied contributions in honey and beekeeping promotion and how honey is blended in the midwest. Dave Miller discussed his views on handling and packing honey, justified his aversion to honey labels stating "Pure," "Raw," "Uncooked," etc. since they suggest that other honey might be tainted, and he judged the honey exhibits. Mr. Miller has judged large fairs with hundreds of entries, but it took him as many hours to judge the many fewer entries in this competition because, in his words, "You people really know how to prepare honey for competition."

The program also included the editors of the three major U.S. beekeeping periodicals: Troy Fore, Joe Graham, and Larry Goltz of the *Speedy Bee, American Bee Journal* and *Gleanings In Bee Culture*, respectively.

American Honey queen Kari Olson, left, and W.A.S. president Bill Nye, center, present the W.A.S. award to Dr. William T. Wilson. Photo by Gordon Kern.

David Miller had an active part in the W.A.S. program and judged the honey exhibit. Photo by Gordon Kern.



All three individuals expressed a desire to convey positive information about beekeeping to beekeepers and the general public. However, it was pointed out that "sensationalism sells" and they must try to integrate valuable information into stories with spectacular origins. The editors are keenly aware of the problems facing the industry and are trying to draw attention to them in their periodicals. The editors presence at the meeting confirmed their commitment to the industry.

The academic portions of the program included presentations by Dr. William Nye—History of Beekeeping, Colony Management, Demonstration of Producing Comb Sections; Dr. George Bohart—Bees Other Than Honey Bees and Demonstration of U.S.D.A. Wild Bee Collection; Dr. Michael Burgett—Bee Biology in Four Bee Species; Dr. Norman Gary—Bee Behavior and Demonstration of Bee Pheromones; Dr. Bill Wilson—Recognition of Serious Bee Diseases and Pests; and Dr. Eric Mussen—Hive Products and Ask the Experts, which is an opportunity for the attendees to reveal the ignorance of the academic professionals. The open discussions led to diverse academic opinions on a wide variety of topics and were considered by many to be the most valuable and enjoyable portions of the program.

Kari Olson addressed the W.A.S. in Logan, Utah in August 1982 during the annual banquet. Photo by Ray Hicks.

The next annual conference of the Western Apicultural Society will be held in the State of Washington during August, 1983. All beekeepers are invited to attend.□

Troy Fore, *Speedy Bee* editor, left and Larry Goltz, editor of *Gleanings*, second from right, listen as *American Bee Journal* editor Joe Graham explains a point. Moderator Bill Nye, W.A.S. president is on the right. If the editor of *Gleanings* looks sad it is because I was wondering what to say after the other editors had spoken so eloquently. Photo by Ray Hicks.

Questions and Answers

Q. Do you know where I can obtain recipes for candy (for human consumption) made from honey? R.W., Florida.

A. The following recipe books listed the most candy recipes:

Nature's Golden Treasure Honey Cookbook. Joe Parkhill. Pub lished by Favorite Recipes Press, P.O. Box 77, Nashville, TN 37202. Available from bee supply store book lists ($10.60).

The Healthy Taste of Honey. Larry J. Lonik. Published by the Donning Co., 5041 Admiral Wright Rd., Virginia Beach, VA 23462.

Be Prepared With Honey. Arthur W. Anderson. Published by Horizan Publishers, P.O. Box 490, 55 East 300 South, Bountiful, Utah 84010. Write to author, 265 N. 300 West, Provo, Utah 84601 or purchase from bee supply book lists ($5.95).

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Q. I recently received the November issue of *Gleanings*. I noticed under the monthly honey report of Region 8 that the bees in Montana, and I assume in other northern states, are sometimes killed off and are restocked in the spring.

My questions are:

Why are some of the bees killed off and some wrapped?

I would be interested in acquiring these bees if it would be profitable. I live in Central California where the winters are not that cold.

Could you give me the names and addresses of beekeepers and/or associations that might be interested in selling such colonies? G.M., California

A. I understand that some of these bees are being collected in the manner you are interested in. We suggest that you contact Dr. Eric Mussen, Extension Apiculturist, Department of Entomology, University of California, Davis, CA 95616 (tele. 916-752-0470) who may have up-to-date information that could direct you to some possible sources of bees since many of the colonies not killed off are brought there to overwinter. The beekeepers who bring their bees to California to overwinter would know where colonies are being killed off in the fall.

Commercial beekeepers in the northern states and Canada have several alternatives to killing their bees in the fall and beginning with packages bees in the spring. One alternative is to move colonies to a warmer climate where they are kept over winter, split into nuclei in the spring and returned to the North for honey production after they have built up into strong colonies. Another althernative is to pack the hives with insulation. Hives are usually packed in clusters to two or more, given side wall and top protection, upward ventilation and ample food reserves. Packing bees for winter is being studied in Canada as an alternative to fall killing. Another possibility is to overwinter all of their colonies in environment-controlled buildings.

