

BEE CULTURE



A VISIT FROM THE BEEKEEPER

By Nancy Walker
Nashville, TN

*Tw'as the week before winter, and all through the hive,
The workers were humming, "On honey we'll thrive!"*

*The queen was nestled all snug in the cluster
While visions of honey shone with a luster.*

*The drones were all gone; the brood was a dream.
Only the song of survival was the central theme.*

*When out in the bee yard, there arose such a clatter,
They broke from the cluster to see what was the matter.*

*When what to their compound eyes should appear,
A beekeeper was coming—all clad in his gear.*

*He was dressed all in white, from his neck to his foot,
In his gloved hand was a smoker all covered with soot.*

*His head was protected with a hat and a veil,
He was carrying a tool and a black-painted pail.*

*A small puff of smoke came into the hive,
"Fire!" They buzzed, "We must stay alive!"*

*They filled their honey stomachs till they almost popped.
Then one of the workers buzzed, "The smoke—it's stopped!"*

*As they drew in their heads and were settling down,
Off came the hive cover; then the wind whistled 'round.*

*Just as all of the girls buzzed, "please stop!"
The wind was cut off, and one felt a drop.*

*Another one tasted it, then started to sing:
"With this gift from above, we'll make it till spring!"*

*The beekeeper smiled, then turned with a jerk.
"That should help them after all their hard work."*

*And laying a brick on top of the hive
Nodding, he said, "That will keep them alive!"*

*He walked to his car, started it up and departed.
Back home he drove, feeling very light-hearted.*

*And they heard him exclaim as he drove out of sight,
"Happy winter to all and to all a good night!"*

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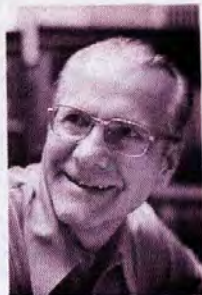
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COVER STORY

Jeff & Sue Lemmon of Clyde, Ohio display one of the gifts of honey which were passed around at Christmas time.

The poem by Nancy Walker was written when she was vice president of the Tennessee Beekeepers Association in 1978. Nancy handles her own bees — eight colonies — and maintains her home with one son, one daughter and a salesman husband.

Gleanings in Bee Culture

December 1979

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Created to Help Beekeepers Succeed

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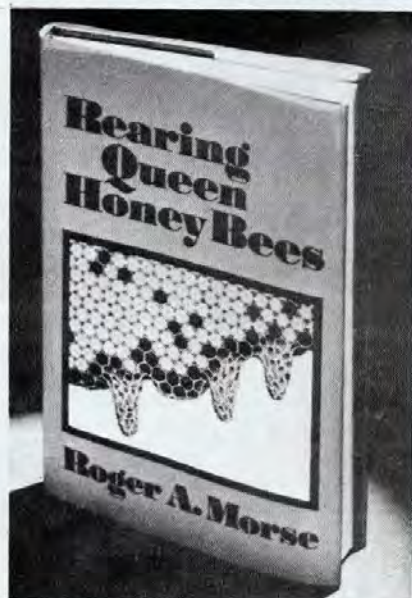
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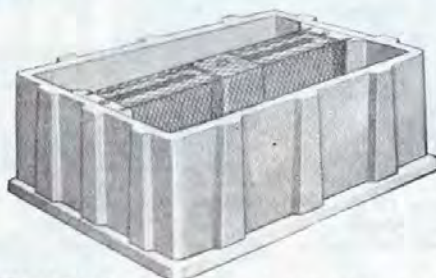
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Gleanings Mail Box

Dear Editor:

I guess at last USPS had decided to issue an embossed envelope honoring the honeybee sometime in 1980. A date hasn't been set.

Even though it took a good number of years to even secure an envelope, many beekeepers should be happy.

I am rather disappointed we could not at least issue a lithographed engraved Giori press stamp similar to the butterfly issue that was printed in 1977, but we have to take what we get.

There is a possibility later on that USPS will issue this type of stamp as over the years there has been a lot of duplication. What the design will be or who will design it, I do not know.

When these envelopes are issued, it will be called a "First Day Cover" as philatelists describe it. A ceremony will take place in one of the cities or towns of the United States.

This is where the bee industry should be ready to attend as these "First Day Covers" will be cancelled that day. Also there will be a limited number of envelopes to be cancelled.

I am sure a lot of beekeepers will want to attend. What will be the procedure at this time, I won't know until next year. I will try and get more information from Postmaster Frank C. Goldie.

William R. Koenig
Route #2
Freeport, IL 61032

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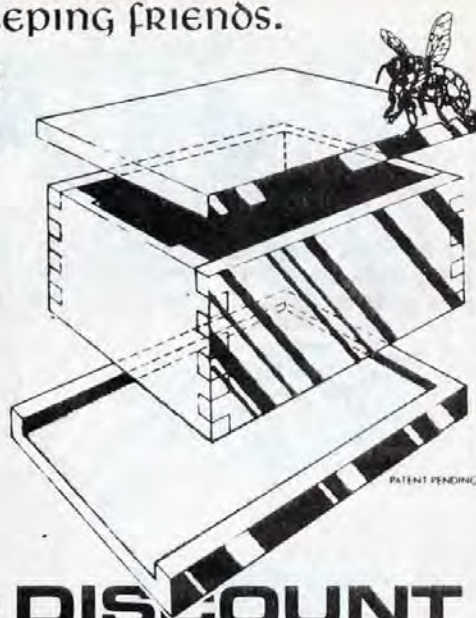
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Monthly HONEY Report

LAWRENCE GOLTZ

November 10, 1979

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		31.20	33.00	31.80		34.20	34.40	31.00	
60 lbs. (per can) Amber		27.60	32.50	28.20		31.50	30.50	29.70	
55 gal. drum (per lb.) White	.55	.52	.57	.52		.54	.52	.52	
55 gal. drum (per lb.) Amber		.50	.55			.50	.48	.51	
1 lb. jar (case of 24)	25.00	22.50	21.50	20.00		20.75	20.80	22.25	22.60
2 lb. jar (case of 12)	29.50	21.15	20.00	18.50		20.00	19.80	19.95	20.35
5 lb. jar (case of 6)	29.00		22.60			23.00	20.00	20.85	24.35
Retail Honey Prices									
1/2 lb.	.85		.71	.67		.64	.65	.71	.73
12 oz. Squeeze Bottle	1.25	1.10	1.15	1.02		.98	1.24	1.15	1.13
1 lb.	1.30	1.27	1.25	1.10		1.15		1.20	1.20
2 lb.		2.39	2.45	2.00		2.00	2.30	2.15	2.45
3 lb.			3.45			3.25		3.10	3.55
4 lb.		4.49		3.89		4.25	4.20	4.31	4.10
5 lb.	6.00		5.00			4.80	5.03	4.97	5.15
1 lb. Creamed	1.30		1.29				1.45	1.29	1.22
1 lb. Comb	2.00		1.90			1.50	1.70		
Round Plastic Comb			1.65						
Beeswax (Light)		1.70	1.90	1.80			1.75	1.70	
Beeswax (Dark)		1.60	1.80				1.80	1.60	

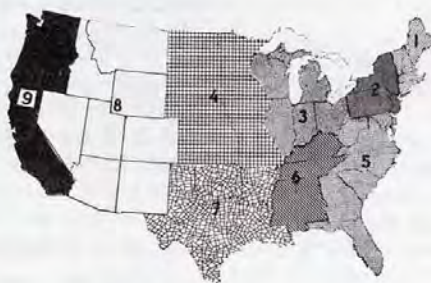
Misc. Comments:

Region 1

With the coming of winter all bee flights have ceased for the winter, except perhaps for a few warm days before snow. Prices of bottled honey have gone up considerably. Price has increased about 20% because of all overhead expenses. Sales have so far continued normal but may slow down with higher prices. Good honey more difficult to buy in truck loads. Apparently adulteration is on the increase as price of honey increases.

Region 2

There is no part of New York State that does not have a good crop and in many areas is excellent, probably our best year in the past five. 50 cents cash being paid for any kind of honey. Higher quality honey going at a higher price, up to 59 cents for western white clover delivered here. Where payment is deferred the price ranges from 52 to 55 cents for local honey. Excellent fall honey flow in Pennsylvania. Bees in good shape for winter. Honey



sales variable, reported good in central New York, slow in Pennsylvania.

Region 3

Ohio honey crop fair to good, excellent fall honey flow. Indiana total crop about 70% of 1978, although some beekeepers have received less. Demand for honey good at wholesale and retail. About all the honey in Indiana reported committed. Prices up. Bees entering winter in good condition, clusters quite large and stores generally adequate for winter, some beekeepers feeding Fumidil-B for noseema control.

Region 4

Bees packed for winter in Minnesota and seem strong. Moisture conditions good in Minnesota, rains have been spotty in Nebraska. Honey is selling well at retail. Prices moving higher. Colonies needed some fall feeding. Stands of clover promise good forage in Minnesota for next summer.

Region 5

Bees are in fairly good condition in North Carolina. Soil moisture plentiful. Honey sales are good. Much interest in beekeeping at the honey booths at the fall fairs.

Region 6

Fall weather generally favorable although coldest weather came at the time of the aster flow in Kentucky. Bees going into winter with good food supplies although some feeding was needed in places. 1979 crop reported above average

(Continued on page 609)

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MONTHLY HONEY REPORT

(Continued from page 606)

in Kentucky. Honey sales about normal. Some beekeepers plan to increase colony numbers in Kentucky, others intend to maintain present numbers.

Region 7

1979 was a strange year in Arkansas with widely varying spring crops and variable rain fall. Vetch and clover failed due to the rain. Soybeans planted late and blooming time was less than 30 days with five days of rain during the bloom. Soybean honey crop was 50 to 60% of normal. Bees going into winter in good condition in Arkansas. Honey being checked for possible adulteration in Arkansas, the suspected honey being brought in from out of state. Reports of American foulbrood in Arkansas on increase. West Texas cotton honey crop averaged about 60 lbs. per hive. Fall plants yielded well. Bees in good condition in Texas for winter. Bees in good condition in Oklahoma. The honey crop in Oklahoma averaged about 55 lbs. per colony.

Region 8

Moisture is short in Montana but October rains aided the clover and alfalfa prospects for next year. Montana produced about 125 lbs. per colony average in 1979, a total of about 11,750,000 pounds of excellent quality honey. This is 139% of the 1978 crop. Bees in good condition for winter in Montana. Winter stores have not been used to any extent in Colorado with the fair autumn weather.

Some beekeepers in Montana sending bees to warmer areas for wintering and spring time splits. Demand for honey is reported strong in Colorado; domestic market quiet in Idaho, but honey moving in orderly manner. Many producers may use loan program if cash sales do not produce adequate cash flow. Much higher interest from European honey buyers due to favorable rate of exchange for foreign buyers.

Some beekeepers say they may reduce or stop moving bees to California almond pollination due to increased fuel costs and trouble getting reliable truckers when they are needed. Early almond contracts are at higher prices.

Most Colorado beekeepers have honey stocks on hand and packers have been reluctant to buy honey due to the high interest rates on money.

Region 9

Honey sales are reported fair in

Oregon, a good fall for bees and colonies are filled up on winter stores. In California the amount of honey placed under price support program is well below a year ago as of the end of August. Sizeable bee losses from pesticide sprays used on corn grown on the west side of the San Joaquin

Valley.

Trading between California beekeepers and honey handlers reported generally light. Higher interest rates and the uncertainty of future business activity made handlers extremely cautious buyers.

REWARD OFFERED

MEMBERS of the North Dakota Beekeeper's Association are offering a reward of \$10,000 for information resulting in the arrest and conviction of any person stealing beehives within the state of North Dakota. The reward will be given upon approval of the board of directors of the Association, according to Elmer Heinle, Hebron, president of the Association.

Heinle said the money for the reward has been posted by the parties from which

thefts have occurred in North Dakota this year. Heinle said losses to beekeepers in the state this year from theft have amounted to more than \$35,000.

Information leading to the arrest and conviction of persons stealing the beehives will be held confidential. Information should be given to the North Dakota Bureau of Criminal Investigation, Box 1054, Bismarck, North Dakota 58505, or by calling 701-224-2990.

PENALTY PAID BY PHILLIPS HONEY CO.

The New York Department of Agriculture and Markets has advised that the penalty case referred to above resulted from a food inspection made at a warehouse containing a product labeled "honey" which was packed by Phillips Honey Company, P. O. Box 429, Lake Wales, FL 33853. This product was seized and sampled.

Samples of the honey were labeled, "Sunshine Clover Blossom Honey (1-lb.)." It is alleged that the laboratory analysis of the sample revealed that the

product was adulterated with corn or cane sugar.

Thereafter, the product was destroyed without a hearing pursuant to a waiver of that right signed by Interstate Food Products.

Payment of a penalty in the amount of \$3,350 by Phillips Honey Company does not constitute an admission of the alleged violations of law involved in the penalty assessment.

DR. MORSE AWARDED GOLD MEDAL BY APIMONDIA

ROGER A. MORSE, professor of apiculture at Cornell University and editor of **Honey Bee Pests, Predators, and Diseases** (Cornell University Press, 1979) was recently honored with a gold medal at the 27th bi-annual meeting of Apimondia — the international beekeeper's organization — in Athens, Greece. The award was given for **Honey Bee Pests, Predators, and Diseases** as an outstanding contribution to the field of apiculture.

In this book — the first of its kind — sixteen authorities representing a number of different disciplines provide complete, up-to-date coverage of all the known threats to the health of honey bees. **Honey Bee Pests, Predators, and Diseases**

describes the most advanced methods of disease detection and treatment, as well as recommendations as to exact dosages and procedures that will make the most effective use of modern drugs.

Roger A. Morse received his B.S., M.S., and Ph.D. degrees from Cornell University, where he now teaches. He was an apiculturist with the State Plant Board of Florida and an assistant professor of horticulture at the University of Massachusetts before joining the Cornell staff in 1957. He is the author of **The Complete Guide to Beekeeping, Comb Honey Production, and Bees and Beekeeping** (Cornell University Press).

BOOK REVIEWS

Swarm Prevention by Herman E. Werner, 20 pages, paperback, \$4.00. Order from the author, 5 Hilton Rd., Wilmington, Delaware 19810. The procedure (for absolute control of swarming) according to the author, "may appear to be a too intensive form of management for the amateur or small beekeeper, but actually, the system is not as complicated as it may seem".

Six visits of examination 8 to 10 days apart, providing ample room and the free run of the hive for the queen and the movement of brood, queens and eggs by comb rather than by hive bodies is the basis of this swarm prevention program.

"Total swarm prevention is a definite reality and can be accomplished by the serious beekeeper" according to the author.

Proceedings of the Fourth International Symposium on Pollination. Increasing Production of Agricultural Crops through Increased Insect Pollination, 541 pages, including subject index and author index, paperback \$9.75 postpaid. Contribution #5591 and Special Miscellaneous Publication #1 of the Maryland Agricultural Experiment Station, (available from: Dept. of Entomology, Univ. of Maryland, College Park, MD 20742).

This fine collection includes over 70 papers delivered at a conference held in October, 1978. The overall topic, although specialized, is of enough economic importance and general interest that this book may have appeal for an audience somewhat wider than the limited scientific one for which it was intended.

Much valuable technical information is available here: on hybrid seed production using honeybees, on the importance of insect pollinators for a great many crops—from sunflowers, soybeans, and cucumbers to cranberries, sesame seeds, and peanuts—and on breeding and managing bees for maximizing pollination. There is also a section of papers on the foraging behavior of honeybees and another on the interactions of the various flowers and insects in an ecological community.

Over half of the papers in this volume deal with honeybees, but bumblebees, too, are well represented, and there are excellent descriptions of the increasing use of other species of bees in commercial fruit and seed production. Pollination studies from all the continents of the world are included.

Dewey M. Caron has done an excellent job in editing this collection as he did in hosting the conference. The subject index provided is especially helpful, and the

author index very handy, since each paper has its own list of references. The price (payable to the University of Maryland) is quite reasonable for a scientific book these days.

Although this book may not be appropriate for the casual reader or home bookshelf, it may be a useful addition to a college or technical library.—Richard Nowogrodzki, Dept. of Entomology, Cornell University.

Kitchen Creations with Honey by Ann Harman and Ernest Miner, Jr., Fredericktowne Printing Services, Frederick, MD 21701. Distributed by Ernie's Apiaries, 9933 Kelly Rd., Walkersville, MD 21793, 40 pgs. paperback \$1.50.

We believe the book is unique. All but three of the recipes are new and were developed "from scratch"; the book is not a rehashed compilation from other honey cookbooks.

Also, most of the recipes in this new cookbook require low temperature cooking and/or minimal cooking times because excessive heating is known to destroy the distinctive bouquet and taste, especially of the more delicately flavored honeys. This is why breads, pies and other recipes requiring long cooking times at high temperatures have been largely excluded from our book, even though honey does good things to these foods. Besides, you can find these recipes in other honey cookbooks.

(Continued on page 613)

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legislative interests of the industry", says
MacDonald.

As he was leaving Mitchell asked how
much it would cost to begin beekeeping as
a hobby with one or two hives, which he
said he may try next year.

Beekeeper Jon MacDonald (left) shows
Congressman Mitchell around his plant.
Photo courtesy of Utica Observer
Dispatch.



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BOOK REVIEW

(Continued from page 610)

Compared to other honey cookbooks, the new book differs most in its emphasis on the flavors of honey. The many honey cookbooks already published, while excellent, usually call for the use of honey merely as a sweetening agent, i.e. as a substitute for sugar, while the primary flavor is obtained from other ingredients. For example, most honey cookbooks include a recipe for Lemon Chiffon Pie sweetened with honey instead of sugar. In **Kitchen Creations With Honey**, on the other hand, you will find a recipe for **Honey Chiffon Pie** in which the flavor can vary delightfully according to the particular type of honey used. Thus, we hope the book encourages people to select and use honey as a food that is more diverse and more noble than a mere sugar substitute.

Some Beekeepers and Associates by Joseph O. Moffett, Author and publisher, 140 pages, soft cover \$9.90, library bound in hard cover \$19.90.

With the plethora of beginning beekeeping books being published this fascinating book wafts in like a refreshing breeze in a midsummer heat wave.

This book is about people in beekeeping. Just about every prominent person

you have heard from or seen at the national conventions or read about in the bee journals is represented but mostly they are beekeepers, 110 in all, listed alphabetically. Principally they are beekeepers who operate from one thousand up to 33,000 (Powers Apiaries) colonies of bees but honey packers (Sioux Honey is the worlds largest honey packer) and equipment manufacturers are described as well. This is not an impersonal business review. The book is about the lives of people, business men, their wives and families who produce brands of honey with such fascinating and famous names as Rice's Lucky Clover Honey, Tropical Wild Honey, Dutch Gold, Bee Tree and Montana's Best.

The text is richly illustrated by photographs from contributors and by the author. Some of the histories are autobiographical others are biographical. The descriptions are of the varied operations of commercial beekeeping; producing queens, packages, apiary management, honey packaging and equipment manufacturing.

You will read about how famous beekeeping families began and grew in the business, names like Burleson, Cowen, Dadant, Diehnelt, Hubbard, Kelley Killion, Miller, Powers, Root, Weaver and York.

American honey queens crowned from 1959 to 1979 are pictured and captioned with a brief biography.

Dr. Moffett has turned out a commendable job of research in this book. Some of the family histories are remarkable stories. The Haefeli family of Monte Vista, Colorado has ancestors who began beekeeping many years ago in Switzerland; immigrated to America in 1898 and began beekeeping in Colorado. The Weaver family started keeping bees in 1888. Walter Kelley began his bee supply business in 1924, Roots in 1869 and the founder of Dadants moved to America from France in 1863 and began beekeeping. C. F. Diehnelt brought his beekeeping talents from Germany to Wisconsin in 1852. Honey Acres, bearing the Diehnelt family name is located in Menomonee Falls, Wisconsin. The fifth generation of this remarkable beekeeping family is now active in the business.

It's all here — and more. Compliments of the year to author Joseph Moffett.

There may be a Part II in the future to include the important persons and organizations not included in Part I.

The book may be ordered from the author, Dr. Joseph O. Moffett, Route #3, Box 175 A, Cushing, OK 74023.

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Standing On Guard

By Grant D. Morse, Ph. D.
Saugerties, N. Y.

ANYONE WHO has ever raised a family of children knows what it means to "Stand on Guard." Most children escape a large share of undesirable adverse experiences, but parents need to stand on guard at all times to see that they do.

So, too, with a colony of bees. It will escape many unfortunate experiences if its operator knows what to do to prevent them. Probably the most frequent threat to a colony's welfare is one of the contagious diseases—American foulbrood, European foulbrood, sacbrood, or nosema.

Wax moths are a very destructive force against stored honeybee combs. Mice can wreak havoc to a colony's morale, meanwhile destroying several of its valuable combs, particularly during winter months.

