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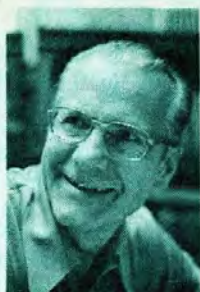
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COVER STORY

A young girl with an old-fashioned bee gum. Gums such as this are still in use in some rural areas. Photo by Robert E. Donovan.

Gleanings in Bee Culture



July 1980

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Created to Help Beekeepers Succeed
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CONTENTS

Gleanings Mail Box	370
1981 ABF Convention To Be In Seattle..... P. F. Thurber	371
Notes From The Straw Skep..... Bess Clarke	374
The Temple Builder Bees..... Edwin Tate	376
Monthly Honey Report..... Lawrence Goltz	378
Wisconsin Bee Poop Controversy..... Evy Peterson Nerbonne	380
Fighting Adulterated Honey..... Richard Adey And Glenn Gibson	382
Peace Crops Seeks Beekeepers.....	382
Honey Plants..... Bernie Hayes	384
Double Screen Board..... Walter Crawford	384
Let's All Get Involved!..... Frank Robinson	386
The Comb Honey Dilemma..... William G. Lord	387
How The Public Sees Us..... Grant D. Morse, Ph.D.	388
Heat Killed Bees Flown To Canada, Shipper Says.....	390
My Name is on Mt. Whitney.....	391
Varroa Mite Not Present in Maryland..... I. Barton Smith, Jr.	392
Diary of a Beekeeper..... Alex Summers	396
Strictly Backlot..... Carl Callenbach	398
Productivity Award to Australian Pollen Producer.....	399
Siftings..... Charles Mraz	400
Eastern Apicultural Society..... Charles B. Fisher	400
Bee Talk..... Dr. Richard Taylor	401
Information Sought on Bee Poetry.....	401
Research Review..... Dr. Roger A. Morse	402
Plans Progressing on Honeybee Embossed Envelope.....	402
Beekeeping Technology..... Dr. James Tew	403
Bee Fever..... J.G. Stevens	404
A Solar Wax Melter.....	405
The Alfalfa Seed Industry and The Beekeeper..... Joe Traynor	406
Beekeeping In Angeles National Forest..... William Buck	408
Increasing Your Honey Sales With Fund Raisers..... Timothy Hosey	409
Questions and Answers.....	411
Problems in Transporting Bees.....	413
Partners In Pollination.....	414
How The Honey Bee Sees..... Ed Wolfe	415
Damaged Comb Salvaged..... Stanley Comstock	417
News and Events.....	418
Camouflage Those Bees..... Steve Gould	423

Gleanings Mail Box

Dear Editor:

The ash problem is rather real here in Washington State, and may spread to surrounding states before the summer is over. There have been no reports yet on how beekeepers are doing east of the mountains. In the Seattle — Tacoma area, to date, no ash has fallen; though the peninsula was sprinkled this weekend. East of the mountains around Ellensburg, Yakima and Spokane are covered. Roads are not yet all open and any driving into the area is discouraged.

The first part of May in the Tacoma area was very nice, with mild, dry weather in the 60's. Now it is cold (for May), in the mid 50's, ten degrees below normal, and wet. Hives were removing drones two days ago, something unusual for this time of year. One media reported that other beekeepers have noticed this activity and thought it may have been linked to the volcano activity. I thought it was more likely just the cool weather, short supplies of food and no nectar flow. Fruit bloom, maple and willow is over here. I'm waiting for blackberry and clover, but usually move bees to the mountains this time of year. However, with the ash, I'm really worried about where to move them. If there is time I might check with the weather people and try to learn something about wind patterns. Every part of the state might get hit if this keeps up for years. And if I do find a safe spot you can bet others will want to be there too. If I lived east of the mountains I would move my bees out, even if it meant the honey crop this year. The television showed one alfalfa field in Randle covered in dust with plants laid down and roots rotting.

I don't think anyone is ready to understand what this is going to mean to many people.

Michael Franich
Tacoma, Washington

Dear Editor:

Your May 1980 issue of *GLEANINGS IN BEE CULTURE* has a question from a Texas beekeeper — "In none of the reference material I have do I find any mention of Mimosa Tree as a nectar or pollen source. Is it, and to what extent?"

At my be yard in Tangipahoa Parish there is a section of land about three acres of which is a Mimosa jungle. Also the neighbors on Stepp road have trees in their acreage which must measure a branch spread of thirty feet wide.

