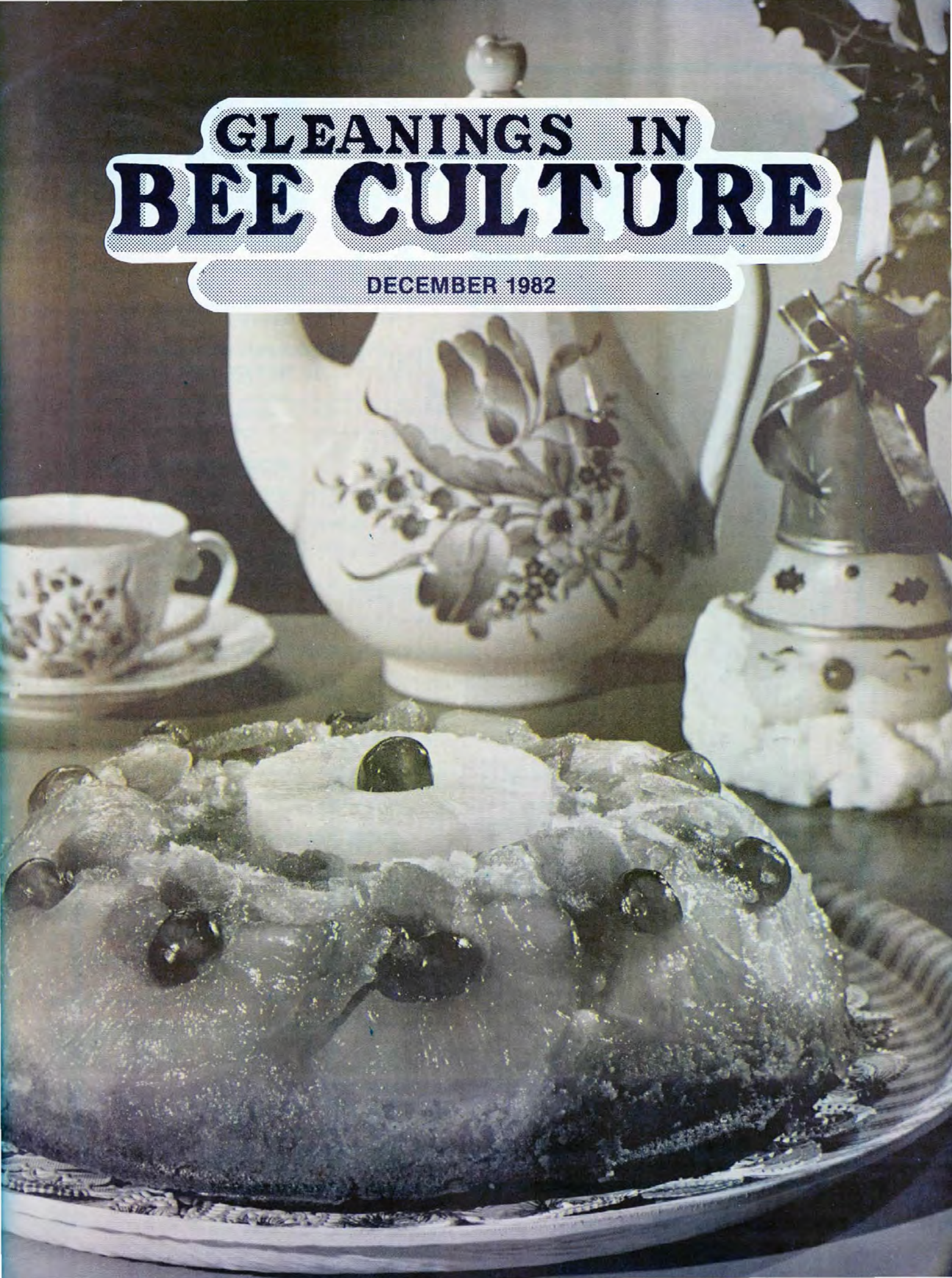

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DECEMBER 1982

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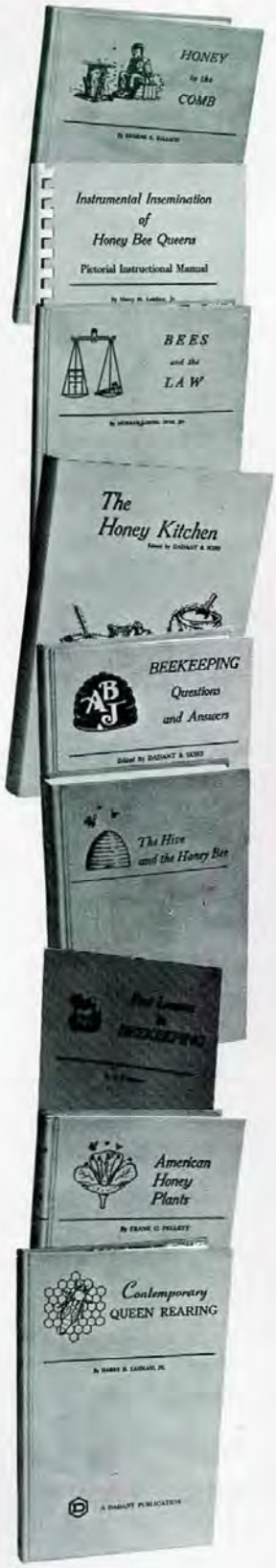

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Cover Story

A Pineapple Upside-down Cake is for the festive Christmas breakfast prepared with honey, of course.

Season's Greetings

Gleanings In Bee Culture

December 1982 (ISSN 0017-114X) Vol. 110, No. 12
Created to Help Beekeepers Succeed
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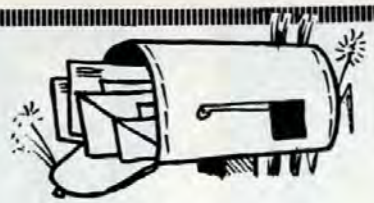
Gleanings Mail Box



Credit For Honey

Dear Editor,

I enjoyed reading Dr. Ianuzzi's article in your October issue, "I'm a Nectar Collector, Part 3." I do not deserve all the credit he gave me for helping him with his honey collection. (Since I know he has made many additions to his collection since this article was written, I hope he will someday change his mind and write "Part 4.") He is an outstanding beekeeper, excellent writer as your readers know, and a very talented person.

Due to the limit of space, he was not able to mention some of the generous beekeepers who sent or gave honey to me to pass on to him. Please allow me to add a postscript to his article, if possible.

The "Chinese Tallow Honey" came from the apiary of Archie and Glenda Fregia of Beaumont Honey Company, 6520 Frint Drive, Beaumont, Texas 77705. They sell honey, bees, and queens. Mrs. Fregia is a honey pot collector, works with glass, and has one of the largest honeybee skep collections in this country. She is a third generation beekeeper and an officer in her local beekeeping association. The Fregias would be a good subject for Dr. Joseph O. Moffett to write about someday.

The wild cherry honey from Kentucky was given to me to send to Dr. Ianuzzi by Mr. and Mrs. Glenn White of Winchester, Kentucky. A picture of his large observation hive appeared in an earlier issue of your magazine. He loves to use his swarm retriever he got from John Musgrove, owner of the Southwestern Ohio Hive Parts company of Monroe, Ohio.

Some clover honey from Dr. Glen Hayes' son was also sent. Dr. Hayes teaches beekeeping here to a 4-H group.

More clover honey (Clover was the big nectar in Kentucky this year although usually it is tulip poplar honey) from Charlie W. Martin of Stanford, Kentucky was sent. His hives averaged 275 pounds each which is very high for Kentucky.

Some wild flower honey was sent from J.D. Stucker of Shelbyville, Kentucky. He packed his in unusual tubular bottles and attached bright red labels to them.

More wild flower honey came from Mike and Diane Kwoka of Mt. Washington, Kentucky. They put a beautiful blue and gold label on their jars. They have been selling a lot of honey at their booth at flea markets throughout the state.

Kentucky is not a major honey-producing state and has not been for a long time. We have only one state bee man, Mr. Bill Eaton. There are still a few hard-working, never-say-die, beekeepers here. I call them "the thin gold line."

Jim Steed
P.O. Box 115
Richmond, Kentucky 40475

Objects To Honey-Milk Feeding

Dear Editor,

As a beekeeper and a pediatrician, I feel the readers of *Gleanings* should realize not everyone agrees with Charles Mraz's statements on infant feeding practices.

In October 1982 *Gleanings*, he quotes "There is a general scientific consensus that if one looks long enough in non-sterile foods that could be fed to infants, CL botulinum spores probably will be found in most." This is true. Mr. Mraz next raises the question of "Has anyone checked commercial infant formulaes for CL botulinum spores." Commercial infant formulaes are sterilized at a temperature so high that no bacteria or spores remain. Every fifteenth can in the production line is checked to ensure quality control. My source of information is Duane Benton, Ross Laboratories, Columbus, Ohio (614) 227-3308.

Mr. Mraz also has written in his column about using a cows milk and honey formulae that his children were given by their pediatrician fifty years ago (July 1981). Mr. Mraz also calls all commercial infant formulaes artificial. In fact the only natural infant milk is human breast milk. All other formulae made with modified cows milk are artificial for human infants.

The American Academy of Pediatrics, an organization of 25,000 pediatricians with 500,000 years of infant feeding experience, recommends human breast milk as the first choice in infant feeding. If breast feeding is not possible, the close second choice is one of the commercial infant formulaes. If the infant is allergic to modified cows milk formulae, a soybean formulae is the third choice. At no age level is cows milk with honey recommended as an alternative feeding. The scientific papers from infant feeding research would fill *Gleanings* cover to cover for several years.

Mr. Mraz also has stated twice (Sept. 1981 & July 1982) in his column that thousands of infants die in this country each year from artificial infant formulaes. I have asked for proof of this statement by personal letter. He has replied that he has no proof. He also has refused to retract the statement.

The infant mortality rate in 1982 is less than half of what it was fifty years ago. Part of this is attributable to better feeding practices. As the space shuttle is an advance over the Wright Brothers plane, the modern infant formulae is an advance over cows milk with honey formulae.

I would again suggest to Mr. Mraz that he leave infant feeding to those of us who spend our life with infants. In turn I am willing to leave beekeeping to Charles Mraz who is certainly an expert beekeeper.

Forrest G. Hawkins, M.D.
Chairman Delaware Chapter
American Academy of Pediatrics
1202 Foulk Rd.
Wilmington, Deleware 19803

Honey Import Bill

Dear Editor,

House bill HR-7190 has been introduced in the House of Representatives by Congressman Richard Shelby of Alabama. I would like for

(Continued on page 668)

Utah, The Beehive State

By Lois A. Bower
Dept. of Entomology
Cornell University
Ithaca, NY

UTAH IS A STATE in the Rocky Mountain region of the western part of the United States. The name Utah comes from the Ute Indian word Eutau, meaning "high up", but for a period of history the area was given a name which means "honeybee". For over 130 years it has been the main center of the Mormon Church, founded by Joseph Smith in 1830 at Fayette, New York. Because the Mormons work together so that all may prosper and live in harmony, they compare themselves to a hive of honeybees and therefore feature pictures, emblems, badges, and many other decorations of honeybees and beehives on uniforms, state vehicles, state buildings, businesses and personal belongings.

Utah has approximately 900 beekeepers, most of them hobbyists with under 10 colonies. There are approximately 45,000 colonies in the state producing between 1.75 and two million pounds of honey annually. The best beekeeping region is the Uinta Basin, which produces excellent honey. Beekeeping is an important source of pollination for agricultural crops, including cherries, pears, apples, peaches, apricots and melons grown on irrigated land. But even more important to the people of Utah are the order and cooperation symbolized by honeybee societies.

The history of beekeeping in Utah can be traced back to 1847. In July of that year a pioneer company of about 150 Mormons entered the Salt Lake Valley under the leadership of Brigham Young, and many more soon followed. In addition to practicing beekeeping, they introduced irrigation to reclaim the dry, hard land. The original territory they settled covered much of the southwestern United States, including all of what is now Utah, almost all of Nevada, and parts of Colorado, New Mexico, Arizona, California, Idaho, Oregon and Wyoming (see map). This area was named "Deseret", which means "honeybee" in the language of the Book of Mormon. In 1849 the Mormons proposed that Deseret be recognized as an independent nation or, should that fail, as a state of the U.S. with Salt Lake City its capital. However, Congress would not grant statehood because the Mormons practiced multiple marriage. In 1850 the area was declared the Utah Territory of the United States and it was not until 1896, after Mormon marriage rules were changed, that Utah was granted statehood. It was much smaller than the original land of Deseret. Today, approximately 62 percent of Utah's population is Mormon.

Mormons of the Beehive State work together for protection against need and unemployment. They contribute one-tenth of their income or earnings for the maintenance and operation of the church, which also operates many manufacturing and industrial enterprises for the employment and support of its members. Utah has remained the headquarters of the Mormon church. Its' first newspaper, the *Deseret News*, founded in 1850, is still being published. The population has grown steadily and today is about one million. With 84,916 square miles, Utah is the 11th largest state in area, and averages slightly over 11 persons per square mile.

Utah holds rich deposits of uranium and more than 200 other minerals, plus the world's largest copper mine and the nation's largest salt lake. Utah has three land regions: the Rocky Mountains, the Basin and Range, and the Colorado Plateau. It has a dry climate with warm summers and cold winters, an average annual temperature of about 48 degrees, and an average annual precipitaion of about 13 inches, much of the moisture coming in the form of snow. In places along the southern border the growing season is more than 200 days long but in the Rocky Mountain region it is shorter than 60 days. Large dams have been built on many rivers for irrigation purposes and to supply hydroelectric power for industry. Important agricultural crops are sugar beets, alfalfa, potatoes, wheat, barley, corn, oats and hay, as well as peas and tomatoes for commercial canning.

Although Utah does not rank high in the beekeeping industry, its' citizens are extremely proud of honeybees and what they symbolize, and it will continue to carry the nickname of the Beehive State.

References:

Britannica Junior, Encyclopedia **#14. Encyclopedia Britannica Inc. 1964. University of Chicago.**

The American Heritage Dictionary of the English Language. 1969, 1970, 1971. Wm. Morris, Editor. Pub. by American Heritage Publishing Co., Inc. and Houghton Mifflin Co. New York, NY

Mr. E.J. Bianco, State Apiarist, Dept. of Agr., Salt Lake City, Utah. Personal Communication, 1980.

Moving Bees

By Eugene Killion, Supervisor
Bureau of Apiary Inspection
Paris, Illinois

Several years ago a load of honeybees was overturned when a semi-trailer became unhitched on a highway in central Illinois. With the help of the Chief Apiary Inspector and others on the Department of Agriculture staff, most of the bees and equipment were salvaged before flame throwers from a neighboring air base were used to destroy the remainder of the wreckage.

Later, in south central Illinois, a full semi-truck load of bees overturned on the highway. Once again the prompt diligent work of the Illinois inspection service got the truck reloaded with salvaged bees and equipment.

Last year a semi-truck load of bees was stopped at a weigh station because it was overloaded to an illegal weight on Illinois highways. Unfortunately, the driver of the truck required medical treatment during the enforced delay, and there was considerable loss of bees due to smothering in the heat before the inspection staff was able to get the load on its way.

More recently, another semi-truck load of several hundred colonies was overturned on a bank parking lot in the northern part of the state, with two schools less than a block away from the accident. Four members of the inspection staff and several neighboring beekeepers responded promptly in the middle of the night to assist in the clean-up operation and the attempt to salvage bees and equipment. In this incident, however, all of the colonies were burned on the decision of local officials.

Two colonies that dropped off a truck in New Jersey prompted a nationwide news release that could result in legislative action that would place trucking bees in a class with moving hazardous materials. Since other states have, no doubt, had similar incidents, I have chosen to bring these bad experiences to the attention of all beekeepers, who may face the problem of moving bees from one site to another.

No matter how many colonies are involved in an accident — only one or several hundred — the consequences can be very serious. The severe financial loss of bees and equipment is compounded by the fact that sometimes several years may be needed to recoup the losses and rebuild colony numbers.

The possibility of law suits over the inevitable bee stings could bring on bankruptcy for many beekeepers.

As I look back over the years when my father and I moved thousands of bee colonies without a single mishap, I realize that we were very fortunate. Our only close encounter with serious trouble came at the end of a 200 mile trip with a load of 240 colonies. I had just left the highway and pulled into a clover field when one of the rear dual tires blew out. Since we always used two trucks for moving, we were able to transfer colonies to the other vehicle and complete the move.

After the bees were unloaded, I went to a service station to purchase a new tire. There we found another rear tire with low pressure. Upon closer inspection we discovered that all four rear tires had been damaged by vandals. We could only surmise that this was in retaliation for our having a lock installed on our tank to prevent further stealing from our gasoline supply.

I often think of the many things that could have happened because, in those days, there were only two-lane highways on which traffic moved through towns and highly populated areas, rather than around them. There were no bee nets to cover entire loads and no CB radios to call for help. On the other hand, there were fewer vehicles and less traffic with which to contend.

As moving time approached each year, I was always apprehensive about the enormous responsibility of moving all those bees. I kept a list to be checked methodically before the start of each trip. Our trucks were inspected by competent mechanics each spring and fall. Our travel equip-

ment included: extra veils, smokers, smoker fuel, matches, flashlight with extra batteries, tool kit, flares and anything else we thought might be needed in case of emergency.

It seems there is a tendency to become complacent after a few successful trips with bees. I found myself becoming more careless and less concerned with details as the seasons wore on. I seemed to be less aware that what I was hauling was a potentially dangerous cargo. Hobbyists or one-time movers are often ignorant of the dangers involved in moving bees; but commercial beekeepers often take unnecessary risks transporting migratory bees.

One cardinal rule would be to have ample rest before starting on a trip with bees. A sleepy driver is a double hazard when responsible for the safe transport of one or more colonies of bees.

When I sold most of my bees to begin my work with the Department of Agriculture, I first became aware of the lack of knowledge of the basic "rules of the road" for moving bees. One family came in a pickup truck for four hives of they had purchased. They were going to place the bees in a covered camper with 3 young children until I pointed out the danger if they should be involved in a highway accident. Their attitude seemed to be that they were buying the bees as if they were a pet dog or cat for their children.

At another time two men came to take delivery of 40 colonies of bees but they brought no emergency equipment. They had no smoker with them and only one had a veil for a trip of 120 miles. Knowing the potential danger, I gave them another veil, a smoker with fuel and matches.

More people are starting every day with the fascinating hobby of beekeeping; and due to pesticide applications, more of these people may be forced to move their colonies in order to safeguard them. Safety precautions should be of primary consideration.

When I mentioned that I felt an article on this subject was long overdue, a beekeeper from Florida concurred: "It's time we took a good hard look at the dangers and hazards in moving bees, so every trip can be a safe one. Beekeepers must begin to police themselves or expect to be regulated by others."

At the time of this writing I received a phone call from the Northwest Municipal Conference indicating that the Public Health Directors in 25 municipalities in the Chicago area are deeply concerned about the measures to be taken in case of an accident with bees in their vicinity. They were pleased to learn that help is available anywhere in the State of Illinois through the Department of Agriculture apiary inspection service.