Bears, if present in the area, always are a menace. Skunks can destroy small colonies. Ants often persistently irritate honeybee colonies.

During my beekeeping years, right up to the present, my bees at sometime have experienced every one of these threats or irritants. Bears have vandalized two of my yards. Mice have persistently evaded my entrance blocks. AFB finally invaded several of my colonies a few years ago. One of my yards at one time underwent the typical losses brought on by European foulbrood. Wax moths have occasionally damaged a number of my combs, and at one time made a few of my comb honey sections unsalable. Ants drove the bees from an observation hive I maintained in Florida. Subterranean termites have consumed my hive stands and bottom boards on occasion. In spite of my exposure to every one of these enemies of bees, I have not had so extensive a history of loss as to destroy all of my colonies, or to keep me from continuing.

Wax Moths

Although not the greatest threat to honeybees, the wax moth, especially the greater wax moth (*Galleria mellonella*), seems to disturb beginners. This may be chiefly because they scarcely know of its existence and what it can do.

Colonies that are kept strong seldom have much trouble in keeping moths

under adequate control here in the north. Moths can usually be kept from depredation by removing combs promptly from a colony that has lost its bees. Stored combs should be kept closely confined in hive bodies when not in use, and protected with a fumigant such as paradichlorobenzene. The fewer moths you tolerate today, the fewer you are likely to have tomorrow.

Bears

Bears usually strike when least expected. An apiary maintained out in the country and away from one's residence can be totally destroyed by one or more bears if they are permitted more than one or two visits. Many beekeepers who maintain yards in areas that harbor bears try to locate them near enough to a farmhouse or rural dwelling so that they will be at least casually observed everyday by an interested resident. The interest of such an individual can be stimulated by an occasional gift of honey.

Electric fences are expensive to erect and maintain, but in some areas have proven the most reliable defense. The Conservation Commission officials of a state will usually try to help. Their primary interest, however, is in preserving the life of the bear.

Skunks

Skunks are persistent predators of nuclei and the weaker colonies. They will canvas every colony in a yard until they find one that is less aggressive than the others. Then they will lie at the entrance night after night until the working force of the hive is eradicated.

We used to use strychnine placed in cheese or a hen's egg to eliminate skunks. In most places today the practice is outlawed. Usually, too, a permit to purchase strychnine is required. Use of a box-trap preserves the life of the skunk which may be protected by law because of its fur value.

Ants

Ordinarily, ants disturb the beekeeper more than they do the bees. But there are exceptions. In our warmer states ants may damage the weaker colonies. They often

disturb queen mating nuclei. They deter scout bees from entering bait boxes. Also, they often burrow into the softer woods of which some hives are made, particularly the bottom boards. Supers that have been evacuated of bees by use of bee escapes are often victims of ants that seek the honey there. They also consume part of the granulated sugar some beekeepers place on inner boards for emergency use by a colony weak in stores. Stored comb honey is a favorite target of ants.

Insecticide sprays and powders can be used as a deterrent. Chlordane is probably most often used for this purpose. When my observation hive was under attack by ants in Florida, the only way I could devise to keep ants from destroying it was to place it on a moat (a bird's bath) protected by water on which I poured a small quantity of oil. It helps to eliminate ants from an apiary if objects that serve as nests are destroyed, and the apiary grass is mowed. But ants are everywhere!

Termites

Termites can usually be kept under control by the use of chlordane. Subterranean termites do not like to expose themselves for lengthy periods to the air and sunlight. But they will construct tunnels from the ground up to the wood parts of the hive stand or bottom board, sometimes seven inches long. If they become troublesome, metal or concrete stands will deter their activity, though even then they may construct tunnels from the ground to the bottom board. Beekeepers in the north seldom have too much difficulty with termites. In Florida they are a constant threat. There it is substantially impossible to construct a house with wood parts into which they can not manage to gain entrance. Treating bottom boards is necessary in regions where termites prevail.

Mice

It's amazing how small an entrance is needed to admit a mouse. This is especially true if the mouse is a bit persistent in gnawing just a bit of the obstructing wood.

Usually, however, the standard size of entrance in commercially constructed blocks will not admit a mouse. If one

makes his own, it is a good idea to check the depth. Entrance blocks of lath are often used for this purpose, particularly to be installed on the outside of black wrapping paper for winter protection. It is a good idea to set the saw depth carefully when cutting out the entrances.

Most holes in inner covers will not admit a mouse. And if ten frames are used in a hive, mice can seldom gain entrance by that route. When packing bees for winter I always place mouse deterrent of some kind on the inner cover because they like to build nests there. Some pregnant female mice are either reluctant to eat a mouse deterrent, or else develop immunity to it at that time. I have frequently seen a mouse nest on an inner cover with uneaten mouse grain close by. Some mouse deterrents are obviously better than others.

Viruses

Some viruses are destructive agents of honey bee colonies. A virus may be any one of a group of submicroscopic infective agents. In mammals some of the diseases caused by viruses are rabies, smallpox, mumps, and the common cold.

In honeybees a chief virus disease is sacbrood. This infestation and its treatment are rather fully covered in **Honey Bee Pests, Predators, and Diseases** (1978) edited by Roger A. Morse.

The presence of sacbrood in this country was first reported by White (1913). It appears that sacbrood is often followed in a colony by European foulbrood. Morse quotes Fyfe (1962) as saying that "the characteristic sacklike appearance is the result of a disruption of the normal molting process, and the darkened head is from hardening and differentiation of the larval skin."

Sacbrood is the more difficult to treat because the virus becomes a part of the cell which it infests. Consequently, it is virtually impossible to treat the virus without affecting the cells harboring it. As with most other diseases, some strains of bees are more vulnerable than others. Requeening may be effective as a method of treatment.

Bacteria

European foulbrood and American foulbrood are two diseases that fall under those caused by bacteria. American foulbrood is probably the most insidious disease of bees with which beekeepers must deal. It causes greater economic damage than other known affliction. Part of the reason for this is that the spores of

Bacillus larvae remain viable on beekeeping equipment for very long periods—for several years, in fact. The modern practice of beekeepers of transferring movable frames from one colony to another, and a hive body from one colony to another, encourages spread of the disease.

Robbing or drifting bees are other frequent agents of the spread of AFB. Nevertheless, most beekeepers encourage drifting by placing their colonies in straight rows.

Although American foulbrood is prevalent on the worldwide basis, inspection by commercial beekeepers and by state apiary inspectors has kept the incidence of the disease close to one percent in the United States.

Since larvae infected with AFB often reside in cells that have been capped, their detection is the more difficult. An infected colony often reveals presence of the disease by way of scattered brood and punctured and sunken cappings.

Brood that is infected with AFB can often be identified by lifting part of the dead mass with a stick or match to determine if it exhibits ropiness, or a thread-like characteristic. The color of the larva changes from pearly white to dark brown. At last, after a month or so, the dead larva dries out and adheres tightly to cell wall. The pupal tongue normally protrudes from the scale toward the center of the cell.

When a frame harboring AFB is identified, the colony should be tightly closed after sundown and prompt treatment planned. The operator should cleanse hands and hive tool thoroughly before proceeding to other colonies.

The more conservative beekeepers advocate the burning of the bees and hive furniture of an infected colony. Some more venturesome operators use oxytetracycline to treat the disease. Powdered sugar or sugar syrup are usually employed as the medium for feeding the chemical. A state apiary inspector should be notified before feeding is undertaken.

Every beekeeper who operates a hive and lifts a frame of brood should at least glance at the cells to see if they exhibit any of the characteristics of AFB detailed here. Inspection by state inspectors is highly desirable, but the beekeeper needs to add his effort.

Precautions That May Discourage Disease

Although the onset of any disease to which honeybees are subject may be en-

couraged by the fact that they live in such constant contact, there are compensating factors present.

As with humans, it is very possible that constant and close contact may promote some degree of immunity. It has been observed that the thousands of humans who travel the subways of the world are not therefore more subject to contagion of the common cold, whereas a vigorous farmer from an isolated region may fall victim to it on first contact.

Furthermore, bees observe a strict system of sanitation. It is the absence of such a system that over the millennia has encouraged plagues among men in some instances. Modern man is trying to develop such observation of sanitary living. Bees make an overt attempt to keep both themselves and their quarters sanitary and clean. They are almost constantly cleaning themselves and each other. Each has an antennal cleaner—a rounded groove on the forelegs through which the workers pass their antennae periodically.

Honeybees are scrupulous about removing any and all foreign objects from their household, for example bits of loose leaves, and honeybee parts. If a foreign creature which is too heavy for them to move, a mouse, for example, dies within their premises they will make a valiant—and usually successful—attempt to incarcerate it in a shroud of wax and propolis both of which contain therapeutic ingredients.

Another protective factor in honeybees lives is that they do not habitually make physical contact with unsanitary objects, as do flies and many other animals. However, water often provides a debilitating effect. Honeybees possess other protective armor by virtue of their sting, and their alarm odor.

Protozoa

Nosema disease falls into this category. Protozoans exhibit the following characteristics: Their bodies consist of only a single cell, and they reproduce by fission. They are usually too minute to be observable by the naked eye. They show a marked difference between themselves and other microorganisms in that they develop within the bee less rapidly than viruses and bacteria. They thus allow the infected bee to live longer. This fact encourages the death of many afflicted bees away from the hive.

Diagnosis of a disease caused by a protozoan must be made by microscopic ex-

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Beeswax Candles

"Use your cappings wax to make extra-special candles --for yourself, and for holiday gift-giving...."

Pat Cravener*

"MERRY CHRISTMAS, Merry Christmas! This is for you." "Oh, how lovely! **Real** beeswax candles! Why, you just can't get real beeswax tapers any more! Thank you so Much!"

Those of us who are fortunate enough to be hobbyist beekeepers can enjoy, and share, one of life's exceptional little luxuries -- 100% pure beeswax tapers are so much nicer than ordinary candles. Try them once, and you'll never settle for "store-bought" candles again!

So if you are thinking about Christmas now (as who is not?), wondering what special gifts you and your family could make to remember friends and neighbors during the holiday season -- how about hand-dipped candles from your cappings wax? Real beeswax candles make a unique gift: One that you can be proud to give, and that most people will be thrilled to receive. Let the whole family join in the project! It is easier than you might think, and so satisfying to see these beautiful tapers take shape.

Dipping candles is an ancient art. Until the turn of the century, after all, candles

Nothing says "celebrate!" like candles on the table -- and nothing holds a candle to real beeswax tapers.

were the best form of lighting available. Poor folks had to make do with tallow candles, which smoked, and dripped, and burned up quickly but unevenly. The



After the first few dips into the hot wax, pull the wicks as straight as you can.



lucky few used pure beeswax for their evening lights: Candles in wall sconces, in tall candlesticks on tables, and in little lanterns for carrying up and down stairs provided long-lasting, bright, smokeless lights for more fortunate folks. So, until around a hundred years ago, almost everyone knew how to make candles. It was just one of the necessary household arts, not difficult, a little job that had to be done now and then, if the family was to have light indoors at night, and during the long months of winter.

Of course, we don't really need candles any more, unless a power outage leaves us temporarily in the dark. But then, we don't really need flowers on the table, or Christmas trees and pine cone wreaths and candy canes, either. Of course we need Candles! Especially at Christmas time! So let's revive the old art, and maybe even involve the whole family in the creation of extra-special, hand-dipped candles, for home use and for gift giving during the holidays.

No special equipment is required. Most of what you need to make your own candles can be found around the kitchen.

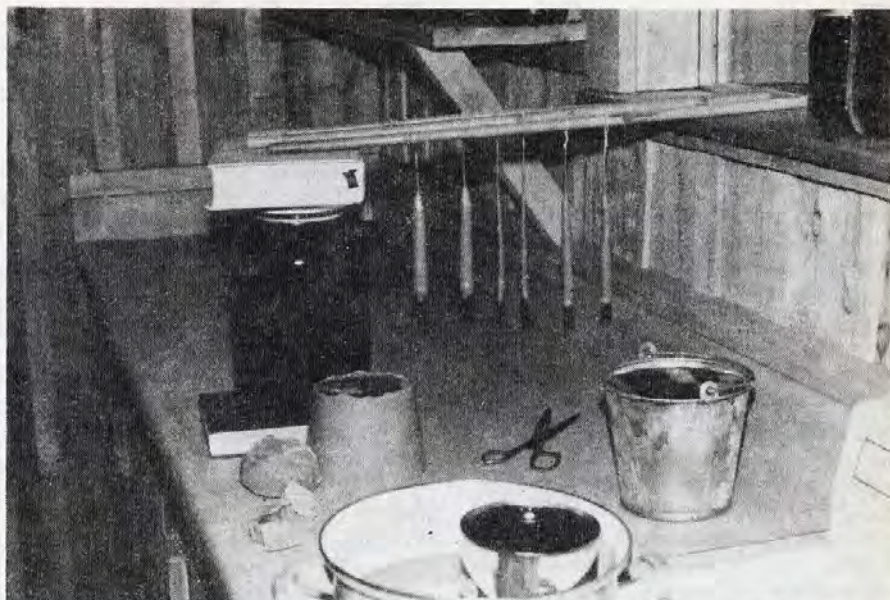
The wicking is an inexpensive item (about 50¢ for three yards) that can be obtained from hobby or variety stores. Since the wicking is the one item you'll need to purchase for your candle making project, let's be sure to get the right one! Candle wicking comes in several forms: Flat braid, square braid, and wire core. Be sure to get **SMALL, WIRE CORE WICKING** for this project.

Editor's Note: Wire core wicking has been criticized from the standpoint of air pollution. Although there has not been any documentation of the hazard, this type of wick is no longer being produced in the U. S. We would recommend a small 2/0 square braid wick.

The different types and sizes of wicking are used for different sizes of candles, and different kinds of wax. The larger the wick size, the larger the "well" of melted wax that will form as the candle burns. And the lower the melting point of the wax, the larger the well will be, too. That is why most of the tall, slender "dripless" candles drip so badly (all over your best tablecloth!): Even with the addition of stearic acid to harden the wax, the well is larger than the diameter of the candle, because paraffin is rather soft. But with your pure beeswax, we can make lovely, slender, tapering candles that shouldn't drip at all, unless it is placed in a draft. This is because beeswax is harder than any of the paraffin-based waxes, and it forms a smaller well around the wick as the candle burns.

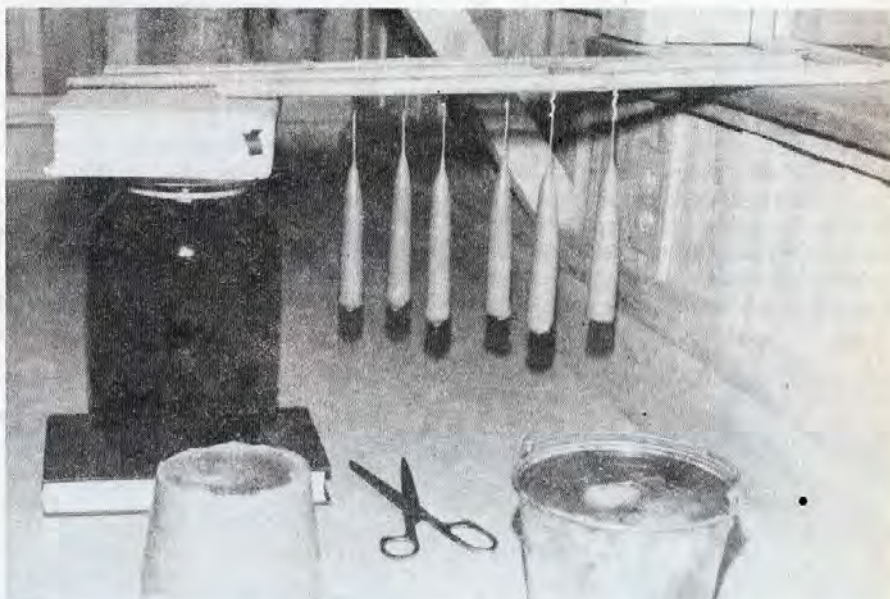
Once you've got the wicking, you're ready to go. You'll need a one-pound coffee can for melting the wax, a larger pot to serve as a double-boiler, a container for ice-water, and your kitchen stove. If you want to dip wicks two at a time, instead of singly, then you'll also want some lengths of dowling or bamboo or some such, to tie the wicks to. And, of course, you'll need a couple of pounds of clean, rendered, capings wax.

A hand-made gift with true Christmas spirit, your beeswax tapers will be a unique and welcome present.



With repeated dips into the wax and water baths, our candles gradually take on the traditional tapering form.

Trim the wax drips from the base, give them a couple more finishing dips, and this batch will be ready to go.



From each pound of wax, you can make 10, six-inch tapers, approximately one inch in diameter at the base. I like to have approximately one pound more wax to work with than I expect to make into candles -- three or four pounds is about right for an all-afternoon candle making session. It is not necessary to have enough wax to keep your dipping container completely full. As the level of wax drops, you can add hot water to the can to maintain depth. The wax will float above the water, of course, and what's left over will be all the finer for the washing it gets during the dipping process.

Since wax is so highly flammable, it should never be melted over direct heat. Instead, set the coffee can inside a larger pot, fill the can with wax chunks and the pot with water, and let the wax melt inside the double-boiler arrangement. This way, the wax will not get hotter than the boiling point of water, which is safe, and also happens to be within the dipping temperature range. After the wax is completely melted, adjust the heat so that the water is just barely simmering. Have extra chunks of wax cut up, ready to be added to the can as the level of wax decreases, during the dipping process. Set a con-

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Santa, Get Busy!

By Ann W. Harman
Laytonsville, MD

WHEN I TURNED THE calendar page recently, I discovered that Christmas was not far away. Now is the time to make careful lists of beekeeping friends and relatives and decide what appropriate gift will bring smiles of delight. Last year everyone got home-made delicacies which, in the surperabundance of Christmas, either got trodden upon or forgotten until they turned into miserable lumps in the bottom of an overlooked cookie tin. This year will be the Year for Elegance. My beekeeping friends and relatives will receive something truly elegant, different, artistic.

With this challenge, I set forth on my shopping errands. My first stop was the Old World Gift Shoppe which seemed to be crammed with bric-a-brac. I explained that I was looking for something frivolous and delicate, something made of china, something with bees. I was cheerfully directed to the latest shipment of gifts: beautiful china swans in four different sizes. I thought I had said bees, not swans. No bees. The shop was devoid of bee-decorated items. But bird lovers would have been delighted with the selections. Hundreds of items were festooned with cute little wrens, perky chickadees, and flamboyant cardinals. Birds seemed to be dominating the decorations. Actually, I

am not being fair to bird lovers. The choice of birds is really very limited. When was the last time you saw a turkey vulture on a china plate?

The next stop was The China Cupboard where I requested an attractive, elegant honey pot. I was shown a very nice pot with JAM emblazoned across its middle. Very nice, but perhaps there is a jam pot that says HONEY? I received a look reserved for those who seem to be completely daft.

On to the needlecraft shop where I hoped to find a nice pillow that would give comfort to a tired beekeeper. After perusing the selection of needlepoint pillow kits, I found it difficult to understand why anyone would rest his back on a pillow embroidered with a big, fierce shaggy lion and not a little, bitty, fuzzy bee. No honeybee designs could be found there.

A long time ago I gave up looking for Christmas cards with bees, but this year I did think I could find a box of note paper with bees and skeps or bees and flowers. Bee-decorated note paper would make a nice gift for a beekeeper's wife. No such luck. Butterflies were the closest thing to bees that seemed to be printed on sta-

tionery. Perhaps bees should develop more colorful wings.

Although success with my shopping list was rapidly diminishing, I was determined not to give up. If elegant gifts were not to be found, then I will have to choose a practical gift then add an elegant touch. Thus it was that I entered a dusty shop that advertised engraving. The engraver suggested Old English style of lettering for a nice masculine touch in a monogram. When I held out the hive tool to be engraved, the engraver exclaimed, in astonishment, "Uncle Henry had one of those in his tool kit -- nail puller he called it. His wasn't monogrammed." It didn't seem worth the trouble explaining my futile search for elegance in beekeeping gifts. I merely said, "Put the monogram there in the center and I'll be back in a week." During that week I managed to embroider a clover blossom and bee on the pocket of a pair of coveralls. That will look quite elegant until it acquires a layer of propolis and wax.

I find I am rapidly running out of ideas. What can be done with a veil or a smoker to make it into a truly elegant and distinctive gift?

Santa, get busy!

One View of Apimondia

By Leonore M. Bravo
San Francisco, CA

OUR TRIP TO APIMONDIA was fueled by plain curiosity, which is probably a common motivator of a lot of hobby beekeeping, my beekeeping partner's love of fairs and exhibitions of all sorts, especially those with bees, and a desire to meet our counterparts from other countries. And let's not overlook the truth uttered by one Apimondia speaker, "your love of bees has brought you all together here".