Beekeepers in the northern United States and Canada cannot usually overwinter their colonies outdoors without suffering a high percentage of bee loss if the colonies are not protected. The winters are simply too long and the temperatures too low. Only very strong colonies with well over 100 pounds of honey per hive and some form of protection would stand a chance of surviving the winter out of doors. If colonies do not starve the long confinement without flights places considerale stress on the bees, often bringing on various colony health problems.

The choice to destroy bees in the fall must be balanced against the alternatives; measured in cost of moving the colonies south against the cost of buying packages in the spring. The value of the honey consumed by the overwintering bees must be considered in relation to its market value in the fall and the need to purchase food in the spring to start packages. The cost of packing or the use of buildings and conditioning must be considered where bees are overwintered.

Perhaps publishing your question will bring us other information and possibly place you in contact with northern beekeepers willing to cooperate in collecting bees destined to be destroyed in the fall.

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Q. Where can I find information about the system of record keeping for a hive that involves the placement of a brick or bricks on top of the hive? By where the brick is placed and how it is placed one can tell how old the queen is, whether they need feeding, whether the hive is strong or weak and a number of other aspects of the colony. Where can I read and learn more about this system? T.B., Tennessee

A. I do not think that a formal code has been devised and published that we can copy. This is an interesting and useful concept and I see no reason why anyone cannot come up with their own system, using one or two bricks as markers. The placement of the bricks on top of the hive indicates certain information about the colony.

Obituaries

Maxwell M. Miller

MAXWELL M. MILLER, 92, of Hublersburg, PA died November 8th, 1982. Mr Miller was a retired truck farmer, beekeeper and photographer. He had been employed by General Refractories of Orviston. He was a bee supply dealer for many years.

OTTO A. MACK

OTTO A MACK, 87, of Route 2, Reedsville, Wisconsin, died Thursday evening, October 28, 1982, at St. Elizabeth Hospital, Appleton, Wisconsin.

He was a life time beekeeper also serving as a state bee inspector, and farmed on the family homestead farm until his retirement.

He was a member of the Manitowoc County Beekeepers Association since its beginning in 1938.

Survivors include his wife Ida, a son and daughter-in-law, Gerald and Henrietta Mack of Route 2, Reedsville and a grandson Steven Mack.

First Governor's Award and the Crowning of the 1982-1983 Richmond Beekeepers Association Honey Queen

By ROBERT GIBSON
Glen Allen, VA

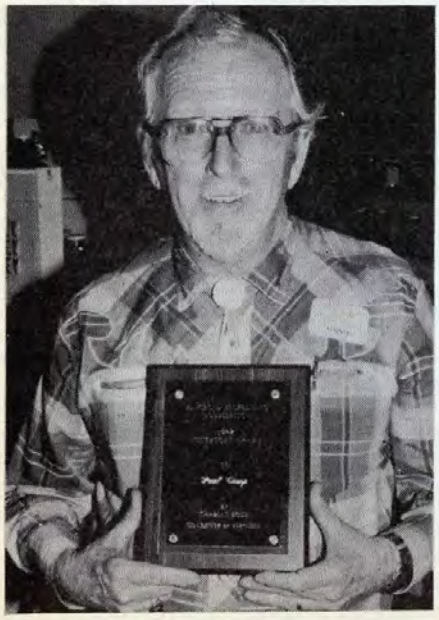
The first Governor's Award was given to Mr. Paul Camp of Highland Springs, Virginia by the honorable Charles Robb, Governor of the Commonwealth of Virgina. The award was given at the "Beekeepers of Virginia" honey booth at the 1982 State Fair of Virginia on September 23, 1982. The award is given to the most outstanding beekeeper in the Central Virginia area.

The Governor also crowned the 1982-1983 Richmond Beekeeper's Honey Queen at the fair on September 23, 1982. Her name is Miss Natalia C. Harfst of Richmond, Virginia.

Eight Associations in the State took part in this years bee booth. All photos were taken by Mr. Robert E. Gibson, President of the Richmond Beekeepers Association.

1982 Beekeepers of Virginia honey booth.

Mr. Paul Camp and Governor's Award



Natalia C. Harfst, left, 1982-83 Richmond Beekeepers honey queen, Virginia Governor Robb, center and Paul Camp, right, congratulating Natalia on her crowning as Honey Queen.

Cookeing with Guniness and Honeybees

What the record book says about an Ohio artiste and man's most useful insect

By J. IANNUZZI
Ellicott City, MD

Don Cooke, Terrace Park, Ohio, in the process of sprouting his 86th beebeard in nine years at EAS 1978, Wooster, Ohio the before he captured a slot in *Guinness*.