I have recently completed revision of a fact sheet titled "How to Move Bees." single copies may be obtained without charge upon request to the Extension Entomologist, University of Illinois, College of Agriculture, 607 East Peabody, Champaign, IL 61820.

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Capping The News

THE EDITORS

"Beekeeping Small Talk"

Honey Support Price

GOVERNMENT PROGRAMS ARE not noted for their simplicity and those affected by the commercial implications tend to take for granted that everyone understands what the Honey Support Program actually is and what all the discussion is about. Our thanks to *Beelines*, from Saskatchewan Agriculture for a reminder that it is still possible to describe one of our government programs in a clear, concise, understandable manner. Maybe one has to be north of the border where the air is clearer to put some of our issues in abstract form for we non-professionals, I quote, unashamedly, from *Beelines*, October 1982.

"Earlier this summer, the U.S.D.A. announced its honey support prices under its commodity credit program. Under this program, beekeepers in the United States can obtain loans from the program for the honey they produce and have a period of time during which they can find a better market price for their honey. If at the end of this time, the beekeeper has not been able to find a better price for his honey then he can surrender the honey to the commodity program as payment for the money he has taken out in loan. Last year, the support price for top quality white honey was 58.2¢ U.S. This has been increased for the 1982 honey crop to 62.4¢ U.S. per pound. It is estimated that this support price is approximately 6¢ higher than the current market prices according to the U.S.D.A. market reports. Consequently, U.S. beekeepers are taking advantage of this program in ever increasing numbers. In 1980, approximately 6 million pounds of honey was surrendered to the government for loans which had been obtained under the commodity credit program. This increased in 1981 to almost 40 million pounds which were surrendered under the program. It is anticipated that a record number of beekeepers will take advantage of the program in 1982 and that the amount of honey placed in the loan program could exceed 60 or 70 million pounds.

This situation has caused grave concern in the honeybee industry in the United States. The commodity credit program is offering the best price available in the U.S. and consequently many beekeepers are surrendering their honey to the government. At the same time, however, U.S. packers have not been prepared to pay such high prices and consequently have been purchasing offshore honey primarily from China, Mexico and Canada. The beekeeping industry in the U.S.A. is very concerned since the amount of honey on the commodity credit program could very quickly become 100 million pounds, whereas, at the same time, the imports of offshore honey into the United States has risen dramatically in the past three years. This has moved the American Beekeeping Federation to lobby the federal government in the United States to initiate some sort of duty or import tarrif on imported honey.

Certification Of Origin

In a letter addressed to "Fellow Beekeeper" (of Florida), Mr. Vern Sisson of Powers Apiaries says, "Given the current honey situation with the all time record imports and ever increasing dependence by domestic producers on the Government Loan Program, we are all concerned about our economic future as honey producers—."

As a first step it is suggested that a country of origin label declaration be placed on all (Florida) honey packs. Secondly, it is suggested that Florida Orange honey be accorded laboratory certification when qualified.This certification would follow the certification which exists for tupelo honey in Florida.

A trend of the times? Who can say? The honey industry is not in agreement on the present form of the Honey Support Program and such issues as labeling and certification are going to fuel more controversy.

Computer Gets Role In Fruit Pollination

A bulletin from the Michigan State University, Department of Information Services, was recently received by *Gleanings* with the above title. It appears that a lot of work during the last couple years by Gloria Hoffman, a doctoral student in Entomology, under the direction of Dr. Roger Hoopingarner, has gone into producing a computer model to predict pollination and fruit set in apple orchards. "If growers knew how large a crop they could expect, they could begin to make management decisions about insect protection, chemical thinning, apple quality and marketing", the bulletin explains.

"Ms. Hoffman set out to construct a system model that will take into account the factors that affect pollination—including temperature, rain, wind, apple variety, and availability of pollen from other varieties and orchard design—and show how they are related to the flight of bees and fertilization of flowers."

She hopes the system will be ready for extension agents to provide to growers by the spring of 1984.

Botulism Spores in Infant Foods

Following the recent publicity given honey in respect to infant feeding, the results of testing other baby foods have been reported. The most noteworthy finding was that clostridium botulism spores (Type B) were also found in corn syrup.

The results of the survey in the Washington, D.C. area are as follows:

(Continued on page 668)

Monthly HONEY Report

LAWRENCE GOLTZ

October 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		47.00	34.80		35.00	38.50		36.00	34.00
60 lbs. (per can) Amber		43.00	31.20		34.50	36.50		35.50	33.50
55 gal. drum (per lb.) White		.56	.58	.57	.60	.60		.60	
55 gal. drum (per lb.) Amber		.50	.52		.56	.54		.58	
Case lots — Wholesale									
1 lb. jar (case of 24)		24.90	25.80		26.50	24.50		25.50	24.00
2 lb. jar (case of 12)		23.30	24.20	23.75	25.20	23.00		23.90	23.25
5 lb. jar (case of 6)		27.80	26.25	23.00	28.00	25.50		27.00	26.20
Retail Honey Prices									
12 oz. Squeeze Bottle		1.19	1.50	1.18	1.35	1.35		1.34	1.39
1 lb.		1.39	1.50	1.43	1.50	1.55		1.52	1.69
2 lb.		2.59	2.85	2.59	2.55	2.60	2.95	2.55	2.69
2½ lb.					3.39	3.25		3.20	
3 lb.					3.79	3.85	4.10	3.95	4.09
4 lb.		4.95		5.00	4.79	4.90		4.95	
5 lb.			6.00		5.55	5.80		5.95	5.89
1 lb. Creamed			1.55		1.59			1.59	
1 lb. Comb			2.25		1.99	1.85		2.10	
Round Plastic Comb			1.85		1.79			1.69	
Beeswax (Light)		1.50	1.50	1.50	1.85	1.55		1.70	2.00
Beeswax (Dark)		1.40	1.45		1.80	1.50		1.65	1.90
Pollination Fee (Ave. Per Colony)			27.50		18.00	20.00			18.00

Misc. Comments:

Region 1

Warm Fall weather in Vermont. Bees have well filled brood chambers. Sales of honey has improved over last two months. Bees in good condition in Connecticut, but possibly queens were forced to stop brood rearing too early due to brood nest becoming filled with honey. Very good crop year. Honey sales about average.

Region 2

Heavy fall honey flow in Maryland and colonies were able to obtain an extra supply of food for the coming winter. The 1982 season was a good year and beekeepers have a good supply of honey on hand. Sales of honey have been good at retail. Bee meetings have been well attended. Honey prices variable in New York state with retail prices from $1.25 in farmer's markets to $1.49 per lb. in supermarkets. Bees in excellent condition for winter in New York as a result of good fall flow. Fall flow below average in Pennsylvania but seasons total crop above average. Bees in good condition for winter. Honey sales fair to good. Bees in good shape in West Virginia.

Region 3

Ohio had an excellent production year, including a good fall honey flow. Bees going into winter in good condition. Indiana honey crop ended up much above average. Color a little darker than usual. Sales continue good, but slightly slower than last year. Sales to small packers down substantially. Indiana's first pesticide kill reported near Ft. Wayne with 80 colonies affected. Alfalfa field sprayed while white clover in bloom. Honey flow from aster in Illinois provided winter stores. Bees entering winter with good clusters and stores.

Region 4

Most colonies in Minnesota had full brood nests and did not require syrup feeding this fall as in the previous two or three years. Most operators reported 100-130 lb. per colony average in 1982. Honey sales fair. Many producers putting crops under loan except for foreign imports and depressed economy, beekeepers could be optimistic. North Dakota has had 4½ to 6 inches of rainfall in fall. Producers putting large amounts of honey under loan. Bees are heavy going into winter in North Dakota. Major buyers of wax paying $1.40 to $1.50 per lb., if buying.

(Continued on page 664)

Bee Talk

By RICHARD TAYLOR
Route #3
Trumansburg, NY 14886

A few years ago I went up to Vermont to talk to the beekeepers there, at one of their outdoor state meetings. They had set up a small honey show when I got there, and Charles Mraz was in the process of judging it. He did all the usual things, checking for cleanliness, grading for color, and so on, and then he did something I'd never seen a honey judge do before: He **tasted** what appeared to him to be the most promising samples.

Now you would think that this would be considered the essential test for any honey judging, wouldn't you? Can you imagine judging wine, or indeed any food or drink, without bothering to see what it tastes like? Yet I had never seen this done before, nor have I seen it done since. Certainly it is the exquisite taste of some honeys that distinguish them from any other food on the face of the earth.

At the end of my visit to that meeting the winner of the first prize gave me the winning jar, and I do declare, it was the most delicately beautiful honey flavor I had ever tasted.

That got me thinking about the quality of honey, and I've been thinking more and more about it ever since. Why can't you buy honey like that in stores?

We all know the answer. The honey I tasted that day had been produced by a beekeeper who had simply spun it from the combs, strained it, and bottled it. It had not been spun from old dark brood combs, had not gone through any cappings melter, nor been heated with cappings in a sump, nor mingled with brood. Above all, it had not been heated. And needless to say, it had not been filtered through diatomacious silicon.

Of course I am not suggesting that commercially produced honey is not good. It almost always is. And the producers and packers have discovered that they have to heat and filter it to make it crystal clear and slow to granulate. And of course big beekeepers, who make their living producing honey, and spin out several tons a day during extracting season, cannot be too fussy about what kind of combs the honey comes from or how much it gets mingled with wax and impurities before being strained.

Still, almost all honey could be a lot better than it is, and I declare, it is a challenge to the backlot beekeeper to produce that extra special honey. People prize honey for its exquisite flavors, and rightly so. Nothing on the face of the earth is as good as quality honey. Why, then, do we not make it our primary concern to protect and preserve that exquisite flavor?

One way to do that, of course, is to raise nothing but comb honey. That is my way. I never have any problem of honey being degraded by extracting and processing. And I suppose it is just because this comb honey is sometimes so unbelievably good that I have dedicated myself to the mission of trying to improve the quality of extracted honey.

Here is the gospel that I am going to be preaching now for the rest of my life: Honey is the most delectable, and should be the most sought after, food on the face of the earth: With few exceptions, the natural honeys from almost every floral source are good, most of them are delicious, and many of them are exquisitely lovely in taste and aroma. From the moment a beekeeper uncaps a comb, he exposes the honey to the risk of degradation. His chief concern, then, from that moment, should be to get the honey from the comb to the jar with the minimum of processing of any kind, and without allowing it to mingle with any impurities.

But what about the honey comb itself? Does this have any significant effect on the quality of the honey that is spun from it? More precisely, is honey impaired by being spun from dark combs that have been used for brood rearing?

There is a question that doesn't get asked very often. Raising it is like waving a red flag, and I think a lot of beekeepers would just prefer that it not even come up. And no wonder! Because spinning honey from combs that have been used for brood rearing is probably the most common of all the factors that enter into the degradation of honey.

I used to think that this was not so. I used to think that it didn't make much difference if one extracted honey from dark combs. I thought it didn't even affect the color of the honey significantly. But this, I have learned, is not so.

So you have got to think about protecting the quality of honey **before** you uncap it. To get right to the point: If you want to produce first quality honey, you have got to make sure it is stored by the bees in "virgin" combs, that is, combs that have never been used at all for brood rearing. And that means, I think, that you have got to use queen excluders, if you are going to produce extracted honey.

This summer a student in one of my beekeeping courses brought me two jars of honey from the very same super. The honey in one of the jars had come from virgin comb; combs that had been drawn from foundation that season. The honey in the other jar had come from dark combs that had been alternated with the frames of foundation in the same super. I was astonished at the difference! The honey from the virgin combs was light, delicate and beautiful. The other was darker and unattractive. Neither sample had been heated; the only difference was the combs they had come from.

What conclusion should we draw, then, concerning the common commercial practice of stacking full-depth supers on hives, letting the queen use any and all for brood rearing, and freely interchanging brood combs and extracting combs until they are all dark and more or less alike? Of course that is the way to produce honey if you are trying to get the biggest crops with the minimum of work and overhead and the minimum of swarming, but it certainly is not the way to preserve quality.

I'm going to be talking about this some more in the months ahead. I have formed some strong but confident opinions about how honey should be produced, extracted and packed, opinions that I think backlotters and hobbyists might do well to ponder. And as for myself, I shall have the satisfaction of having done what I could to improve the quality of extracted honey.

Monthly HONEY Report

(Continued from page 660)

Region 5

Aster honey slow in starting in North Carolina and shortened by cool weather. Cheaper brands of honey from imports showing up in groceries but honey selling very well at county fairs, sourwood for up to $3.00 per lb. Most colonies heavy with stores in Florida. The pepper bush finished with less than average yield. Some bees did well on cajuput. In general colonies have rebounded from two years of severe freezes, but required a lot of splitting to fill empty equipment.

Region 6

October was warm and dry in Kentucky. Some areas fared well on aster flow, others did not and required heavy feeding. Overall honey crop in Kentucky was highly variable. Honey moving fast at retail level. Fall flow in Tennessee not as good as expected due to early cool weather. Most colonies in good condition. Honey sales are steady with little change in prices.

Region 7

Very dry, late fall weather in east central Oklahoma. Bees may require some feeding. colony strength good. Sales of local honey very good. Honey color on dark side but excellent flavored. Arkansas honey production from soybeans ended up at about 60-65% of predictions. Honey was darker in color than usual. Moisture content was high, 18.7 to 19.8%with packers penalizing producers 2-3¢ per pound. Bees in excellent condition for winter due to good fall honey flow.

Region 8

Adequate winter stores in Colorado should assure good wintering. Consumer demand for honey has picked up and prices at retail have held steady. Producers have a good amount of years crop on hand except where honey was put on C.C.C. Loan. An extended warm fall allowed bees to stock the hives with honey in Montana. Bees were being wrapped for winter or moved to warmer climate for splitting in spring with new queens. Wasps and hornets were numerous due to humid summer and bothered bee colonies by robbing.

Region 9

Sale of honey has picked up in Oregon. (Need honey reporter for California and Washington state. Prefer someone with access to wholesale and retail honey sales and able to report general beekeeping conditions (state-wide).

Questions and Answers

Q. I would like to ask about requeening. We tried to requeen for the first time this year and had problems. Most were superceded.

What I would like to know is if in the early spring when brood rearing has started, could we destroy the old queen and the colony raise up a new queen? Would this be better than buying one? Would she be of good quality? What about doing it in the fall after the last major honey flow? J.P., Nebraska.

A. Requeening, in my estimation, can be one of the most frustrating operations in beekeeping under certain conditions. Sometimes novices, who are barely able to recognize the queen, can go through ten colonies, introduce new queens and have every single one accepted and laying beautifully in a few days. Another time an experienced, meticulous beekeeper can confidently perform the same procedure and end up with queens dead in the cage and queens that disappear in a day or two, leaving the colony hopelessly queenless. In both instances there may be no detectable difference to the beekeeper between the queens or the conditions.

Yes, colonies will often raise their own queens and sometimes satisfactory ones under some exceptionally poor conditions. Sometimes some very good queens can be raised from good breeder stock under proper conditions; for example, when there is a strong impulse to swarm. Most of us do not always recognize when these favorable conditions exist in a colony and our attempts at requeening by forcing a colony made queenless to raise its own results in a queen of lesser quality than one purchased from a queen breeder. The breeder does not wait for natural conditions (conditions having to do with the reproductive drive of bees) to become ideal but creates and carefully maintains these conditions over many weeks during the queen rearing season.

A second factor that must be considered in the attempt to have a colony requeen itself is the approximately 22 to 26 day or longer delay while the replacement queen is developing (16 days), mating and maturing (8 to 10 days). This is not taking into consideration the usual six to eight week period needed for the newly emerging workers to develop into field workers, which can critically affect the ability of the colony to gather a crop of honey should queen replacement be necessary during the build-up period. Most self-requeening is successful when it comes about by supersedure, swarming or because of an emergency brought about by the sudden loss of a queen, but the quality of the new queen is dependent on the traits inherited from the parent queen and drones and the care the colony gives to the developing queen larva. Conditions which determine whether queen rearing by a colony of honeybees will be succesful may in part be due to seasonal factors, with the late spring probably being the best, followed by summer and finally the fall season, after the main honeyflow. This may not be necessarily true when mated queens are introduced as replacements.

Q. I have raised bees for over 40 years and have many books on beekeeping, plus many years of reading *"Gleanings"* but have had a problem this year that defies solution.

I ordered and received three packages of bees with queens and installed them in my old hive bodies. The bees disappeared one by one and left no dead bees. They had started to build comb about the size of your palm on two frames.

They did not swarm.

When I first introduced one queen, she crawled out on the landing board. I put her back in the center frame and she crawled out again (alone). I again replaced her in the center frame and she remained inside this time.

They had plenty of honey and appeared lively and working. Reports from Maryland said "No disease".

I received my bees from two different suppliers.

I asked many other bee farmers but got no answer about this problem. I used plastic frames this year. Could the smell of plastic been offensive to bees?

P.S. We live in an isolated area and have no poisons. J.P., Washington.

A. I cannot give you an answer as to what was the reason your package bees did not accept their hive, without having an opportunity to examine all the circumstances.

Judging by the behavior of the queen and the reluctance to build comb I would guess that the hive contained some kind of contamination. It may have been something detectable only to the bees, perhaps a chemical residue, something that left a disagreeable odor to the bees, or some other condition which made the bees and queen react as they did.

We have never received any reports of plastic frames being offensive to bees.

Q. I have constructed a new storage building which has no heat. Can foundation be kept here without fear of damage by freezing. O.J., Ohio

A. Foundation may be stored in an unheated building but when it becomes cold the wax is very brittle and cannot be handled. The boxes of foundation should be warmed before using. For this reason foundation cannot be shipped during the coldest part of the year.

Beeswax stored in cool conditions can form a powdery appearance on the surface called "bloom", however, this does not affect the usefulness of foundation.

Q. I would greatly appreciate information about the harvesting, processing and nutritional value of bee pollen. Is it, in fact, beneficial in human health? L.S., Massachusetts

A. I suggest that you send for reprint M86 *Pollen And Its Harvesting* from the International Bee Research Association, Hill House, Chalfont St. Peter, Gerrard's Cross, Bucks, England. The price is $1.10. Much more information is in this pamphlet than can be given in a short letter.

The basic steps in pollen harvesting are:
1. Drying the pollen collected by spreading it out to dry in the air or drying it with low artificial heat.
2. Cleaning the pollen.
3. Storing the pollen by placing it in a covered container or sealed bag and placing it in a refrigerator.

I recently came across a small book titled *The Golden Pollen* by Marjorie McCormick which was published in 1960. Back then pollen was not being promoted to the extent it is today but the book does contain much information on the chemistry of pollen with much supplementary commentary about the virtues of pollen nutritionally and healthwise. Most of the references originated in European sources, making them by no means unreliable concerning the properties of bee pollen. Some literal interpretations are made which would probably be frowned on by many present day researchers. Apparently this early publication was used as a reference by individuals promoting pollen as a health food without taking into consideration whether current nutritional research has confirmed or rejected some of this early information as fact.

Many people are using pollen in various forms, from fresh pellets to pills and capsules, regularly. No large scale pollen nutritional studies have been published, or at least brought to our attention at *Gleanings*. Neither has anyone reported any serious adverse effects from using pollen, unless a few mild allergies could be attributed to the use of bee pollen.