Now to the beginning of the unique parts of our experience. While visiting the souvenir shop at the San Francisco Zoo I bought a package of 250 insect stamps hoping to find a honeybee among them. There were four small ones of stylized design from Romania. Besides attractive packages for honey they had attractive

Our guide Mr. Halmay and Lois Dubay in the backyard at Dokki.



packaging for their bee by products such as propolis, pollen, and royal jelly preparations for health and beauty. Then there was one handsome one from Sharjah which produced an equally handsome wasp stamp.

I learned through the *Britannica* that Sharjah was the largest and most important of the "Trucial States" on what had been called the Pirate Coast before they entered into treaties with the British in 1835 which restricted war between the six to eight sheiks of the area. Originally the treaties extended for only six months to cover the pearling season, but it finally became clear to the sheiks that peace was to their advantage and a permanent peace treaty was signed in 1835 which accepted British intervention in case of aggression at sea.

In the telephone directory I found one ad in Arabic which led me to the Palmair Travel service which serves the Arab world. The owner told me that Sharjah and Dubai were two cities across the water from each other like Oakland and San Francisco and that the Sheik of Sharjah was a naturalist. That he had very large farms and a private zoo, and that it was no surprise that he would print a honeybee stamp. And yes, he could sell me tickets to Dubai and I could go and see for myself. He sent me to the Egyptian Travel service to make land arrangements since Cairo is the departure place for Africa and the Middle East.

Because we had allotted only 21 days for our trip and our plane arrangements to and from Greece were inflexible our Egyptian advisor, Mr. Samir Masry, upon hearing of our interest in agriculture and in apiculture in particular, counselled us that it would be better if we spent our limited time in Egypt. He arranged an itinerary for us which took in the two museums of Agriculture in Cairo, the ancient and the modern, which had a room devoted to apiculture, the apicultural experiment station at Dokki, and a trip along the Nile from Luxor to Cairo where we observed cultivation of traditional crops largely with ox-drawn plows. Some mechanized equipment was noticed. I thought that it was lucky that they were still using traditional methods given the tremendous population needing work. Both there and around Luxor the men working with their animals, the women with their traditional black veils carrying things on their heads, people grouped around their little dwellings with their animals or riding their donkeys along the roads seemed like a page out of history!

And of course we visited the famous Egyptian tombs at Abu Simel and Luxor and the Pyramid and Sphinx at Ghiza and

the Egyptian Museum in Cairo. There were plants and animals everywhere in these exhibits for the reason that agriculture is always the basis of life.

In all of the tombs that we visited there were pictures of all the things that the deceased would need in the next world as well as pictures and/or statues of the people who would perform necessary services. The "answerers", they were called. The Egyptians believed that to paint things was to cause them to materialize when needed. Some were shown hoeing, some planting, others harvesting. I cannot say with honesty that I saw any of the clay beehives which were used in antiquity as well as now.

Mr Halmay, assistant to Dr. Ahmed Elbadawy Monein, director of the experimental station at Dokki, who was our genial host (Dr. Monein having already left for Athens) told us that there were now one million Langstroth hives and up to two million normal hives in the country, which is what the clay hives are called.

The pictures of stylized bees with which we are familiar in the literature on beekeeping in antiquity always appeared in the tombs of the pharaohs, not, as I supposed because bees were so important, even though they may have been, but because of the hieroglyphics of the situation. Pointing to a cartouche, which is what the group of pictures that stand for a person's name is called, in the tomb of Tutmosis in the Valley of the Kings near Luxor, I asked our very intelligent and knowledgeable guide, Mr. Mageeb, what that was pointing to the bee. He asked if I

understood hieroglyphics and when I said yes, he drew in my notebook an inverted bowl and one in the opposite orientation, a feather and a bee. He explained that the feather said "beet", the bee "newsuit" and the bowl stood for Egypt. Upper Egypt, if turned up, lower Egypt if turned down. "Beet-newsuit" said master or ruler and the bowl as indicated, Egypt. So that part of the cartouche indicated that the tomb was that of a ruler of Egypt. Symbols in the rest of the cartouche indicated which ruler it might be.

The cartouche of Ramses II appeared more often than any other. It was explained that he was a plagiarist who went around putting his cartouche on the work of others at times.

Ramses II was a very productive and ambiguous man. And he thought big. The great temple built at his direction at Abu Simbel is carved into the rock and stands 33 meters high and 38 meters wide. The facade shows four huge statues of Ramses II each 20 meters high. Over the statues are inscribed his names and titles. A row of monkeys worshipping the sunrise are carved on top. Smaller statues of the principal members of the pharaoh's family can be found around the huge feet of the four seated Ramses statues.

I asked Mr. Mageeb why they used the symbol of the bee, why not something else that had the same sound. He looked at me like I didn't know as much about hieroglyphics as I should. Notwithstanding, I am certain that they used the bee also because it was important.

(Left to right) Lois Dubay, Helmy Abbas Selim (Mr. Halmay), Mohamed Ebrahim Abuzeid and "Sammy", our guide, at Dokki.



Just after that I pointed out to Louis Dubay what looked like the nests of mud-daubing wasps on the ceiling near the entrance of the tomb. He took a quick glance and said "swallows". That's how big they were. Mr. Mageeb said that they were indeed wasp nests. The tomb had been left open for a time by robbers and before coming under the protection of the government wasps had made a home there.

The landscape was the most barren that I have ever seen on earth. I think that the wasps must have had to fly five miles at least to the edge of land watered by the Nile for their water supply. In the apicultural exhibit in the modern agricultural museum in Cairo we saw a bait hive for wasps. It looked like a beehive into which frames of brood would be placed. By means of what looked something like our queen excluders the wasps were prevented from leaving. The entrances to the hives in the apiary at Dokki were very small to enable the bees to defend themselves against the wasps. And as soon as Mr. Halmay opened the hive at Dokki, the wasps came. Louis picked one up by the wings, ending its career, so that I could examine it.

But back to the bees' symbols. All of those that I saw in the tombs simply indicated "ruler", as explained. Carved on the columns of the Great Festival Temple of Tuthmosis at Karnack were all the plants and animals that were important in the Egyptian economy. There were lots of bees. In many parts of the ancient world bees were regarded as relatively more important as a source of man's most concentrated sweet than now. There is a lot of sugar growing around Luxor and we saw hundreds of acres of it as we travelled by train along the Nile.

Other crops noticed were sunflowers, cotton, millet, alfalfa and date palms. Plant exhibits in the museum of ancient agriculture included pressed specimens of willow, acacia, delphinium, chrysanthemum, olives, figs celery, lettuce, watermelon, cucumber, safflower, lentils, vetch, lupin, clover, barley, wheat millet and sycamore.

Acacia and sycamore were considered "sacred plants". They were used for plows, hoes and other agricultural tools. I imagine that the very sacrality of the wood would have made them sacred. Furthermore the Ark of the Covenant as well as the furniture of the Tabernacle are said to have been made of the wood of *A. seyal* which yields the shittim wood of the Bible. And because this wood was incorruptible it was used for ages by the Egyptians to make coffins for the burial of their kings.

One of the most interesting objects in the King Tut exhibit in Cairo was a cot that he took out into the desert when he went hunting. It was built in three sections each about 2½ feet square made of a wooden frame of acacia wood about three inches wide caned with woven papyrus. The three sections which had very short legs were arranged to fold over for ease in carrying.

A specimen of Acacia growing near the temple at Abu Simel was being visited by many insects including what appeared to be bees of some species.

Papyrus was a very important plant, especially before they learned other methods of making paper from the Chinese. There were all kinds of baskets and mats and other objects made of it in the ancient museum in addition to the famous papyri from which we have learned so much. Symbolically it stood for the Upper Nile or Upper Egypt whereas the Lotus stood for the Lower Nile or Lower Egypt. A stylized carving of the foliage of the plants intertwined is found frequently. It symbolizes the joining of upper and lower Egypt. We visited the Papyrus Institute on the Nile where they have the two plants growing together as they do in front of the Egyptian Museum. There we were able to observe a demonstration of the manufacture of sheets of papyrus from the plant to the dry paper.

Plants observed for which I have no English equivalents include Centaurea and Balanites, a shrub belonging to the pea family which was valuable for oil.

People working a natural (clay) hive and changing combs to standard or Langstroth hives. Note frames.



The Sharjah honeybee stamp is the jewel of my small collection of honeybee stamps right now.

Sesbania, also a member of the pea family, grown in shrub and small tree size. The chief floral sources for bees in Egypt now are citrus, clover, alfalfa, cotton, beans, peas, and flowering trees, especially of the pea family including Acacia.

A map at Apimondia showing the acacia forests of Hungary and many references to this plant as a bee forage plant in Apimondia papers indicates that it has world-wide significance as a bee plant.

Egypt exports 200 tons of honey and 30 tons of wax to West Germany and the Arab countries each year. It also exports queen bees and other beekeeping supplies. They use hybrids of Italian and Egyptian stock and Carniolan and Egyptian cross. This owing to the fact that Egyptian bee, described as yellow and reddish and small and mean by Mr. Halmay, has a bad character. They have very little city or

hobby beekeeping for this reason. Also, the population in urban areas looks to be too dense to permit it. Whereas the first generation from crossing will be gentle the Egyptian character seems to come out in the next generations.

Our guide and interpreter was nervous about accompanying us into the beeyard at Dokki. We were warned that the bees were mean and Mr. Halmai got himself suited up with a far better and stronger veil outfit than we use. He stoked his ample smoker well. Louis went, as is his custom, in his shirtsleeves and pronounced the bees quite gentle. They didn't offer to sting any of us, much to the amazement of our guide.

Later as we listened to papers from all over the world at Apimondia it seemed to me that the principal problem, other than disease and the varroa mite and pesticides in the temperate zones, was the shrinking of bee forage due to modern agricultural technology. The principal problems near the equator and in the tropics were how to handle their free-flying bees; that is, how to hive and control them and how to reduce their tendency to be mean.

Besides exporting honey, wax, queens and beekeeping supplies the Egyptians are also the exporters of knowledge and information about beekeeping in the Arab world. When I talked with Dr. Monein in Athens he verified this opinion and told me that he had introduced modern beekeeping methods in Iraq. Various informational pamphlets on beekeeping are printed in Dokki, in the same way that our Agricultural Extension Service provides the same here.

The Bee World, a bee journal, is printed here.

The apiary at Dokki had about 50 Langstroth hives with supers full of honey at the time that we were there. The hives were up on stands but there was no protection around the legs against ants. The whole apiary was covered by an arbor of mulberry trees for protection from the sun. Quite possibly the mulberry trees were being exploited for silk worm culture as we saw a big exhibit on silk culture in the modern agricultural museum. As mentioned earlier, wasps were a big problem and hives had small entrances for this reason. A faucet was left dripping for water.

There were quite a few queen cells, some of which had been "caged" with a device that looked like a short section of tomato paste can covered over at one end with a convex wire of tea strainer mesh. The developing queen cells could be fed through the wire by the workers until it was convenient to remove them.

We were presented with a large can of their clover with an overlay of something like bean. It simply could have been the result of the clover growing on soil of different chemical composition than what we're used to. Vegetables and fruits such as lettuce and watermelon also had a "different mineral taste" from what we are accustomed to here.

With many apologies and regrets we had to leave the honey behind as we had no way to carry it, but it just about saved my life! I was getting sick with a cold that morning and by means of drinking a lot of the delicious exotic teas that were served to us by Mr. Halmai with plenty of honey I seemed to get strong and was able to continue our really gruelling itinerary without missing anything. What I really treasure is a small jar of date palm honey which came from New Valley which is about 300 miles west of Luxor. British customs were very suspicious of my knapsack in which I had four jars of honey with metal lids. They put me through the detector several times and were especially

suspicious of this very dark heavy material with no label, just a couple of lines of arabic writing on it. They opened it carefully and smelled it gingerly. They finally let me go. To me it is one of the most delicious honeys that I've tasted.

Well, our curiosity led to a lot of learning about this world in general as well as the world of beekeeping. The Apimondia exhibits deserve a paper at least this long as do our counterparts, the hobbyists, especially from Greece, Britain and France that we talked with not only that but it was very stimulating to talk to the people who presented papers. Being a botanist under all else I especially enjoyed the papers dealing with bee botany of which there were many. Besides that, I have a lot of insect stamps to trade for some of honeybees although stamp collecting had never been a great interest of mine before.

As Louis often says, usually when back from hiving a swarm in some unusual place, "You never know where the bees will take you."

Kimberly Arnevik, American Honey Queen, Buzzes Through Southern California Promoting Honey

KIMBERLY ARNEVIK, 1979 American Honey Queen, spent four of the busiest days of her reign in Los Angeles doing honey promotion. Kim is truly a great representative for the honey industry and did a super job promoting honey. She arrived at her hosts, Chase and Vi Walker of the Los Angeles Honey Co., on Friday, September 21, 1979, directly from Athens, Greece where she attended the International Bee Congress representing U.S. beekeepers. On Saturday and Sunday she attended the Los Angeles County Fair where she promoted honey in the exhibits, rode in parades, was interviewed on tape for broadcast over 50 radio stations on the farm news and also interviewed for direct broadcast from the fair grounds. The Los Angeles County Fair is the largest county fair in the nation.

Kimberly, through the California Honey Advisory Board, spent one hour on KNX/CBS Food News with well-known chefs and commentators Jackie Olden and Don Fitzgerald. They were delighted to have Kim as a guest on honey on their award-winning show. Over 500 consumers have sent for copies of the honey recipes given on the air by Kim.

Tuesday, Kim appeared on Channel 6/TV for a 10 minute interview on honey and bees. Although some questions were statistical about U.S. beekeeping, Kim

acted in a "queenly" fashion and answered all questions.

Queen Kim's last visit was to Knott's Berry Farm in Buena Park. In the Berry Mart Kim promoted honey and had publicity photos taken with the honey display. So her visit to Southern California was not all work and no play, she did get to visit the Knott's fun park and even tried out several rides.



Beehive Ventilation

"I feel I have stumbled onto something that will completely solve the problem of condensed moisture in the hive."

By M. H. Yancey
Smithville, Ark.

THERE HAS BEEN a lot said, and there is yet a lot to be said, I am sure, concerning the proper way to ventilate beehives both in the summer and in the winter. Many methods have been used to some advantage but none have proved to be the perfect answer, especially to combat the moisture problem inside the hive during the winter.

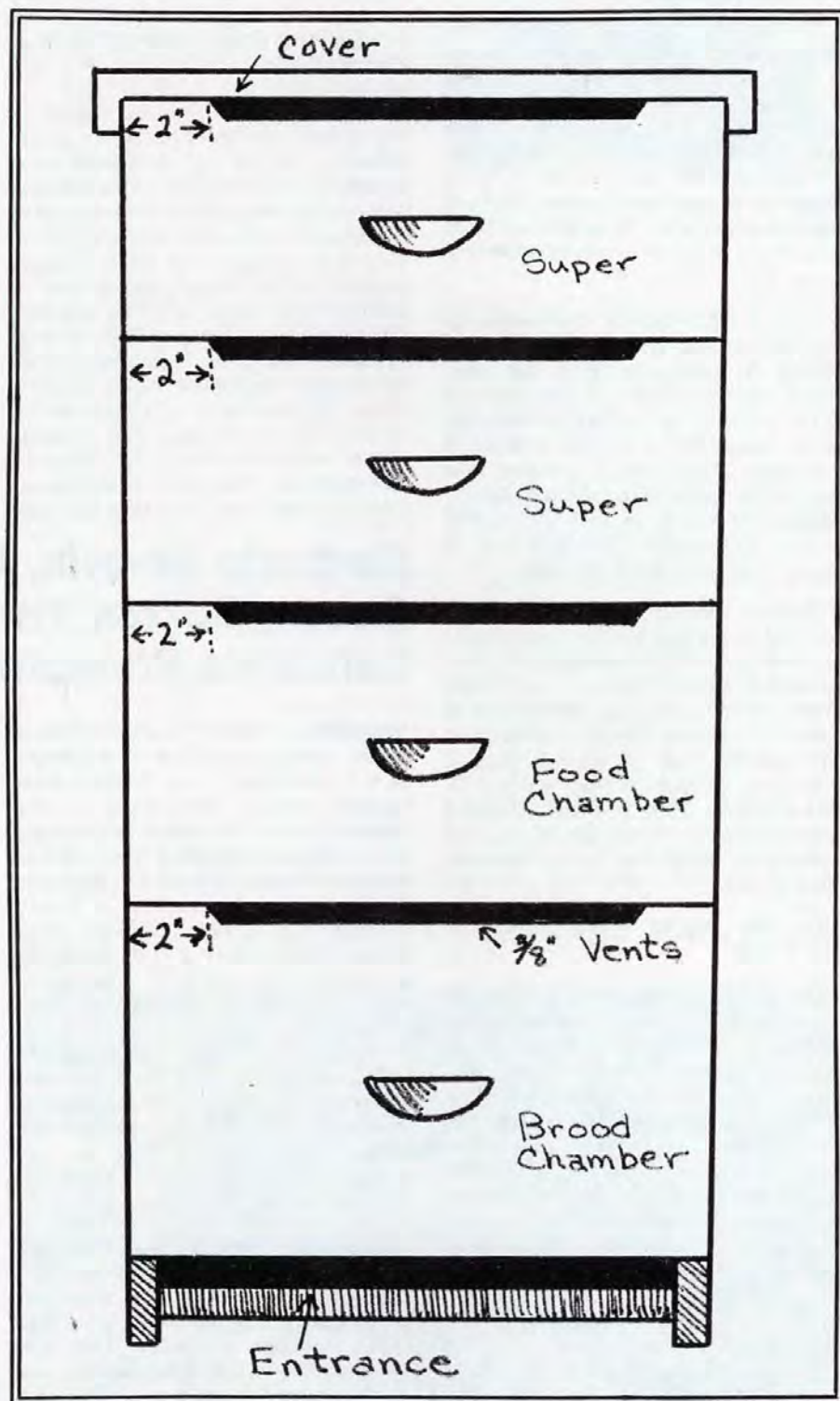
I have tried most all the different versions; some may be of limited value, but the majority are totally worthless.

It has been standard procedure over the years to drill a $\frac{3}{4}$ inch hole in the end of the brood box which is usually left open during the winter for moisture to escape; this lets in some air, but lets out very little moisture -- the reason being -- the hole is usually drilled directly below the handhold and is four and a half inches or so from the top of the brood box and twelve to fourteen inches or more from the top of the hive, if there is a couple of supers on top that are not drilled.

To be effective any ventilation must be at the top of the hive; because that is where the moisture from the body heat of the bees accumulates. If there is no place at this point for the moisture to escape and there is not enough air circulation here to carry the moisture away this moisture then condenses into little droplets and rains right back down through the cluster.

A lot of beekeepers are finally waking up to the fact that moisture is what kills their bees in the winter time, and not cold weather or starvation. Yet, you still hear strong arguments in favor of the old metal covered telescopic top cover. I used to use them --- also an inner cover --- and all I ever found the inner cover good for is to collect a big wad of ants between them and the outer cover. The metal covered top is a top notch vapor barrier and about the only purpose it serves over any other type top is what I just mentioned in the above paragraph.

Many a time when the weather warmed up after a cold spell I have gone out to



check on some of my colonies when they were flying and when I found they were not flying, at least some of them, I investigated and I suppose you know what I found. They were very dead. Not from cold or starvation because there were

plenty of moldy combs full of honey with a half bushel of soggy, smelly bees wedged in between. It didn't take me long to wake up to what was going on and I threw those old hive tops and inner covers away and started experimenting to try to find

something to eliminate the moisture problem. My first venture in this direction was to build all my hive tops similar to the single flat top that most migratory beekeepers use, with one exception. Where most other hive tops are solid this one has a 3½ inch ridge board down the center with a ¼ inch groove in the bottom (center). The two main hive cover boards are eight inches wide, and when nailed together properly there is a ¾ inch crack between them which the groove in the ridge board fits over. When the ridge board has been nailed in place there is a ¾ x ½ inch vent at each end of the cover.

I will not go into detail on building this cover although it has saved me quite a few colonies of bees. I feel that I have stumbled onto something that will completely solve the problem of condensed moisture in the hive. I say stumbled onto something, because that is exactly how it happened. I had no intentions at all of doing the thing that I did that caused me to realize that I still was not giving my bees enough ventilation, where it was needed the most.

Some beekeepers stagger the supers back ¾ inches or so to give ventilation in the summer time; others may increase the hive entrance one way or another or some may use both of these methods to ventilate their hives. There is the hole in the end of the box variety that I mentioned—maybe there are others—but when I first discovered the lack of ventilation I was giving my bees in the winter I was using a ½ inch thick strip between brood boxes and supers for summer ventilation. These wood strips were long enough to reach across the ends of the box. They were ¾ inches wide and, as I said, ½ inch thick. One strip was used at each end of the brood box, or super, and placed about two inches back from the edge so there would be an opening all the way around. (This method works, but you can imagine the buildup of comb between the two boxes). One spring I was checking the bees and I discovered a colony had not had the strips removed as they should have been in the fall. I was surprised to find that they were strong and did not have as many dead bees in front of the hive as the other colonies near by. The same spring, in another yard, I found another colony I had missed. They were in about the same condition as the first; strong, with far less die-off than the other colonies. This past spring I was working some colonies for a neighbor and I discovered one of his hives that was still jacked up with these strips. Those bees were very strong, as mine had been. I also use these same strips and raised the top cover which I believe is what really made the difference. This made me realize that I had my vents

in my covers in the right place but they were too small to let the air circulate through and carry the moisture out. Then something happened this spring after the snow and ice had melted off that, as far as I am concerned, put a definite clincher on my theory.