When these trees bloom the bees make them look like large swarms; they work every flower.

Taking the frames of honey out of the hives soon after they have sealed the honey is a joy. The wax and honey have the lovely aroma of the Mimosa flowers.

The honey is light colored and thick.

This also describes the honey the bees gather from the Azalea flowers, but the quantity is not the same.

Serena Lunt
Chalmette, LA

Dear Editor:

I just wanted to let my fellow readers know of articles about honeybees with pictures that I have read recently.

Ranger Rick, National Wildlife Federation, 1412 16th St., N.W. Washington D.C. 20036, January issue, 1979, p.20; and the July issue, 1979, p. 41-42. Each copy costs \$1.25.

The National Geographic Magazine, February, 1980 issue, p. 172, 173. Cost \$1.50 per copy. "The Pesticide Dilemma".

National Geographic Magazine, April 1976 issue, "Will Brazil's Fiery Bees Reach the U.S.", p. 491. Write for price.

National Geographic Magazine, August, 1959, "Inside the World of the Honeybee", p 188. Write for price.

National Geographic Magazine, April 1935, "Man's Winged Ally, the Busy Honeybee", p.401. Write for price. National Geographic Society, P.O. Box 2895, Washington, D.C. 20013.

Maybe your readers will advise me of other articles from periodicals.

James M. Steed
Route 2, Box M-22
Richmond, KY 40475

Dear Editor:

While I can't honestly say that the obituaries are the most enjoyable part of the monthly reading I do in *GLEANINGS*, I can't agree with Vernon Hathcock's comments on the subject in the April issue, to the effect that "who cares about the obituaries of persons unknown?"

When I have the time, I normally read aloud to my wife items from various publications which I feel offer something unique informationally and/or philosophically. We feel the *GLEANINGS* obituaries qualify as a "sharing" item.

Although we are only hobby beekeepers, so far as we are concerned, the beekeeping "fraternity" represents one of the few remaining "pockets of human sanity" still in existence. We should be allowed to continue to share in retrospect the lives of long-time beekeepers and to reflect on their contributions to and pleasure in their craft. How comforting to read of lives devoted to an activity not necessarily dependent on nor responsive to our otherwise media -and - technology-saturated lives.

The bees will continue not to notice our comings, goings, or sage deliberations, but keep *GLEANINGS* coming for at least another 107 years!

"H" K. Hancock
Moab, Utah

RULES FOR THE WESTERN APICULTURE SOCIETY PHOTOGRAPH CONTEST

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SCENIC: Bee forage and apiary sites, etc.

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3. Slides are desired in plastic sheets.
4. Color or black and white prints acceptable.
5. Photos must have been taken recently and should be originals.
6. Name, address and classification to be printed on the back of all entries.
7. A \$2.00 entry fee is required if return of entry is desired.
8. Membership in W.A.S. by all participants.
9. Winners will have to agree to publication of their entry.
10. Entries must be received by mail no later than August 15th, 1980; or dropped off at registration desk.

Prizes for winning category to be arranged.

Mailed entries should be addressed to:

The Western Apicultural Society
C/O Housing and Conference Service
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GLEANINGS IN BEE CULTURE

1981 ABF Convention To Be In Seattle

By P.F. THURBER
Kirkland, Washington

THE 1981 FEDERATION convention will be held at the Sea-Tac Red Lion Inn which is adjacent to Sea-Tac Airport and is roughly half-way between Seattle and Tacoma. The Inn is a tremendous facility which can (and has) handled conventions of over twenty-five hundred people. There is ample space for commercial displays and a courtesy bus which meets all incoming and out-going planes at Sea-Tac Airport.

The 1981 Convention may be a first because instead of a State association hosting the convention, a local, The Puget Sound Beekeepers Association, Inc., will do the honors. That is not to say our State associations would not and will not assist if requested, but in Washington it is traditional that local associations host our State and Bi-State conventions so we think we can handle the ABF Convention to your satisfaction. As a matter of fact our association had a small observer group at San Diego in 1979, and a similar group at the Detroit convention in 1980

learning the ground rules and the procedures. Our host committee has been in existence and operating since the Spring of 1979.

In Washington we are extremely fortunate to have Dr. Carl A. Johansen, the world renowned expert on the effect of pesticides on honeybees, as our program chairman. Dr. Johansen has been program chairman at all our functions for more years than he would like to admit and he puts together a fabulous program. The host committee has seen the tentative program and feels you will agree he really went all out to get good speakers. While there will be scientific updates, the primary emphasis is on information commercial beekeepers can use!