Q. What causes honey to crystalize on the hive?

I have 15 hives and in 1982 at least one third of the supers were crystalized when removed from the hive. Two hives at a location six miles away had a few frames crystalize but not to the extent encountered in my larger bee yard. Also, a friend who lives 50 miles away ran into this same problem. When he took off his last supers, no evidence of crystalization appeared in the supers removed earlier.

In my own case, the problem existed when I took off the early supers but seemed to get worse as the season progressed.

The books I have are quiet on this subject. Taylor does mention that this honey is good only for feeding back to bees. J.M., Virginia

A. The crystalization of most honey is a natural consequence of the storage of honey. Only a very few honeys do not granulate with time, just as only a few are known for granulating in the comb, before the honey is normally extracted. There are several basic causes for honey granulation prior to the normal length of time the average American honey remains liquid. Even honey in the hive granulates under some or all of these conditions:

1. Storage temperature. Honey stored at 32 degrees F. or below remains liquid for extended periods. Honey granulates most rapidly at about 57 degrees F. Above or below this temperature the tendency to granulate decreases. This influence is particularly significant in honey stored away from the bees.

2. Suspended particles in honey as pollen grains and crystals of granulated honey speed granulation of the honey whether it be still in the comb or in storage.

3. The chemical composition, the dextrose/water ratio to be exact, of the honey, has much to do with the rate of granulation. This factor is what is determined by the kind of flower the bees gather the nectar from.

4. The amount and kind of agitation to which the honey is subjected. This is a negligible influence on honey still on the hive.

Those are the principles affecting honey granulation. It is up to the individual who has a granulation problem to do an analysis of their own particular situation and hopefully the answer will be evident. Of course, action such as the early removal and separation of honey with quick granulating properties from the balance of the crop should follow. Other measures such as changes in apiary locations or having new comb drawn for honey storage are often helpful. Having combs cleaned out by the bees after extracting or placing them on the hive early in the spring may help remove crystals of granulated honey from combs. Your local honey sources, those which produce either floral honey or honeydew within two or three miles of your bees determine the exact honey type which you are getting.

Q. If I put jars of honey in my microwave oven and radiate the honey for a few minutes depending on number of jars and size, will it sterilize the foulbrood spores that may be present? R.V., Florida.

A. Dr. H. Shimanuki of the Beltsville Bio-Environmental Lab, U.S.D.A. had the following to say. "I do not know for certain whether heating honey in a microwave oven for a few minutes would destroy *Bacillus larvae*. Experiments conducted by Dr. White in the early 1900's indicated that heating *Bacillus larvae* in honey for 40 minutes at 225°F (107°C.) did not kill all the spores. Based on this, I doubt that the heat alone would destroy the spores. I do not know the effect of microwaves alone on the spores of *Bacillus larvae*."

Honey doesn't flow from empty hives.

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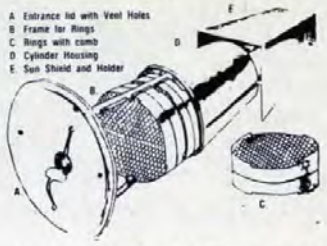

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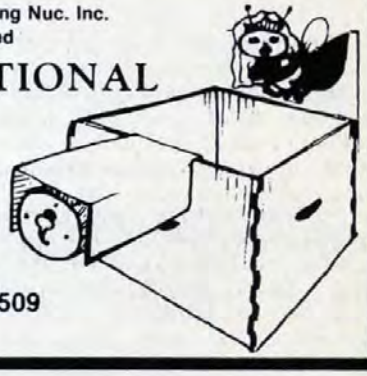

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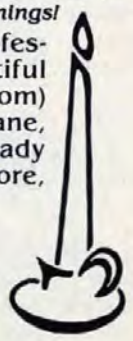

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TABLE 1. Clostridium botulinum spores found in infant foods in the Washington, D.C. area survey

Infant Food	Samples Tested	Samples Positive
Dry Cereal	90	0
Commercial Baby Formula	100	0
Nonfat Dry Milk	100	0
Fresh Whole Milk	90	0
Commercially Canned Fruits (apricots and tapioca)	100	0
Commercially Canned Fruit Juice (apple-prune juice)	100	0
Honey	100	2 (Type A)
Corn Syrup	40	8 (Type B)
Sugar	90	0
Fresh Cooked Carrots	100	0

Spore type found is indicated in parentheses.

Capping The News

THE EDITORS "Beekeeping Small Talk"

(Continued from page 658)

A nationwide survey of corn syrup was made because of these results. In addition the available information on corn syrup was limited and the presence of C. botulinum spores in corn syrup was previously unknown.

Bottles of corn syrup were collected nationwide. Of 961 bottles, 5 contained viable spores. Although this level of contamination is very low, it nevertheless constitutes evidence that corn syrup may be another possible vehicle for infant botulism. "Therefore, F.D.A. advises avoidance of such foods as honey and corn syrup for feeding infants since they are not essential in infant feeding", the report states.

There are several questions unanswered in consideration of the new turn of events:

1. Did the "commercial baby formula" tested contain corn syrup; and if not were liquid infant formulas tested which did contain corn syrup? The report is not clear.

2. If commercial baby formulas are sterilized to the point where no bacteria or spores remain, as claimed (see letter to the editor—by F. Hawkins, M.D.) does this not affect the validity of the tests when the results are compared with foods not similarly treated, such as the honey?

3. And, incidental to the above, is not sterilization of human food at temperatures sufficient to destroy bacteria spores detrimental to the nutritional value of food so treated?

Gleanings Mail Box

(Continued from page 650)

every reader to write their congressman to co-sponsor this bill and encourage their senators to introduce a similar bill or co-sponsor a bill as good as this one.

There are over 200,000 beekeepers in the United States. There are over 1,600 commercial beekeepers. The beekeepers own 4.3 million colonies of honeybees, which produce about 100 million dollars worth of honey annually. These figures do not include the thousands of people involved in the processing and distributing of honey to the American consumers.

Currently, the entire domestic beekeeping industry and American food supply are being threatened by honey imports. In recent years honey imports have dramatically increased to the point that over 30% of the honey sold in the United States is imported. The import problem has been caused because the United States has become a dumping ground for world surplus honey production.

The U.S. one-cent-per-pound tariff, imposed in 1948 has not been changed, while all other major honey importing nations have at least a 27% ad valorem tariff on honey imports.

James E. Blankenship
Blankenship Apiaries
Thorsley, Alabama

World Has New Beebeard King

By John Iannuzzi
Ellicott City, Maryland

James Johnson Of West Virginia broke the Guinnes Record ousting Don Cooke of Ohio.

On Sunday, October 17, 1982, 5:14 p.m., James Johnson, the Preston County West Virginia apiarist from Terra Alta, broke the world record for the heaviest (estimated) beard of 21,000 bees established by Don Cooke, Terrace Park, Ohio, on June 20, 1980, according to *Guinness*. His wiggly facial growth weighed precisely ten pounds and numbered no less than 35,000 honeybees (calculated at the standard of 3,500 per 16 ounces). His body weight, recorded by scale before and after the event, was verified by three independent judges.

The site was the poinsettia greenhouse at the Wooster, Ohio Agricultural Technical Institute (ATI) of the Ohio Agricultural Research and Development Center (OARDC), where the temperature was a balmy 80° in sharp contrast to the chilly weather outside. Dr. James Tew of the ATI faculty, who served as one of the three official judges, coordinated the affair. The other two were Dr. Mark Heddings, ATI entomological department chairman, and Dr. John Iannuzzi, the political scientist-nectar collector from Ellicott City, Maryland. Cameras recorded the successful attempt witnessed by more than thirty.

So tricky was the feat that a novel technique was employed by the Arkansas native who, on that very morning, had just completed his 141st beard of bees in competition against four other beemen for the best formation. Two applicators, Clyde Hutchinson, The Webster Springs, West Virginia assistant state apiary inspector, and Donald P. Kolpack, the Beebeard King of Maryland from New City Columbia—with nine "beards" under his belt—affixed the first stage in the traditional seated position, using well-fed but disoriented (they were shaken up in a closed newspaper) honeybees. Next the 42-year-old assumed a prone position for the second and third applications. After the second, the scale read 164.5 pounds, as verified by the three arbiters, while the final weigh-in, less than 30 minutes after the start of the feat, was 169 pounds exactly. He had started the sterling sequence at a body weight of 159.

That trimphal honey of a beard was his 142nd—and he suffered not a single sting!

Not to be outdone, one of the witnesses—his spunky grade-school daughter Beth—proved that, contrary to nature and without artificial hormones, the female sex could also operate facial fuzz farms. Her mellifluous progenitor helped her "sprout" her eighth beard of bees.

Cooke first climbed into the *Guinness Book of World Records* in 1980 based upon his 92nd demonstration on a Guiness T.V. show in Los Angeles on April 6, 1979 with a putative record of 17,500 honeybees, lost his spot in the next edition to Howard Davis of Bridgewater, Somerset, England, who had proved that he had done it with 20,000 in May 1952 (sic) but recaptured his treasured throne in the 1982 volume.

Beebeard Competition: Sunday, October 17, 1982 Agricultural Technical Institute (ATI), Wooster, OH.
Coordinator: Dr. James Tew, ATI faculty.
Judges: Lawrence R. Goltz, editor **Gleanings,** Medina, OH, John Barlow, Root sales manager, Medina, OH.
Audience: More than 118.

Participants & (Applicators):
James Johnson (Clyde Hutchinson), W. VA.
Michael Berkley (Fernando Urosa), Wisc. & Venezuela.
James Thompson (Philip Mariola), OH
Paul Kessem (Louis Haines), OH
Donald Kolpack (John Iannuzzi), MD

Occasion: Filming for future edition of T.V. program, "That's Incredible."

Weather: Windy and coolish, low 60s, with alternating sun and clouds.
Chair Position:

1. James Johnson, Terra Alta, W. Va.; 141st time; stings, too numerous to count—(double the number of my previous demonstrations")
Applicator — Clyde Hutchinson, Webster Springs, W. Va., assistant state apiary inspector.

2. Michael Berkley, Muskego, Wisc.; ATI student; his 3rd beard (first done in the spring); stings: "too many"; wore black top-hat; beautiful beard.
Applicator — Fernando Urosa, ATI student from Maracaibo, Venezuela.

3. James Thompson, Smithfield, Ohio, Wayne County apiary inspector; his second beard (first done the day before!); one sting—nose tip; **Winner** of the plaque (his handler called it "beginner's luck".
Applicator — Philip Mariola, Sugar Creek, Ohio, on ATI staff working with Tew.

4. Paul Kessem, Hamilton, Ohio; beard done "45 or 50 times" previously; "eight to ten" stings; very full beard including many bees hanging from both ear lobes: beautiful.

Applicator — Louis F. Haines, surveyor from Groveport, Ohio.

5. Donald P. Kolpack, Columbia, Md.; Beebeard King of Maryland; his 9th beard; stung four times; smallest of all the beards, goatee-style.
Applicator — John Iannuzzi, political scientist, Ellicott City, MD.
Rules: Thirty-five minutes was allotted for applying all or part of four pounds of bees with or without a mold. Judging based upon aesthetics (50%), shape (30%) and walk (20%) (Seating and bees were drawn by lot.)

A Few Sweet Words

By Richard Nowogrodzki
Dept. of Entomology
Cornell University
Ithaca, NY

"White-handed mistress, one sweet word with thee."
"Honey, and milk, and sugar: there is three."

What is your first reaction when you hear the word "bee"? Do you think of rich, sweet honey? of the distinctive buzzing noise? of the pain of a sting?

Certainly, different people will give different answers, reflecting, in part, the variety in their personal experiences and memories. Yet those very experiences have been shaped, to a large degree, by the language provided to describe them.

For example, we English speakers talk of "honeybees," and for most of us getting honey is the main point of beekeeping. But what if our language used instead the name "pricklybees"? That might not only discourage people from starting beekeeping, but indicate that as the language was developing bees were more often feared and respected for their stinging than cherished for providing us with honey.

Actually, in some Celtic languages — Welsh, Cornish, and Breton — the word for bee means "that which stings" and has the same root as the English word "wound." In other languages, notably ancient Greek and Sanskrit, the word for bee can be translated as "that which makes honey" or "that which sips honey." This reveals basic differences in the views of bees in these ancient cultures.

How about English? Well, the word "bee" in our language — as well as in all Germanic and Slavic languages — comes from the Indo-European word-root **bhei**, which means (and, if appropriately pronounced, sounds like) "buzz." So what all of these peoples seem to have noticed primarily was the bee's characteristic sound.

In other words, to us, bees are buzzers, and honeybees are the buzzers that make honey. And what is the most distinctive thing about honey, as revealed in the word's derivation? The English word comes from a Germanic root for the color yellow or golden. In most other Indo-European languages, however, the word for honey comes from a root meaning sweet; in fact, honey was the main or only sweetener available throughout most of the ancient world.* Thus, while some peoples seem to have been struck by honey's taste, others may have been more impressed by its color — or perhaps by its great value (comparable to that of gold?).

Other Bees

"Full merrily the humble-bee doth sing, till he hath lost his honey and his sting."

In English, we have descriptive names for other kinds of bees, too, not just those that provide us with what is sweet and/or golden. Carpenter bees are aptly named, as can be attested by anyone who has seen their neat, cylindrical nests in wood, which look as if they had been drilled by professional carpenters. Bumblebees have a charming name, but it is not derived from their somewhat humorous, bumbling flight. Nor, although in England they are also called humble-bees, and the word "humble" comes from the Latin word for the soil, and many bumble (humble) bees nest in the ground, is the name derived from their lowly home. The name really comes from their loud buzzing or loud noise, yielding also the English words "boom," "bomb," and "bombastic." Incidently, the word "bumbling," meaning "noisily blundering," has been in our language only since the last century, having come from the name of Mr. Bumble, a character in Charles Dickens' *Oliver Twist*.

Sounds into Words

"Sounds and sweet airs, that give delight and hurt not. Sometimes a thousand twanging instruments will hum about mine ears."

It is not surprising that our language-shapers often emphasized sounds when describing natural phenomena. The English word "drone" comes from a root meaning a steady murmuring sound, as in the drone of bagpipes. Similarly, the Slavic and Baltic language groups use terms for a male bee that come from words meaning "a noisy throng." The Irish and the Scots, however, seem to have focused more on the behavior in the hive — their words for a drone connote, respectively, a thief (i.e., one who "steals" honey from the workers) and an idler.

In addition to bees, quite a few other insects have names apparently derived from their characteristic noises. For example, "mosquito" and "midge," each originally meaning "little fly," come (one via Latin, the other through German) from the root **mus**, which meant "a fly" and imitated the sound of one. (In Italian the word for little fly, **moschetto**, was also applied to the arrow of a cross-bow, and, later, to a new weapon which replaced the cross-bow' the **musket**.) Crickets have a name that is supposed to sound like their calls; the same root provides the word "creak."

In contrast, wasps were singled out for the architectural skill displayed in their nests rather than for their noisy flight. The root yielding the word wasp means "to weave" and also shows up in the following English words: web, waffle, wafer, gopher (one that "weaves" underground passageways), and even (especially for beekeepers) wax, wick, and veil.

Getting back to bees, the scientific name of our honeybee, **Apis mellifera,** comes, of course, from Latin. **Mellifera** is a Latin form meaning "honey-making," from the Greek for "bee," **mellissa*. Apis**, too, means "bee," but its origin is not clear. D.E. Le Sage suggests that it derives either from the word for work (**opus**), or from the verb "to obtain" (**apiscor**), or from a root meaning "drink." Which were the Romans most struck by: the bee as a worker, as a provider, or as a (nectar) drinker?

Language and Culture

"All my best is dressing old words new."

Tracing word origins certainly reveals cross-cultural differences in viewpoint. The word "bear" in early English meant, literally, "the brown one." But in Russian the word is **medved**, meaning "honey eater," or "honey knower" (see Figure). We can conclude that, in old Russia, the color of a bear's coat was not as noteworthy as its effect on beekeeping. To give another example, we usually use the word "honeymoon" to connote the **sweetness** of the first weeks of a new marriage. But this term originated from the ancient Teutonic custom of drinking mead or metheglin (honey wine) for the first month — i.e., moon cycle — after marriage. Actually, for many ancient cultures, honey was rarely eaten; its main use was in the making of fermented drinks, which were not sweet. In many languages, the word for honey wine is the same as or quite similar to the word for honey.

One word usage I've been wondering about recently is "bee" as occurring in the expressions "spelling bee," "quilting bee," etc. William and Mary Morris *Dictionary of Word and Phrase Origins* suggests that "bee imparts the sense of a co-operative venture or communal involvement. But then why not call it a "quilting hive"? E. Partridge's etymological dictionary claims that these affairs are noisy, like the humming of bees. But this description doesn't fit the spelling bees I've seen, which are generally quiet and orderly. Maybe some readers of this article have suggestions or insights into this problem.

Beekeeping is an ancient art and occupation, with many strong traditions. Its language calls to mind its historical roots, even though new terms and usages are frequently coined. This language can be part of the pleasure of beekeeping. Therefore, whether you think of bees as buzzers, workers, or stingers, whether you view your harvest as sweet or golden, I hope you enjoy not only keeping bees, but also speaking about them.

*Sugar cane is indigenous to Pacific islands, and was not introduced into other cultures until fairly recently. Our word "sugar" is derived from the Arabic word for pebble, since sugar was introduced to medieval Europe by Arab traders, who had brought it from the East in the form of grainy (pebbly) candy.

*In Greek mythology, the nymphs Melissa, inventor of beekeeping, and her sister Amalthea, who first domesticated goats, were said to have reared the infant Zeus, king of the gods. Forced to keep hidden in a mountain cave, they nourished him with milk and honey.

References

Fraser, H.M. 1951. *Beekeeping in Antiquity.* **Second edition. University of London Press.**

Klein, E. 1966. *A Comprehensive Etymological Dictionary of the English Language.* **Elsevier Publishing Co., Amsterdam, London.**

Le Sage, D.E. 1974 Bees in Indo-European languages. *Bee World* **55:15-26, 46-52.**

Le Sage, D.E. 1975. The language of honey. *In Honey*: **a comprehensive survey. E. Crane, editor. Crane, Russak & Co., Inc. NY.**

Morris, W. and M. Morris. 1962. *Dictionary of Word and Phrase Origins.* **Harper and Row, NY.**

Morse, R.A. 1953. The fermentation of diluted honey. M.S. thesis, Cornell University, Ithaca, NY.

Partridge, E. 1966. *Origins* **— a short etymological dictionary of modern English. The MacMillan Co., NY.**

Webster's New Twentieth Century Dictionary of the English Language. **Unabridged. 1968. Second edition. The World Publishing Co., Cleveland and NY.**

Note:

Quotations used in sub-headings are from the works of Shakespeare. References, in order of appearance in this article: *Love's Labour's Lost* **(V.2.230),** *Troilus and Cressida* **(V.10.42),** *The Tempest* **(III.2.131),** *Sonnets* **(LXXVI.1.11)**

Three Slavic bears. Bears are well known for their meddling with bee hives. In Polish, Bulgarian, and Serbo-Croation—as well as Russian and other Slavic languages, the word for bear is derived from the word for honey.