While checking for the usual problems early in the spring I found two hive covers that had been tampered with. I have these bees (seven colonies) in a sparsely timbered woodlot which the owner turns a few head of cattle into every now and then. Rubbing around those hives they had pushed the covers off. One was not completely off but was pushed back on the hive and was raised up at one end a couple of inches. The other cover was knocked completely off and was lying on the ground. When I saw this I just knew that the bees, especially in this one colony, would be dead. But not so, they were very much alive, and not over half as many dead bees out front as had the other hives.

In June our son, who lives in Clarksville, Tennessee and who also keeps bees, was visiting. He told me that this same thing happened to two of his hives and the bees came through in excellent condition.

I am sure that nearly all beekeepers have had this same experience at one time or another but I have never heard of anyone who took advantage of the situation. In most cases the covers are promptly put back in place to protect the bees from the ravages of nature and no more is ever thought about the situation. This is what I used to do but usually the covers had not been off long when I discovered them. In this case they had been off all winter; so long, in fact, that the top bars had bleached out due to the weather. Otherwise I still might not have gotten the message.

Some northern beekeepers might have the idea that we don't have any cold weather this far south. Don't kid yourself. The past few winters have been very severe. Temperatures for the last two or three winters have ranged from 20 degrees F. down to 0 degrees F., especially at night, for six weeks. Snow and ice are in abundance all this time.

I am in agreement with Charles Mraz that the colder the weather the more moisture accumulation there is in the hive; therefore, more ventilation is needed to get rid of this moisture.

I am sending a sketch of the hive bodies I am now experimenting with which have proven to be ideal for summer ventilation and a great aid in swarm prevention.

Brood boxes and supers can be separated much easier than the original boxes. Less damage is done to the box in separating.

For winterizing these hives a piece of 1½ inch tape such as masking or duct tape is placed over all the vents except the top one. Leave this one open for ventilation.

If you have bees that go around with their stingers hanging out and their nose all out of joint it may be advisable to have your hives several feet apart because there will be bees sticking out all the cracks. A few puffs of smoke will usually take care of the situation. I have not had any problems and some of my bees are only a couple of feet apart. Another thing that is very important; do not take the tape off these vents until you are sure that the weather has warmed up sufficiently in the spring and the bees have built up enough that brood rearing will not be retarded due to too much ventilation in the wrong place at this time of the year.

SCIENTIST ADDED TO USDA LAB— MADISON

YOLANDA I. LEHNER transferred to the North Central States Bee Research Laboratory, Madison, Wis. in July 1979. She will be working in the area of honeybee physiology. Her research responsibilities will include the physiology of wintering and longevity of honeybees. Certainly her considerable expertise in biochemical analyses will greatly enhance the capability of the entire laboratory.

Ms. Lehner was born October 19, 1942 and graduated from Stanford University in 1964. She received her M.S. in Zoology from the University of Arizona in 1969. That same year she began working at the Carl Hayden Bee Research Center in Tucson, Arizona. While at the Tucson Laboratory, she was involved in research on the metabolism of sugars and amino acids in bees. She also worked on insecticide problems, especially PennCap-M, for honeybees. She is now in the process of completing her Ph.D. in Agricultural Biochemistry and Nutrition from the University of Arizona in absentia.

While in Tucson, Ms. Lehner co-authored 16 scientific papers. She is a member of the American Association for the Advancement of Science and the Western Society of Naturalists. In Madison, she is an Honorary Fellow in the Department of Entomology, University of Wisconsin-Madison.

Honey Flows, Major and Minor

By Howard J. Rock
Dale, Wisconsin

A FORMER EDITOR of *Gleanings* was fond of saying, "Be sure that your saucer is right side up when it begins to rain nectar." Good basic advice but it is a fact that sometimes a honey flow comes on and we are taken by surprise. The flow can be and often is major but most times the flow will be minor or, as we say, a build-up or conditioning flow.

Most surprise honey flows occur in the spring from wild plants. Depending on the region of the country you are in, the potential can be great or small.

After several seasons in the South, I was no longer surprised by a substantial build-up flow that might occur in coastal South Carolina or southeast Georgia. J. J. Wilder, the foremost expert on beekeeping in the southeast in his day, always advised having each hive supered early as even he was taken unawares at times.

Here in the North, especially in this part of Wisconsin that is strongly influenced by the vagaries of the winds off Lake Michigan, the mean temperature may be just a few degrees lower than normal, but oh what a difference it makes in production. The 1965 season was like that. The bees wintered ideally that winter and as the season advanced, everything pointed to a satisfactory crop of unusual quality. The native basswood trees were loaded with large healthy blossoms that were the color of butter, just what an experienced beekeeper dreams about. There was no honey flow as the mean temperature was slightly below normal. On only two afternoons did the bees work the blossoms and then only enough to encourage brood rearing.

The hives were bursting with bees and brood and yet not one colony in a 100 hive section comb apiary made the slightest attempt to swarm, a most noteworthy occurrence. Apparently the bees knew a lot more than I did about their environment. The coolness persisted into the middle of August, I put on not one section super, and I was fortunate that late August was warm enough for these huge colonies to fill their three chamber brood nests for a successful winter.

To my chagrin, a fellow beekeeper, about twenty five miles northwest of me and producing extracted honey, harvested

"Many would-be sideliners
beekeepers have an opportunity
right in their own
backyard?"

8,000 pounds of the highest quality basswood honey that it was ever my good fortune to taste. Although I struck out that season, I did learn that bees placed on lighter soils will make a satisfactory crop during seasons of slightly below normal mean temperatures and that was my neighbor beekeeper's advantage. Conversely, during hot dry seasons, I held a large advantage over him as my bees were located on heavy black loam and clay. Migratory beekeepers, please note.

The following season of '66 the bees entered springtime in optimal condition, further stimulated by good weather during the early flow from willows. Then the dandelions came on in great profusion, waste places and lawn being yellow with this most useful plant which is at the same time the bane of the model home owner. But to all beekeepers' dismay, the weather turned to very cold temperatures and at times, tempestuous rain. My spirits sagged as I fully expected a repeat of the previous season. One day, loafing in the drugstore, I eavesdropped on the conversation of two dairy farmers. One of them was in his early seventies and had seen many seasons come and go. The other was very disheartened and questioned the wisdom of planting any corn that year. The older man reminded him of the "amber days" which to his wise, old eyes had appeared very propitious for a very hot and highly productive summer. I confess to know nothing about "amber days" but if you want to check on that gentleman's weather predictions, just check the meteorological records for "this neck of the woods."

I certainly profited from that season. In late May and the first week in June, the red willows in the big Dale swamp burst out with large white blossoms tinged with pink. Everyone commented on their profusion. My bees worked as hard as during the best of a basswood flow and I realized a twenty pound surplus from this source. It was the one and only time I had such an experience in forty years as a beekeeper. That all colonies were perfectly conditioned is attested to by the fact that half of my section producing colonies perfectly finished eight and nine supers. At least five colonies produced eleven supers of Wisconsin fancy comb from white pasture and white sweet clover and it was the hot-

test June and July that I ever experienced, perhaps because of the high humidity. Strangely, the first week of August the weather turned cool and there was little or no honey flow from second cutting alfalfa, although it was most abundant.

It is by keeping records and analyzing the facts that one learns what it takes to produce a major honey flow from pasture white Dutch clover. This plant has been written off many times, but when conditions are right over a two year period, it is still around to furnish us a most happy surprise. There is no better honey, anywhere!

Honeydew flows are usually considered an abomination but on one occasion I was most grateful for a heavy flow produced by aphids from the scrub oaks of northern Minnesota. At the time our modified two queen colonies were bursting with bees and brood and not more than five pounds of honey left in any hive. No problem, you say, just get around fast with the dry sugar. There was a depression on, there were almost two thousand colonies to feed and there was no money to buy sugar with, cheap as it was. Try to sleep if you ever find yourself in such a predicament! Then the aphids came to our rescue and secreted tons of dark brown, very sweet honeydew. It transformed our yards into prosperous colonies that could easily await the sweet clover flow of early July. Such an experience could go a long way in making a born again Christian out of the most incorrigible pessimist.

However, I will agree that honeydew is largely a detriment. I only have to recall a visit to an apiary in the high country of New Mexico where the finest snow berry honey is degraded by the honeydew from the aspens, about three years out of five. If it weren't for that aspen honeydew I no doubt would have been a producer of cut comb honey in that same region instead of coming home to Wisconsin. I understand, although I have no direct observation, that there are many such regions in the high country of the Rockies. I wish it weren't so as snow berry honey in the comb is an adventure for any honey connoisseur.

One of the heaviest honey producing regions I ever worked in was the Yakima Valley of Washington. I doubt if any

(Continued on page 644)

Strictly Backlot

Carl Callenbach
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On Observation Hives (and other Obsessions)

UP ROUTE 14 ON the western side of Seneca Lake, maybe fifteen years ago, there was (still is?) a delightful little roadside store I passed four or so times each year on my way from Penn State to a teaching position in upstate New York. I can't recall why we made the initial stop. Perhaps the magnificent sea of apple blossoms atop the rolling hills to the left and the waves of grape vines flowing down to the lake shore on the right pulled us over and in. Maybe, simply, it was a warm spring day and we wished a lemonade.

In the middle of the store, extending almost from floor to ceiling, was a huge observation hive, probably 10 or 12 frames, two wide, full of bees, brood and honey, or so I remember it. And for several years during vacation breaks, I stopped often enough and long enough to nurture and embryonic lunacy that would later evolve into an almost-adult stage and be labeled backlot beekeeper.

After the first look, I began reading about honeybees, voraciously, a part of the usual behavior pattern I play out: dissonance (i. e., the excitement and interest in honeybees triggered by the observation hive) and catharsis (vicariously experiencing keeping honeybees by **reading** and **talking** about keeping honeybees). If I read enough and if I talk enough, sometimes the dissonance goes away, often the desire for the new experience gradually diminishes. For example, I've never bought a burro or managed an ostrich ranch; on the other hand, I once acted, bought an adult bloodhound and kept him for two weeks, just long enough to accommodate his devouring the chair cushions in the living room.

Talking (and reading), as they say, is cheap(er)?

Only the honeybee infatuation, like AFB, didn't go away. Eight or ten years later (the dissonance between two points in one's life is very seldom a straight line) at a nearby Fall Harvest Festival, amidst the apple cider, winter squash, sausage sandwiches and Pennsylvania Dutch pastries, I bumped into another observation hive, this time of the standard 2-frame commercial variety (See Photo

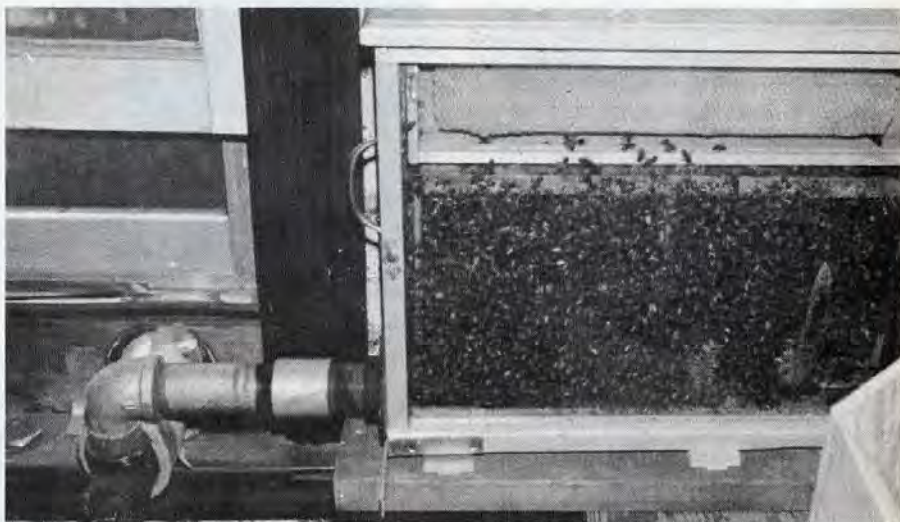


Figure 1

1)---with commercial beekeeper attached. He was from eastern Pennsylvania and talked in terms of tons of honey with my friends while I, incapable of visualizing a ton of honey and interested in less worldly phenomena, carefully examined his little observation hive. I was hooked.

Going home I announced I was going to build an observation hive which would serve as a room divider. The commercial hive was much too small. I would strive to construct a hive that would fall somewhere between the structure in my memory of ten years before and the commercial variety I'd checked out at the Fair, something around six frames, two wide, would do, encased in a walnut-stained frame.

The observation hive was completed, the bees came---"Welcome to lunacy"---they buzzed and stung me three times through the wire encasing the shipping cage. Too soon **bee space**, an abstract concept I'd---in my reading---ranked right up there with **sky hook** became a reality along with, a bit later, wax moths. The couple of frames drawn out by the bees were difficult to observe because of the burr comb attached to the glass. And the wax moths a month or so later made an odious mess of everything.

So much for my first observation hive. I dismantled the hive, salvaging what frames and foundation I could; I used the large plastic sides for two new garden cold frames. My brother burned the rest in his wood stove.

So much for ethereal room dividers. I ordered a commercial observation hive and made arrangements to buy a frame of bees, brood and queen from a friend's beekeeper acquaintance.

I continue to think small and, in retrospect, I'm thankful the room divider didn't flourish. I had built in no capacity for manipulation of frames, honey, brood or bees. Once loaded with bees and honey, it would have been impossibly cumbersome: I could not have controlled the number of bees within the hive, and we really didn't need a swarm pouring out the pipe window exit (See Photo 2) into College Avenue.

I've made some adjustments in the commercial observation hive that permit my keeping bees in it year around. The exit from the hive and window is galvanized pipe. This 1 1/2 inch pipe, slanted and dipp-

Figure 2



ing slightly from hive body to exit, facilitates plenty of ventilation. The pipe sleeve (See Photo 1) makes separating the hive from the exiting pipe relatively easy. Only a few bees, usually, fly loose, and they head for the screened window.

Ease of separation is important for two reasons. My present teaching position takes me into public elementary school classrooms, and I sometimes take my hive with me, or lend it to a student teacher for a day. Too, the buildup for bees in the observation hive requires my taking the hive two or three times each summer to a small yard of bees I have several miles from my home. There I use a trick I read about in Charles Koover's column in *Gleanings*: I spray the bees on the frame from the observation hive with diluted eucalyptus oil and then do the same with the frames from the nuc or hive with which I want to combine the extra bees—being very careful not to brush or shake the queen from the observation hive frame into the nuc or regular hive.

If I'm in no hurry, I take the observation hive to the bee lot, perch it over a (preferably) weak hive, open the exit and then return in a couple of days in the afternoon when many of the bees are in the field. I close up the hive and bring it home. The returning field bees relocate in the weak hive. This management technique is easier and far less drastic than the former. But when I want to drastically reduce the number of bees, I go to the medicine cabinet for the eucalyptus oil.

Another adjustment: When the observation hive is not being, what? observed, two pieces of fiber board or other material are held in place against the glass or plastic with wing nuts (See Photo 3). This limits the heat loss and, combined with the large entrance for ventilation and occasional feeding, has enabled me to keep bees (same queen) successfully in the observation hive four successive winters.

For this winter, however, I've prepared a three-frame observation hive (See Photo 4). The frame of bees from the commercial observation hive was placed in the three-frame hive prior to the fall goldenrod and aster flow. I am presently feeding the hive sugar water (See Photo 5) through a screened hole drilled specifically to accommodate a pint feeder. I'm hoping the three frames, more bees and more space, will make it unnecessary for me to feed the hive during the winter. I fed over a gallon of honey to the commercial two frame hive the past two extremely harsh winters.

In the spring I will return the queen and a frame of brood to the original hive so that all the goings-on will be observable.

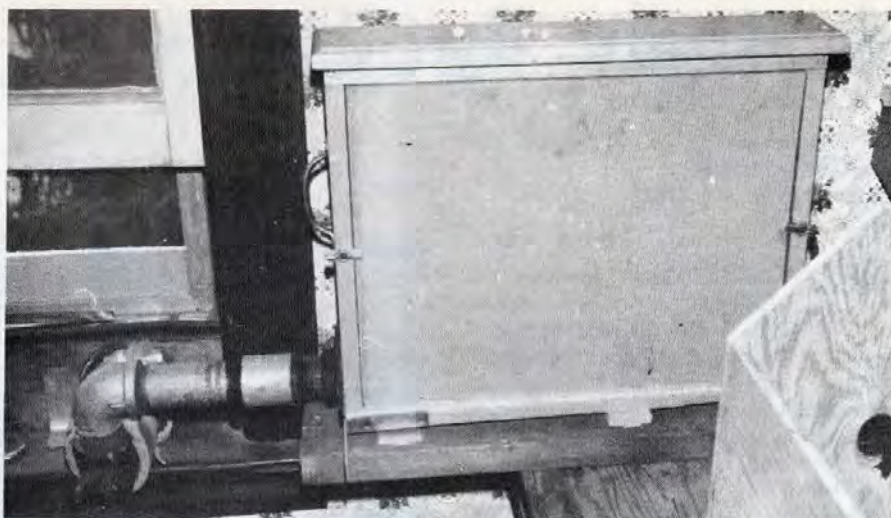


Figure 3

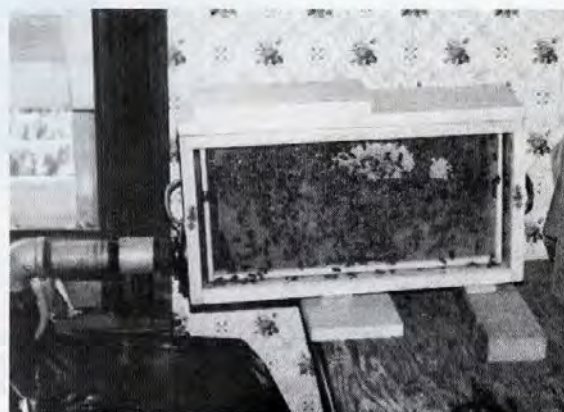


Figure 4

Managing observation hives is not as easy as it might seem to the neophyte and for the backlotter at times, seem a might more trouble than it's worth. Indeed, wintering over an observation hive probably is downright foolish. Why not combine the frame with a strong colony out in the yard?

I believe I'm entitled to a bit of foolishness! I like to stay in touch with my bees throughout the winter. It's somehow mysteriously reassuring to tip away the fiber board on a January afternoon and take a peek. I go away saying to myself,

"They're making it through." And there's something moving about watching the little rascals celebrate a warm February afternoon; an early spring flight, like the wail of Canadian honkers overhead, often sends shivers up my spine.

Reminder: Entries for the **How I Heroically Caught A Swarm Contest** are trickling in! In order to qualify for the grand prize all entries must be in the mail by December 1st. Just send your tall and short tale of swarm catching heroics to me and we'll see what happens.

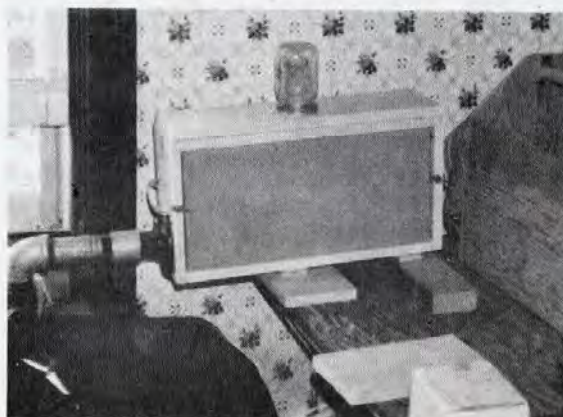


Figure 5

Siftings

By CHARLES MRAZ
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NEWS FROM THE "battlefront". Many beekeepers are not aware of it, but for the past several years a battle has been going on in Germany against the varroa mite on honeybees. This parasite of the Asian bee has adapted itself into the life of the European bee that apparently has no natural immunity or resistance to the mite as does the Asian bee. From a very small infestation, the mite can build up in two or three years to destroy the colony, and there is nothing that seems to stop its relentless progress.

For the past several years, various drugs, vapors, gases, powders, etc. have been tried but so far, nothing has worked well enough to even slow down the spread. Chemicals that kill the mite also kill the bees. The young mites hatch from eggs and develop in the brood of the bees by feeding on the larvae and pupae to either deform or kill them so they cannot develop normally. A very serious problem if this mite ever spreads into the U. S., Central America, or Canada.