The Three Guinness Listings

The *Guinness Book of World Records* is the bible of argumentative pub denizens the world over to determine the superlative of anything anywhere —at least as far as editor Ross McWhirter can ascertain. How does the honeybee rate therein? Although the nectar collector is not listed as the world's best insect (the animal-kingdom category carries only the highest-lowest, hottest-coldest, and strongest), *Apis mellifera* does have three entries in the 1982 edition, to wit:

(1) *Honey from a Hive* (p. 106): "The greatest amount of wild honey ever extracted from a single hive is 404 lbs., recorded by Ormond R. Aebi of Santa Cruz, California, August 29, 1974."

The author making a record of Don Cooke's 86th completed beard of bees at EAS 1978, Wooster, Ohio.

(2) *Fastest Flying Insects* (p. 106): The deer-bot fly, 36 mph (for short bursts) but regularly 24 mph. Then this: "A relay of bees (maximum speed 11 mph) would use only a gallon of nectar in cruising 4 million miles at 7 MPH."

(3) *Beard of Bees* (p. 461): "The heaviest recorded 'beard' of bees was one estimated at not less than 21,000, which swarmed around a queen on the chest and throat (why not "face," where a beard normally grows, I'll never know) of Don Cooke of Ohio, June 20, 1980 (location not given)."

It is curious to note that two entries appearing in the 1974 edition are no longer current:

(1) *Most Bee Stings* (p. 37): "The greatest number of bee stings sustained by any surviving human subject is 2,443 by Johannes Relleke, at the Gwaii River in the Wankie District of Rhodesia, on January 28, 1962." (Question: Why did the Guinness people drop the entry without replacing it?)

(2) *Most Honey from Hive* (p. 96): "The greatest amount of wild honey ever extracted from a single hive is

300 pounds (100 quarts) recorded by Mr. A.I. Root in Medina, Ohio, c. 1895" —of course, he was the same man responsible for founding the bee equipment manufacturing company bearing his name as well as starting *Gleanings in Bee Culture*. (Question: What does "wild" honey mean? From context, it would appear that honey from extracting frames, and not from a bee tree, is actually meant.)

Don Cooke of Ohio

The best entry that I like is that on insect facial growth. I first met Don Cooke of 731 Miami Avenue, Terrace Park, Ohio 45174 at the August 1978 Eastern Apicultural Society (EAS) annual meeting, Wooster, Ohio, when John Root, Medina, associate editor of *Gleanings* and vice president of the company bearing his grandfather's name, was EAS president; the year before Cooke crashed *Guinness*. There the record holder applies bees to first-timer John Caulk, a Maryland native on the staff of the Agricultural Technical Institute in Wooster, and then performed the stunt himself—his 86th in nine years (see photo) according to his own admission. Since I was extremely interested in duplicating the feat back home for Donald Kolpack, Jessup—now known as "the Beebeard King of Maryland," I questioned him closely about procedure and ascertained that (1) the honeybees should be well fed beforehand; (2) the nostrils and ears should be plugged with cotton to hinder the inquisitors; and most important (3) the demonstration should not be attempted in bad weather (rain or approaching storm) as he recalled that once, against his better judgment, he performed for newsmen before TV cameras when "a front was moving through" and was badly stung, commenting: "Never again." (The next year I witnessed Bob Harvey of New Jersey and the son of Ross Hopkins of Canada (see photo) apply bees to the face of EAS chairman "Jack" Matthenius at the EAS meeting in Ottawa when drops were falling and have since revised my assessment of the importance of bad weather—brood bees, not couped up in a mailing cage for too long a period, seem to be a more critical factor).

At Wooster I also discovered that Cooke's beebeard stunt was the featured attraction at the annual September Ohio Honey Festival at Lebanon—near Cincinnati. In fact, that event, which is now drawing 150,00 per year, was the 15th such gathering in 1982, running Thursday thru Saturday, September 9-11, with the program listing the Terrace Park resident with two such performances daily. It is of interest to note that his very first was at the second festival in Lebanon in 1969 at the age of 58, where he had volunteered his services since the artiste who had performed the previous year, Harry Vandenberg, La Grange, Ohio, had conveniently (?) bugged out; nevertheless, he was on hand to view Cooke's 86th and comment on it. (One may admire Vandenberg's insect beard on page 243, 35th edition of *ABC and XYZ of Bee Culture*, that Root publication—along with *The Hive and the Honeybee* (Dadant) which belong in the library of every serious apiarist).