Two Queens, or Not Two Queens — That is the Question — Part II

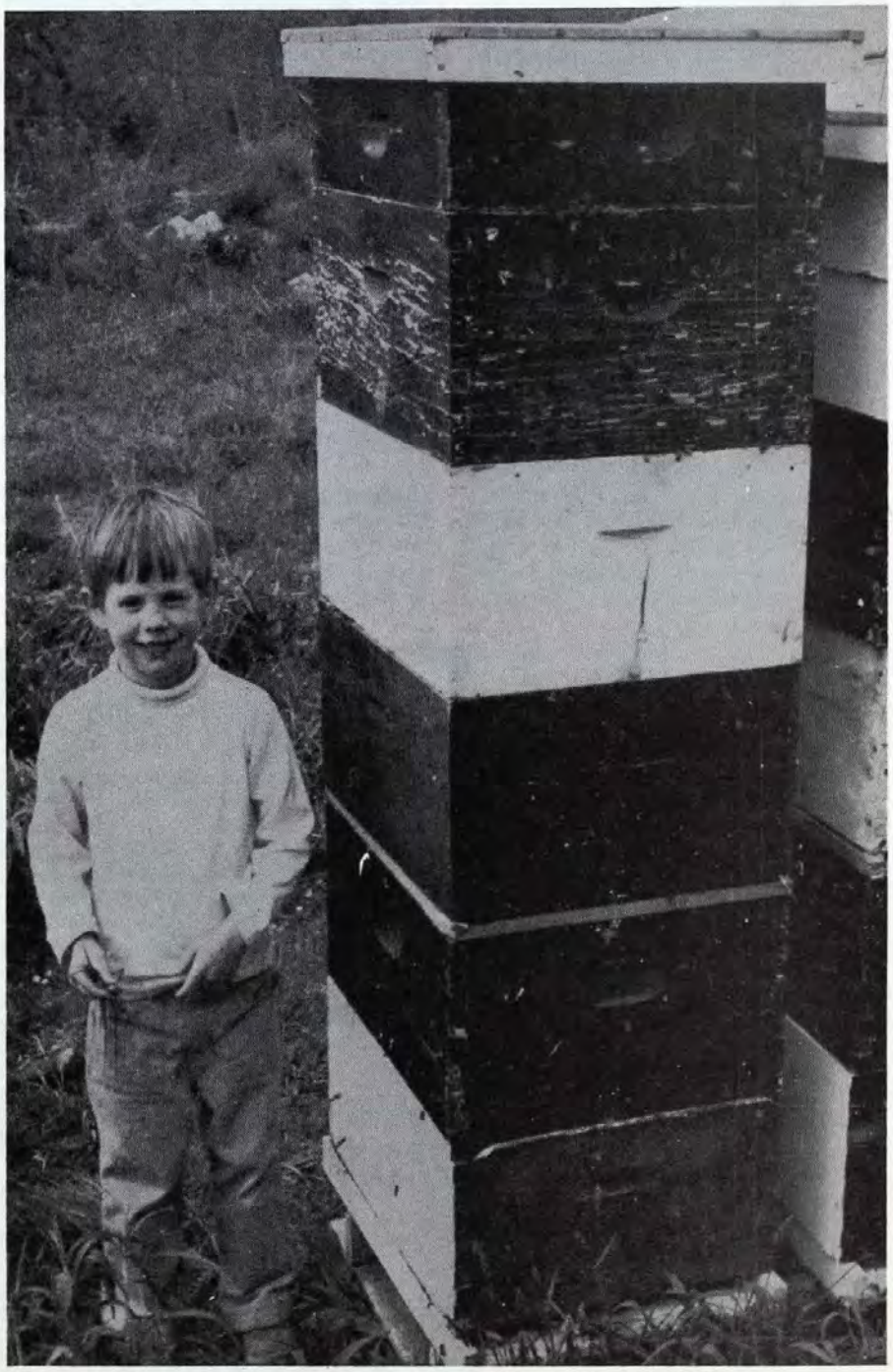
By Sanford Moss
Westport, MA

Supering

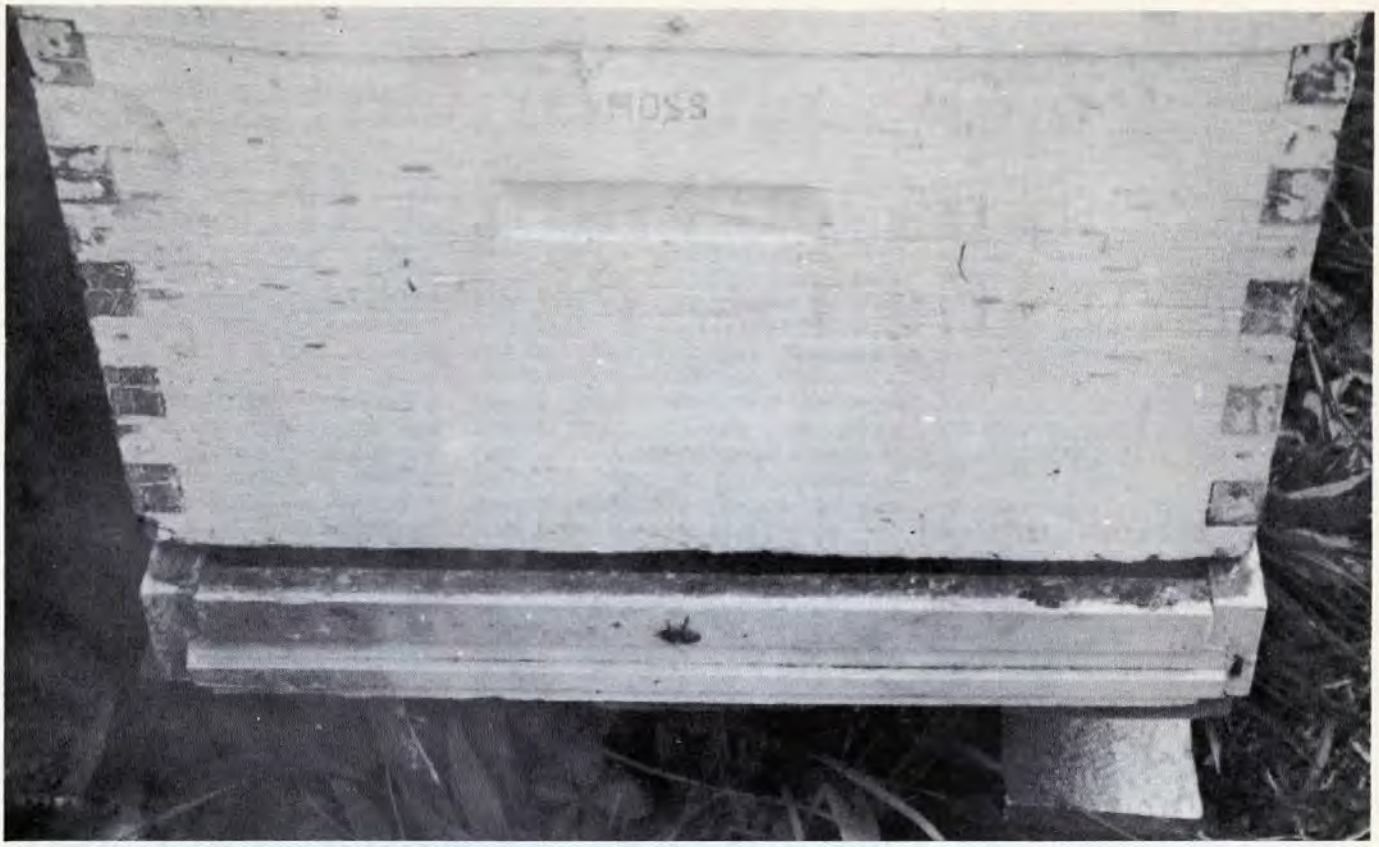
Two-queen colonies need lots of supers. You should have on hand three times the number of supers per colony as used for single queen units. Supering should begin as soon as the queen excluder is in place. With two-queen colonies it is important to anticipate honey flows, for the nectar can come in very rapidly indeed. I like to keep the equivalent of three empty shallow supers on each colony (Figure 5). During honey flows even in poor areas (such as where I live), gains of ten pounds per day are not unusual for single queen colonies. Two-queen units can gain 30 pounds on the same day. Needless to say, in an extended honey flow, these hives can grow to great heights. Special care should be taken to have strong, secure hive stands for such colonies and to locate them where they can be worked relatively easily (flat ground, good vehicle access).

I have experimented both with supering only above the two-queen unit, and supering below the queen excluder as well as on top. The results are good both ways, but supering below the excluder means going through the top colony to add or remove supers. The work is just not worth it, and the bees seem to pass nectar brought in below to the top easily. I never have had problems with bees not working through the queen excluder in a two-queen colony. Nor will they clog it up with a lot of burr comb either—they keep it nice and shiny.

Yes, two-queen colonies will swarm—and the swarms can be spectacular! Ten to fifteen pound swarms are not unusual, and these will tax the capacity of most swarm boxes. In my experience it is most often the upper queen which leaves in the swarm, although workers from both halves of the colony will go



The equivalent of 3 empty shallow supers is provided at all times.



The colony is oved forward on the bottom board to provide rear ventilation.

along I suspect that two-queen units could be used to great advantage to study the causes and dynamics of swarming. One fairly obvious hypothesis about why the upper queen is so often the one to go (despite her lesser age) is that the upper colony is the one with the poorest ventilation and the most congestion.

I have had fewer problems with swarms since I began paying greater attention to the problem of ventilation in these colonies. To increase ventilation I do several things. First, I have only nine brood frames per hive body. Next, when the queen excluder goes in, I reverse the bottom colony and set it forward on the bottom board so that air is free to flow in the back side of the colony as well as the front (Figure 6). It would certainly be worthwhile in the regard to use the deep bottom boards advocated by Dr. Richard Taylor. Finally, when the weather gets warm, I stagger all the hive bodies one inch back and forth on each other. Air flow is thus increased tremendously.

If, inspite of these precautions, a colony persists in starting swarm cells; then it is time to reverse the colonies around the queen excluder—the top colony going below, and the bottom colony to the top. This works best before the double screen is removed, but it is worth a try at any later time.

If all else fails, I generally accept the bees' decision to swarm with all the good grace I can muster. After the queen cells have been sealed, but before swarming takes place, I like to take most of the brood from the part of the colony that is preparing the cells, I use this broood with their queen cells to stock as many nuc boxes as I can. These cells will hatch out into fine queens that were started in extra strong colonies. After they are mated and are laying well I use them for making increase; for requeening wild swarms I have caught; selling them to fellow beekeepers; or wintering over to get an extra early start on the following year's two-queen colonies.

When I break down the swarm-happy colony I may isolate the offending queen in a nuc box with a few young bees for a week or two to "cool off" before returning her to the colony—or I may decide to run the remains of the parent colony as a greatly strengthened single queen unit.

Some additional uses for two-queen colonies

Because they are so strong, two-queen colonies are ideal for comb honey production. Round-comb, box-comb and cut-comb honey production are all enhanced by using the management technique. The great populations of bees ensure that in addition to lots of field bees, plenty of wax-secreting bees are available for rapid comb building. The comb honey supers can be placed right above the brood next where the foundation will be drawn most rapidly.

If two-queen colonies sound too ambitious and work-like when managed intensively, beekeepers should consider using these thechniques to build colonies for specific honey flows and then convert them to single-queen status for the flow. A two-queen colony can peak in its bee population eight to ten weeks after being set up. But even a couple of weeks to two queens laying in the same unit can provide a substantially enhanced field force three weeks later, after reduction to a single queen. For early honey flows, beekeepers might consider the following management scheme: (A) using a double screen for requeening (and as a concurrent means of swarm prevention) in early Spring; (B) leave the double screen in place for three weeks while both old and new queen lay prodigiously; (C) then eliminating the old queen when the double screen

is removed. Three to six weeks later will find a strong, well-balanced (and requeened) bee colony ready to meet the honey flow head on.

In areas with relatively late major honey flows such as from sweet pepperbush or goldenrod, the same strategy can be used, but the new queen should be introduced six to eight weeks before the anticipated flow.

Preparation for Winter

Here, in New England, I start getting my two-queen colonies ready for winter on August 1. This is when I pull the queen excluders to get back to single queen status. Conventional widom has it that the better (presumably the younger) queen will kill the other. I'm not convinced of this, for every time my queens have fought through the excluder, it was the younger queen that lost! In early August, however, these colonies are just too big and the weather too hot to spend a lot of time searching for that older queen in the depths of the bottom colony. So I just pull the excluders and trust to nature's good wisdom. May the better queen win!

I like to have all the ripe honey off the hives by the end of August. The hives then consist of four deep brood chambers and the remaining supers with unsealed nectar. Our goldenrod flow generally starts in early September and continues into October. With any luck the middle of October will find the remaining supers filled and the two top brood chambers full of honey. At this time I remove the supers and top brood chamber and extract them, leaving the bees with the third brood chamber full of winter stores above the bottom two brood boxes which also have honey and lots of pollen. Incidently, the second benefit from having only nine brood combs comes when they are extracted. These thicker combs are much, much easier to uncap than those from a ten frame set-up.

I then move the hives back on the bottom boards to the normal position, reduce the entrances to exclude mice, and give each colony plenty of top ventilation. With this preparation winter losses are practically nil. These colonies have plenty of bees to get through the winter and will once again provide strong units for starting more two-queen colonies in the Spring.

Two-queen colonies, run for intensive honey production, are lots of work and therefore are not for everyone. They are fun to experiment with, however, and much can be learned about bees and beekeeping with them. Moreover, the two-queen technique as a strategy for the rational management of bee colonies with respect to requeening and preparation for specific honey flows is a tool that should be in every progressive beekeepers's repertoire.

Notes Of A Bygone Year

By The Oldtimer

The graveled county road ends rather abruptly in an eight or ten inch drop, where begins the long, winding, dirt and pot hole filled one. This primitive road in turn becomes a maze of old disused logging trails radiating like the spokes of a wheel up mountain slopes sixty miles distant. Now, a little more than half way along this lonely and picturesque way lived an old recluse, John Patterson. His small, ivy and honeysuckle covered cabin, with the inevitable lean-to woodshed closing the south side, is set back from the road about a hundred yards. On one side of the house is a garden, bordered on the north by a small orchard. Beyond the house and to the left stands a barn, a larger edifice by three or four times, although size and shape is difficult to ascertain due to a plethora of creepers, moss, grape vines and ivy clinging to its aged weatherbeaten boards. Now, when you consider that all this is framed by giant firs and distant snow capped peaks a picture post card setting can be imagined.

But, you see, my wife and I had no inkling of such grandeur until—well, let's start at the beginning. I'm actualy transcribing this narrative almost word for word from old notes.

The missus and I were in the small paddock near the stable, which is our apiary, when we heard brakes squeal. Looking up, we observed a pick-up truck as it came to a stop, backed up and pulled into our yard. A silver haired man, bent and lean, alighted and came toward us. A truck door remained open, revealing a cluttered cab. Shaking hands he introduced himself. He had noticed my hives the few times he had gone by to town but seeing us out there just now and it being such a nice sunny morning he had decided to stop and yarn. Moving over to one of the colonies where the alighting board was crowded to overlowing with dark colored Caucasians, most of them pollen heavy, he said that for the last few years he'd cut logs to buy the necessities. Lately, prices were such that they hardly covered transportation costs so he thought of going into beekeeping. Apparently he had always had a hive or two and sometimes even a half dozen, but now he thought he'd try about twenty. He had a friend in town who was making him supers out of three quarter inch plywood and wondered about this and those new fangled gadgets, what do you call 'em, queen excluders? And so the conversation went until coffee time, during which my wife selected some *Gleanings* and a couple of hard cover books for him to browse through at his leisure.

Then we were out in the yard again for another walk around the busy apiary. "Perhaps you'd both like to come out some time." I felt honored and accepted the invitation. "Who knows, you might want to put some bees in there somewhere. Down at the end of the road, past my place twenty miles or so, there are miles of blackberries and of course there's plenty of good old fireweed. The last couple years I've noticed quite a lot of white and yellow sweet clover, especially along the river banks. It just seemed to start spontaneously, where there was none before." Of course we said we would be delighted to visit him and to expect us very soon as out-of-the-way places such as he described are in our blood.

Now obviously the road in question, when I first jotted these notes, was unknown to us and we were sur-

prised somewhat at its existance so near. However, being a continuation of a county road, which we avoid if at all possible, it could easily have escaped our attention forever. We both have a strange aversion to built-up areas and heavily traveled roads, preferring back country trails, or better still, none at all. If we take any time off, which we do occasionally, it is back into the hills for us, fishing or exploring, picking berries or puttering around with honeybees. When you are pausing before a hive in some remote area time becomes meaningless; nay, more that it grinds to a halt and there is neither past nor future. Lonely, sun drenched surroundings become as a hazy, primordial garden as you perceive the vibrant life you have brought here to this alien place. The hyptnotic sound of the bees at work becomes an insight to the great force which governs everything. It is here that one can begin to understand the magnitude of this fantastic miracle which has brought life to earth. What else but a master plan, perfected to the greatest degree, could guide fish thousands of miles through unknown seas back to the streams of their birth, in order to continue life? Birds perform migratory feats which border on the uncanny, arriving and departing on cues only they can detect. Land animals, too, perform exploits which leave me gasping in awe; but not being much of a whiz at understanding such things (I have to remove my boots to count above ten) I must accept all of the mysteries of nature at their face value. I cannot think in the impersonal terms of the "experts" who claim to be able to explain the existance of the geometrical perfection of the dandelion seed head; or of a snowflake; or the awesome sight above you on a clear summer night.

Of one thing I am certain. If we destroy this fragile life which has been created without our help and has been entrusted to our keeping it may never again reappear, nor will the men who may remain be able to create something to take its place.

In a few days after that first meeting, lured by visions of old John's hidden Eden, the old truck carrying my wife and I dropped over the edge of the county line road and onto the dusty track that time had nearly forgotten. Its quiet, meandering course followed a sparkling stream, where families of cavorting, fuzzy ducks swam in parade behind their mothers through reedy borders. Young song birds, fledglings fresh from the nest, strip the umbels of wild plants of their seed and scatter to the trees as we pass. We progressed steadily, taking it all in and stopping now and then to photograph a scene of exceptional beauty. The entire area, for that matter, is beyond compare. A fertile valley, sometimes wide and again closed in by buttresses of many-hued rock is a journey into a long distant past. Twice we found ourselves hub deep in swiftly flowing water for a distance of about thirty yards, while on our left loomed the cause of it all. A waterfall plunged spectacularly from above and its passage through time had worn a groove in the solid rock beneath us. Showing how little traffic used this path we came upon clusters of bright, golden flowers growing in the stony tracks. Smilingly, we saw where old John had swung aside to miss them. We did the same.

"We drove slowly, our minds filled with poignant thoughts about the drama being played out back there, far from the eyes of civilization."

Finally, climbing a sandy stretch of road we smelled wood smoke which could be coming only from a kitchen stove. Suddenly, we came out of a grove of tall trees and we were there. Fascinated, our eyes took in the green bedecked cabin and flower-filled patches around the yard. We marveled at this elysian setting, breathing in the fragrance of field and forest basking peacefully in the mid morning sunshine. A blanket of stillness settled over us as I switched off the engine of the old truck. We savored it a moment before strolling over to the woodshed from which old John was just then emerging.