A German beekeeper friend is in the middle of this battle and some of his apiaries are infested so he has been giving me a blow by blow description of what is going on there. Some day it may be most important to know about this war here.

Recently, an amateur beekeeper in Germany made the announcement that for \$100,000.00 he would reveal his "secret weapon" on the varroa mite that is safe, cheap and effective. He was offered \$5,000, but turned it down. After some clever detective work of evidence and deduction, the "secret" was revealed, a most interesting story. To me it is most interesting as it just goes to prove again when you run into a problem with bees, the first thing to ask is, "how does Mother Nature do it?" Mother Nature, it seems always has the answer, but most of the time we are too stupid or ignorant or lazy to look for it.

This hobby beekeeper attended a lecture on the forest ant they have in Germany and other parts of Europe that cultivate the aphids or scale insects that produce the delicious "Tannenhonig" or tree honeydew in Europe. This scale insect cannot exist without the ant that protects it in its nest in the winter and from its

enemies in summer when they are "taken out to pasture" in the spruce trees. It is interesting that these insects are not considered pests by the German foresters, but they actually help to propagate them by building cages over the nests made of spruce needles to protect the ants against wild pigs that roam the woods.

In Germany, at least, it is a known fact that some of the birds like the European starling will regularly visit these ant nests and collect several ants in their beaks and then proceed to rub the ants into their feathers. The reason for this appears to be the fact the "formic acid" in the ants is an excellent miticide; it kills the mites and fleas on the birds and they have learned to use them to "delouse" themselves.

While biologists and ornithologists have known this for a long time this hobby beekeeper never heard of it before. It dawned on him that if formic acid in ants kills mites and lice on birds, why not kill mites on bees? Why not indeed!!! He tried it and developed a method for using it apparently with good success. Now that the secret is out, formic acid will no doubt be now used on a large scale where the varroa mite is a problem and eventually perhaps an effective treatment will develop.

It is interesting, I used formic acid years ago, trying it out as a repellent to drive bees out of supers instead of phenol. In fact I still have a lot of it left. It did not work too well as a repellent but it did not seem to hurt the bees when I tried it.

However, I do not believe straight formic acid is the answer. For many years it was believed, even by the scientific community, that bee venom was nothing more than "formic acid". Actually there is no formic acid in bee venom, not a trace. While ant venom may be formic acid, it may actually be more than that. There may be other fractions in this ant venom that may be even more effective and safer than perhaps formic acid, or used as an addition to formic acid. At least for the first time since the varroa mite appeared in the European bees there seems to be some hope for an effective control. It may never be eradicated but if it can at least be controlled safely and at low cost it will be a life saver for the beekeeping industry. More of this may come out in the

literature, but a little "preview" is of great interest, to me at least.

Page 534 in October *Gleanings*, Joe Traynor speaks of disappearing disease as a "behavioral problem". This in itself raises the question, What is a behavioral problem? What causes it? Trying to involve such "stress" problems as weather, honey flow, nectar sources, etc., doesn't mean much. These stress problems are with us and the bees all the time, but they do not always mean there is a disease problem. In fact in Mexico when I saw the serious condition in about 50 colonies of bees it was at the height of a honey flow (tajanal), miles of bloom in every direction, lots of nectar and beautiful weather, warm and sunny, no wind, etc. The weather could not have been nicer and the yard surrounded by miles of nectar. Certainly nothing one could call a "stressful" situation.

Another beekeeper told me he had the identical condition in 1500 colonies of bees he moved to Florida, the bees disappeared during the heavy orange honey flow. While most beekeepers near by averaged 200 lbs. per colony, his bees under the same conditions at the same time averaged only 6 lbs. per colony. With such controls that doesn't point to the excuse of stress and environment conditions. Then what is the reason? The most simple reason I can give is, "The bees are no damn good". Why are they no good? What can one do about it? That is another long story.



"JUST WHEN YOU THINK YOU'VE FINALLY LEARNED ALL THERE IS TO KNOW ABOUT BEEKEEPING, THEY THROW SOMETHING NEW AT YOU!"

BEE TALK-----



By **DR. RICHARD TAYLOR**
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I DON'T THINK I have ever talked about bee clubs on this page. There isn't much going on with the bees right now, so that looks like as good a subject as any.

I am no great expert on beekeepers' clubs, but I got one started here a couple of years ago, served ineptly as its first president until they could find someone better equipped for the office, and in the process I learned a few things.

Bee clubs are fun for two special reasons. For one, you have an immensely engrossing subject to talk about. And the other reason is that all sorts of people are attracted to membership. You get doctors and lawyers and teachers and engineers and farmers and young people and grandparents — the whole spectrum. So it makes for a sort of egalitarianism, unites the generations and the different vocations around a common interest or obsession, and stimulates the spirit of sodality. With some warm-hearted and intelligent leadership, a group of beekeepers can always find things to do and talk about. Of course there are apt to be one or two who want to talk too much, but that's all right.

I personally think that something of a carnival atmosphere should prevail at bee meetings. Something is badly wrong when beekeepers start taking themselves seriously. Nobody loves a solemn speaker, especially when it is obvious to everyone that he is something of a nut, which is what all true beekeepers are. I don't mean that we shouldn't be serious. But we should be serious about bees, not ourselves. And I personally admire no one more than the person who can enjoy a good laugh at himself. We beekeepers are in an ideal position for such laughter, for everyone else thinks of us as strange beyond belief. We mingle with insects and wear screen cages over our heads. You need only to tell someone you are a

beekeeper to raise indulgent smiles. And even if you are a vice president of something or a learned judge or a leader in a profession, your friends will forever greet you with "How are the bees?", and with a sparkle in their eyes, as if they were making a joke. And that is how it should be. Laughter is life's tonic, and anything that can help puncture some of that pride and conceit that so banefully afflicts us so much of the time is a welcome thing.

So with that kind of spirit I think you can really have a good time at a bee meeting.

The way I got ours started was just to announce a beekeepers' picnic, to be held on my lawn on a Sunday afternoon in August, with postponement to the next Sunday in case of rain. Of course it rained, that Sunday and the next, so we had two wet picnics, but that was okay. I passed a hat for contributions to a treasury, we did a lot of talking, looked into a couple of beehives for the fun of it, and we were on our way. That winter I wrote up a constitution, announced a formal meeting through the local farm and home center, which also loaned us a meeting hall, and at this charter meeting we elected officers, adopted the constitution, heard a speaker, and thus had a working bee club going. Now we meet one Sunday afternoon each month, with every third meeting featuring an invited speaker from inside or outside the club, or bee movies, or something like that. The other monthly meetings are less formal. We mostly just sit around and swap ideas at these.

I am not really a very good organizer, and people say that my few attempts to preside over meetings have been near disasters. What experience I've had with this sort of thing has led me to think, however, that certain things are important to the success of any bee club namely:

First, responsibility should be spread around among the membership, and the wives and husbands of beekeepers should be given their share. Thus, there should be quite a few committees, thereby giving as many people as possible a role in the club. This gives them a sense of participation,

rather than the feeling of being mere onlookers.

Second, have a simple constitution that is easy to amend. Anyone interested in seeing the one I drew up can have it in exchange for a stamped self-addressed envelope.

Third, get publicity. Have a publicity committee, and make its chairman report each month on what they are doing. Local agricultural extension offices are a good place to get publicity. The other is, of course, newspapers. This is where you can cash in on the somewhat comic image of beekeepers that seems fixed in the minds of the public.

Fourth, have picnics and games. An outdoor meeting can get along best without speakers, provided something else is arranged. Have smoker-lighting contests (to see who can get his smoker going best in two minutes), queen-finding contests (divide into small teams to see which can find the queen first in each of several hives), and that sort of thing.

Fifth, get up a newsletter, and be sure it has pictures, taken at your meetings. Never include the minutes of meetings or similar boring material that no one will read.

And sixth, have ways of recognizing significant achievements by the members. A "Beekeeper of the Year" award, consisting of an inscribed silver tray, or a simple plaque, is one way. But there are many lesser ways, such as noting, at each meeting, who brought the refreshments, who arranged the meeting place, and so on. People enjoy doing things for a organization, the more so if their efforts are recognized, however modestly.

Beekeepers tend to be individualists, and most of them, I think, find their happiest hours alone in their bee yards. But we are also social animals, who like to share our joys with those who have experienced the same joys, so a beekeepers club has its place in our scheme of things.



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Research Review

The 27th Apimondia Conference and Varroa Disease

CONCERN ABOUT varroa disease of bees dominated the recent 27th Apimondia Conference held in Athens, Greece. This disease was unknown in the 1960's. Beekeepers who live in varroa-infested areas say it is worse, by far, than any other known disease of honeybees. At present, North America is one of the few areas which remains unaffected; parts of Europe, Africa and South America have all become infested with this dreaded Asian disease.

What is Varroa Disease?

Varroa disease is caused by a mite. Mites are not insects but are closely related to them; insects have six legs while adult mites have eight. Female varroa mites lay their eggs in honeybee brood cells. The young mites attach to, and feed on, developing honeybee larvae and pupae. If there is only one mite there is little damage to the developing bee. A few mites will interfere with the development of the pupae and may cause their wings, and sometimes their legs, to be malformed. Several mites, and so far as I can determine the number is unknown, will kill the developing bee. Mite-parasitized colonies are weakened gradually and die eventually, although it may take two to five years for all the colonies in an apiary to perish.

European honeybees have never become established in tropical Asia despite repeated introductions. We now believe that varroa is the main reason. The mites live on Asian bee species, which are able to tolerate them, but colonies of European and African bees, which have never before been exposed to varroa, are most susceptible.

Diagnosis

Severe infestations of varroa are easy to spot: Adult bees will have deformed wings and/or legs. Dead brood is common and when one pulls dead pupae from their cells the pinhead-size, reddish-brown mites may be seen clinging to the white



By **DR. ROGER A. MORSE**
Research Editor of *Gleanings*
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bodies. The colonies become weak slowly.

Diagnosing light infestations and determining where the mite is and isn't seems to be almost impossible. In Athens, I sat in on one long conference (which got nowhere) on how diagnosing might be done. One technique is to put a piece of white paper on the bottomboard and to cover it with 8-mesh hardware cloth. Old and dying mites will fall on the paper where they may be seen. In the winter the hardware cloth is not needed as the bees are not so efficient in their housecleaning. The white paper technique, poor as it is, appears best to me. The only other diagnostic methods mentioned involved searching for infested dead brood, especially drone brood, and looking for mites on adult bees. People present at the conference admitted that diagnosis was about one year (minimum) behind the infestation. Beekeepers throughout Europe are being encouraged to check their colonies this winter; apparently the death rate of mites is highest, and the white paper technique works best, in winter.

Chemical Control

Kelthane, DDT-like pesticide, has no activity against insects, including honeybees, but is a good mite killer. However, like DDT it has a long life. When a water solution of Kelthane is sprayed into a colony 80 to 90 per cent of the mites will be killed; however, Kelthane residues have been found in the wax a year after treatment, making use of the chemical impossible.

The favored, but still not proven, method of control is to expose formic acid

in the hive. Too much formic acid will cause the bees to abscond. The best method of using formic acid is apparently to place a jar with an exposed wick in one corner of the hive where it may be left for a week or more.

Biological Control

Since the mites can develop only on brood, one method of reducing the mite population is to cage the queen to prevent her from laying for several weeks. Still another technique is to confine the queen to a single frame in a cage; the egg-laying female mites will be attracted to this frame which may then be destroyed. Obviously, this method is not practical for us in North America.

Is Varroa in the U.S.?

Several Americans I talked with at the congress were worried that we may already have varroa. Too many beekeepers are aware of others who have brought queens to the U.S. illegally from abroad, especially Eastern Europeans, who have brought "gift" queens to their American friends. It would be prudent for beekeepers throughout this country to keep a watchful eye. Samples of suspicious dead brood or other material should be sent immediately to Dr. H. Shimanuki (Chief, Bioenvironmental Bee Laboratory, Plant Protection Institute, Agricultural Research Station, Beltsville, Maryland 20705).

A New Varroa Movie

German researchers have produced an excellent movie on varroa. I understand an English version is in preparation. I am making arrangements to get copies and when they are ready I will make mention of it in this column.

The Congress

Nearly 3000 people attended the 27th Apimondia congress. Those who enjoy eating, as I do, found the city and surrounding villages a delight. Athens is a magnificent city with history around every corner. There were several tours to historical sites. We saw beehives, mostly painted blue, everywhere. Most of the hives I saw were modern, Langstroth type. Migratory beekeeping is obviously widely practiced.

The next Apimondia conference will be held in Acapulco, Mexico, in 1981, probably in November. The Mexican delegation to the congress distributed literature frequently and promised everyone a good time.

Fundamentals for All



Turkey's Program for Increased Income from Honeybees

YOU MAY BE SURPRISED to learn, even as Beth and I are surprised at the turn of events, that I am writing this manuscript for *Gleanings* in our hotel room in Ankara, Turkey. It is 6:30 a.m. and the city is coming alive. However it is Saturday and the traffic and hustle may not be as hectic as yesterday.

We are in Turkey at the invitation of the Development Foundation of Turkey, a non-profit organization, as consultants in an on-going program in beekeeping. Officially the program has been going about a year and a half and has great potential for Turkish beekeepers.

The total number of beekeepers in Turkey is great, since few have more than a couple hundred colonies, yet the country ranks third in the world with over 2,000,000 colonies. Only Russia and U. S. A. have greater numbers of colonies in areas many times larger. About half of Turkey's colonies are in movable-frame hives, the rest being in vertical or horizontal hives, square, round or conical, according to the region and the materials available for construction.

The larger beekeepers, those with 100 or more colonies, are migratory, moving by hired truck and living in tents at or near their apiaries. Extracting is done in tents and the honey packed in 27 kilogram tins, equivalent to the American 60 pound can. The season opens with the citrus nectar flow around the Mediterranean and farther north may include heather, clover, sunflower, vetch, cotton, sainfoin, and pine honeydew. Apiary sites seem to be no problem and all nectar sources but the citrus, sunflower, cotton and sainfoin are wild and quite dependable.

The chief aims of the Development Foundation are to have the beekeepers use more modern colony management and better stock. These two major phases of the adequately-funded program center around apiary equipment and queen rearing. America has pioneered in these

**W. A. Stephen, Professor Emeritus
The Ohio State University**

phases of beekeeping and has proven the viability of large scale equipment manufacture and queen rearing, hence is in a position to give guidance and leadership.

An equipment manufacturing plant is being built for making 20,000 standard Langstroth hives annually for 2,000 beekeepers. Another building 30 x 15 meters is nearing completion. In this building honey from the beekeepers in the 60 pound-size tins will be processed and packed for market in half-kilo and kilo glass jars. It is also planned to pack individual servings for restaurants. The plant will handle 2,000,000 pounds a year. Some honey brought into the processing plant in frames may be marketed in bulk, or cut into smaller pieces and packed in plastic bags. I saw honey packed this way in the supermarket. It would be unmarketable in American stores and the price was \$2.50 a pound. Honey in jars was for sale at \$1.50 to \$2.00 a pound, depending on its floral or pine-tree source.

Wax which the beekeepers bring in will be processed into foundation in another section of this building. It has a projected capacity of 150,000 pounds a year.

Turkey is in a unique position to be able to use migratory queen rearing apiaries--in the early part of the year (coinciding with the queen rearing season in the United States) in the Mediterranean region and during summer in an area not far from the Black Sea in western Turkey. The Development Foundation has the equipment in the form of queen nuclei and provisioning and supporting colonies to raise 6,000 queens next year. About 2,000 queens were raised this year. Their aim for 1984 is 55,000 queens a year.

At present the Development Foundation is looking for someone from America

to organize and coordinate their efforts to increase queen production.¹

Breeding from existing stock would seem to be logical, for some of the best imported strains in America originated in the province of Anatolia and in the neighboring Caucasus region. As reported by Ruttner,² authoritarian sources consider that several different sub-races occur in Anatolia. In 1972 I saw bees in Cyprus with a distinct orange color on the forepart of the abdomen where we normally expect to see yellow in banded Italians. Brother Adam told me that this was a characteristic of some Anatolian bees. It is interesting that the Macedonian bee which Brother Adam considers one of the best is native to northern Greece and southern Yugoslavia. Selection, testing, and breeding from such available stock could very well result in a superior strain.

Disposal of the queens is no problem as some will be sold at cost to established beekeepers while the rest will be used in 5-frame nuclei to be made available to beginning beekeepers who have attended the required training sessions. Financing for equipment etc. can be arranged through the Agricultural Bank.

A synopsis of the beekeeping project includes the laudatory and idealistic jargon on which administrators thrive; nevertheless it is very encouraging to see formulations for improving honey production and to realize that there are plans to utilize otherwise wasted natural resources nectar and honeydew for improving farm income and hopefully, the words of the synopsis "to move beyond these economic goals into the social goals of community improvement."

1. If interested write The Development Foundation of Turkey, Kennedy Cad 33/7, Kavaklıdere — Ankara, Turkey.

2. Ruttner, F. Races of Bees, page 35 in the *Hive and the Honey Bee*, 1975. Dadant and Sons, Hamilton, Illinois.



By BESS CLARKE
Canton PA

Notes from the Straw Skep



CHRISTMAS IS COMING and I am working on the list of books I plan to give this year. I like to find at least one book for each member of my family. Many of them are paperbacks, and I always find a couple old ones. For example, one time I gave my friend Helen a copy of **Helen's Babies**, a story I've loved ever since my father brought it to me from a trip. Helen, in turn, gave me **Our Bessie**. That volume was first owned by Olive Ickes in 1898, and was presented to Anna Mary Kauffman in 1954. I received it in August 1978.

I've just finished a novel called **Time and Again** by Jack Finney, which I intend to pass on to my sister. It's the story of a man who went back in time to New York City of 1882, and its feeling of reality is enhanced by old photographs used to illustrate the text.

Another book, which I've been reading for the second time, is Grace Martin's **The Quiet Joy**. Ronny, as she is known, is the wife of Bert Martin, retired U.S.D.A. Staff Scientist for Crop Pollination, Bees and Honey. She is an experienced weaver with a background in education and her book about weaving is far more than a text. It expresses a philosophy of life which I find most agreeable. Her descriptive passages of natural scenes and her use of poetry to express a mood are delightful.

There is a legend which says that if you know all there is to know about weaving you know all there is to know about life and Ronny is well on her way, in my opinion.

A good gift for a beekeeper would be Roger Morse's new book on **Rearing Queen Honeybees** — or any of the other books Roger has written, for that matter.

I can't remember when I didn't like to read. My joy at Christmas used to be measured in the numbers of books I received. My cousin and I always compared notes and exchanged our books. When we'd read them all we reread them

and there are still passages from some of the classics that I know by heart.

It used to be that I could stay awake late at night to finish a story but time has sneaked up on me, and now even the most exciting plot sometimes has to wait. One thing I can do is blot out television completely if I have something to read. I guess that's not a bit uncommon — lots of kids do their homework to TV all the time. It's just a matter of concentration.

This reading may be an inherited tendency. There was a story in my family about my mother who, as a young girl, preferred reading a book to washing dishes. (Who doesn't?) One day my grandmother, in exasperation, said to her, "May your first born be a reader." And so I am.

My own daughter still hasn't forgiven me for giving her collection of horse books to the church library after I decided she'd outgrown them.

I have to discipline myself when, in church, the minister invites the congregation to find the scripture passage of the day and follow along as he reads. If I'm not careful I find that I've continued to read and am missing the sermon. It's a fascinating book — **The Bible** — and full of lots of good stories. It's too bad we take so much of it out of context.

People who attended the 75th Anniversary celebration of the Pennsylvania State Beekeepers' Association were invited to bring along snacks to share at the morning coffee hour. As usual there was a fine variety, and this recipe for Apricot Pastries, made by Joan Greene, was especially delicious. It is somewhat fragile so it won't do for packing Christmas boxes but it's worth the effort for a special occasion.

Apricot Pastries: 1½ cups flour, 1 cup butter (or oleo), ½ cup sour cream, 1 cup honey, 1 cup apricots, 1 cup water. Make pastry by cutting butter into the flour to

make fine crumbs. Add sour cream and mix well. Wrap in waxed paper and refrigerate until thoroughly chilled. Roll half the pastry into a thin sheet and cut in 2" squares. Place on ungreased cookie sheet. Repeat until all dough is used. Make a glaze of ½ cup honey and 2 tablespoons warm water and brush over tops of pastry pieces. Bake 15 minutes at 375°. Cool.

Make filling by simmering apricots with water (little less than a cup) until they blend together. Add ½ cup honey and blend.

Make sandwiches by placing filling between two squares. If desired the pastries may be iced with confectioners' sugar but we didn't feel this was necessary when we tested the recipe.

BEE RUSTLERS STRIKE

IVO LEITING is the latest beekeeper to be stung by rustlers — and it cost him a lot of money, honey.