J. C. Matthenius, Jr., Phillipsburg, NJ, sprouting a wiggly beard while drops are actually falling, EAS 1979, Ottawa, Canada, assisted by J. Hopkins of Canada (right) and Bob Harvey of New Jersey. Peter Bizzoso, former president of the Long Island Beekeepers, is manning the mike.

How many people know that the retired son of a florist-Beekeeper lost his spot in the 1981 *Guinness* (p. 446) but established another record for himself when he was listed therein as a runner-up, to wit:

Beard of Bees: The heaviest recorded 'beard' of bees was an estimated 20,000 which swarmed on the bare chest and throat of Howard Davis, Bridgewater, Somerset, England in May 1952 (sic). He suffered not a single sting. A 17½ inch deep beard of about 17,500 bees swarmed around a queenbee off the chin and down to the waist of Don Cooke of Ohio, on a Guinness Spectacular TV show filmed in Los Angeles, April 6, 1979. It was the 92nd time Cooke had performed the feat." (See picture in *Guinness.)*

Today the Ohio native continues his spree of instant facial growths. The first edition of the new *Guinness* quarterly magazine (1981) has him down for 123 and adding 12 for 1981/1982 would make at least 135.

His Competitor: James Johnson of West Virginia.

I wonder if the honey festival star performer realizes that he has a fierce competitor in the rare bee/book col-

(Continued on page 43)

James Johnson, Terra Alta, WV, capping off his 140th honey of a beard with a bonnet filled with bees at EAS 1982, Morgantown, WV.

Sights and Sounds at the West Virginia Honey Festival

By PAT RADLOFF
Westerville, Ohio

IT WAS A cool but sunny weekend for a honey festival in Parkersburg. The carnival rides had whirled and tumbled all week. The senior citizens had their dance Friday. But the main events took place Saturday and Sunday, October 23 and 24, as the 1982 West Virginia Honey Festival made local history.

The setting was Parkersburg City Park. It offered plenty of space for strolling, a historical log cabin, and a huge reflecting pool, complete with a fountain that spewed a graceful plume of water on the resident swans and ducks.

Young majorettes in colorful satin practiced their high-strutting steps in the brisk morning air. Their competition was held in the big pavilion, sharing space with the educational beekeeping exhibits coordinated by Worthy Hust, and the bee beard tent. Five times during the festival, State Apiarists Bard Montgomery and C.A. Hutchinson entertained the crowd with their team work—Bard applied the beard and C.A. wore it with a smile.

The entertainment continued nonstop with performances by local bands, dancers, singers, a barbershop chorus, and an ROTC drill team. Stancie Herold of Parkersburg, one of thirty-two contestants, won the Honey Princess contest. Kari Olson, American Honey Queen, and Christy Altmann, 1981 West Virginia Honey Princess, were on hand to congratulate her and meet the crowd.

Outside, the versatile musical group, "Sunshine Express,' charmed the folks. Nearby, local organizations dished out food, poured hot drinks, and prepared the ox roast. Everyone had to build up strength for the evening's Western Square Dance.

The baking contest was held in a separate tent. The waiting public was shooed out while cookies, cakes, breads, pies, and candy were judged. Mary Jane Jones and Ruby Wyatt were multiple-ribbon winners.

Best Of Show trophies were awarded to Tim Wyatt (Extracted Honey), Ruby Wyatt (Chunk Honey), and Worthy Hust (Beeswax).

Sunday's events included a honey and baked goods auction and the 5,000 Meter Honey Run. Ohio swept the running awards, with Glen Bartholomew (of Athens) clocking the best time, and Janice Hughes (of Belpre) coming in as the fastest woman runner.

As the festival drew to a close, plans for next year had already begun. Said Bard Montgomery, "This is just our second festival. We're getting better every year. We invite members of other state associations that accept West Virginia members to enter our competitions in 1983.

People planning next year's event include Willis Redenour (USDA, RC&D), Jane LeRow (Extension Home Economist), Bard Montgomery, and officials of both the West Virginia Beekeepers' Association and the city of Parkersburg. For more information, write Willis Redenour, Honey Festival Secretary, P.O. Box 2062, Parkersburg, West Virginia 26101.

Young majorettes practice for their performance at the West Virginia Honey Festival in Parkersburg last fall.

Honeybee Festival at State Park

By NICK KERLIN
Hookstown, PA

Bees and beekeeping is what it was all about at the 4th Annual Honeybee Festival at 8,000 acre Raccoon Creek State Park, Beaver County, Pennsylvania. An estimated 900 people attended the outdoor festival held on a bright sunny afternoon in the park's main picnic area, a thirty minute drive west of Pittsburgh.

Co-sponsored by the Pennsylvania Bureau of State Parks and the local Beaver Valley Area Beekeepers Association (BVABA) with assistance from other agencies and volunteers, the festival attracted beekeeper and non-beekeeper from a three state area.