While waiting for the water to boil he showed us the barn. High in the peak, in a dark shadow a horned owl eyed us sleepily and then blinked a signal that all was forgiven for our interruption of his diurnal time of rest. It moved once on silent wings as we watched. Shortly after, sipping coffee at a plank table and benches under a huge cherry tree from which a confetti-like shower of white petals rained down, we were regaled by the antics of two squirrels who, with no fear at all, paused near our cups for a moment. Chattering, they scampered up John's shirt front, down his back and finally disappeared, still voluble, high up among the tree branches. Chipmunks and birds paid not the slightest heed as we talked. We swung around as John suddenly pointed. Two huge eagles dropped ponderously onto the branches of a big tree at the end of a field. They settled slowly, wings outstretched while their great weight bore the topmost limbs down until we thought they would surely break.

We had been there an hour or more when the old man said "excuse me, but it is about time the old cow showed up." He turned forwith and called out just once "come on Annie" in the direction of a break in the bushes to the rear. Turning back to us he said, "where were we?" Our conversation continued with him saying, "back in the old days a logging truck would go by once a day, but in the last ten or fifteen years nary a truck, car or anything else have I seen. It seems like the rest of the world moved away and left me. Not that I'm complaining, I like it that way." We became silent as a movement near a seepage spot, showing damply on a serene slope about four hundred yards away drew our attention. In a moment or two we were treated to the spectacle of no less than fourteen mule deer availing themselves of this natural salt lick.

Enraptured thus, time seemed to stand still. With a start we were brought back to reality by a sound behind us. We swung around just as a small Guernsey cow, evidently very old and having a little difficulty with her left back leg, appeared. As she walked slowly, haltingly up the path John got to his feet and walked to meet her. Ignoring us completely she began nibbling at his tattered old shirt. She followed this with what could only be described as playful nudges of her grizzeled old head to his ribs. The old man seemed to have forgotten us for the moment as he gently rubbed her neck and face, all the while keeping up a soothing patter of talk. Straightening abruptly, he turned and said, "would you like to come? I always give Annie a few extra rations about this time. She has a little trouble eating grass and hay these days. Perhaps it is her teeth." We followed pensively as the old man, arm resting on the aged cow's neck plodded up the hard packed dirt track to the barn where he filled a wooden trough with oats from a barrel. While she ecstatically tucked into this repast, John stepped outside as if to recall events from a distant past. "She's not milking? I asked, more for conversation, for this was plain to see. I must have looked quizzical, for he replied, "Nope, hasn't been for several years now. There was a time some years ago when my wife was very frail and would surely have died if it had not been for Annie's milk and

(Continued on page 701)

Bees and Gardens

Trees

A TREE IS is a woody plant with a single upright stem growing to a height of 10 feet or more. While shrubs, which were discussed last month, are also woody, they are usually smaller than trees and usually have at least several stems growing from the base.

Trees are of two basic types: Conifers, which have needle-like or scaly leaves; and, broad-leaved trees, which have narrow to broad bladed leaves in either simple or compound form. Wood from the conifers is called softwood and wood from the broad-leaved trees is called hardwood, in spite of the fact that some conifers yield a comparatively hard wood, such as the hemlock and the yellow pine and some broad-leaved trees, such as basswood, yield soft textured wood. The hardwoods and softwoods differ not so much on the basis of their "hardness" but rather on the basis of their cellular structure and the composition and the function of the various tissue of the wood.

In general, conifers are evergreen, keeping their needles through the winter, whereas the broad-leaved trees drop their leaves in winter.

When speaking of tree selection for planting it must be kept in mind that trees, like shrubs and herbacious plants, have geographical limitations, determined by climate, and to a lesser degree by soil, water, topographical and atmospheric conditions. The forest belts are, roughly, (A) Pacific forests, (B) Rocky Mountain forests, (C) Plains and prairie, (D) Northern forests, (E) Central hardwoods and (F) Southern forests. This classification tells us little about the composition of each forest belt but is sufficient for our purpose since we, as beekeepers are interested in individual species and not the study of silvaculture or forestry. There are about 800 species of trees in the United States, both native and naturalized. Of these about 75 are naturalized and the rest are native. There are about 650 kinds of broadleaf trees and over 100 kinds of conifers. In connection with beekeeping we will have little to say about the pine, hemlock, spruce, fir and cedar which comprise the conifers. They are unimportant as nectar producers as are the approximately 15 kinds of palm trees. This leaves the broad-leaved trees such as maples, basswood, locust, poplar and willows, for example, as the subject of our comments about sources of honey and pollen. Of course, the trees which bear edible fruit are important nectar and pollen sources as are the trees grown for ornamentation, lumber or other aesthetic or conservation purposes. Not all trees which bear fruit yield nectar. Some broad-leaved trees such as the oak, ash, elm, hickory and walnut produce flowers but little or no nectar. Many of these are wind pollinated and have no need of insect pollinators. On the other hand, trees such as the locust and tulip poplar have large, prominent flowers which attract and depend on insects for pollination. All trees produce flowers of some kind but only a few produce generous amounts of nectar and pollen.

Most tree flowers have both pistil and stamens but sometimes separate male and female flowers occur, and in a few instances, such as in some willows, the male and female flowers are borne on separate trees. The fruits (used here in the broad sense to include any form of ripened ovary with adjacent parts) include seeds by which trees reproduce. Tree seeds vary in size. Some of the larger trees, as the redwoods (*S. sempervirens*), have the tiniest seeds. Tree seeds are dispersed in various ways in nature; by wind, the actions of animals and birds and by the moving waters. Man, too, deliberately or otherwise, is responsible for much of the seed distribution.

Tree seeds may have close fitting hard coats (locust) or thin, fibrous covering as have the maples. Germination of the hard coated seeds may be delayed by varying time periods, but usually over winter, during which freezing and thawing fracture the hard coats and bring about certain changes in the seed which causes the embryo to resume growth. The hard seed coats may also be eroded by abrasion, crushing and hot water or chemical treatment. Keeping the seed in a refrigerator for a period of time accomplishes the same purpose as outdoor exposure. The seed is exposed to a low temperature for a period of time which "breaks" the dormancy of the seeds and germination takes place when other conditions are favorable. This afterripening period is not needed in all seeds as some may germinate almost immediately after they mature. An example is some of the oak acorns which begin to grow as soon as they fall to the ground, if moisture and temperature conditions are favorable. Almost all trees produce viable seed but the reproduction of some trees, as in the case of the willows, is much

Hardiness zones in United States. Zones 1-2 Canada, zones 3-10 United States.

easier by taking cuttings of the living branches. Other trees in which beekeepers may be interested may also be propogated by vegetative means, as taking cuttings, but much care must be taken to select the cuttings at the proper time and care for them in the proper manner. We suggest that you check this information in books or pamphlets which can be obtained from a public library or your County Extension Office.

The best source of tree seedlings and most economical if you cannot grow your own from seeds, is from a tree nursery which specializes in this kind of stock. Replant the seedlings in rows in the garden where they can be cared for and protected. Allow to grow until root and above ground growth reaches the point where the root system has developed and the trunk and branches have become sturdy, yet not too large to transplant. The tree now has an excellent chance of survival when transplanted to its permanent location. Allow a tree plenty of space in which to expand to its maximum growth.

The following chart may assist you to make an initial selection of tree useful for nectar and pollen which is adaptable to your area and which may fulfill one or more other purposes. It must be remembered that for some trees, a particular species or horticultural variety may not be adaptable to certain zones. The geographical limitations may vary widely or very narrowly from north to south. Tree planting guides and descriptive literature have much more information than can be provided in this column, in respect to selection, propagation and care.

Only trees of particular value to beekeepers are included in the following list and includes only those which are most likely to be adaptable to planting by the beekeeper.

Tree Name	Growing Conditions	Characteristics	Uses	Hardiness Zone
Apple *(Pyrus spp.)*	Insect pollinated, medium height. Tolerant of moderate cold and needs moist soil. Purchase grafted trees from nursery.	Good nectar and pollen source for early brood rearing. Dwarf and Std. sizes.	For the fruit and shade	2-7
Basswood, Linden *(Tilia americana)*	Moderate moisture, cold tolerant. Start from scarafied seed or saplings from stumps	Tall, 60-100 ft. Upright in growth. Good specimen tree.	Excellent nectar tree. Honey excellent. Lumber and ornamental	4-7
Buckeye, Horsechestnut *(Aesculus spp.)*	Medium tall, moderately hardy. Grows well in city.	Eastern species have pyramids of small flowers. Western species poisonous to bees.	Minor honey source in most locations. Ornamental.	4-6
Cherry *(Prunus spp.)*	Cultivated species need care given to orchard trees.	Medium size tree. Fruit varies from sweet to tart.	For the fruit. Nectar and pollen at build-up time.	4-7
Citrus, orange, grapefruit, lemon etc. *(Citrus spp.)*	Moist soil. Restricted to warmest regions.	Small white blossoms in early spring.	For fruit. Excellent nectar source. Honey is popular	8-10
Eucalyptus *(Eucalyptus spp.)*	will tolerate hot, dry conditions. Restricted to warm climates	Variable for the different species. Tall.	Honey yield and quality varies with the species	9-10
Black Locust *(R. pseudoacacia)*	Prefers gravelly, well drained soils.	30-50 ft. tall. Compound leaves, creamy pea-like flowers in clusters.	Excellent nectar tree and fine honey. Erosion control and post lumber	3-6
Mangrove, Black *(A. nitida)*	Evergreen. Grows along seashores	Varies from bushy shrub to tall tree.	Light colored, mild honey	9-10
Maple *(Acer spp.)*	Variable, depending on species. Mostly in eastern U.S.	From shrubby to medium to tall. Excellent ornamental tree.	some species are good nectar and pollen sources. For lumber.	3-6
Persimmon, eastern *(D. virginiana)*	Common in warmer regions. southeastern U.S.	40-60 ft. Only female trees bear the astringent fruit.	Slender, attractive tree valued as an ornamental	10
Plum *(Prunus spp.)*	found across U.S. Needs regular orchard care.	Small to medium size.	Fruit. Nectar for early build-up	4-7
Redbud, Judas tree *(C. canadensis)*	Moderately moist and sunny location	Small (20-30 ft.) Rose-pink blossoms in early spring	Very ornamental	4-7
Sourwood *(O. arboreum)*	From W. VA to northern GA, west to Arkansas. Common in mountains	30-40 ft. tall in highlands. White, urn shaped flowers on one sided racemes.	Considered one of the finest honey by many	6-8
Tallow tree *(S. subiferum)*	Tropical tree	Medium size. Introduced from Asia	Yields large quantities of honey.	9
Tulip poplar *(L. tulipifera)*	Eastern U.S., especially in mountainous areas.	80-120 ft. tall. Large creamy blossoms. Ornamental	Produces abundant honey with a reddish color. Lumber tree.	6-8
Tupelo *(Nyssa spp.)*	Prefers moist conditions, often in swamps. Mostly southeastern U.S.	50-75 ft. Bears red or blue berries.	Good honey plant. Amber honey that never granulates	7-8
Willow *(Salix spp.)*	Prefers moist to wet conditions. Central and northern U.S.	Fast growing. Variable size. Brittle limbs. Pussy willow *(S. discolor)* best for bees.	Very early season nectar and pollen source. Propagate by cuttings	6-8

Research Review

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

Chalkbrood

There is nothing new as regards the control of chalkbrood, a disease of larval honeybees. The author of the paper cited below believes the disease can be found in any colony in England where it is searched for diligently. I think the same is true of colonies in North America. There is no doubt that the introduction of this disease into the United States and in Canada in the 1960's has cost us all dearly but I've seen no estimate as to how much.

"There are grounds for believing that bees vary in their resistance to the disease", says this paper. At the same time, the author feels the disease is caused by an "opportunistic pathogen" that takes advantage of stress conditions to spread. The problem peaks in June in the northern U.S. Most colonies in this same area have their maximum population about July 1 and this suggests that the pressures associated with increased brood rearing in the spring could cause the stress that makes the disease more troublesome.

Spores of the fungus can survive in honey for up to two years. It is possible that the disease was brought to this country in imported honey. Worker bees can carry the fungus in their honey stomachs and it has been suggested, though there are no positive data, that this is one way it survives the winter.

Many methods of chemical control have been tried but none has proven effective. Larvae vary in their resistance to infection. Strains of bees vary in their ability to rid colonies of it. The beekeepers best defense appears to be to requeen all colonies that show signs of infection, especially those with larval mummies on the bottomboard and at the entrance. Probably the same genes that protect against American foulbrood protect against chalkbrood. Bees that can remove larvae dead from one of these diseases can probably remove the other.

Laboratory tests in Canada (second paper cited below) indicate that bees remove brood killed by freezing with varying ability, colony to colony. The author feels this hygienic behavior is "undoubteldy genetic in origin".

These papers support the thought that more attention should be paid to selecting and breeding stock for disease resistance. Some such stock is available and should be more widely used.

References

Heath, L.A.F., Development of chalk brood in a honeybee colony: a review. *Bee World* **63: 119-130. 1982.**
Milne, C.P. Jr., Laboratory measurement of brood disease resisitance in the honeybee. 1.) Uncapping and removal of freeze-killed brood by newly emerged workers in laboratory test cages. *Journal of Apicultural Research* **21: 111-114. 1982.**

A South African Mystery

An article in the *South African Bee Journal* with the title "Killer Bees in south Africa" caught my eye. It began "It is very fashionable in some countries to refer to bees with adansonii genes as 'killer bees'. Perhaps one of these days such people will become accustomed to the odd sting or two." For those not familiar with the fact, the now famous African bees in South America are descendants of bees from South Africa.

However, as I read on it turned out that the main subject of the article was not honeybees but leaf cutter bees, related to the species used in a few western states for pollination. These bees usually nest in hollow twigs, lining their homes with overlapping layers of neatly cut circles of green leaves.

It seems that during World War II six twin-engine Oxford training planes crashed within a short period of time because of mid-air failures of their airspeed indicators. Some abusive language written on one of the crashed air-craft was by a disgruntled Irish soldier who was said to have anti-British feelings. He was court martialled and accused of sabataging the planes.

Testimony at the trial revealed that leaves had been placed in the tube-shaped speed indicators, making them give inaccurate readings which misled the pupil fliers. Luckily, one member of the court martial, an amateur botanist, noted the peculiar shape of the leaf pieces. He thought he recognized the characteristic circular shape. a bee expert was called in and identified the culprits as South African leaf cutter bees. They had built their nests in the air speed indicators. The Irish soldier was acquitted.

I've heard of leaf cutter bees in the Western States nesting in car radiators and holes in farm machinery and thereby causing trouble. The answer, of course, is to cover those objects which have holes or tubes of such a size that might attract the insects—holes the size of hollow twigs.

References

Anonymous, Killer bees in South Africa. *South African Bee Journal* **54(1): 15-17. 1982.**

The Public Attitude Toward Beekeeping

By Grant D. Morse, Ph.D.
Saugerties, NY

Two recent articles in the *New York Times* reveal a good bit about how people react toward beekeeping and beekeepers.

One article deals with theft of bees; the other with stings by bees. The article about theft (on August 22, 1982) uses the word **rustling** in place of theft, with the purpose by the writer of the article, I suppose, of making it sound romantic rather than a loss by a beekeeper who could ill afford to lose his property.

The theft reported by the *Times* occurred in the State of California (It could have been your State, instead). It quotes the California Department of Food and Agriculture as stating that: "Bee thefts in the state have been increasing at an alarming rate, playing havoc with the States' $42. million bee industry and making it almost impossible for beekeepers to insure their hives."

The article in the *Times* goes on to say: "Law-enforcement officials say there is little they can do to curtail the thefts. In a recent case in Riverside County, two men believed to be making midnight raids on hives were shot and wounded by a beekeeper." The article states further: "A rustler who loads 100 hives onto a flatbed truck in the middle of the night can make $6,000. profit for one nights work." These are the words of Eric Mussen, a University of California professor who specializes in apiculture.

A Merced County Sheriff, William Eldridge, is quoted as saying: "A lot of officers are afraid to stop bee trucks because you can't help but get stung. But if you do stop trucks, the theft rate will go down significantly."

What is the beekeeper to do? I have written on this subject before. I have advocated such measures as: placing the bee yard where it is not too visible; locating the yard near an occupied dwelling; paying the occupant of the dwelling to act as a watchman, or watchwoman; locking the yard up with a good gate and padlock, branding the equipment — not just the hive bodies but every item, including the frames (otherwise it is difficult to prove ownership); etc.

But there are other steps the beekeeper can take. I believe the first step is to act cooperatiely through one's local beekeeper's organization. Working together, beekeepers can pretty much identify in advance the individuals locally who will venture to steal bees. They almost have to be men who have had at least a litle experience in beekeeping — and they have to be men without good morals, and known as such. (You will note that I have not included the female sex in this category.) When theft of bees starts to become prevalent, beekeepers can draw up a list of potential thieves, and set a watch upon them. This necessitates not making accusations, of course, until an actual theft by an individual occurs.

A second step — and this may possibly be the most significant one of all— is to form a liaison, partnership, with the police authorities. Get to know the men on the local force (and the women, too, if there are women on the force). This relationship should be established not only by the individual beekeeper, but by the local beekeepers organization or club. They need to be shown how significant a loss of a yard of bees is to the typical beekeeper. They need to know that the beekeepers are depending on them to help out in a very positive way in detecting thefts of bees.

I happen to have just been reading a book about crime that may shed some light on the beekeepers' dangers from theft. It is titled, *The Social Reality of Crime* By Richard Quinney, a professor of sociology at New York University. Here are some of his thoughts. Part of the lack of enforcement of the law is due to failure of victims to report offenses.

In the following paragraph this author, Dr. Quinney, makes what I believe to be a significant statement. He writes: "In the final analysis, no matter how the community is organized , the police attempt to accomplish their job within the context of their community. This means that the police tend to select law violators not according to legal prescriptions alone but also according to how closely enforcement approximates the expectations of the community."

This bears out what I said above about working with the enforcement authorities through one's club. The club has more status, more clout, than any one individual. The members of the police force need to know first, that beekeepers cannot afford to have their property stolen; and second, that they expect the police officers to do their duty.

I believe, third, that beekeepers very much need to help reassure members of the police force that they need not get stung while performing their duty. If it is deemed necessary, police officers could be equipped with bee veils. They need, also, to be guided in the use of methods of identification of stolen property. Beekeepers should understand that it is not easy for a typical law enforcement officer who knows relatively little about honeybees, to be able to determine whether a load of hives is or is not stolen property.

The beekeeper needs also to make a sufficient impression upon the members of the local police authorities to overcome their labeling the beekeeper' problem as just another among a multitude of illegalities. Dr. Quinney goes on to say: "In their Hobbesian view the world becomes a jungle in which crime, corruption, and brutality are normal features of the terrain." In plain language, crime is in danger of becoming such a commonplace as not to be viewed with much concern.