"Someone loaded up 35 colonies — bees, hives, honey and the whole works" from Leiting's farm, Norman County Sheriff Larry Miller said. "It's the first time in 11 years in law enforcement I've ever had a case like this."

Miller said the culprit may be another beekeeper because special equipment was used and another big theft was reported about the same time at a nearby North Dakota apiary.

Robert Flaskerd of the state agriculture department said 105 colonies have disappeared since last spring. He said that totals about 5 million bees and around 13 tons of hives, beeswax and honey worth \$17,000 to \$20,000.

Police generally have two clues to go on. If the heist is a large one, the work is that of other beekeepers. Amateurs usually steal honey and vandalize equipment. From UPI News.

Questions and Answers

Q. What with wire excluders becoming very expensive, I was thinking of cutting my excluders in half widthwise and filling the "empty" part either with wire-mesh or plywood. Thus I would have double the number of excluders with only half of the superficial area of the hive available to the passage of bees into the supers. Would this work? I mean would this affect adversely surplus honey production and/or invite swarming? I have Buckfast bees and use 10-frame (16 x 10 inches) hives. "Normal" yield per colony is 60 lbs. per season. Thank you.—Joseph Buhagiar, Malta (Europe).

A. It would be difficult for us to pass an opinion on your idea regarding using a half-sized queen excluder in place of one which covers the full area. I tend to believe that this will restrict both the movement of bees and also the movement of air within the hive; therefore, it would be undesirable. Another idea which has been proposed by people who apparently are trying the idea is to use a half-size queen excluder which covers only the center of the area above the frames. In other words, this will leave a margin of several inches around all four sides of the excluder and, surprisingly, this does restrict the queen and may be a practical idea in your apiary.

We have not tried the idea nor have heard of any specific research results, but it is an interesting idea that may be of value and would be worth trying in your instance.



Q. I am now living in the mountains of Guatemala working with a beekeeping cooperative as a Peace Corps volunteer. We are producing beautiful queens with our homemade queen cells. Beekeeping is certainly less mechanized here—there are no roads to many of the villages with apiaries—thus everything is carried by mule or on the backs of mules.

I have a question. Can you tell me if bees can rob nectar by cutting open the flowers with their mandibles or do they use holes opened by other insects only?—Jean Cummings, Guatemala, C.A.

A. From information I have been able to gather by reading or by observing bees foraging on flowers, I note very few instances where honeybees force their way into the nectaries by using their mandibles or other means. Honeybees have evolved a very advanced foraging technique, and they evidently exhibit more versatility in this respect than many of the other insects. Honeybees will sometimes follow bumblebees who have pierced the nectar-bearing flower.

Q. Do white-painted aluminum covers give cooler results than bare, unpainted aluminum?—H.L., North Carolina

A. It is a commonly accepted idea that white is cooler than unpainted surfaces. We believe that this is only of concern where the summers are very warm, such as you have in North Carolina and perhaps painting white would be to the advantage of the bees.



Q. Can you supply me any information on the value of sunflowers as a honey plant? There's a big influx of them being planted in this area for their oil. I guess, I don't know if this will be a new cash crop or a passing thing. Many farmers have planted some and they are doing quite well, I guess.

The sunflowers I checked had lots of bees on them, as high as 4 on one blossom, which as you know are quite large. I see the bees bringing in a lot of yellow pollen.—C.W., Iowa.

A. Our experience with sunflowers has been rather limited although a certain number are grown in north central Ohio. Considerably more are grown in Minnesota where I have observed beekeepers harvesting a fair crop of honey, although not a major source even where they are grown by the hundreds of acres. There are certain pollination advantages to having honeybees and for this reason many of the growers encourage moving bees to sunflowers for pollination to improve the yield of the seed. The honey is mild flavored, of amber color and tends to granulate rather quickly.



Q. I like the method of collecting errant colonies from bee trees or from between the sidings of houses which is described under Bee Hunting in ABC and XYZ (1978). I have just such a colony working in the exterior walls of a cottage near my house and I would like to get them properly hived; but before I go to work, I have a few questions.

First, is it necessary to "seed" the hive with a nucleus and queen cell? If one is patient, won't the entire colony, including the queen, eventually go into the hive?

The method described, indicates that after most of the bees have entered their new hive, one should kill the remaining bees inside the tree or house. How is this done without endangering the bees in the new hive and without contaminating the honey in the tree or house?—J.H., Virginia.

A. It is necessary to prepare a hive with a nucleus and a queen for placement near the entrance to the tree or to the side of the building when "trapping out" a colony. The idea is to change the residence of the bees which are trapped outside the entrance to the newly prepared hive. After a large proportion of the bees have been trapped out of the building or tree, the balance can be destroyed by chemicals and the hole plugged up. In my experience the old queen does not come out regardless of your patience. This method of removal, though time consuming, has been proven to be satisfactory in the majority of the cases where it has been followed through in detail. The problem with this method is to be sure you have blocked all the entrances, especially in an old house.



Q. I am inquiring as to why my bees are removing dead brood from the hives. I would say it is at the pupa stage (lacking the final coloring). One of my hives was queenless. After I requeened and the hive was getting strong they were removing the dead brood from the hive. Much later other hives were doing the same thing, not too many, but enough to concern me. I did suffer some pesticide loss, a few hand-fuls and I am really concerned.—L. A. Maine

A. It is quite likely that the killing of the brood is a result of the pesticides which your bees have encountered. Evidently this pesticide damage was not serious enough to destroy the colony, but nevertheless the colony should be watched for possible future problems, including the loss of the queen.

The encapsulated pesticide PennCap-M has been known to be picked up by pollen gathering bees which can result in a brood kill.



Q. I would like to know if anything has been written regarding the colony condition after a swarm has issued and chance for the remaining bees to survive and produce honey?

Much has been addressed to swarm control, and re-hiving but leaves the new and inexperienced beekeeper with an idea that all is lost when his bees swarm from a hive.—L. C. Minnesota

A. In answer to your question it is generally accepted that a swarm may seriously deplete the strength of a colony. Research has found on the average 66%

of the colony leaves with the swarm leaving only 34% in the hive with a new unproven queen. Depending upon the rate of recovery, the swarm may or may not damage the honey gathering potential for that season. In most cases, it will; but, in other cases, the issuance of a swarm seems to have only a temporary effect on the colony and the colony will still gather a good crop of honey.



Q. Will you please give us some information about schools teaching commercial beekeeping world wide. My son Greg, is interested in learning to take up the vocation of becoming a commercial beekeeper and is not concerned about the location of the school as long as the school teaches commercial beekeeping.—G. F. New York

A. For information regarding a commercial beekeeping school, we suggest you contact Mr. James Tew, Beekeeping, Agricultural Technical Institute, Wooster, OH 44691. The telephone number of the school is (216) 264-3911.



Q. I'm a backlot beekeeper with 3 hives, and two years' experience. I have several questions you might help with:

1. Is bee activity (gathering nectar and pollen) affected by syrup feeding? I wonder if more bees don't stay in the hive to process the syrup.

2. In your experience do hybrid bees fulfill your expectations of mild nature and high productivity?—B. B. Tennessee

A. Syrup feeding is usually a temporary measure and therefore does not apparently affect the bees to the extent of inhibiting their desire or ability to gather nectar when it is available.

Hybrid bees are a result of careful and selective breeding and generally reflect this extra quality by producing superior honey crops.



Q. I am a beginning beekeeper and avid reader of "Gleanings". This is my first (and probably not the last) plea for help. A widowed friend gave me a nice colony which had not been attended for 2 years, since the passing of her husband.

From information obtained, they have only been seen to swarm once. This is a very gentle colony of Italian bees, easily handled. Here is the problem. The bees are in a homemade hive with no frames

whatever. The comb network is glued to everything.

What would be your advice of how to move the bees out of the homemade gum into a standard hive? Also, after 2 years, I am inclined to requeen. Any advice would be gladly welcomed and appreciated.—D. M. Kentucky

A. It is certain that the bees will have to be removed from the homemade hive before they will really be a producing colony. We would suggest waiting until early spring before there is a large amount of brood in the hive and simply cut out the old combs, shake the bees in front of a new hive which has been completely prepared for the bees.

This, of course, will set them back to a certain extent, but in the period of a full summer they should come back to full strength. Any whole combs of sufficient size removed from the old hive may be transferred by fitting them into frames placed in the new hive. Otherwise, the frames should be filled with foundation.



Q. Please advise in regard to the use of the "Slatted Rack".

1. What are its advantages?
2. When you should place it in the hive and can it stay there all year round?

Also in your book Starting Right with Bees you mention in (chapter 5, page 10) that the hives should be placed in orchards under the trees. Will the spraying of chemicals have any effect on the bees and the honey they will produce?—I.P., Illinois.

A. The principal advantage of the slatted rack is that it gives protection to the lower part of the frames in the brood chamber. This enables the bees to raise more brood in the bottom brood chamber and also serves as a protector for the temperature stability of the entire colony.

It can be placed on the hive at any time and should stay in place the year-round. See *Gleanings*, August, 1979 pgs. 425-427 for more information about this item.

Placing beehives in orchards under trees involves a certain amount of risk from chemical spray residues. Perhaps the advice should be modified to say that the hives should be placed near the orchards rather than among the trees. The use of chemical sprays in orchards is now being restricted and controlled more than formerly and hopefully this will prevent some of the serious damage to colonies placed among the fruit trees that has been all too common in the past.



Q. For some time I have wondered why the bees can fly from bright sunlight into total darkness and work with an ability not understandable to me and yet in the dark of night, outside of the hive the bees, it seems, are totally blind.

Can someone explain to me how the bees can see inside the hive darkness and not in the outside darkness?—G.C., Kansas

A. Your question is a very difficult one to answer and I am sure that a number of people have been puzzled by this apparent dissimilarity in bee behavior in darkness and in light. It would appear to me that the functions of the bee are not impaired by darkness in respect to building comb, caring for brood, and other such inside the hive activities with the possible exception of flying from one point to another. This restriction, of course, would not affect the activities inside the hive.

Bees are not totally blind at night, they seem to have no trouble crawling and stinging vulnerable parts of the intruders if disturbed after darkness!



Q. I am having growing problems with yellow jackets around a hive in my backyard. Can you tell me how to relieve this problem? Also, I've noticed occasionally that two bees will wrestle until one is finally killed. It cannot be robbing because this is the only hive for miles. Is this explainable?—A.G., Michigan.

A. Yellow jackets are becoming a great nuisance to bees in recent years, especially where the nests are near beehives. If the nests can be located which are usually in the ground, they can be destroyed with insecticides although care must be taken not to bring the spray in contact with the honeybees. In most cases, however, strong colonies will successfully repel yellow jackets.

Honeybees fighting at the entrance indicates that robbing is being attempted, and it is quite possible that bees are coming from trees or buildings in the vicinity which you are unaware of. This is not an unusual condition and should not be of concern unless the robbing becomes very serious.



Q. I need to know if the plastic frame and foundation combination really works. I can't find any information on it except from the seller.—M.R., Alabama.

A. We are unable to give you any definite data on the production results of using this plastic frame and foundation. To our knowledge no formal scientific studies have been made on plastic foundation versus wax foundation. We

(Continued on page 645)

Honey Plants

The Melliferous Basswood *Tilia Cordata* "June Bride"

By Bernie Hayes
Wellsville, N. Y.

THE BASSWOOD FAMILY of trees often shows noticeable differences within each variety, especially the cordata, (little leaf), while the American Linden, once common in eastern forests, is seldom seen by beekeepers since cordata has taken its place for street plantings.

Cordata will grow both in natural full size and the newly discovered dwarf form. The book, **Trees of Long Island** reports a cordata 13'2" in circumference, one of the giants of the species. I find that a nearby cordata of about thirty foot is not very melliferous since the blossom clusters only average three blossoms each and some years it attracts the honeybee hardly at all.

However this article is about a recent discovery of a very heavily blossoming cordata with up to four times more blossoms per cluster than the average tree, (cordata). It has been reported as "very fragrant" in the last week in June and the first week in July, a very fortunate blooming period for beekeepers in the colder zones such as Minnesota, Wisconsin, North Dakota, etc. where late spring frosts are a frequent killer of bloom. Incidentally, most all the basswoods will grow well in a zone where winter temperatures drop to 30 to 40 degrees below zero, and of course in the warmer areas as well, even the deep South.

Cordatas are ideal for windswept locations since the limbs grow out of a central leader, like a post, and in a pyramid form, ideal for street and parkways. The basswood is known for its ease in transplanting and faster than normal growth on good sites. In areas of high pollution, it is doubtful if this tree should be planted.

"June Bride" is being introduced in the nursery trade by Manbeck Nurseries, New Knoxville, Ohio 45871, under plant patent No. 3021.

While this tree is listed as a dwarf, this may be misleading to the reader. In the growers catalog it is listed as reaching the

height of 45 feet which is only ten feet less than the most common cordata, Greenspire, at fifty feet.

The forest basswood, *Tilia Americana*, Will normally grow to 60-70 feet.

Patented trees, balled and burlapped (1" and up) are very expensive while only

the "liners" are economical buys. Liners are seedlings ready to be planted in rows where they will grow to transplant size.

While "June Bride" is new and comparatively unknown, its heavily blossoming feature and its spicy fragrance may eventually make it a "bee tree" of distinction.



And Now I Know All About Bees

By Anne Hutten
Kentville, N. S. Canada

"DON'T FORGET TO cover the Beekeepers' Tour at Truro next week", cautioned Gerry Smeltzer, longtime secretary-treasurer of the Nova Scotia Beekeepers Association.

"Of course not!" I assured him. But wait a minute-I don't know a bee from a wasp; how am I supposed to report on such an event? This freelance agricultural journalism is getting out of hand. Already my town friends refer to me as a "reporter on hog barns". Still, I've been advised never to say "No" if my career is to be furthered. I will be there.

So I borrow half a dozen publications on bee culture - never knew so many of them were published on this continent--and begin reading up on the topic. Good heavens! Balling a queen - what on earth? And what's all this about supers, skunk damage, pollen, swarm callers and burr comb? I thought we were going to talk about honey, and maybe pollination. Read on!

After a couple of hours speedreading I begin to recognize a frame as something you stick in a hive for the bees to sit on, and dimly comprehend the potential danger to newly introduced queens. Ready for the tour.

Mercifully I'm offered a ride to the bee event by our good neighbor George Foote, who happens to be the province's largest beekeeper with almost eight hundred hives. Colonies, he calls them. The two-hour drive provides me with enough additional information that I'm totally confused on arrival. Registration and getting acquainted proves to be a nightmare. I don't look like a beekeeper, do I? So why does everyone assume that I know the difference between buckwheat and sweet clover after it's gone through the bee? Honey is honey, isn't it?

The tour is great fun as long as I shrink in my seat and make small talk only about the weather. Our provincial skies have generously reserved a month's moisture for this special event; it mists, sprinkles and finally pours, hour after hour. Fortunately it's warm and muggy, and so we toss sodden jackets into the back of the bus and brave the rain in T shirts and

Jerry Draheim, N.S.B.A. vice-president, checks a hive for progress as other Maritimers look on during their annual beekeepers tour.



jeans. Couldn't possibly get much wetter, and it will save taking a shower tonight.

In between stops we sit in the bus and talk. That's actually the most informative part of any tour, whether it's bees or apples, fox ranching or dairy herds. I do three or four mini-interviews, trying hard to sound like an expert. A couple of subjects prove garrulous, which helps to fill the many gaps in my small store of bee knowledge. I not only pick up tips on equipment hygiene, but learn that bee pollen is a terrific health food which affects the entire body favorably. That rings a bell - haven't I read about it being a great tonic for impotence?

We see a couple of honeyhouses, although the crowd is really too much for the size of the buildings. No problem for me - these gentle beekeepers don't mind

when I push and shove a little in order to get a photo, especially when I turn on my sweetest smile. I climb on the back of an extracting unit; it wobbles threateningly under my feet. Quick, two shots of Al Fleming as he uncaps and extracts the honey in his Philip Bishop radial extractor. That's supposed to be special, he tells us; having a horizontal shaft rather than a vertical one.

Wild comb in weird shapes hangs from Al's barn rafters, and I can't resist the urge to climb as close to it as possible. My travel companion lends a hand, boosting me up stacks of unevenly piled supers to a floor of loose boards. Holding my breath I manage to stand up very carefully, find the correct F-stops and speed, switch on my flash, aim and -- the batteries are dead. No light, sorry. For that I risk my neck.

At Jerry Draheim's we're treated to more demonstrations of uncapping and extracting; then we stroll through the wet, wet grass to his hives. Jerry pulls out a tray - he calls it a pollen trap - and shows us the colored kernels, something like coarse cornmeal or tie-dyed tapioca. Just as he and the NSBA president, Earl Blades, pose with wide grins, I run out of film. I begin to wonder whether I should have stayed in bed.

More bus riding, more suffocating heat, more lively conversation which ignores mere physical discomfort, and finally a banquet back in Truro. Most of us came prepared for a working day only, and wear our wet cords and jeans. We enjoy good roast beef and a slide show of the 1977 International congress of Apiculture. When we take off for home I've become reasonably informed on the subject of bees. Fascinating little creatures they are; I could almost see them as household pets. Such soft fur on their backs, and hard workers too. Everyone of those beekeepers seemed to be truly fond of his little charges.

One thing I haven't figured out, though. Why did they keep on discussing calcium cyanide? It doesn't sound healthy at all.

A pollen trap is examined by owner Jerry Draheim (at left), retired provincial apiarist Endel Karmo, and present provincial apiarist Lorne Crozier.



Removing Bees From Buildings and Trees

By Patricia R. Yunkes
Hiram, Ohio

A RECENT ARTICLE in *Gleanings* stated that it was a waste of time to remove honeybees from trees and buildings. However, Bill Thomas and Joe Cluts are partners who do just that. It is not only mildly profitable for them, but they enjoy the challenge.

Bill is a retired dairy farmer who now raises hay and wheat on his 251 acre farm in Burton, Ohio. He has a retail egg business and sells honey wholesale and retail as well as bees and bee equipment. Bill also teaches beginning beekeeping at the Kent State University Extension in Burton (over 200 students so far), and is president of the Geauga County Bee Association.

Joe, who is an environmental tester of air pollution, sells his honey both at home and at flea markets and has a large organic garden at his home in Newbury, Ohio.

Both men are also active in their county fair. Invariable they win blue ribbons for their honey and wax. They also help set up and display honey in cooperation with their bee association.

This is the point where their wives get into the act with honey baked goods. Mary Cluts took 1st place in cakes and whole wheat bread, 2nd in zucchini bread and 3rd for cookies last year.

Marlene Thomas rated a 1st in white bread, 2nd in whole wheat bread and 3rd in bar cookies. Her daughter Renee took a 1st in the Jr. Division and helped with her 4-H club display booth.

On weekends and evenings during the spring and summer, with the exception of haying season, Bill and Joe become partners in another aspect of beekeeping. They go out and remove honeybees from houses, outbuildings and trees.

This service is a business to them. Not only do they have business cards and run ads in the local paper, but they are listed with the local police departments and with exterminators.

So far this year they have captured 9 swarms, removed bees from 1 tree and from 21 houses and buildings. They charge for their services, sell the honey, add the brood to their own hives to strengthen them, reclaim the wax and sell the bees.

An important part of their job is having the right equipment. They always use their veils and smokers. Joe uses coveralls but Bill works in a white shirt and gloves are optional, but present. In addition they take a sharp sturdy knife, bee blower, a swarm retriever, extension cords, extra boxes, covered pails, and equipment for getting into the nest; hatchet, saws, ham-

mers crowbars, etc. Ropes and ladders may also be required.

First, the tree is cut down. The branches help cushion the fall, protecting the fragile honeycomb and reducing stress and harm to the honeybees inside.

The guard bees usually remain flying in the air where the entrance to the nest used to be. This leaves the trunk containing the nest relatively free from guards.

The entrance hole is then smoked and is opened up, exposing the comb. The swarm retriever is then used to suck bees from the comb. When all the bees visible are captured Joe and Bill cut out comb, separating honeycomb and brood comb. The few bees left on the comb are sucked up at this time.

If they are working on a building instead of a tree, they will have taken boards from the outside wall (possibly working from ladders and scaffolding) or opened the wall from the inside. The bees will be smoked, sucked up and the comb exposed and cut out.

The honeycomb is placed in a pail that is kept covered. This is the only way to keep it free of bees. Later it will be placed in an empty super over a strong hive in their bee yard. A strong hive is used as this prevents robbing.

Much of the original comb may be unsealed and raw; if processed in that condition, it could ferment. In a few days, the bees will have brought the honey down and sealed it so it can be extracted. The empty comb is then removed and processed as wax.

The brood comb, if free of disease, is placed in an empty cardboard box and later placed in an empty super over a strong hive (so it can be kept warm). The sealed brood will hatch and add strength to the hive. Afterward this comb is also removed and processed.

When all comb has been removed and the cavity is empty, the job is nearly finished. Bill and Joe pack up their equipment, bees and comb and head for home where they will complete the job.