Started four years ago by BVABA member Vince Tomei and park environmental education specialist, Nick Kerlin, as a single-day one hour presentation, the festival has grown to fill a four-hour period with twelve different topic areas and involving twenty-four on-site volunteers. "Our initial purpose," says Vince Tomei, local bee supply and dealer, "was to overcome the prejudice people had acquired against bees from the 'bee movies' of several years ago. Once we could accomplish that, we were able to go on and show people that bees are essential and a lot of fun."

To accomplish that the festival utilized short mini-programs presented by volunteers and repeated throughout the afternoon. For non-beekeepers, an initial introductory slide program highlighted the basic natural history of the honeybee and beekeeping history. Other programs supplemented this by presenting how to start beekeeping from scratch and displays of various equipment used.

The highlight for most non-beekeepers, as evidenced by the crowds, was watching a live hive being worked through a screened patio tent. Initial fears and amazement expressed soon turned to comments such as: "He's not wearing gloves and not even getting stung." or "I never knew what a hive looked like inside. Amazing!" For the first time for many they were able to see a queen and drones, stored honey and the duties of various working bees.

Dave Johnson, Environmental Education Specialist, Penna. Bureau of State Parks conducting a session on stinging insects. Photo by Nick Kerlin.

A puppet show for the children illustrated the life of the honeybee and its importance to all ages. Photo by Nick Kerlin.

Beekeepers working a live colony inside a screened patio tent, allowing many their first look at an active colony of honeybees. Photo by Nick Kerlin.

Tom McCormack, member of the Beaver Valley Area Beekeepers Association, explaining bee products and methods of removing from the hive. Photo by Nick Kerlin.

For beekeepers the festival also had much to offer. County Agricultural Extension Agent, Lee Miller, dealt with pesticides and their use and effect in and around bees. Methods used to extract honey, pollen and wax drew numerous questions by those who wished to become more involved in utilization of other bee products. Other programs centered on bee removal, catching swarms, expanding hives and more advanced beekeeping equipment.

Other programs were offered that appealed to all backgrounds and various ages. Dave Johnson, an environmental education specialist with the PA Bureau of State Parks, was busy throughout the afternoon dealing with the topic of other stinging insects. "Many questions were predictable, like what is this bug I have or how do I get rid of them. But many more involved the lives and role that these insects played." Displays of nests and the insects themselves helped many to better understand what these insects were, different from honeybees, and how to deal with them.

Local radio shows over the past months had been airing various talk shows on the uses of bee pollen, so the bee products area was a constant mass of questions.

A puppet show for children centered on the benefits of bees and what and why they use their stinger. The latter hopefully to convince younger minds that bees are "not bad." Coloring contests and quiz-essays added to the fun for the younger set.

A honey competition was held to allow local beekeepers to show off their efforts and proved very successful, especially for the randomly selected festival visitors that served as tasters.

The festival has been a success over the past years in many ways. It allows beekeepers to let others know of their interest. The public is able to learn about the benefits and essential need of honeybees while eliminating the prejudice from myth and superstitions. Many beekeepers have "come out of their backyards", kept there in the past by public opinion against bees and beekeeping in their neighborhood.

The festival serves as a focal point, where beekeepers and non-beekeepers alike can come together and learn from each other the joys, fascination and need of one very special insect.□

Cookeing with Guinness and Honeybees

(Continued from page 39)

lector from Terra Alta, West Virginia, James Johnson, who operates Preston County Honey and who sprouted his 140th (correct) 'honey of a beard' (see photo) which I admired at the 1982 annual EAS meeting at West Virginia University, Morgantown, on August 5, where he competed against fuzz farmers from Maryland (Donald P. Kolpack), Long Island (Peter Bizzoso, Ronkonkoma) and New Jersey (J.C. Matthenius Jr., Phillispsburg). it was the same Johnson who had performed a similar stunt for the 101st time (correct) at EAS, Rutgers University, New Brunswick, New Jersey, August 6, 1981 (one can see him on the cover of the October 1981 *American Bee Journal*), when he confided to me that his goal was to dethrone the *Guinness* king! □

News and Events

NEW YORK
Beekeeping Short Course

On July 15-17, 1983 the William H. Miner Agricultural Research Institute in cooperation with Cornell University will be conducting a short course for beginner beekeepers. The program will start Friday evening with movies on bees and run all day Saturday and Sunday with lectures and demonstrations.

For further information, please contact: Loretta Surprenant, Miner Institute, Chazy, NY 12921, (518) 846-8020.