On another page, Dr. Quinney says:

"As indicated by criminal statistics, only about a quarter of property offenses (and only those **known** to the police) are cleared by arrest. For many offenders, then, the often-quoted adage that "crime does not pay" is a myth maintained by and for law-abiding members of society." This statement should alert every beekeeper who suffers a theft to prosecute the offender to the limit, and to give the case as much publicity as possible — if it is successfuly prosecuted— so that other potential offenders may be informed.

If I may indulge in stating my own personal thought on the question of a theft such as that of a yard of bees, it is that the average citizen is not too much concerned with the losses of other members of society. This is a world in which each individual is expected to take care of himself. When the typical reader hears of the theft of a yard of bees from a beekeeper, it is more an interesting matter, a rather curious occurance, rather than one in which the reader is going to participate in any significant way.

The second article in the *New York Times* about bees made the front page. Bees don't often do that. In this instance, it seems that a New Jersey beekeeper lost a colony of bees off his truck as he was passing a condominium. The *Times* article (August 28, 1982) declares that the occurance caused 27 people from the condominiums to be taken to hospitals by nine ambulances. The article states: "A spokesman for the West Jersey Hospital, Southern Division said Mark Schonewise, 20, was released after being treated for 100 to 150 stings."

I don't wish to impugn the accuracy of the writer of the *Times* article, but some of the details sound a bit exaggerated. That's just my personal view. But this account is another example of the one fact about honeybees — and all other bees— that most impresses the public. This fact is that bees sting. As beekeepers we don't too much fear the sting. One reason for our complacency in this matter is that we know how to handle bees. We know how to avoid being stung excessively. Also, we are prepared mentally and physically to receive a moderate number of stings. Further, we have a vested interest in the honeybees with which we deal. The typical layman has no such orientation, no comparable interest in honeybees.

I once had an experience like the one of the New Jersey beekeeper that I have just related. One hive of bees fell off my truck as I was passing a cluster of houses. Fortunately, no one was in the street at the moment so I was able to retrieve it without anyone's getting stung. I must admit that I had failed to tie down the few hives that I was transporting. That was inexcusable on my part. I might have suffered severely because of my negligence.

Since it is a fact that most people acutely fear the sting of a bee, we who handle bees have an obligation to see to it that no innocent individual is disturbed by getting stung through our fault. This means locating our yards as far as possible from human habitation; also, opening our hives only when the weather is fair, and the old workers are in the field.

We have a special obligation to exercise extra care when transporting bees. Ideally, bees should be transported over highways at night. But this is not always possible. When it isn't, the hives should be well secured on the vehicle. Also, if conditions at the time encourage some of the bees to fly, they should be enclosed in a cover of some kind, such as a fine netting, so that they may not disturb innocent individuals.

In most of the articles I have written for non-beekeeper magazines I have made a special effort to emphasize the fact that honeybees are not prone to sting unless they are disturbed or threatened. I stress my own experience in this matter, pointing out that a human being who is working in his or her garden need not fear getting stung. I relate the true fact that I have repeatedly attempted to induce a bee to sting me in such a situation, and have always failed. The situation is different, of course, when lay people are near a beeyard in which the beekeeper is working bees. Then getting stung is almost certain unless weather and nectar-flow conditions are ideal.

The beekeeper needs to be aware of his legal responsibility when operating honeybees. These are times in which injured people are all too prone to sue for damages. Insurance against such claims is a must.

As beekeepers we are inclined to think that the lay public associates honeybees with the word honey. This is only a secondary a fact; it is the sting of the honeybee that the typical individual has in the back—and the front, too—of his or her mind.

Honey - Guide to Efficient Production, by Walter Gojmerac, Cooperative Extension Service, University of Wisconsin — Extension Agricultural Bulletin Building, 1535 Observatory Drive, Madison, WI 53706. Walter Gojmerac is professor of Entomology, College of Agriculture and Life Sciences, University of Wisconsin, Madison.

Dr. Gojmerac has an imposing list of beekeeping publications to his credit, including the books *All About Bees, Beekeeping and Honey,* and *What You Should Know About Honey.*

Honey, Guide to Efficient Production is a beginner's guide; 35 pages of contents arranged on a seasonal basis. The information is conveniently grouped under clearly marked paragraph headings and is supplemented by clear photographs, excellent drawings and overall, a very attractive layout on good quality paper. The only flaw in an otherwise attractive publication is an upside-down column on the last page.

Aimed primarily for distribution through the Cooperative Extension Service in Wisconsin the price is reasonable at $1.75 plus, .50 postage, plus 5% sales tax (to Wisconsin residents). Order Serial #A2083.

L. Goltz

The Beekeepers Handbook by Owen Meyer, Sterling Publishing Company, Inc., 2 Park Ave., New York, NY 10016, 253 pages, including glossary and index. Soft cover, $8.95. An influx of books on beekeeping from England is bidding for an American market and each is seemingly better done than the one before. Although the information is basically the same, the contents become more comprehensive as information about bees and beekeeping becomes readily available to searchers. The author is a beekeeper of over 30 years.

L. Goltz

Successful Wintering of Honeybee Colonies

By Cynthia Manuel
Greely, Colorado

THE ESSENTIALS FOR the successful wintering of honeybees have been known for some time. In 1888, L.L. Langstroth gave a concise summary of those requirements: "If the colonies are strong in numbers and stores, have upper moisture absorbents, easy communication from comb to comb, good ripe honey, shelter from piercing winds, and can have a cleansing flight once a month, they have all the conditions essential to wintering successfully in the open air." Let us take a closer look at those conditions and review what might be done to improve fall and winter management.

Strong Colonies

The golden rule of beekeeping, also mentioned by the famous bee master, Langstroth, is to keep your colonies strong. A strong colony will be able to gather a greater surplus of honey for winter stores, will be less likely to succumb to disease, and will be able to withstand the normal stress of wintering far better than a weak colony. A strong colony of bees will be able to form a cluster of adequate size to produce a sufficient quantity of heat to survive the cold. If the colony does not have enough bees to cover ten to fifteen frames, combine it with another colony to form a larger unit. Inserting newspaper between the units will allow the bees to unite in a peaceful manner. When you must weigh the merits of wintering a particular colony, remember the oft repeated lesson: "Take your winter losses in the fall." After small colonies have been united, remove all empty equipment.

Young Queen

One of the best ways to insure a healthy colony for overwintering is to introduce a young queen during the fall. August is the recommended time for fall requeening. A young queen will then have ample time to complete a cycle or two of brood rearing. This will insure that the bees present in the hive throughout the winter months will be young bees. Be sure that the new queen has space for her brood rearing and does not become honeybound. One is less likely to lose a queen due to supersedure or queen failure during the crucial months of fall or winter if that queen was introduced in early fall. A young queen will also be able to outperform an older one in brood production in the early spring.

Disease Free

A colony will not be able to increase in strength even if it has a young queen if it is suffering from disease. Although beekeepers should always be on the lookout for disease, a thorough inspection in the fall should affirm that no disease is present. Some beekeepers routinely feed drugs for disease prevention. It is important to follow directions exactly when feeding drugs. This should be completed before cold weather sets in. Fumidil® -B for control of nosema disease is particularly helpful in decreasing winter losses.

Plenty of Honey

Of course, it will do you no good at all to have an abundance of bees if they do not have an ample amount of honey to survive the winter. Allowing for differences in climate, 15-30 lbs. is sufficient for bees in warmer areas, 40-60 lbs. should be allowed for temperate regions, and 70-90 lbs. is mandatory for northern parts of the country. As it is difficult for the average person to judge weight, a spring scale might be a good investment. Extra honey left with a colony is never lost. It will pay for itself in the spring, if not before, by supporting a rapid build-up of population and more aggressive foraging. Extra honey will help the bees cope with the uncertainties of fickle spring weather. With a sufficient quantity of honey stores, the beekeeper is released from fall and spring feeding chores.

Fall Feeding

If sufficient stores are not available, fall feeding will be necessary. This should be completed so that the bees will be able to arrange their stores before cold weather sets in. High quality honey is the best winter food. Crystalized honey makes poor feed. Sugar syrup for fall feeding should be in a 2:1 solution, two parts sugar, one part water. Only cane or beet sugar should be used. Several types of feeders are satisfactory for fall feeding. These are available from your Root bee supply dealer.

Pollen

Three to five frames of pollen should be available to the winterng colony to be used in early spring for brood rearing. If pollen is not plentiful in your area, it will be necessary to feed your bees a pollen supplement or substitute in the spring until natural pollen is produced.

Proper Arrangement of Honey and Pollen

Almost as important as having the proper amount of honey and pollen is the location of these within the colony. Bees will starve if they are unable to move to their honey stores. At the start of winter the honeybee colony will be in the lower portion of the hive. Throughout the winter as the honey next to the winter cluster is consumed, the bees will begin to move up within the hive. They will also move to the side, usually away from the coldest part of the hive. It is sometimes necessary to reposition the honey and pollen to the top and the sides of the cluster. Leave some empty comb in the center so that the bees will be able to use that space when extreme contraction of the cluster is necessary. Checking the colony during the winter months will avoid problems. Frames of honey may be moved closer to the cluster if

they are unable to move due to extended cold.

Size of Supers for Wintering

A single full depth brood chamber, a full depth super and a medium super of honey, three medium supers, two full depth supers, and three full depth supers have all been used for wintering bees. Most beekeepers seem to prefer two full depth supers, as this makes it easier to reverse supers in the spring and to make splits. Before you decide what size supers you wish to use for wintering, you will need to know how strong your colonies must be to survive the winter in your region and the amount of honey that will be necessary to bring them through. If you are inexperienced you will want to talk to other local beekeepers and determine the most successful method for wintering in your area. This is a management decision. It is more important to be sure that you have strong colonies with plenty of honey stores.

Winter Location

Some beekeepers do not have the option to move their bees for the winter. If you have a choice you should seek an apiary site that has good air drainage. The brow of a hill is a superior location to the foot of a hill near a creek bed. A sunny location is beneficial. Position your hives so that they will receive maximum sun. Since excessive winds will put additional stress on your colonies, choose a location with a natural windbreak, or build one. A good windbreak can be made with bales of straw if you do not have too many colonies. Face your colonies away from the direction of the wind. In areas with rainy winters, tip the hives slightly forward to allow for drainage.

Preparation of the Hive for Wintering

There are several things which must be done to prepare each hive for winter. First of all, make sure the hives are off the ground on hive stands. A solid hive stand provides a dead air space underneath, which is a form of insulation. Next, some form of mouse protection is mandatory, unless you prefer to rebuild your frames each year. Bees in their winter cluster cannot protect the hive from mice. Mouse guards may be constructed from ¼ inch mesh hardware screening. Cutting a piece three inches in width, inserting this into the hive entrance as a wedge, and securing it with two nails will prevent mice from entering. The bottom entrance is usually reduced during the winter to keep blasts of cold air from entering the hive. In extremely cold regions, some form of exterior hive wrap is desirable. A single sheet of black building paper may be used or a winter packing case may be purchased from equipment and supplies.

Ventilation

Since the wintering cluster gives off moisture from the metabolism of honey, it is important to let this moisture escape instead of collecting on the hive cover and raining down upon the cluster during freezing temperatures. Upward ventilation should be provided. This may be accomplished by inverting the inner cover so that the deep side is down. An empty super is placed over the open hole of the inner cover and filled with an absorbent material such as dry leaves, newspaper, wood shavings, or straw. Some beekeepers use an insulite board in place of the packing in the upper super. The outer hive cover is propped open a small crack to further induce the moisture to leave the hive. Inverting the inner cover will leave a notched upper entrance in the rim which is positioned to the front of the hive. some beekeepers also drill an upper entrance in their supers, just below the handholds. Upper entrances are especially valuable as the lower entrances tend to be clogged during the winter with dead bees, debris, and snow.

When packing hives for the winter, one should remember that bees do not suffer as much from the cold as they do from excess moisture. This cannot be over emphasized. The colony should be **dry** in the spring. If it is not, there may be too much wrapping or too little ventilation.

The Winter Cluster

Throughout the winter, the cluster of bees in each hive will contract and expand according to fluctuations in the outside temperature. The inner core of bees will be responsible for heating the cluster. The bees on the surface will insulate the inner core. Bees will not heat the inside of the beehive, however, the heat of the cluster must be preserved or they will perish. As spring approaches, the interior temperature of the cluster must reach 94° in order for the bees to be able to rear brood for the coming year.

The First Inspection

The beekeeper should make the first inspection of the year on a warm day in February or March. Food reserves become critical at this time of year. Frames of honey might need to be added or moved closer to the sides of the cluster. Pollen or pollen substitute should be available to the bees so that brood rearing may take place. If the weather has not settled and cold may still be expected, be sure that the feed is placed where the bees may reach it — directly above or to the sides of the cluster. Top feeding is preferred for this time of year.

Disturbing the bees on a day when the temperature is above 45°, so that the may take brief flights and void their feces, is often to the advantage of the colony even though some bees may be lost. This will help to prevent dysentery from weakening the colony. The loss of some bees in the snow throughout the winter is also a normal part of the wintering process.

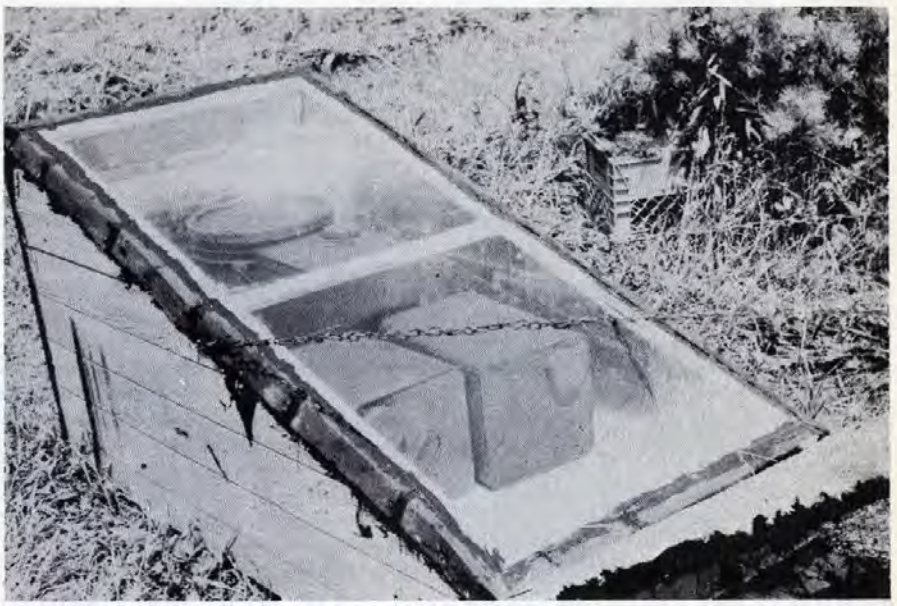
During the first inspection of the year it will be helpful to use a stick to clear the entrance of the hive and the bottom board of dead bees and debris.

If all has gone well, your bees should be healthy and dry in the spring and steadily increasing their population towards the peak of late April and early May. Removing the packing and wrapping at the end of a winter should be a triumphant occasion. Bringing bees through the winter is one of the most difficult aspects of mastering the art of beekeeping.

Solar Honey Liquefier

By Earl Stedman
Blytheville, AR

I keep 50 or so colonies of bees in northeastern Illinois and am usually able to harvest some surplus honey. Sometimes in summer I have a few 60-lb. pails of honey left over from the previous season and these present a problem: The honey has granulated and has to be liquefied. Liquefying the honey involves warming the whole metal can or plastic pail up to a temperature of 130-145°F. In the past, I have heated water on the propane gas stove of my camper, carried it outside to a washtub, and set the honey pail in it to warm up. The hot water has to be replenished several times during the 6-10 hour process. Usually the partly liquefied honey must be poured out into a small pan which is then placed in a larger pan of hot water on the stove. The honey is then heated while watching its temperature with a candy thermometer until it is finally all liquefied. As you can see, it's a lot of work, time consuming, and expensive because propane ain't cheap these days. All of this motivated me to design and construct a solar honey liquefier.



View from south. Note black and painted honey containers.

View from North, rear door open.

I decided to make a "hot box", similar to solar water pre-heaters, in which I could place my honey containers which would be painted black so they would absorb maximum solar energy. I received a lot of inspiration for my design from the "Sun Mummy" water pre-heater design developed by the Office of Human Concern in Rogers, Arkansas1. My design was worked out around three considerations:

1. The dimensions of two 60-lb. honey pails so I could liquefy two at once.
2. The dimensions of an available storm window.
3. The sun's position in the sky during May-September in Lockport, IL, where my apiaries are located.

I was able to locate an unused storm window which had two 26″ x 24″panes of glass and frame dimensions of 60″ x 28″. I leaned the window up against a handy stack of honey supers at about a 20° angle with the horizontal (see next paragraph) and found that, yes, two honey pails fitted nicely underneath the top half of the tilted window.

Next, I needed to find the optimum tilt angle for the storm window so that the sun's rays hitting it would be most nearly perpendicular to the glass surface for the most hours each day. That would mean the maximum amount of the BTU's per square foot of window glass would come through the glass and be trapped inside the insulated box underneath. To work out the angle, I consulted the ASHRAE[2] table headed "Solar Altitude/Azimuth and Clear Day Radiation Values, 40° North Latitude[3]. I estimated that the values for 40°, N. latitude would be reasonably accurate for my particular location (41.5° N.). The table gives surface daily radiation totals in BTU/sq. ft. for south-facing surfaces placed horizontally and also tilted at

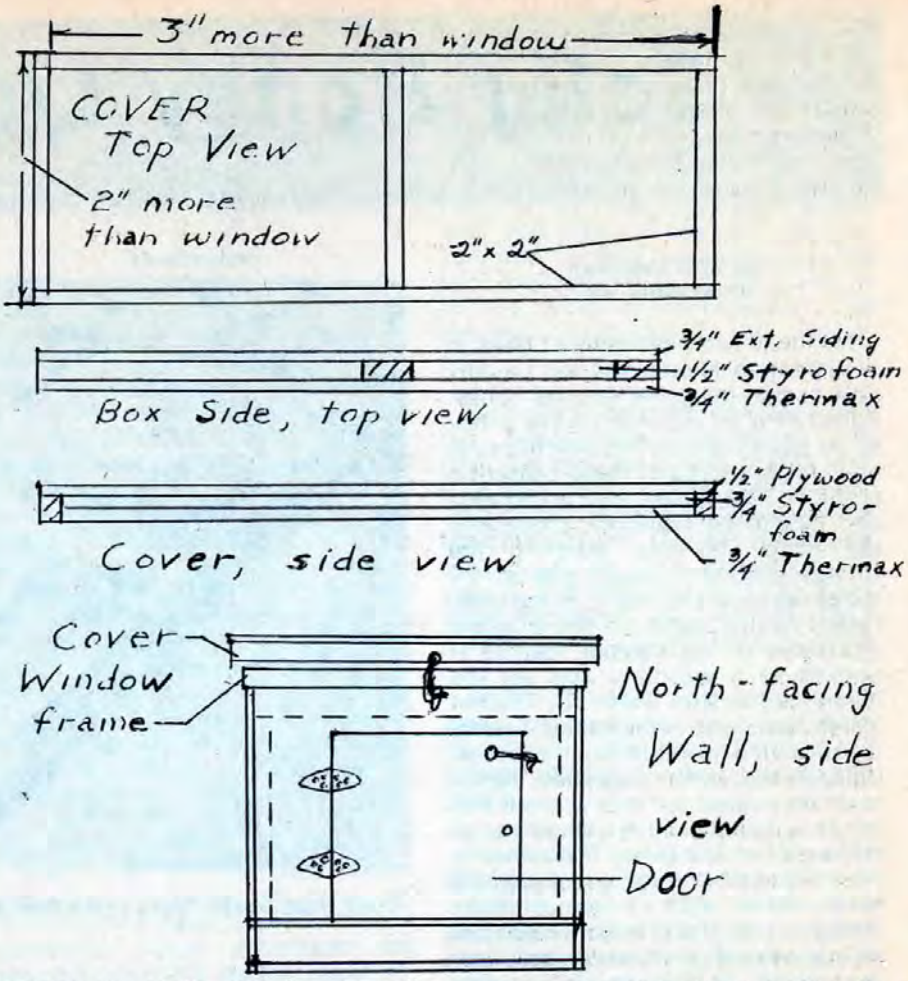
30, 40, 50, 60 and 90 degrees from horizontal. (In addition to 40° N. latitude, the table also gives values for 24, 32, 56, and 64 degrees N. latitude). I made interpolations for tilt angles below 30° and came up with the following table:

Date	40° N. Latitude Optimum Tilt Angle, Deg. from Horiz.
Jan. 21	60
Feb. 21	50
Mar. 21	40
Apr. 21	25 (est.)
May 21	10 (est.)
Jun. 21	5 (est.)
Jul. 21	10 (est.)
Aug. 21	25 (est.)
Sept. 21	40
Oct. 21	50
Nov. 21	60
Dec. 21	65 (est.)