While it is not unusual for substantial numbers of hobbyists and sideliners to be members of ABF and attend conventions, we are making an additional effort in this respect for 1981. What we are going to do is to have the Northwest Bee School Short Course (normally held with our Oregon-

Washington Bi-State Convention) run concurrently with the ABF Convention on January 21 and 22. Many featured speakers at the convention have also consented to teach at the Short Course and will, of course, teach a different subject than the one they present to the Federation. Both groups will attend the same luncheon, banquet, coronation ball and go on tours together. It is hoped that during the joint functions the hobbyists and sideliners will become acquainted with industry problems, so they too can help when needed. It is also hoped that those planning commercial displays will include some items suitable for the smaller beekeepers.

While the planning for the ABF auxiliary functions are not complete, be assured they will not be neglected.

We are sorry we cannot afford you the winter climate of San Diego or Orlando. So, we will make it up to you with a super convention with fun social activities and industry tours. DO PLAN TO COME! □

The Red Lion Inn, Seattle, WA, site of the 1981 A.B.F. Meeting.



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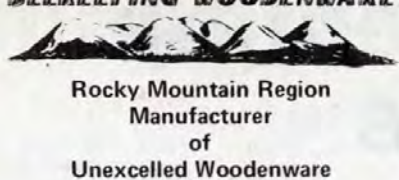
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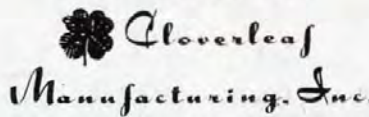


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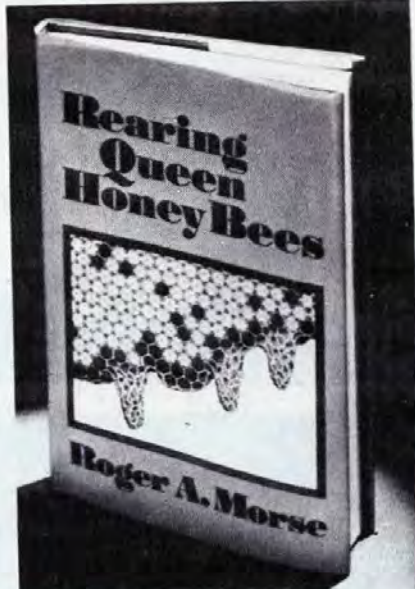
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By BESS CLARKE
Canton, PA

Notes from the Straw Skep



CAN YOU IMAGINE what it would be like to move halfway around the world and be set down into a totally strange culture — with no hope of ever seeing your homeland again?

Our church is sponsoring a family of Laotian refugees who fled their own country and have been living in a camp in Thailand for the past three years.

We applied for a family through Church World Service last July. In November we were given the name of our family. They arrived in Canton on May 17th.

There are eight members in the family: Father, mother, small son (8), daughter, (12), son, (14) and three young men in their twenties. I can recognize by name 5 of them. Three of the young men are still difficult for me to differentiate.

They were disoriented and exhausted on the first day in their new life. I visited them to take pictures for a newspaper story and was filled with pity for them. But, by two days later, when I showed them the article in the paper they were adjusted enough to make a positive response.

They don't speak English yet, although they have been studying workbooks and know many words. There's a vast difference between seeing the printed word and using a series of them in conversation!

Our Minister, who drove the family from the airport the night they arrived, said he'd never felt so helpless in his life. None of them said one word — even to each other, during the whole hour long trip. But, he reported, they smiled a lot.

Preparing for the family's arrival has had its frustrations: In the first place, a goodly number of the congregation didn't want them to come. And the community didn't exactly rush to offer housing. Not much violent negative feeling was expressed, but a lot of people wished the whole idea would go away. Now that the family

is here, it appears that they'll simply be ignored by the majority of the residents.

On the other hand there have been dedicated workers: especially the chairman of the committee for the program, Miss Florence Wright, who has devoted most of her time to the project. Miss Wright is a retired missionary who spent several years in India and she is aware (far more than the rest of us) of the travail these refugees have endured.

The family is living in an apartment attached to a church owned by the Christian and Missionary Alliance. The whole building has been for sale since a new church was built several years ago. Officials gave permission to use the housing in return for paying utilities. This was a the family break, because we have been expecting to arrive since the first of the year. Paying rent to hold a house would have been very expensive! The heating bills were bad enough, but we helped a little by installing thermostats with lower settings.