NEW YORK
Beekeeping Seminar

On Saturday, April 30, 1983 from 9:30 until 3:30 the William H. Miner Agricultural Research Institute in cooperation with Penn State will be presenting its 5th Annual Beekeeping Seminar. Guest speaker will be Dr. Clarence Collison from Penn State University and will be assisted by John Barrett from Plattsburgh and Loretta Surprenant from Miner Institute.

The program will be for beginners and advanced beekeepers.

For further information, please contact: Loretta Surprenant, Miner Institute, Chazy, NY 12921, (518) 846-8020.

INDIANA
Indiana Honey Queen

Maryann Ernst, the 1983 Indiana Honey Queen, was crowned at the Fall meeting, Oct 23, 1982, at the Sheraton Inn, West Lafayette, IN. Maryann is the 20 year old daughter of Mr. & Mrs. George Ernst of Dyer, IN. She is a sophomore at Indiana University majoring in Political Science. She will be promoting honey throughout the state this year. Her sponsors are Mr. & Mrs. Martin J. Hoernig.

CALIFORNIA
San Francisco Honeybee Program

The Josephine Randall Junior Museum of San Francisco will sponsor a practical and cultural honeybee program on Saturday, March 5th from 10 a.m. to 2 p.m. The Museum is located at 199 Museum Way just off Roosevelt Way in San Francisco and is served by the #37 bus from 14th and Church Sts.

Speakers will include Dr. Steve Taber, well known bee researcher and speaker will be talking about his recent trip to South Africa and his experiences with bees and beekeepers there. H. Keith Wagnon of Sacramento, well known for his slides of both horticultural and native bee plants, will be sharing some of that work with us.

A panel of experienced city hobbyists will be on hand to talk about solutions to the particular problems of urban beekeeping in the Bay Area. Members of the State Department of Agriculture will be on hand to answer questions about current general beekeeping problems and issues.

Among exhibits, will be the San Francisco Beekeepers' library with

(Continued on page 461)

Maryann Ernst

News and Events

Continued from page 44

librarian Mark Thompson on hand to discuss the literature.

There will be no charge for the program, but a lunch of a sandwich, drink and dessert will be available for $1.25 from beekeeping club members and $2.00 from others. The interested public is invited to attend and participate. For further information call 415-861-5636.

CALIFORNIA
Beekeeping Class

The San Francisco Community College District will sponsor a series of six lecture-demonstrations in practical beekeeping for city hobbyists. It will begin on Tuesday, Fedruary 15th at 7 p.m. at the Marina Middle School, 3500 Fillmore St., San Francisco.

Opportunity to observe correct methods of handling bees will be provided on Saturday, March 19, as well as a hands-on experience for those who have participated in the series and are prepared.

There will be no course fee, but participants will be expected to subscribe to one of the bee journals and to purchase a reference book from those which will be on display at the first meeting.

Instructors will be Louis V. Dubay and Leonore Bravo. For information call 415-861-5636.

Study Tour of China

In July and August, 1983, Dr. Dewey Caron and Mr. Harold Liberman will escort a group of apiculturists and friends on a tour of the People's Republic of China.

The Costs

Land costs — $1,727 — include all accommodations (double occupancy), meals, guides, translators, admission fees, sightseeing, and transportation inside China, visa application fees, tour manual, phrase book, travel bag, and luggage tags.

Airfare — $1,310 - $1,349 — includes roundtrip airfare from San Francisco to Beijing and from Hong Kong to San Francisco. The airfare is subject to change without notice. Airfare from your home to San Francisco is extra. Airfare is based on schedultes and rates in effect October 1, 1982.

Registration

To register for **Chinese Apiculture**, please fill out the form below and send it with your $250 check made payable to China Educational Tours, Inc., 272 Centre Street, Newton, MA 02158. For information, call (800) 225-4262 (outside Massachusetts), or (617) 969-5250.

Registration
CHINESE APICULTURE

Name _____

Address _____

City _____

State _____ **Zip** _____

Phone _____

TEXAS
Texas Honey Queen

The Texas Honey Queen Cray Briggs is the daughter of Mr. and Mrs. Thomas E. Briggs of Dallas, TX. The 19 year old native Dallasite is currently attending Texas Tech University in Lubbock, TX as a sophmore. Although Cray already holds a first class FCC license in television broadcasting from Video Technical Institute, she is currently seeking an additional degree in public relations.

Promoting agriculture products including honey, is not a new experience to this part-time employee of Texas Agriculture Products (TAP), a division of the Texas Department of Agriculture. Cray has also done free lance promotions for Rainbo Bakery, Pepsi Challenge and Wilson's Meats.

In her spare time, Cray enjoys reading, cooking, dancing, and weight lifting.