From the table it can be seen that a tilt angle of approximately 20° is a good compromise for my location during the period May-September when I need to use the liquefier the most. (In June, I could prop up the bottom of the south end of the box to get the glazing almost horizontal and in March and September I could prop up the north end to get it about 40° from horizontal. A small slat tacked to the floor of the box would keep the pails from sliding when the box is propped up). I finally ended up with the north end of the storm window 19½" higher than the south end for a 19° angle of tilt.

The box was constructed so that the sun's rays would pass through the glass and either (A) be absorbed by the black container surfaces or (B) be reflected to the containers by the shiny foil surfaces on the sides of the box or by the aluminum paint on the floor. The sides, floor, and cover were insulated as follows: **Sides: 1½" styrofoam and ½" "Thermax", total, with ½" hardboard siding, R-13**
Floor: 3½" fiberglass, total, with a piece of 3/4" plywood on both sides of it, R-14
Cover (night): 3/4" styrofoam and ½" Thermax, total with ½" plywood, R-9 (R-10 with the glass).

I built the frame from used pieces of 2 x 4 lumber. (See diagram). (After completing the box, I discovered it was a bit too heavy for one person to lift. A much lighter frame could be made from 2 x 2's). Plywood 3/4", was used for both sides of the bottom platform. The exterior sides were covered with some hardboard exterior siding I had left over when I built my honeyhouse. All joints were glued and nailed and both bottom and sides were sealed on the inside with acrylic latex caulk. A door large



enough to move the honey pails through was framed into the box's north end. After gluing the insulation to the interior sidewalls and door, painting the floor with aluminum paint, and applying a bead of silicone caulk to the top surface of the upper frame, the storm window was screwed into place.

(In designing the frame, I neglected to allow for the thickness of the siding and made the width of the frame the same as the width of the storm window. Thus, the edge of the siding was exposed to the weather. To correct that, I applied roofing tar to the edge and covered the storm window-siding corner with L-shaped pieces of aluminum mobile home skirting. It would have been much simpler to make the frame's length and width both two inches shorter; then the siding edges would have been **underneath** the window frame when it rains!)

To keep all the BTU's from leaking out through the glass at night, a cover was constructed. Its frame was made from 2 x 2's and sized so it extended one inch over the sides and two inches over the north end in order to shelter the box from rain and snow when closed. The top (when closed) surface was ½" plywood; the other surface was the shiny foil of the Thermax. Thus, in the open position, the foil can reflect sunlight on the glazing, if it is angled correctly. In fact, during the time between 11:00 a.m. and 2:00 p.m., the incoming radiation can be almost doubled. Once the correct angle is found, the open cover can be held in position with two short pieces of chain fastened between the sides of the cover and the box. Thermax-wood interfaces on the cover were covered with duct tape. Finally, I painted the bottom of the box and the top of the cover with exterior latex. Then the Liquefier was placed out in a sunny spot in the yard and oriented so that the glass faced south. I adjusted the angle of the open cover so that the sun's rays at noon were reflected from it to a honey pail placed inside.

How does it work? I spray-painted the outside of the pail full of granulated honey with flat black paint (Rust-Oleum #7776), let it dry, then placed it inside at 11 a.m. I put an oven thermometer inside on the floor of the box in the shade behind the honey pail. After an hour the thermometer showed 140°F.; by 3 p.m. it read 150°. (It was a breezy June day,

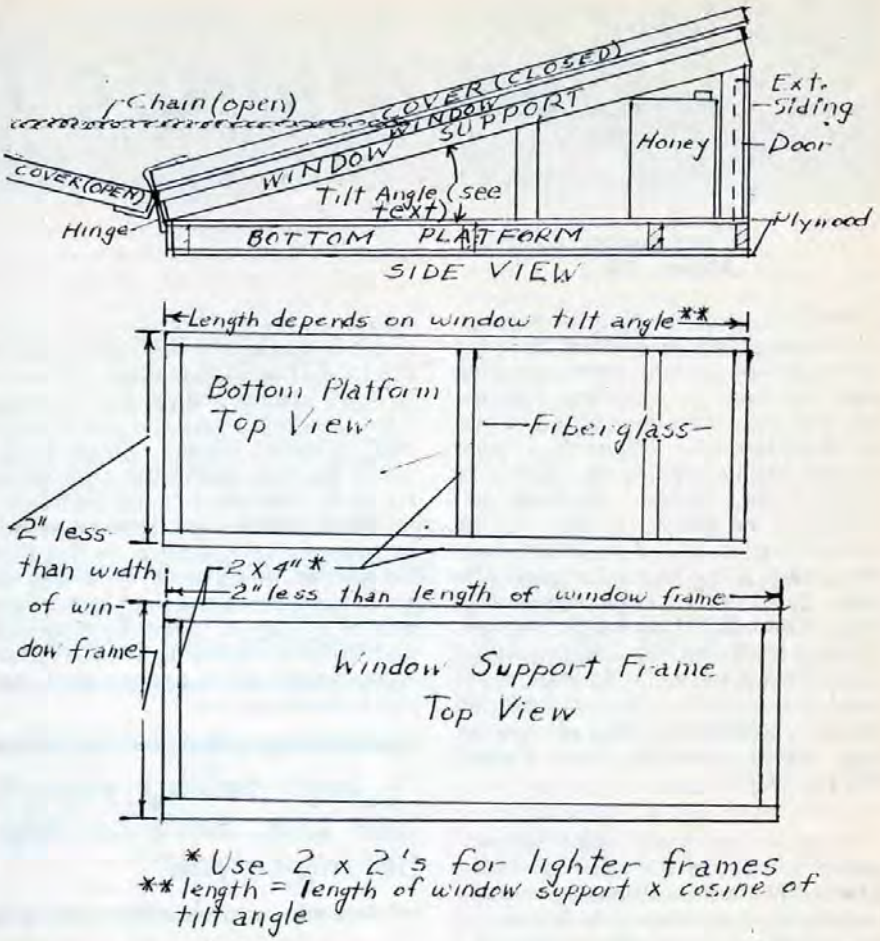
70-80°). That evening, I checked the honey in the pail and found about half of it was liquid and could readily be poured out, filtered, and bottled. The remainder of the honey in the pail was nicely melted by 6 p.m. the next day. 150°F is a **little** too warm for liquefying honey but I figure that the honey inside the pail probably isn't that hot until the last of it is melted so all I have to do to protect the quality of the honey is make sure I leave the pail in the box just long enough to melt the last granule and then remove it pronto. The cover is closed at sundown; next morning, in June, the box has cooled to 80-100°F.

It cost me about $23.00 to build. That was for items I didn't have lying about for recycling. If you need to buy all of the materials, it will cost about $60.00:

Lumber, plywood, siding — $20.00 (est.)
Fiberglass — 3.00 (est.)
Styrofoam — 4.00
Thermax — 10.00
Caulk, glue, paint, duct tape, (roofing tar*) — 10.00 (est.)
Storm window (mine was donated) — 5.00 (est.)
***optional, for sealing around edges of cover**
Hinges, two sets, 1 large, 1 small — 5.04
Nails, six 1½" flat-head screws, six screw eyes, two door-closing hooks with eyes — 3.00 (est.)
Chain for cover (I used recycled dog chain), 12-14 ft. — 2.00 (est.)
TOTAL: $62.04
TIME TO BUILD: 35-50 hours

I had a pail which contained a mixture of liqued honey and comb honey. After a day in the Liquefier the combs were all melted and a layer of light, amber-colored beeswax was found floating on top of the honey. I haven't tried it out on cappings yet but I am sure they can be separated into honey and beeswax after a day or so in the box. The same goes for melting down old combs into beeswax. In short, I am totally delighted with the way the Solar Liquefier performs. It does a better job, saves me time, and saves a lot of fossil fuel.

Just remember, when designing your Solar Liquefier, to base your dimensions on those of your particular surplus window. Then select your optimum window tilt angle based on your latitude and time of year when you expect to use it most. If you can't locate a set of ASHRAE tables, here are some rules of thumb for tilt angles: A horizontal box works best in summer, 45° tilt is fine for spring and fall, and a somewhat steeper angle is needed in winter. Those angles are for 35-45° N. latitude. Subtract a few degrees of tilt if you live south of that; add a few if you're located to the north of 45°. You can "fine-tune" your liquefier by propping up either end, depending on the time of year, always attempting to maximize the time during which the sun's rays are close to being perpendicular to the glass surface.



As a bonus, we are getting lots of hot water by putting water into plastic 2-liter bottles that have been sprayed black, screwing the caps on lightly, and setting the bottles inside the Liquefier. (We don't fill them all the way up). A two or three hour treatment provides us with hot water just the right temperature for washing dishes and bathing.

References

1. Office of Human Concern P.O. Box 756, Rogers, AR 72756

2. American Society of Heating, Refrigeration, and Air Conditioning Engineers

3. W. Douglas Davis, "Solar Energy Laboratory Manual", Crystal Productions, Aspen, CO, p. 90.

Technical Cooperation Activities — Beekeeping A Directory and Guide, by Wilhelm Drescher and Eva Crane. Deutsche Gesellschaft fur Technische Zusammemarbeit (GTZ) GMBH. Eschborn 1982. 166 pages, soft cover. No price given. While the American beekeeper may not have a great interest in this information at present, it may become increasingly important to recognize the role of international development in beekeeping. This is an excellent compilation of facts and figures about Beekeeping Technical Aid Programs — and the few color photographs are positively fascinating.

L. Goltz

I Was Allergic to Stings

By Lee Russel
Athens, GA

When my eldest daughter screamed, I leaped from the door of the small travel trailer. I had been building super frames, but instinct told me that she had either been stung or that an angry bee was in pursuit. I found her just beyond the trailer, vigorously shaking her head. I ordered her roughly to be still so I could kill the bee entangled in her mass of curly short hair. While trying to locate the angry bee, I must have released it so that it immediately flew into my hair, stinging me in the head. After rushing Ruby into the trailer I tried to calm her by stating "Honey, I'm glad I am the one who was stung because I know how flying insects have always frightened you.

It wasn't too much later before I began to realize the folly of those words. My mother stopped inserting foundation long enough to locate the stinger in my scalp and remove it. I prepared us all tall glasses of ice cold tea and was ready to resume frame building. As I lifted my glass of tea to my mouth I couldn't help noticing the numb and tingling feeling in my lips. Thinking to myself how odd and peculiar they felt and realizing that even after wetting them they felt so dry, I decided I'd take a look at them in the mirror. One look was all it took. I could hardly believe the face I saw reflected there. The area below my nose and from ear to ear was as white as the paper upon which I now write. The area above the eyebrows and all across the forehead was also this ghostly white, while the center area between these two sections looked as if I had neatly painted it with bright blush-on. The whites of my eyes were also bloodshot. My neck and shoulders were beginning to show red blotches. By the time I returned to the other room these red whelps were on both arms and spreading down the chest to the stomach area. They were itching like crazy. Mother took one look and suggested that I take the two antihistimine tablets from one of the sting kits we always keep around, just in case. After swallowing the tablets my stomach began to cramp. I didn't know at the time that this cramping was not caused by the pills. I only knew I had to do something that would relieve the horrible itch. A trip to the house and the shower would do the trick I hoped, but when I stood up to leave I found the stomach cramps were rapidly turning into instant diarreah cramps. When I could finally leave the little bathroom area of the trailer to head down to the big house I found my knees getting so weak I wondered if I could drive. By this time the area in the center of my chest felt as though someone had placed inside of it a large, round, hard cannon ball. When I tried to swallow it felt as if a smaller sized cannon ball was stuck inside my neck.

"I kept telling myself, Lee this can't be happening to you."

About this time my husband, Bill , was coming in from the bee yards and I asked him if he would drive me to the house. I still wanted to get that shower. I had become so rude, grouchy and irritable I wondered how anyone could stand having me around, but for some reason I had no control over my angry outbursts and my very frustrated feelings. I kept telling myself "Lee, this can't be happening to you." I **knew** I wasn't allergic to bee stings because I have been around bees all my life. I knew enough of the symptoms to know I must be showing a reaction, but in my mind I even began to wonder if I was just imagining all this. Time was beginning to stand still, and I felt like a spectator witnessing this happening to someone else, not me. It only took a few minutes to drive me home, but I felt as though it had taken hours, and my dysentery cramps were worse than labor pains. After we got in the front door I felt too weak to hit the shower. If I could just lay down a minute I thought I'd be O.K. This was the biggest mistake yet. When I lay back it felt as if those two hard cannon balls began striking each other somewhere in the breast area and I had to rapidly sit straight up. Bill had found another sting kit, but had been unable to find his glasses, which he needed in order to see the end of the needle in the syringe. Again my anger, and I guess my fear, got the better of me. I yanked the syringe from his hand, telling him in no uncertain terms how his slowness was going to be my death, and, just as if I had been doing it daily, I neatly plunged the needle into my thigh and pushed the plunger all the way in. It didn't hurt one bit, but almost instantly I felt I could breathe better, and soon the chest area felt as though the cannon balls were somewhat smaller.

We decided it best to head for a hospital, so we hurried to his truck and took off. The nearest hospital to our home is a 45 minute drive (30 minutes if you're doing 70 mph). He got on his CB Radio and requested police escort and soon following close behind the patrol car with siren and flasher going, we were doing more than 70, and I was not only frightened by the speed, but began wondering how stupid I would feel, if, when we reached the hospital, nothing at all was wrong. I certainly was feeling better. However, with only about 5 or 10 minutes of distance left to the hospital, those awful cramps began again and the cannon balls were no longer shrinking but seemed to be expanding in size and they did hurt. I again got out the syringe with the other half of the shot still in it and gave myself another injection.

Riding in the bouncy pick-up truck didn't help this one to enter the skin so neatly, but I managed somehow, and again pushed the plunger all the way down. When we pulled into emergency the policeman and Bill helped me into the hospital and immediately two doctors and a nurse took over. The policeman had called into the hospital so they were ready for me. They began injections, hooked me up to I.V.'s and were constantly monitoring my blood pressure, heart and the works. I guess you might say I got the V.I.P. treatment, but after they had things back to normal, I also received a good strong lecture from the doctor and advice about any possible plans of ever again having any contact with bees. He said that if

I valued my life I would stay away from them and at all times keep a sting kit on me.

Our lives did alter somewhat after that. I no longer went to the bee yards, and we began selling off many colonies of bees. We sold about sixty that first year, and moved all of the hives which had been near our home to areas far away. I still would not give up my observation hive in my dining room, but if a bee escaped into the house, I found myself in panic of fear. When Bill and our son Mark would return from the bee yards, I made them remove their clothing before entering the house. Then one night we had a fire in our honey house, and I went up to watch our Volunteer Fire Dept. try to extinguish the blaze. Some hives were close to the fire, and bees were out everywhere, so I stayed in the truck to prevent being stung. Somehow one was in the truck with me and on the arm rest, so when I lay my arm on her, she naturally stung me and I drove back to the house to get a sting kit, certain that after all the doctor had said before, that I'd need it right away. But **nothing** happened, just the usual reaction which anyone has from a bee sting. This bolstered me somewhat. Maybe my problem had been caused by the area in which I had received that sting, it just must have hit a blood vein that other time.

Not long after that, swarming season was again upon us, and a beautiful, large 8 or 10 pound swarm settled in a tree near the house. The men were up at the chicken houses, so thinking it perfectly safe (after all I was stung less than 6 months before with no reactions) I found a hive, and with a bed sheet, set the hive on the ground below the swarm. Since I could reach it, I would surprise the family by hiving this one all by myself. I was carefully dressed with veil, gloves and the works, but I had my veil tied **outside** my bee suit and a bee entered the veil and stung me on the side of my face. I removed the stinger instantly and continued to hive my swarm. I had just finished when the guys came up and we went into the house as I proudly announced my sting and no reaction, so far. But shortly thereafter I began with the irratability and grouchyness and this was soon followed by the numbness in the mouth and the cannon balls in the chest and I knew it had started all over again. Shots were very immediate this time, and no delays in heading directly to the hospital, but upon arrival the doctors informed us that my diaphram and heart were already paralized, and this time they told Bill that if I ever was stung again, someone had better be close by who could perform a tracheotomy.

"Now we have reached a tolerance level of several bee stings—."

Needless to say I almost felt "doomed". I thought the best thing for me to do was "forget bees", so I gave up the secretary's job I had with our association and no longer visited friends with bees. We decreased to less than a dozen hives after we donated some of our colonies to the University for use in research.

And then the A.I. Root Company came along and offered me a job, which was so challenging I felt I could not be happy if I turned it down. I still had the love for bees, even though it seemed they didn't favor me so well. Assured I would not be handling live bees, I took the job, and then I found myself back among beekeepers (the nicest folks in the world, I might say). Again, it was back to bee meetings, and around others bee yards. I worried about what would happen when I got that first sting. One day a customer, who just happened to be an allergist in a city some miles away from Athens, came in to visit and buy some supplies. I told him about my problem and he told me the name of a doctor located right here in Athens who was using the "Pure Bee Venom" therapy, and suggested I contact him. I did. I received my testing series which showed up an immediate allergic reaction, but **only** to bee stings. I was not allergic to any of the other insect venoms, only the honeybee, which he said would make it much simpler. We began with a very weakened solution of bee venom on a weekly basis, which was gradually increased to stronger bee venom and late to a bi-weekly injection. In less than six months I was up to a maximum of two full bee stings, and only receiving injections once a month. When the busy bee season began, the doctor and I decided it would be a good idea to increase my tolerance level and we began the double injections again on a bi-weekly basis. Now we have reached a tolerance level of several bee stings, and with continued and faithful injections I should have no problems even if I am stung by many bees. It certainly has relieved the stress I was under and the worry of what might happen if I accidently was stung by the honeybee.