We received word late in March that the family was to arrive on April 11 at noon. The committee arranged for a van, driven by the Minister, to meet them at the airport. Food was prepared and the oven at their apartment was turned on to keep it warm. While the welcoming committee was at the airport a faulty valve broke and the kitchen caught fire! One of the church women arrived with more food just as the fire started. Fortunately, the local fire department saved the house!

Meanwhile, at the airport, the plane came in, minus our family. A check, by airline officials, found that four of the Raksasouk family had cancelled in Hong Kong! We can only surmise that they decided to stay together rather than send half their group. Church World Service offices were not very helpful. There must be a horrendous amount of redtape involved with each one of the resettlement files.

That situation worked out pretty well.

It would have been terrible for them to have come to a burned out kitchen. Even worse, what if they'd had the fire after they arrived?

Furnishing the place was no problem, and an assortment of winter clothing was easy to collect (in anticipation of their arrival in mid-winter). It's just as well they didn't get here until warm weather, I think.

Job hunting will be difficult. Our local industry, a plastics factory, has recently laid off 40 employees, so there's no hope of work there. Each of the young men has a trade: Carpenter, Tailor and Cook. These skills may prove to be most helpful.

One bright spot was the visit of a retired Air Force Colonel, who spent three years in Thailand. He can understand their dialect and communicate with them in speech which approximates their own. I'm sure he will be called upon in emergencies.

It's too early to even guess what the future has in store for this group of refugees. We can only pray that their life in Canton will be happier than their previous existence. □

RECIPE

One of the recipes in the "Ideals" cookbook is for frozen strawberry salad which may be used for either salad or dessert. It's easy to prepare and (since it's frozen) can be made ahead in preparation for a holiday weekend.

Frozen Strawberry Salad: 1 8 oz. package cream cheese, 3 Tablespoons honey, 2 cups crushed strawberries, 1 cup crushed canned pineapple. Blend cheese and honey. Stir in fruits. Pour into freezer tray and freeze at least two hours. If it's to be a salad cut into squares and serve on a lettuce leaf. Spoon it into sherbets with a scoop of whipped topping for dessert.

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The Temple Builder Bees

By EDWIN TATE
Woodland Hills, CA

IN OUR STUDY of the behavior of the honeybee, we are prone to believe certain activities and methods are rarely, if ever, violated by them. Combs for instance are always built downwards.

However, after working with bees over 60 years (for both pleasure and profit) and also teaching apiculture in agriculture college, I found one colony that defied our premise and bee laws. Gravity went upward with their combs as well as down. This is contrary to all I have learned to expect from honeybees.

The photograph will give an idea of the real engineering performed to make this temple a "ziggurat" of comb — upward from the base above the regular combs.

The curved upthrust combs were the strongest construction possible when tied at points to create loops and on the whole very much like the spokes of a wheel pressing against the center hub.

The curved combs also contributed to the carrying capacity and downward pull of gravity, when filled with honey.

The whole structure was approximately 20 inches high and the same in diameter as photographed.

The photo does not show the true height; as the picture was taken at about a 45 degree angle. Also, I did not cut as low as I might have because of the interfering boards.

Why did they build upward?

There was a tremendous nectar flow following a fine spring for the buildup of colonies with the usual heavy swarming from untended colonies (both hived and wild).

Part of my activity, since retiring, has been to collect swarms from householders in the general area. Occasionally I even remove a colony established in an unwanted location.

By the looks of the combs, this particular colony had been an early spring swarm. When I was requested to estimate, it was a real going concern (with probably some 60,000 bees).

The property owners were very conscious and fearful of the coming and go-

ing from the hole left in the stucco post at the end of the fence. The hole was at knee level — pointed toward the swimming pool, a few yards away.

The builder, to finish off the end of their stucco wall, had created a false terminal post (two feet square and about 5 feet above the terrace level. It extended some 30 inches below that level, down an extremely steep slope; all stucco over boards). The entrance to this "beegum" was an oversight, leaving an irregular one inch hole on the patio side.

Here was built a "beegum" of almost perfect design. Had they commenced their comb building at the top, instead of at the 30 inch level, no oddity of construction would have developed. The interior was approximately 22 inches square with a 2x4 running diagonally to the 2x4 horizontal nailing pieces at the ground or patio level. It was here they had begun their comb building. They filled the 30 inch space to the ground starting from the diagonal brace piece. Yet, there was all the space above their starting point. Had they started at the top originally they would have had nearly 8 feet to build downward. But not to go to the top away from the brood area would have really shattered one of their laws. Bees do not usually leave a space between the honey and the brood area. Ordinarily even the 9/16 inch

depth of a full frame is almost more than they will accept without foundation as a starting point for new combs. In this instance "up" was the answer. Honey was nearby for wax-making and the vast area above was available in which to build.