The first thing they do there is weigh the bees. They then carry them to a hive that has been prepared in advance. It will be complete with frames and foundation; ideally it will contain one or two frames already drawn.

A canvas (preferably white or light in color) is spread in front of the hive, sloping upward to the entrance. The bees in the box are shaken twice to disorient them



Joe Cluts uses the extension on the Swarm Retriever and Bee Blower to suck up bees from the comb he has exposed under the overhang of a house. When he has most of the bees removed, he will remove the comb.

then dumped in front of the hive. On a windy day, they may be dumped directly into the hive.

Many will fly, but most of the bees will start to crawl upward towards the hive. The first ones to reach the hive will find it a suitable refuge and will start fanning. Others will follow and enter the hive. Stragglers at the edges can be lightly smoked toward the hive.

While the bees are entering the hive, the entrance can be carefully watched and the queen usually spotted. If she is not seen, a careful watch must be maintained over the

next few days for eggs. If none are found, the hive may have to be requeened.

Now the brood and honeycomb is placed in other hives and the job is complete. It's time for Bill and Joe to relax and think of their next job.

They don't make a lot of money removing bees, but it does pay. Both men believe it is a genuine public service for beekeepers; removing wild colonies helps to reduce bee disease.

They also see it as a challenge, one of the few real challenges left to modern man.



Bill Thomas (left), daughter Renee and Joe Cluts weigh and examine one of the boxes of bees they filled with the Swarm Retriever while taking bees from a house.

Bill Thomas has dumped the bees from the Swarm Retriever Box on a heavy canvas in front of the hive he wishes them to occupy. They immediately started climbing uphill into the hive. A little smoke around the edges helped move the stragglers along.



Field Identification of *Varroa Jacobsoni*, a Parasitic Mite of Honeybees

By David De Jong
Graduate Research Assistant In
Apiculture Cornell University, Ithaca,
N.Y.

THE SUDDEN SPREAD of the parasitic bee mite *Varroa jacobsoni* from its home in Asia to several countries in Europe, Africa, and South America has caused great concern among beekeepers and bee researchers. This concern is justified, as a *Varroa* infestation spreads rapidly, is difficult to detect, and causes serious damage to colonies of the European honeybee (*Apis mellifera*).

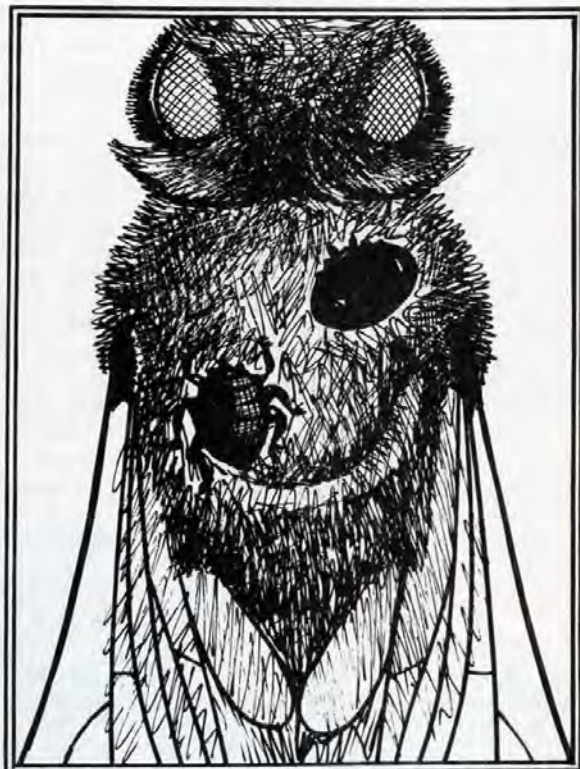
Varroa is large for a mite (about the size of a pinhead), reddish brown, and shaped like a tiny clam shell. It feeds on honeybee adults, larvae, and pupae, weakening the bees and causing disfigurement or death to developing brood. One to 12 or more mites may be found in one brood cell. Colonies become severely debilitated due to loss of brood as mite populations reach 20,000 or more per colony. These mites are probably the main reason beekeepers have been unable to keep European honeybees in tropical Asia.

Biology of *Varroa*

Most of the life cycle of the *Varroa* mite takes place in the brood cell. Female mites lay eggs in cells of 4-to-5-day-old bee larvae. The eggs are oval and white. The first stage of the mite is 6-legged and, because it develops inside its own egg case, is never seen. *Varroa* hatches as an 8-legged protonymph, about 0.8 mm long by 0.7 mm wide. Mite nymphs feed on the hemolymph (blood) of bee larvae and pupae. The second nymphal stage, or deutonymph, is about 1.0 mm long by 1.5 mm wide. Males (about 0.7 mm by 0.7 mm) and the nymphal stages of the female are never found outside of the bee brood cell. They are much paler than the dark reddish-brown adult female.

Mating takes place within the cell and only the adult females emerge and attach to adult bees. They sustain themselves by sucking hemolymph from the bee's intersegmental membranes. Each female mite is thus transported by the bee to

Varroa jacobsoni and *Braula* sp. on a honeybee. *Braula* is longer than it is wide, has a segmented body, and six legs which extend to the sides of the body. *Varroa jacobsoni* has a smooth body, apparently unsegmented, wider than it is long, with mouthparts and legs extended forward, just barely visible from above. Both parasites are dark reddish brown about 1.6 mm by 1.0 mm. Details described and pictured are visible with a 10X hand lens. *Braula* is depicted on the left, *Varroa* on the right side of the bee's thorax.



which it has attached itself; this method of transportation is called phoresy. Often the mite is hidden under the bee's sternal plates, which makes detection difficult.

Confusion with *Braula*

Varroa jacobsoni is about the same size and color as the so-called bee louse, *Braula*, which is actually a parasitic fly. This similarity has led to some confusion and misidentifications. In Germany, as well as in Columbia, South America, beekeepers have announced new discoveries of *Varroa* which later were determined to be *Braula*. As *Varroa* is much more serious than *Braula*, it is of some considerable concern that a new infestation by the *Varroa* mite may be misidentified as *Braula*. This is what happened in Bulgaria; as a result the *Varroa* problem that went unrecognized for several years.

Biology of *Braula*

Braula is a wingless fly that lives in

honeybee colonies. Adults have 6 legs (as opposed to 8 for most mites).

Braula females lay their eggs on the cappings of honey cells. Tiny legless larvae emerge and make very thin tunnels on the inner surface of the cappings. Full grown larvae are tube shaped, about 2.25 mm long with a diameter of 0.5 mm. The tunnels can be seen if the comb is held up to light. Occasionally there is some damage to comb honey. A nonfeeding pupal stage follows, as in other Diptera (flies).

Adults look like miniature crabs. They ride on the surface of the bee, often on the thorax or the region between the thorax and abdomen. When they get hungry they run up to the head of the bee and stimulate the mouthparts. The bee regurgitates and *Braula* steals food from the bee's mouth. Its mouthparts are incapable of piercing the integument (skin) of the bee. In most cases infestation by *Braula* is not thought to do significant harm to the colony although they tend to congregate in larger numbers on the queen and may affect her egg-laying efficiency.

Symptoms - Varroasis

Adult bees, especially drones, may be disfigured because of damage caused by Varroa during the bees' development. Some bees emerge crippled or with their wings incompletely formed. They will be found crawling at the entrance. Such damage may have causes other than Varroa infestation; however, it is an indication that a colony should be carefully checked.

Adult mites occasionally are visible on the exterior of the bee. When they attach themselves under the ventral abdominal segments they are nearly impossible to detect without a good lens.

Heavily infested colonies show a spotty brood pattern. Drone brood is preferentially attacked and one should look there first. Bees will upcap and throw out infested brood, which can sometimes be found at the hive entrance. A parasitized pupa will appear to have small, pale or dark reddish-brown spots on its normally white body.

Symptoms - Braulosis

Adult Braula are found on the exterior surface of adult bees. Bees do not suffer any direct damage.

The tunnels of larval Braula are visible in good light in the capping of honey cells. The tunnels appear fine and threadlike, up to about 0.6 mm in diameter. Brood cells are not attacked.

Distribution of the Two Parasites

Braula is found in most countries. There are five species, all of which appear quite similar. In North America *Braula coeca* has been reported in Maryland, Virginia, West Virginia, and, rarely, in some other states in the Eastern United States; it appears to be quite common in the Maryland area.

Varroa jacobsoni originally was confined to tropical Asia. It parasitizes two of the Asian honeybee species, *Apis cerana* and *Apis dorsata*. Since about 1950 the mite has been found on the European honeybee, *Apis mellifera*, in several countries in Eastern and Western Europe, Africa and South America. This great expansion of the range of Varroa is a result of the transportation of infested bees by man. For example, the South American infestation almost certainly came about as a result of queens being transported from Japan to Paraguay.

Problems with Varroa

The cryptic nature of phoretic (hitch-

hiking) adult female mites makes detection difficult. This has contributed to the intercontinental spread of the mite. In a new territory the population of mites will increase for several years before the first colonies show obvious signs of weakening. By that time the area covered through drifting and swarming of the bees may be twenty or more square miles with hundreds of colonies affected. Migratory beekeeping and shipment of queens and packages increases the problem.

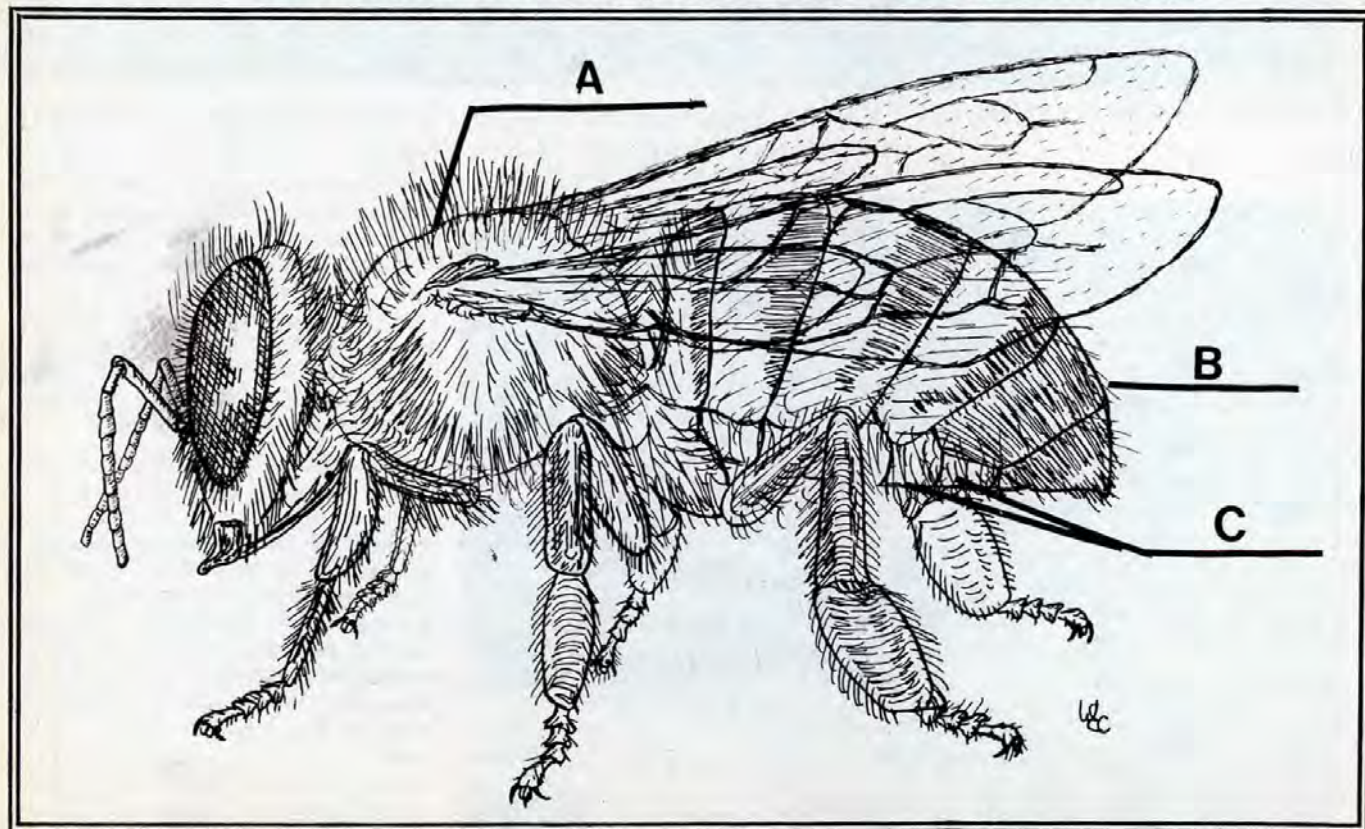
Varroa disease is considered much more serious than any other bee disease including American foulbrood. In view of this, it is extremely important that people refrain from importing queens from infested countries. Beekeepers should be alert to the potential problem so that a new infestation will be reported before it has gotten out of control.

Diagnostic Methods

Several Eastern European authors have reported that Varroa can be detected in adult bees by washing mites off their bodies. About 100 bees taken from the brood nest are shaken vigorously for 10-15 minutes in a warm (105°F.), weak detergent solution. The solution and the bees are poured into a funnel fitted with a screen to prevent the bees from passing

(Continued on page 644)

A.) Dorsal portion of bee's thorax on which Varroa or Braula may be found. B.) Abdomen. C.) Sternal plates, under which Varroa may be hidden. In this position Varroa can reach the intersegmental membranes from which it sucks hemolymph.



MICHIGAN BEEKEEPERS ASSOCIATION

12447 Matthews Highway
Clinton, MI 49236
313-731-8967

YOUR HOST FOR THE
1980

AMERICAN BEEKEEPING FEDERATION
CONVENTION



1980 AMERICAN BEEKEEPING FEDERATION CONVENTION UP- DATE.

AS MOST informed beekeepers know, the annual American Beekeeping Federation Convention is just around the corner, January 21-25, 1980. This year the host state is Michigan, and their several planning committees have been diligently working out the thousands of details to make the program with its business and recreation spectrum blend together into an enjoyable experience for everyone.

The program is going to include speakers from a broad range of the many facets of the "bee-industry". A few of the keynote speakers will be: Mr. Leland Hubbard from Belleview, Florida speaking on Commercial Beekeeping of the

Mr. and Mrs. Ralph Alloway working on Convention plans.



Future, and Dr. E. C. Martin from Okemos, Michigan speaking on the Research Future of Beekeeping. In addition, many others including Tom Taylor from Saskatchewan, Canada.

The traditional Honey Show is offering every beekeeper an opportunity to compete on a National scale in honey judging competition with beautiful silver prizes for the winners in each category.

To balance out the itinerary, the tours committee has selected the best attractions and made arrangements for very moderate rates, all in the hopes of enhancing the delegates enjoyment.

The annual National Honey Queen contest promises to be a high point for the many talented young ladies from around the country. They will have local and probable national radio and television coverage in addition to extensive newspaper coverage. They will all have a chance to tell the "Honeybee" story.

Plan to attend, at the beautiful Hyatt Regency in Dearborn, Michigan January 21-25, 1980. Gerry Dunbar, Publicity Committee

Helicopter landing pad at the front door of 1980 Convention site.



36TH ANNUAL CONVENTION AMERICAN BEEKEEPING FEDERATION

Sunday, Jan. 20, 1980

P.M.
2:00-
5:00 Executive Committee Meeting
(ABF). Thomas Suite

Monday, Jan. 21, 1980

A.M.
9:00-
12:00 Executive Committee Meeting
(ABF). Thomas Suite
P.M.
12:00-
8:00 Registration Opens W. Ticket
Counter
12:00-
5:00 Exhibit Setup and Honey Show
Display Expo. Center
1:30-
5:00 Board of Directors Meeting (ABF)
Stearns-Knight Suites
8:00 American Honey Queen State
Chairmen and Interested State
Queen Committees Stearns-Knight
Suites

Tuesday, Jan 22, 1980

A.M.
7:30-
9:30 Honey Industry Council Coffee
Bugatti Suite
9:00-
6:00 Exhibits Open
Expo Center
9:00-
5:00 Registration Continues
W. Ticket Counter
9:30-
5:00 Opening General Session
Dearborn Suite

Call to order — ABF President G.
C. Walker, Jr.
Presentation of Colors: Color
Guard U.S. Air Force Recruiting
Station, Garden City, Michigan.
Invocation—Ralph Alloway, Presi-
dent of SEMBA.
Welcome—Mayor John O'Reilly,
Dearborn.
Greeting—Hon. Gov. Williams E.
Milliken
Response—Jack E. Engelhardt,
Ann Arbor, MI
10:00 President's Address—Mr. G. C.
Walker, Jr., Rogers, Texas
10:30 Key Note Addresses
The Future of Commercial
Apiculture, Leland Hubbard, Hub-
bard Apiaries, Belleview, FL
The Future of Apicultural
Research, Dr. E. C. Martin,
USDA, Staff Scientist, Crop
Pollination, Bees and Honey
(retired).

NEWS and EVENTS



11:00 Michigan Agriculture, Dr. Sylvan
H. Wittwer, Dir., Agricultural Ex-
periment Station, MSU, East Lan-
sing, MI
11:30 Presentation of Honey Queen and
Contestants, JoAnne Weber,
Chairwoman, American Honey
Queen Committee, Clayton, WI
11:55 Announcements and Lunch Break
P. M.
1:00 Film: KILLER BEES... FACT OR
FANTASY, USDA.
1:30 Update on the Africanized Bee,
Dr. Orley Taylor, Univ. of Kan-
sas, Lawrence KA
2:00 Panel: Adulteration of Honey,
Can it be Stopped? Donald R.
Schmidt, Chairman, Schmidt
Apiaries and the Honey Industry
Council, Winner, SD
Charles R. Adams, Superior
Honey Co., South Gate, CA
J. W. White, Honeytech, Inc.,
Navasota, TX
Robert M. Rubenstein, Counsel,
New York City
3:00-
4:00 National Honey Packers & Dealers
Directors Meeting Thomas Suite
3:00 Mid-West Nectar Sources, Larry
Goltz, editor "Gleanings in Bee
Culture", The A. I. Root Co.,
Medina, Ohio
3:30 International Bee Research
Association Report, Dr. Roger
Hoopengartner, MSU, East Lan-
sing, MI
3:40 ABF Membership Results, Bob
Ray, past president Tintah, MN
3:45 Moving Bees Can Be Profitable,
Richard L. Adece Bruce, SD
4:15 Langstroth Updated, W. A.
Stephen, Ohio State University,
Columbus, Ohio (retired)
4:40 Getting Help From Washington,
Binford Weaver, Vice President,
ABF, Navasota, TX
5:00 Adjournment
8:00-
10:00 Honey Queen Reception
Dearborn Suite

Wednesday, Jan. 23, 1980

A. M.
7:00 American Beekeeping Membership
Committee Breakfast — Phoenix
9:00-
5:00 Exhibits and Honey Show —
Registration

9:00-
5:00 General Session Continues
Dearborn Suite
Panel—Bee Breeding is Helping
Dr. Thomas E. Rinderer, Chair-
man, Bee Breeding and Stock
Center Laboratory, Baton Rouge,
LA, Honey Production, Dr. Anita
Collins, Bee Breeding and Stock
Center Lab., Modern Genetics,
Dr. Walter Rothenbuhler, Ohio
State Univ., Columbus, Ohio, The
Disappearing Disease, Dr. Elton
Herbert, Beltsville, MD, Honey
Bee Nutrition
10:00 Resolutions Committee
Model T Suite
10:45 Desensitization and Bee Venom,
Dr. Allen Benton, Cooperative Ex-
tension Service, University Park,
PA
11:05 The Media: Getting the Word Out
Malcolm T. Sanford, Extension
Specialist, Apiculture Ohio State
University, Columbus, Ohio
11:30 Insect Communication and Elec-
tronic Pesticides, Dr. Phil
Callahan, USDA Insect Behavior
Lab. Gainesville, FL
12:00 Announcements and Adjourn for
Lunch

**Afternoon and evening free for sightsee-
ing tours, as individually selected**

P. M.
1:00-
5:00 Beginners School, Dr. Robert
Byberg, Cranbrook Institute,
Bloomfield Hills, MI
Dearborn Suite

Thursday, Jan. 24, 1980

A. M.
7:30-
9:30 Mid-West Honey Producers
Association Breakfast
Stearns Suite
9:00-
6:00 Exhibits and Honey Show and
Registration
9:00-
4:55 General Session Continues
Dearborn Suite
9:00 Canadian Panel
Professor Gordon Townsend,
Chairman, Univ. of Guelph, On-
tario, Canada. The International
Implications in Beekeeping, Past

GLEANINGS IN BEE CULTURE

and Future. Dr. Maurice Smith, Guelph, Increasing the Efficiency of the Queen Rearing Nuclei. R. W. Shuel, Guelph, Research Advancement. P. W. Burke, Guelph, Production Costs. Tom Taylor, Canadian Honey Council, Nipawin, Saskatchewan, Canada. What We Do and Why. Introduction of foreign visitors. Report on the recent Apimondia meeting in Greece. Film: Beekeeping in Kenya

9:30 Ladies' Auxiliary Meeting
Springwells Suite

11:00 Update on Soybean Pollination, Dr. Eric H. Erickson, Bee Research Unit, Univ. of Wis., Madison, Wisconsin.