I have noted with interest the letters in *Gleanings* from others who had the same problems as mine and were advised to give up bees, and they had instead also received injections from doctors and now work the bees without fear. I wonder if an allergic reaction might be caused by the body system not having enough of the bee venom often enough to help keep resistance built up, but this perhaps has not been looked into. My grandad used to say "A sting every once in awhile is needed to keep the system immune so that serious problems may be prevented from an allergic reaction. My doctor tells me it would be a good idea for me to remain on the bee venom shots for the rest of my life, and if that's all it takes, it's certainly worth it.

Working Bees Without Spreading Disease

By P.F. Thurber
Kirkland, Wa

At the Western Apicultural Society Annual Convention at Logan, Utah, the subject of inspection of bees by State Apiary Inspectors came up. Most people, I think, admitted inspections were desireable and necessary and not enough funds were available in the Western States to really allow good disease control yet I also think most people did not want their own bees inspected. I thought this was an unusual reaction and yet obviosly it was not. What many of the people seemed to think was that inspectors spread disease or could spread disease because they work diseased hives and then bring disease from diseased hives to healthy hives. I do

not think this is the truth yet I can see why people might come to that conclusion.

Anyway I told how I was advised by a doctor who heads the sanitation committee in a large general hospital who also keeps bees to:

1. Wash my hands with waterless cleaner, dry them on a paper towel, and then drop the towel in a gallon paint can with holes pierced around the bottom.

2. Then rinse my hands in alcohol, dry them, and put the paper in the can.

3. Repeat step one and two — two more times.

4. Burn the paper towels.

I was also told to scrape hive tools with each other and scrub them and my hands as necessary with a copper "chore girl" and also give not only the hive tools and hands three double treatments but also the wood bellows of my smoker. Frankly I was a bit taken aback at such a lengthy procedure. Gee, three double applications!! That seemed excessive, and I told the doctor so, but he said that I could suit myself but if I wanted to do it right, that was what I should do. So I did, I think, without exception each time I encountered disease for the five years I was an inspector. Incidentally, when I pressed the doctor as to why all the rig-a-marole, he said that there was no known disinfectant that could kill bacteria on a person's hands or body without doing serious physical damage to the skin. Chlorine concentrate, formaldehyde, formalin, and even the new disinfectants just cannot be used on your skin. I did one other thing. I cut pieces of "Formica" and glued it over the wood of my smoker as I told in a *Gleanings* article, I guess, 8 or 10 years ago, I did this of course because I did not feel that soap and alcohol treatments would work as well on wood as they would on Formica.

Now was my doctor crazy or super cautious? Well, maybe he was, but as he explained what he recommended I do, and what a surgical scrub does, is loosen dirt — the function of the soap and then you mechanically wipe the dirt onto a paper towel which you burn. That, he said, removes 95% perhaps of the bacteria and dirt and propolis. The second round removes 95% of the remaining bacteria and the third go around removes 95% of the remaining. Now I won't work it out for you, but 95% of 95% of 95% removal of bacteria mean there is almost none left. Sure, I suppose ultra sophisticated apparatus would find some but for all practical purposes there is none left.

Of course when I told about this at WAS, I got heckled and one listener in a loud aside said "heck, you could just use plain water with a little soap to remove soil and alcohol to remove propolis". I guess he is right, but I know my beekeepers did not get in a sweat over my hands because they knew I was as sanitary as I knew how to be. I will also add that while I was inspecting I drove a white Corvette and even if I did not encounter disease I always used the waterless cleaner and alcohol because I tried to keep the Corvette nice and propolis and honey off the steering wheel and gear shift. I didn't think it added to my image. Heck, then my wife even washed my coveralls regularly.

Now maybe your chief inspector does not require his inspectors to work bare handed except when they encounter hives that can in no way be worked without gloves. It follows I deplore inspectors using gloves as a matter of routine bacause I feel sure gloves do spread disease and a surgical scrub or rinsing with alcohol or whatever will not get bacteria out of leather. If inspectors must use gloves and cannot be furnished disposable single use gloves at least I think they should use seamless vinyl. Those I think you can get reasonably clean. Of course you can get leather gloves "clean" with ethylene oxide fumigation but I really cannot visualize an inspector carrying around several dozen pair of gloves with a separate container for clean gloves and another for diseased gloves because obviously the containers would have to have foot activated openers.

So? What to do? Well, if your inspector will call first, you could open your hives as designated and hold the frames for him to look at them. Would an inspector do that? I doubt it. For sure I would not! I tried calling first, and I would find clear impressions on the ground showing hives had been just moved, and I feel sure those moved hives were known to be diseased by the owners. So that is out!

What then? Well, you can buy zip lock bags, fill them with disposable gloves from a veterinary supply and put them on a hive with a sign "Inspector, please use these gloves when you work these hives". I would think any inspector just to keep the peace would go along with that. Or, forget the whole matter and hope for the best.

My own recommendation is buy the throw away gloves and put up the sign rather than just getting mad, adopting an uncooperative attitude, and bad mouthing inspectors. I urge you not to react by hiding your hives or failing to register hives. That to me is the utmost climax of beekeeping stupidity. Time and time again when I encountered disease I would spend hours circling looking for other hives — especially unregistered hives. I would even go back as the kids were getting out of school and I would ask them if they knew of any hives since the young ones are into everyone's back yard, they generally knew where hives were. Then I would check those and leave a note that disease had been found nearby and advising the beekeeper to jump onto a medication program. That the beekeepers, I think, truly appreciated.

On the other hand I never seemed to find all the unregistered hives. Without warning and then preventative medication, many, I am sure, became diseased and probably before they died were completely robbed out. They became reservoirs of infection threatening all nearby unprotected hives. That is sad.

Honeybee Biology, compiled by John Free, Central Association of Beekeepers Publications. 179 pages, soft cover, 5.95, (English Pounds). This is mainly a collection of lectures given before the Central Association of Beekeepers, long known as the British Beekeepers Association since its founded in 1874.

All of the lectures included in this book were delivered by scholars distinguished in the academic world and in research.

The average American beekeeper may find the contents of *Honeybee Biology* rather steep going but those with a scholarly bent, particularly in the field of biology, will appreciate this compilation of significant papers on honeybee biology.

L. Goltz

News and Events

Arizona

American Honey Producers Convention

Beekeepers!! Looking forward to a winter vacation in the sun? Attend the 1983 American Honey Producers Convention in the "Valley of the Sun" Jan. 10-14, 1983. For room reservations contact the Ramada East Resort, Phoeneix, Arizona 85008 (Phone: 602-275-7878). Room rates are $36.00-single or double occupancy.
For further information contact Glenn Wollman-Parker, South Dakota 57053 or Jack Meyer Jr. Box 98 Winfred, South Dakota 57076.

The tentative program for this years convention is as follows:

MONDAY, JANUARY 10, 1983

9:00 am.
Registration-All day.
Executive Committee
Set up exhibits

12:00 Noon
Recess

1:00 pm.
Board of Directors

7:00 pm.
Committee Meetings
Resolutions, Budget, Nomination

8:00 pm.
Get Acquainted Time
Slide film "Beekeeping in South Africa"
Steve Tabor
Slide film "Pollination For Profit in California"- Harold Boulton

TUESDAY, JANUARY 11, 1983

8:00 am.
Registration

9:00 am.
Call to Order - Berna Johnston, President A.H.P.A.
Invocation
Flag Salute
Welcome -Ron Franklin Pres. Arizona Beekeepers Assoc.
Response -Richard Blake, Vice Pres. A.H.P.A.

9:30 am.
Presidents Address, Berna Johnston, President

10:00 am.
Dr. Gordon Waller, U.S.D.A. Research Entomologist—"Managing Honeybees for Hybrid Cotton Pollination."

10:30 am.
Break

10:45 am.
Dr. L.S. Goncalves, San Palo, Brazil. "The Economic Impact to the Africanized Bee in South America."

11:30 am.
Dr. Gerald Loper, Plant Physiologist, "Hybrid Cotton-A Three Way Cross."

12:00 Noon
Recess

1:00 pm.
Dr. Tom Henneberry, Director Western Cotton Research Lab., "Potential of Non-Chemical Methods of Cotton Insect Control."

1:30 pm.
Dr. George Butler, Research Entomologist, "Use of Pheromones for Control of Pink Boll Worm on Cotton."

2:00 pm.
Clyde Shields, Consultant for Insect Control, "I.P.M. Cotton Insect Control"

2:30 pm.
Break

2:45 pm.
Dr. R.J. Bruss, Product Specialist: "Using Chemical Stickers to Reduce Honeybee Losses"

3:15 pm.
Roy Stanley Weaver, Jr., Bee Breeder, Commercial Beekeeper—"Increasing Efficiency Through the use of Computers in a Queen-Rearing Operation"

Ed Podoloski, Commercial Canadian Beekeeper, "Using Computers in the Production of Honey"

4:15 pm.
Steve Tabor, Research Scientist, Geneticist, Queen Breeder, "Development of a Super Bee"

7:30 pm.
Glen Stanley, Iowa State Bee Inspector: "Everything You Have Always Wanted to Know About Beekeeping and Have Not Dared Ask" (Informal question and answer seminar)

WEDNESDAY, JANUARY 12, 1983

8:00 am.
Breakfast Meetings
Honey Packers and Dealers
Midwest Honey Marketing Assoc. (Mid. U.S.)

9:00 am.
Dr. Christine Peng, Assistant Professor Entomology & Apiculture, "The Fastest Growing Beekeeping Industry in the World—China"

9:30 am.
Dr. Ross Nielsen, President Nielsen Labs, "Contracting for the Irradication of Wax Moth"

10:00 am.
Gene Dewey, Aerial Applicator, "Night Application of Chemicals"

10:30 am.
Break

10:45 am.
Tom Ed Burleson, President Burleson Honey Co. President of the Honey Packers and Dealers. 'The Future of the Honey Industry as Seen Through the Eyes of the President of the Honey Packers and Dealers."

11:15 am.
First Reading of the Resolutions

11:30 am. Rayden C. Brown, President C.C. Pollen—"Adding to your Income by Collecting Pollen"

12:00 Noon
Recess

1:30 pm.
Tours
Stewart's Honey co.
C.C. Pollen Co.

5:30 pm.
Oldwest Cook-Out and Show

THURSDAY, JANUARY 13, 1983

9:00 am.
Gary Evens, Manager Sioúx Honey Assoc.

9:30 am.
Dr. Paul Schwartz, U.S.D.A.—Reviewing the Progress & Establishing of Priorities for U.S.D.A.
Bee Research Programs

10:00 am.
John Cowan, Cowan Enterprises, "Mechanizing for Profits"

10:30 am.
Break

10:45 am.
Dr. Richard Nunnemaker, Research Scientist U.S.D.A., "A Bio-Chemical Technique to Differentiate Between African & European Honeybees"

11:15 am.
Adair Stoneir, Research Entomologist, "Chemicals that Reduce Mortality"

11:45 am.
Harry Sullivan, Agricultural economics Specialist U.S.D.A.

12:00 Noon
Recess

1:00 pm.
Don Olson, Olson Honey Co., "The Advantages & Pitfalls of Packaging C.C.C. Honey"

1:30 pm.
Tom Taylor, Commercial Honey Producer, "Do What You Do Best & Let The Bees Do The Rest"

2:00 pm.
Don Smoot, Commercial Beekeeper Pres., Mid. U.S. Marketing Assoc., "From Beekeeper to Produce Packer"

2;30 pm.
Richard Adee, Washington Leg. Committee Chairman, A.H.A.A.

3:00 pm.
General Assembly Business Session
Sec. — Treas. Report
Resolutions

4:00 pm.
Board of Directors
Election of Officers — Resolutions
Old & New Business

7:30 pm.
Banquet — Tom Ross — Dadant & Sons, Master of Ceremonies
Speaker — Bernie Yoh, Accuracy in Media Inc., "Keeping the News Media Honest"

FRIDAY, JANUARY 14, 1983

9:00 am.
Executive Board Meeting

SATURDAY, JANUARY 15, 1983

Tour of Yuma Valley, Hosted by Jim Smith, Commercial Beekeeper & Cotton Farmer. Those interested in this Tour please contact Jim Smith prior to the Convention.

Jim Smith
5620 W. 8th Street
Yuma, Arizona 85364
Ph: 602-783-7289

Hawaii

American Beekeeping Federation 39th Annual Convention

HAWAII
Jan. 17-22, 1983
Sheraton-Waikiki, Honolulu, HI
Jan. 22-25, 1983
Hotel King Kamehameha, Kona, HI

MONDAY, JAN. 17, 1983
2:00-4:00 pm.
Executive Committee Meeting

TUESDAY, JAN. 18, 1983
8:00 am.-12:00 Noon
Executive Committee Meeting

1:30 pm.-5:00 pm.
Board of Directors Meeting

1:30 pm.-5:00 pm.
Registration
Exhibits and Honey Show Set-Up

8:00 pm.-10:00 pm.
State Honey Queen Chairman Meeting

WEDNESDAY, JAN. 19, 1983
6:30 am.-9:30 am.
Honey Industry Council Breakfast

8:00 am.-1:00 pm.
Registration

8:30 am.-
Exhibits and Honey Show

8:30 am.-12:30 pm.
General Sessions

2:30 p.m.-3:30 pm.
National Honey Packers & Dealers Directors' Meeting

8:30 pm.
Honey Queen Reception

THURSDAY, JAN. 20. 1983
8:00 am.-12:30 pm.
Registration

8:30 am.-12:30 pm.
General Session

9:30 am.-12:30 pm
Ladies Auxiliary Meeting/Brunch
ROYAL HAWAIIAN HOTEL

2:30 pm.-3:30 pm.
National Honey Packers & Dealers Meeting (OPEN)

4:30 pm.-5:45 pm.
Honey Show Auction

5:45 pm.-7:00 pm.
Social Hour

7:00 pm.-
Banquet, Queen Coronation and Dancing

FRIDAY, JAN. 21, 1983
7:30 am.-9:00 am.
National Honey Packers & Dealers Meeting
(Breakfast)

9:00 am.-Noon
A.B.F. Annual Business Meeting

1:30 pm.-4:00 pm.
Honey Industry Council Meeting

MONDAY, JAN. 24, 1983
9:00 am.
Bus tour to Napoopoo, with stops at Powers Apiaries and Kona queen company (Included in price of GTU Tour A)

TUESDAY, JAN. 25, 1983
Depart for Honolulu and Mainland, or other Island Tours

1983 American Beekeeping Federation Resolutions Committee

Vice-President Phil Rossman recently announced that the 1983 Resolutions committee for the American Beekeeping Federation Convention in Honolulu would consist of the following people. Anyone having any Resolutions to be considered are urged to send copies to one of the committee members as soon as possible so they can have time to be considered carefully.

Chairman — Phil Rossman (GA)
Homer Park (CA)
Vern Sisson (FL)
Steve Dilly (TN)
Wayne Stoller (OH)
Harry Rodenberg (MT)

SATURDAY, JAN. 22, 1983
8:30 am.-12:00 Noon
A.B.F. Board of Directors Meeting

1:00 pm.-3:00 pm.
Executive Committee Meeting

3:00 pm.-
Adjourn to the Island of Hawaii at Hotel King Kamehameha, Kona

7:30 pm.-
Luau (Included in price of GTU Tour A)

SUNDAY, JAN. 23, 1983
FREE DAY FOR THOSE WHO WANT TO RELAX!
However, two **optional** activities have been planned: Deep Sea Fishing Trip or Round the Island Tour to Volcano National Park, Hilo and Return
(Individual arrangements must be made for these optional events)

Annual Winter Meeting New Jersey Beekeepers Association

Trenton State College
Student Activity Center, Bldg 18
Room 202 E & W
Route 31, Trenton, N.J.
Saturday, January 29, 1983

Chairman: Ellis Schweitzer

9:00 am.
Coffee

9:30 am.
Business Meeting
Reports — Ellis Schweitzer
Secretary/Treas. — Liz Rodrigues
Committees
Election Officers
Resolutions
Shows Community
E.T.O.
Awards Program
E.A.S.

10:30 am.
John Root — A.I. Root Co.
BEESWAX
Elton Herbert — U.S.D.A.
E.F.B. Experiment

12:00 noon
Luncheon

1:30 pm.
Jacob C. Matthenius — Apiarist
Bee Inspection Program, N.J.
John Root — A.I. Root Co.
Dr. von Frisch

3:30 pm.
Dr. Roberts Cook College — Rutgers University
Research
Education
Honey Shows

(Continued on page 701)

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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

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

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South African Bee Journal
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Notes Of A Bygone Year

(Continued from page 675)

our honey. My Mary's health suddenly took a funny turn and she couldn't keep anything else down. She remained on this diet for quite a long time. Mary passed away only five years ago. Old Annie never failed in all that time. Do you know, the old cow went dry shortly after and hasn't given a drop of milk since?

Stroking the scrawny neck and talking more to himself than to us he went on, "You've got all the time in the world now, old girl, just to come and go as you please. No more calves and no more milking with all the clover you can eat. I guess it can be said that you have been retired."

There is not much left to be said other than we thanked him profusely for his hospitality and at his insistance promised to return as often as we could. Our last impression that day as we backed out waving, was of two friends, side by side, illuminated by a shaft of afternoon sun pouring from a rift in the overhead shade. We drove slowly, our minds filled with poignant thoughts about the drama being played out back there, far from the eyes of civilization. An old man, determined to make a faithful animals last days easier, discounted his own discomforts. I've no doubt he would share his last morsel of food with old Annie.

We stopped once on the way home, got out and sat by the roadside, legs dangling over a low wall.of rock. My wife sighed and said "you know, we have been privileged to witness the ultimate in human kindness. Isn't it sad that the genuinely kind people of the world often live and die in obscurity?

The sky seemed to blaze with a growing intensity as she finished speaking, prompting us to lift our eyes to eternally snow capped peaks framed in the deep, deep blue of the sky; but I could see only a silvered head hovering devotedly about a grizzeled old cow with the sunken eyes of great age.

Old Annie died some 18 months after our first visit and John, in turn passed away nearly five years ago.

We drove out to the old homestead again last Sunday. The weathered cabin is still the same as when we boarded it up. The outside, though, is more overgrown. In the back pasture there grows a young oak tree and beneath its roots are the earthly remains of an old cow, a fitting memorial to one of God's faithful creatures.

News and Events

(Continued from page 693)

FLORIDA

Apiary Inspectors of America

The annual conference of the Apiary Inspectors of America will be January 24-27, 1983 at the Howard Johnson's Motel, 8020 International Drive, Orlando, Florida.

The room rate is $36.00 (single or double) which applies three days prior to and three days after the meeting. A room reservation, with one nights advance deposit, should be mailed to the motel not later than December 31, 1982. Reservations for the activities; barbeque 5.00 each, banquet 12.00 each and ladies tour and lunch 10.00 each, should be sent to Floyd Hilbig, Nevada, Department of Agriculture, Division of Plant Industry, P.O. Box 111000, 350 Capital Hill Ave., Reno Nevada. The registration fee is $15.00 to A.I.A. members.

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