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Cray Biggs

News and Events

Continued from page 46

ARKANSAS
Beekeepers of Arkansas

Beekeepers of Arkansas held their first statewide meeting, in Little Rock, Ark. Speakers, Jim Robbins of Missouri, Gordan Barnes, Gerald Wallis, and Don Bailey of Arkansas, spoke on Beekeeping, ranging from pollination, diseases, processing and selling, and the general practice of keeping bees.

Regional meetings are planned in six district, for the coming winter and spring. Many suppliers and manufactures were gracious in sending door prizes to help make our meeting a fine sucess.

MAINE
Maine State Beekeeper Association

Nick Calderone, Maine's Inspector with the Dept. of Agriculture has resigned his position to return to Ohio State University for graduate study and further research with bees. Bill Rich is acting as temporary inspector. His services may be requested through Joe Scott in Plant Industry, Dept. of Agriculture, Augusta, Phone 289-3891.

The Maine State Beekeepers' Association will host the annual meeting of the Eastern Apicultural Society of North America (EAS) at the University of Maine at Orono on August 10-13, 1983. Attendance is expected to be about 650 persons. Matt Scott, EAS President and Dr. Erasmus "Bob" Hoch, Vice-President will co-direct the meeting.

MARYLAND
North American Apiotherapy Society

The North American Apiotherapy Society held a very successful Fifth Annual Symposium on Saturday, November 13, 1982, at the International Hotel, Baltimore-Washington International Airport, Linthicum, MD. The talks represented a wide variety of interests and bought out some interesting new developments in venom research. New methods of analysis are encouraging scientists to study venom components for anti-arthritis effects. We were very fortunate that Dr. Stan Somerfield of New Zealand is now in Montreal for a year since he was able to travel down from Canada for the meeting. Two other papers, from much longer distances, were read since travel from both China and Israel is not practical. The meeting concluded with a lively and humorous presentation by Dewey Caron.

Write to Ann W. Harman, Information Officer, for details on membership, proceedings of the 1978, 1979, 1980 and 1981 meetings, and other details of this organization. The address is 15621 Aitcheson Lane, Laurel, MD 20707.

Beekeeping Program
Farmer's Week
Michigan State University
East Lansing, Michigan
March 22-23, 1983

Tuesday March 22 — Kellogg Center Auditorium

9:30 a.m. Visit and Get Acquainted
10:00 a.m. Beekeeping Kodachromes
10:30 a.m. A Different Look at Pollination, Gloria D. Hoffman, M.S.U.
11:15 a.m. Nosema: The Hidden Enemy, Roger Hoopingarner, M.S.U.
12:00 noon Lunch
1.30 p.m. Breeding Bees for Honey Production and Disease Resistance, Dr. Charles Milne, Jr., Guelph, Ontario, Canada
2:15 p.m. Suggestions for Beginner Beekeepers, John Root, The A. I. Root Company, Medina, Ohio
3.00 p.m. Break
3:30 p.m. Honey Queen Report, Heidi Guthrie, Marlette; Introduction of 1983 Queen Candidates
4:00 p.m. Questions and Answers — Ask the Experts, Roger Hoopingarner, Charles Milne, John Root

Tuesday Evening — Kellogg Center Auditorium

7:30 p.m. Honey Queen Pagent, Choosing the 1983 Michigan Honey Queen

Beekeeper of the Year Award — Fresented by Richard Hubbard, Hubbard Apiaries, Onsted, Michigan

Refreshments & Reception Following

Wednesday March 23 — Kellogg Center Auditorium

9:30 a.m. Visit and Get Acquainted
10:00 a.m. Movie
10:30 a.m. Queen Rearing, Dr. Charles Milne, Jr., University of Guelph
11:15 a.m. Pollen Sources for Honey Bees, Roger Hoopingarner, M.S.U.
12:00 noon Lunch
1:30 p.m. The Honey House: Ideas for the Large and Small Beekeeper, A Panel Discussion — Moderator, Michael Connor, Dadant & Sons, Wayland, Michigan
2:15 p.m. The Apiary: Location, Number of Colonies, Rental, etc., A Panel Discussion — Moderator, Ed McGarvey, President Michigan Beekeepers Association, Grand Rapids
3:15 p.m. Break
3:30 p.m. Questions and Answers

CALIFORNIA
Workshop in Practical Beekeeping
Sacramento Area Beekeepers' Association

Workshop in Practical Beekeeping, April 16 and 17, 1983, Gibson Ranch Park, Sacramento, CA.

Norman E. Gary, Ph.D., will present a two day beekeeping workshop April 16 and 17, 1983 in Sacramento, California under the sponsorship of the Sacramento Area Beekeepers' Association. Dr. Gary is a Professor of Entomology at the University of California, at Davis, and a nationally known bee expert. A noted bee researcher, he is well known as a speaker and lecturer, as a technical consultant for the movies and television as well as being an award winning film producer in his own right.