I removed an area of stucco and boards to gain entrance to the colony (on the downhill side of the wall next to the post). There I found the mass of comb to the ground and the triangle of comb pointing upward about 24 inches above the normal, down-built combs.

Not expecting anything out of the ordinary, I had not brought my camera. In the midst of the project, I was reluctant to drive 15 miles home for it. So, I cut the upthrust combs loose at the crossbrace with a machete. I then lifted the comb out and placed it on a piece of plywood to bring home. I was able to get all but the bottom couple of inches of this unusual composition and bring it home to photograph (in black and white and in color).

Even after removing it from its base, it was a compact, sturdy and beautiful structure. A "ziggurat" worthy of the name — with some 6 pounds of honey in the portion shown and probably twice that amount below my cutting point!

I also salvaged the bees. □

Comb built by the temple building bees. Photo by Edwin L. Tate.



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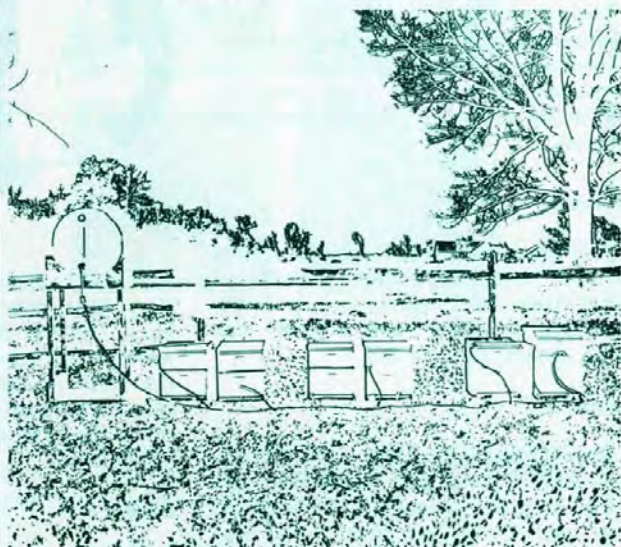
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Monthly HONEY Report

LAWRENCE GOLTZ

June 10, 1980

The following figures represent the current prices reported by beekeepers and packers over the country. They are based on reports from many states averaged out for each region. Where insufficient information is received no price is shown. The retail prices represent the price of each size jar.

Wholesale Extracted

Reporting Regions

Sales of extracted, unprocessed
honey to Packers, F.O.B. Producer.
Containers Exchanged

	1	2	3	4	5	6	7	8	9
60 lbs.(per can) White	42.00	31.20	31.80	32.40		38.00	30.00	32.00	31.20
60 lbs. (per can) Amber	42.00	28.80	30.60	31.80		33.10	28.50	30.50	30.60
55 gal. drum (per lb.) White		.52	.53	.52		.58	.56	.51	.52
55 gal. drum (per lb.) Amber		.48	.51			.52	.50	.50	.51
1 lb. jar (case of 24)	26.40	22.40	23.75	20.65	33.60	21.50	21.20	22.10	22.90
2 lb. jar (case of 12)	24.00	21.15	21.25	19.30	33.00	20.50	20.90	18.50	22.10
5 lb. jar (case of 6)			23.75			24.00	18.10	21.50	24.40
Retail Honey Prices									
1/2 lb.	.90		.75	.69		.72	.71	.75	.80
12 oz. Squeeze Bottle	1.35	1.10	1.25	1.06	1.75	1.10	1.32	1.12	1.25
1 lb.	1.35	1.25	1.40	1.12	1.75	1.15	1.18	1.18	1.40
2 lb.	2.55	2.39	2.75	2.09	3.45	2.15	2.50	2.10	2.65
3 lb.	3.80			2.80	5.10	3.50		3.00	3.75
4 lb.	5.00	4.49		4.10	6.80	4.45	4.50	4.10	
5 lb.	6.00		5.20		8.50	5.10	5.25	4.59	5.69
1 lb. Creamed			1.40					1.31	1.45
1 lb. Comb			2.25	1.75	1.75	1.65	1.80	1.49	
Round Plastic Comb							1.65	1.29	
Beeswax (Light)	1.85	1.75			1.75	1.80	1.60	1.85	1.75
Beeswax (Dark)	1.85	1.70			1.65	1.75	1.55	1.75	1.68

Region 1

Moisture condition looks good, so far. Swarming a little more than average. Cost of beekeeping operations much too high at present and must be given consideration in the sale price of honey, wax and supplies.