11:30 First Reading of the Resolutions.
12:00 Announcements and Lunch Break

P. M.

12:30 Ladies' Auxiliary Luncheon and Program
Springwells Suite

1:30 General Session Continues
Dearborn Suite
Pesticides Panel
Dr. William T. Wilson, Chairman, Honey Bee Pesticides/Diseases Research, Laramie, WY. D. H. Gray, Jr., U.S. Environmental Protection Agency, Wash., D.C. John Dreeves, Mich. Department of Agriculture, Lansing, MI. Bud Hilbert, Beekeeper, Traverse City, MI.

2:30-

3:30 Open meeting of the National Honey Packers and Dealers.
Stanley Steamer Suite

2:45 Help is Available, Dr. Gordon Guyer, director of the MSU Cooperative Extension Service, East Lansing, MI.

3:15 The Latest on Honey Bee Inspection Nationally, and What Is Happening In Land Reclamation in Illinois. Eugene E. Killion, Apiary Inspection, Paris, IL. Robert W. Holloway, Manager of Land Resources, Captain Mine, Percy, IL.

4:00 Bears, Bees and Beekeeping, Dr. Clarence H. Collison, Extension Entomologist, Pennsylvania State University, University Park, PA.

4:30 What Is Happening In EAS and WAS That Should Be Happening In CAS? J. C. Matthenius, Jr., Chairman of the EAS Board, Phillipsburg, N.J. Dr. Norm Gary, Past President of WAS, Davis, CA.

4:55 Honey Show Auction
Expo Center

6:30-

7:30 Social Hour
Hubbard Foyer

7:30

1:00 Queen's Coronation, Ball, and Dinner.
Hubbard Ballroom

Friday, Jan. 25, 1980

A. M.

7:30 National Honey Packers & Dealers Breakfast
Thomas Suite

7:30 Great Lakes Marketing Association Coffee and Annual Meeting
Stutz Bearcat Suite

9:00

12:00 Registration Continues and will close at noon.

9:00-

12:00 General Session Continues
Dearborn Suite

9:00 Research on Control of the Wax Moth, Dr. Ross Nielsen, USDA Research Lab, Baton Rouge, LA.

9:30 Integrated Pest Management, Robert C. Riley, Coordinator, Office of Environmental Quality Department of Agriculture, Wash., D.C.

10:00 Research on Chalkbrood Updated, Dr. Martha Gilliam, Carl Hayden Bee Research Center, Tucson, AZ.

10:30 Important Information on Honey Sherie Stiles, Market Reporter, Honey Market News, USDA, Wash., D.C. Donald J. Fedewa, Mich. Agricultural Reporting Service, Federal Building, Lansing, MI.

11:00 Ernest Groeb, Hubbard Apiaries, Onsted, MI. The Family Approach To Beekeeping.

11:15 New Developments in Comb Honey Production, Richard Taylor, Trumansburg, N. Y.

11:30 The National and International Queen Situation, Charles Mraz, Middlebury, VT.

11:45 The Role of Beekeeping In The College Community Roger Sutherland, Schoolcraft Community College, Livonia, MI.

12:00 Announcements and Lunch Break

P. M.

1:30 Beekeeping Film by Dr. Norm Gary, Davis, CA.

2:00 Business Meeting (ABF)
Invitation to Seattle, 1981

5:00 Adjournment

6:30-

7:30 Social Hour
Hubbard Foyer

7:30-

1:00 Annual Banquet and Ball
Hubbard Ballroom

Saturday, Jan. 26, 1980

A. M.

7:30-

9:30 Honey Industry Council Coffee
Bugatti Suite

9:00-

12:00 Board of Directors Meeting
Stearns Knight

P. M.

1:00-

5:00 Executive Committee Meeting (ABF).
Thomas Suite



OHIO

Geauga County Beekeepers Association

Dorothy Kowall poses with her husband Paul (left) and William Thomas, president of the Geauga Beekeepers Association. Dorothy, who is the GBA Secretary, won a blue ribbon, rosette and trophy with her amber light honey at the Geauga County Fair (Ohio) with a score of 97.

The judge was James Tew, a professor at the Agricultural Technological Institute of Ohio State University in Wooster, Ohio. Mr. Tew praised the honey show and the GBA for their exhibit and efforts to teach others about Apiculture.

NEW JERSEY

New Jersey Beekeepers Association

The Annual Winter meeting of the N. J. Beekeepers Association will be held on Saturday, January 26, 1980 in Room 202 EW on the second floor of the STUDENT ACTIVITY CENTER, Bldg. #18, at the Trenton State Teachers College, Route 31 (Pennington Road), Trenton, N. J.

This will be an all-day meeting from 9:00 a.m. to 4:00 p.m. Two principal speakers will be: Dr. Robert Berthold, Jr., Delaware Valley College, Doylestown, PA., and Dr. Roger A. Morse, Cornell University, Ithaca, N.Y.

Other speakers for the day will be: Dr. Radclyffe B. Roberts, Assistant Professor of Apiculture, Cook College, Rutgers University, New Brunswick, Steven J.

(Continued on page 647)

HONEY FLOWS, MAJOR AND MINOR

(Continued from page 624)

reasonable concentration of apiaries could overstock its alfalfa ranges. In fact, there was one road, about two miles in length, north of Sunnyside along which I counted over two thousand hives. If the region was overstocked for the alfalfa flow of 1953 I didn't know it as all our apiaries in the vicinity and flight range averaged four and five full depth supers. The alfalfa flow was followed by an equally heavy flow from mint and spearmint. As to the build-up flows in that area, they were practically non-existent. No one had any illusions about them and all permanently placed apiaries were fed heavily in the months prior to the main honey flows. Of course, thousands of colonies were placed on the secondary flows west of the Cascades and in the mountain passes themselves. Years before I observed identical conditions in the Utah alfalfa ranges. These excellent bee ranges were very deficient in build-up flows and especially deficient in pollen sources. Such conditions mean extra work, extra expense. I believe that migratory beekeeping might have originated first of all in territories that couldn't furnish enough pollen for optimal spring conditioning of producing colonies.

Conversely, I have been in regions where the main honey flows were fair to middling, but, the spring and fall conditioning flows are so excellent that the competent beekeeper can be a reasonable success and extract more pure pleasure from his work than his counterparts in bonanza territory. These commercial territories have been adequately and even overstocked for many years. Now stop to consider the real advantages of the former regions. Excellent spring build-up with all the advantages they offer for increase and queen rearing and in the fall, a minimum of feeding or none at all plus optimal late queen superseding. Such locations largely solve the wintering problem. All these advantages with a minimum of cash outlay.

Not long ago a western commercial producer told me that his true operating expenses will average out at \$45.00 per producing colony and it increases each year. A lot of honey has to pass through the extractors just to stay alive.

If I were seeking a bee location today I would avoid the regions suitable for extensive commercial production. I would seriously consider hill and mountain locations that require a four wheeled power pick-up truck. I would want to know about secondary plants, soil chemistry and topography to secure a location that precludes wholesale feedings of sugar and

pollen supplements. Resorting to supplemental feeding of whatever kind is too much like walking a mile to ride a mile, like a merry-go-round to nowhere.

Many would-be sideliners beekeepers have an opportunity right in their own back yard. As Dr. E. F. Phillips said many years ago, but his advice is still valid, "No one knows how good a certain location will be until some competent beekeeper gives it a five year test." One has to weigh all the advantages and disadvantages to get the complete picture but too many beekeepers are like lake flies around a street lamp, always heading for regions where rumor has it that the honey flows are fabulous. By the time they arrive on the scene conditions have already changed largely from changing agricultural practices.

FIELD IDENTIFICATION OF VARROA JACOBSONI, A PARASITIC MITE OF HONEY BEES

(Continued from page 640)

through. A second funnel with a filter made of a single layer of cheesecloth catches the mites. The authors point out that light infestations are often missed by this method, although including drones in the sample increases the chances of finding the mites.

Mites "hiding" under the sternal plates can be seen if the abdomen is pulled apart. If the colony is lightly infested only a small percentage of adult bees will carry the mites.

Sealed brood, especially drone brood, can be uncapped and examined. Individual pupae should be removed with a forceps and checked closely. A small 10X hand lens will help considerably. Any suspicious brood may be saved in a jar or vial of alcohol. (Specimens are best kept in a 70% alcoholic solution; however, when this is not available any alcoholic solution, including rubbing alcohol or whiskey or gin, may be substituted.)

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Some mites will die and fall to the bottom board. The debris under the brood frames should be examined. A piece of white cardboard placed on the bottom board makes it easier to spot the mites. This should be covered with a piece of wire screen positioned 1/2 inch above so that the bees cannot remove fallen mites. Diagnosis can be facilitated by treatment with a fumigant such as naphthalene (moth balls). Place 4 to 6 grams of finely powdered naphthalene or a few small moth balls in the hive and restrict the entrance overnight. Pull out the cardboard in the morning and examine closely. Care should be taken with naphthalene, as use of excessive amounts may impart an off-flavor to honey in the combs. It can also recrystallize in other parts of the hive, but will cause no permanent harm to the bees.

TABLE 1 IDENTIFYING CHARACTERISTICS OF BRAULA VS. VARROA

Braula	Varroa
body longer than wide	body oval, wider than long
body obviously segmented	body smooth, unsegmented
six legs	eight legs
legs obvious from above (extending out from sides)	legs hidden from above (extending forward)
terminal portion of legs widened	legs not widened
immatures maggotlike, tunneling in capings of honey cells	immatures eight-legged, in brood cells or larvae in pupae
dead Braula can easily be made to attach to the body of a bee	dead Varroa, if placed on a bee, will fall off

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QUESTIONS & ANSWERS

(Continued from page 633)

believe that the results are generally satisfactory, but I am certain that this will vary between regions and the systems used by various beekeepers. From our very limited experience, we find that it is necessary to have a very substantial honey flow to have this foundation drawn into perfect combs. This, of course, can also be said of wax foundation although we believe there is a slight advantage in using wax foundation as far as acceptance by bees under all conditions.

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STANDING ON GUARD

(Continued from page 615)

amination. Whereas nosema disease was formerly regarded as a not-too-threatening infection, today it is recognized as a damaging disease very widespread in the world. The disease is characterized by the presence of small oval bodies in the epithelial cells of the ventriculus of the adult honeybee.

Worker, drone, and adult queen honeybees are susceptible to nosema disease. Inoculation occurs when the spores are ingested. The spores germinate soon after entering the ventriculus. Research shows that nosema disease encourages winter loss and queen supersedure. Worker bees can infect queens with the disease. Infected bees when confined within the hive will defecate on the comb. In package bees thus afflicted loss in numbers occurs drastically during the first three weeks since there is no replacement of numbers.

Fumagilin has been used very effectively in treating this disease, both in package bees, and in preparing colonies for wintering. Direction for administering fumagilin should be secured from knowledgeable authorities. The Assistant Extension Entomologist at the University of Florida, Gainesville, says in his extension bulletin of July-August 1975: "For those who would like to treat a few colonies for nosema and have no way to measure the proper amount of Fumadil-B, approximately 1 tsp. should be fed to each colony and this should be mixed with one gallon of 3 to 1 sugar syrup. (three parts sugar, 1 part water.)"

Fungi

Chalkbrood falls within this category. It is a fungal disease that is present only in the bee brood. It is identified by the white, chalky color of the dead brood in the cells. It is not considered a serious affliction at the present time, though in a given locality it may be quite prevalent and persistent.

No successful treatment for chalkbrood has as yet been found. Strong colonies usually resist it. Workers usually carry the dead brood out of the nest. Some authorities have recommended burning of the more severely affected combs. Requeening is advised in serious cases.

Accumulation of moisture and lack of adequate upper ventilation in the hive appear to encourage the onset of the disease. Some strains of bees seem to be more resistant to it than others.

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Conclusion

The maintenance of strong colonies appears to discourage much contamination as, for example, by European foulbrood and by chalkbrood.

Packing colonies for wintering in the north, and providing upward ventilation doubtless discourage and lessen the likelihood of much infection of honeybees. Avoidance of stress on a colony helps to prevent trouble. Provision of windbreaks is important in this connection, as is the presence of adequate honey stores of good quality. Adequate supplies of a good quality of pollen also help to avoid stress in a colony at a time in early spring when gathering is impeded by unfavorable weather. Not all pollens are equal in nutritional value. The presence in pollen of low levels of residual pesticides that do not kill but reduce the functional efficiency of the workers may contribute to stress.

Avoidance of unnecessarily liberal ventilation at the lower entrance of the nest is one important way of reducing stress on colonies in northern climates.

By knowing what troubles may affect his bees, the operator can prevent many of their adverse effects. As with a human parent, he can stand on guard.

Sources Consulted

Morse, Roger A. Editor, *Honey Bee Pests, Predators, and Diseases*, Cornell University Press, Ithaca, N. Y., and London 1978. *Bee World* Vol. 60

White, G. F. 1913 *Sachbrood, a disease of bees*. U. S. Dept. of Agric., Bureau of Entomology, circular 169

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BEESWAX CANDLES

(Continued from page 617)

tainer of ice water near the hot wax, for chilling each layer of wax on the candles between dips -- another coffee can is perfect for the water bath. A pair of scissors or kitchen shears will also be useful, for snipping off the bead of wax that will form at the base of the candles.

The candles we make, using a one-pound coffee can as a dipping container, will be six inches long. So cut the wicks about 8" long if you plan to dip the candles one at a time, or long enough to tie to your holding stick if you prefer to work with doubles. The wicks will not lie straight at first, but that's O.K. Dip them in the melted wax, then in ice water, and then you'll be able to form them into straight lines with your fingers. Do dip in the water before trying to straighten the wicks -- then the wax won't stick to your fingers, although the wicks will still be pliable.

Continue dipping first in the hot wax, then in the ice water, until the candle is about 1/4" in diameter at the base. You will notice that they are already beginning to take on the tapering form that is characteristic of hand-dipped candles. Straighten the wicks so that the candle is as nearly even as possible along its length, and snip off the bead of wax that has formed on the bottom. Now just continue alternating between the wax and water dips, cutting off the extra wax at the base as necessary, until the candle is as fat as you want it to be. Approximately one inch at the base is convenient for most candle holders.

Keep the level of wax in the coffee can near the top, to maintain a full six inches for dipping, but be careful not to overflow into the double-boiler water. If you are short on wax, the level can be maintained by adding hot water, and the candles will pick up their layer of wax at each dip just as if it were all wax. I like to use about half the container full of water toward the end of candle making, because the water washes the wax that's left over. I allow the wax to cool and set over the water in the dipping can; any particles of dirt or propolis that remained in the wax after rendering will settle in a grey, beaded mass at the bottom of the wax cake, where it can be easily scraped off, leaving even finer wax for next time.

And that's all there is to it! Making your own candles from cappings wax is, if anything, even easier than it sounds, and a nice, thrifty way to use that lovely wax, too. Pure beeswax candles -- what a luxury! -- especially at Christmas time, when we're all interested in setting a beautiful

table for holiday parties. And hand-dipped tapers make such a thoughtful gift, too. It's a nice way to say "Happy Holidays!" and may the joy of Christmas light your way through the New Year."

*Author's note: Pat Cravener is a professional writer and enthusiastic amateur beekeeper, living in Samuels, Idaho.

NEWS AND EVENTS

(Continued from page 643)

Toth, Jr., Senior Wildlife Biologist, N. J. Division of Fish, Game and Shell Fisheries, and Jack Matthenius, Jr., Supervisor of Bee Culture, N.J. Department of Agriculture.

The noon luncheon will feature a complete relish tray, assorted cold meats and salad platter (cheese, ham, turkey, roast beef -- potato & macaroni salads, cole slaw), assorted breads and butter, layer cake, coffee and tea.

Reservations must be made for the meal. R. S. V. P. Send \$5.00 per person to Mrs. Liz Rodrigues, 157 Five Point Road, Colts Neck, N.J. 07722 (201) 462-4591. RESERVATION DEADLINE is JAN. 18th. No ticket will be distributed via the mail.

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COLORADO

Colorado Beekeepers Association

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Registration will be at 9:00 A.M. on Saturday. The days program will extend from 9:30 A.M. to 3:30 P.M. The banquet will be at 6:30 P.M.

A business meeting will begin at 9:30 A.M. Sunday December 9th.

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Richmond Beekeepers Association

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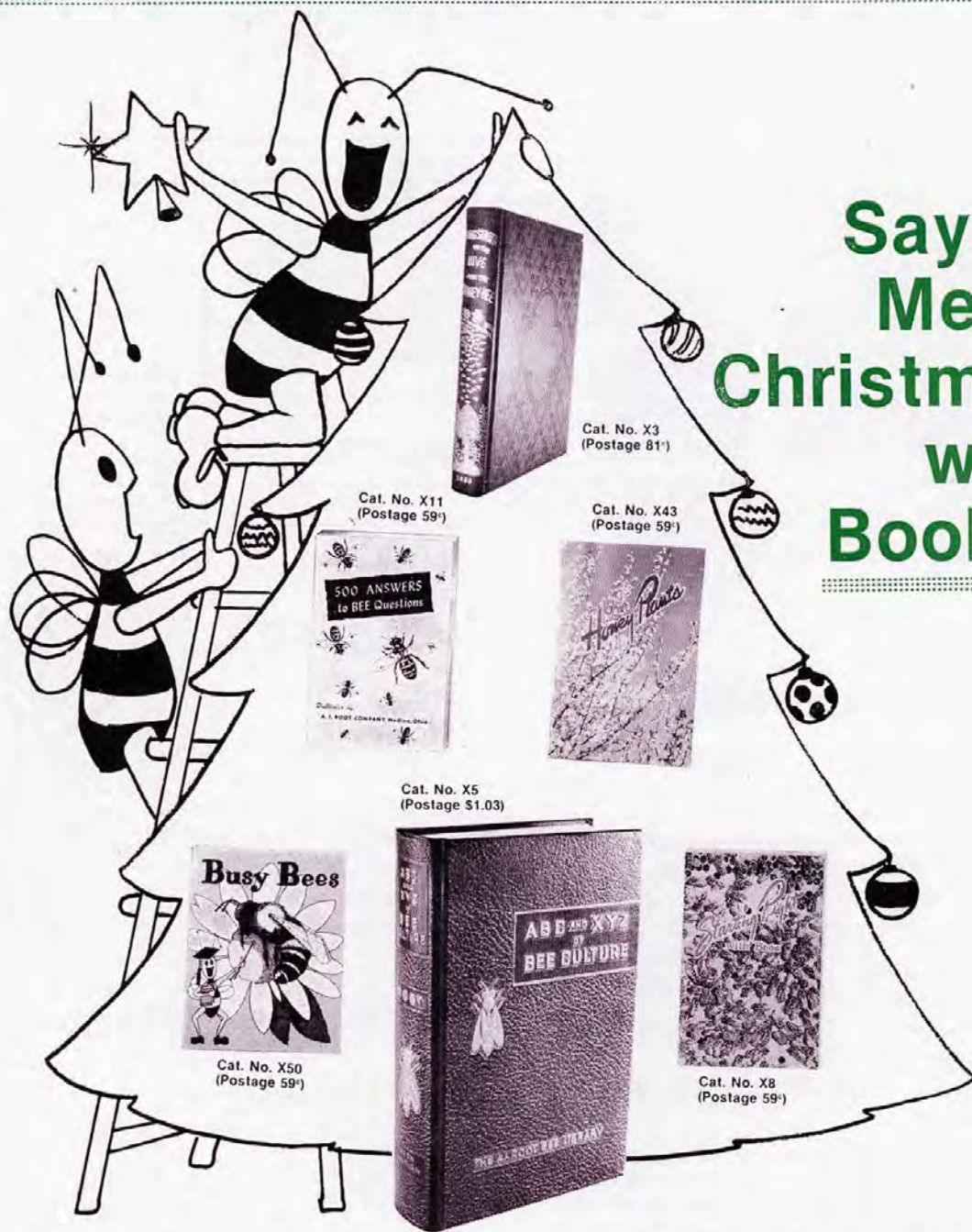
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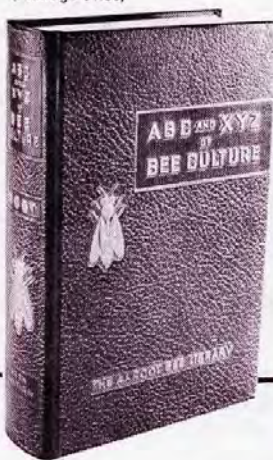
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