Cost for the two day workshop is $40.00. Hand lettered Certificates of Beekeeping Instruction will be awarded at the end of the second day. Luncheon will be provided on site for an additional $3.00 per meal; childern under 12 $1.50 per meal.

Workshop visual aids will include 16mm films, color slides, field demonstrations, and selected diseased and/or pest ridden combs. Different floral honeys will be available for sampling.

Participants are asked to bring their own clothing for the field demonstrations.

Pre-registration is required. Early registration is recommended since the class will be limited in size. For information or registration forms contact by February 15, 1983: Chuck Alstrom, 6809 Blue Duck, Sacramento, CA 95842, (916) 334-1473.

Monthly HONEY Report

Region 8

Beeswax took a significant drop in November because of oversupply and drop in foundation sales. Availability of wax is very good. Snow fall in Montana has provided cover for bees and also moisture for storage in the mountains and water courses. Montana honey crop above average east of the divide and under average west of the divide, which followed the rainfall pattern during the year.

Region 9

First freezing weather came at end of November in Oregon. Heavy rains. Honey sales are average to good (Need honey reporter in California and Washington.)

World Markets
(National Honey Report 12/3/82)

World honey stocks are expected to be down slightly at the end of 1982. The United States is one of the biggest holders. Honey imports into U.S.A. totaled 38, 647 tons in 1981, 24,518 in 1980, 29,283 in 1979, 27,975 in 1978 and 31,937 in 1977.

BUY & SELL

Classified rates, 45¢ per counted word, each insertion, payable in cash in advance. Each initial, each word in names and address, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it) count as one word. Not less than 10 words accepted. Copy should be in by the 5th of the month, preceding publication. Send classified ads to : The A. I. Root Co., Advertising Department, Gleanings in Bee Culture, 623 W. Liberty St., P.O. Box 706, Medina, Ohio 44258-0706.

MAGAZINES

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

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

THE INTERNATIONAL BEE RESEARCH ASSOCIATION regularly publishes new information on bees, beekeeping, and hive products, for beekeepers and scientists all over the world. Mail inquiries from USA: H. Kolb, P.O. Box 183,, 737 West Main, Edmond, OK 73034, Phone: (405) 314-0984. IBRA PUBLISHES: **Bee World,** a quarterly journal for the progressive beekeeper. **Apicultural Abstracts,** a survey of scientific literature from all languages. **Journal of Apiculture Research,** for original bee research papers. Books and pamphlets on all beekeeping topics. Catalogues of publications and details of journals and membership $1. Specimen copy of **Bee World** $1.50; **Journal of Apicultural Research** $1.50; **Apicultural Abstracts** $2.00, from INTERNATIONAL BEE RESEARCH ASSOCIATION, Hill House, Gerrards Cross, Bucks. SL9 ONR, England. TF

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

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

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

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

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Book Review

Beekeeping Tips and Topics, by Elbert R. Jaycox, The Bee Specialist, 5775 Jornada Road North, Las Cruces, NM, 155 pages, $7.95 plus $1.00 shipping.

Dr. Jaycox was for many years the beekeeping specialist at the University of Illinois, and in that capacity he sent out to subscribers, ten times a year, an enormously informative newsletter, called *Bees and Honey*. This book brings together the best items from that newsletter from the years 1975-1981, when the author moved west and distribution of the newsletter ceased.

It would be hard to find a book more packed with useful information. Unlike most books on beekeeping, which tend to be very general and to say much the same thing, this one pinpoints specific subjects and offers precise recommendations, often based on experimental data rather than the general impressions of the author. For example, requeening is discussed at length and in detail, and hard evidence given for recommending that it be done in the spring rather than fall. Similarly, exact and detailed instructions are given for the use of antibiotics for the control of disease.

The book has few pictures, since the newsletter from which it was gleaned had none. It also has no discussion of comb honey, which is regrettable. Still, even lifelong beekeepers will probably learn more from this book than any other that's around.

Richard Taylor

Index to Display Advertisers

THE A. I. ROOT COMPANY

JANUARY CHECKLIST

AT THE APIARY — on the first sunny day warm enough for bees to fly.

- **Open entrances?** Brush off snow and dead bees.
- **Sufficient stores?** Provide frames on honey above the broodnest, if necessary.
- **Dead colony?** Seal it off. A diseased colony should be removed from site as soon as possible.
- **Wind damage? Vandalism?** Replace and repair equipment. This might be a good time to check out new apiary locations.

BACK AT THE RANCH — pour a cup of something hot and settle in your favorite chair.

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