Region 2

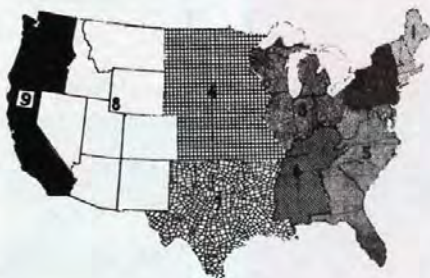
Bees are in excellent condition. Strong colonies have stored 20-30 pounds of honey from early spring honey flows. Swarming is earlier and heavier than usual. Honey sales are fair.

Region 3

Spring build-up has been good and colonies entered clover flow in excellent condition. Weather variable in late May and early June. Clover flow began in late May in southern portion of region, in early June in northern part. Rains are plentiful and may interfere with early flows from locust and basswood.

Region 4

All colonies are reported in very fine



condition in Nebraska for the honey flow. Very little rain in Minnesota through May. This has given the bees ideal flight weather and heavy gains were made from the early nectar sources. Overwintered colonies built up well. Rain needed for the clover flow. Honey sales some slower in Minnesota.

Region 5

Bees did not build up well for the tulip poplar flow in North Carolina except for those that were fed. Very dry in late May and early June causing the tulip poplar to dry up the nectar. Bees quit working the poplar and started working the white clover which does not yield well in North Carolina.

Region 6

The spring honey crop has been light in Kentucky reflecting the below normal early spring temperatures. Tulip poplar has a below average set of bloom and the crop is less than normal. Swarming has been average. Clover seems to be abundant, moisture is ample. Honey flow conditions are good in Tennessee.

Region 7

Bees had a good honey flow from vetch and clover in Arkansas. Rainfall is normal at the beginning of June. Prospects are good for a normal soybean and vine plant honey flow. Some starvation was experienced in Arkansas in early spring due to the cold weather. Chinese tallow started to bloom in Texas in early June. Rains brought white brush and wildflowers into bloom in June. Season is late in Texas. Honey flow started about May 25th in Oklahoma and runs through June. Only a light honey flow prior to May 24th in east central Oklahoma. Honey sales average.

(Continued on page 420)

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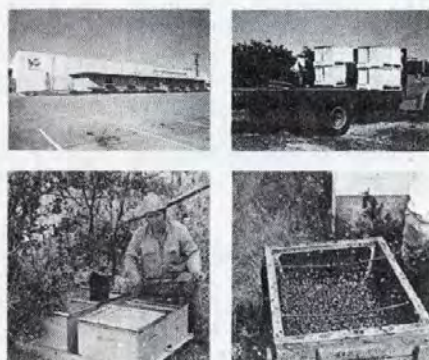
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Wisconsin Bee Poop Controversy

By EVY PETERSON NERBONNE
Clear Lake, WI

IT ALL STARTED with a few paragraphs in a northern Wisconsin weekly newspaper. But it turned into a nationwide media blitz that made the phrase "Bee Poop" recognizable all over the United States.

The story began when columnist Evy Peterson Nerbonne said that she believed Wisconsin Governor Lee S. Dreyfus slighted Wisconsin agriculture, and especially beekeepers, during an Agricultural Day meeting on March 20th in his office in Madison. Among the visitors at the meeting were four "commodity queens", the state promotional queens for beef, pork, honey and the maple syrup industries.

Nerbonne, Wisconsin Honey Queen — Lynn Ludack, Wisconsin Honey Queen and American Honey Queen coordinator, JoAnne Weber were all in Madison promoting honey and representing the Wisconsin Honey Producers at the Agriculture Day events on March 19th and 20th.

In her column in the March 25th edition of the Amery Free Press, Nerbonne described Dreyfus as sarcastic and insulting during the encounter. The talkative Dreyfus commented that beef cattle are inefficient protein converters and said that he had eaten dog and horse meat in the Orient. He said Jewish and Moslem people traditionally shunned pork for good reason and commented that his wife said she didn't like honey because it was "BEE POOP"!

Prior to publication of Nerbonne's column, the Northwest District of the Wisconsin Honey Producers met in Menomonie and voted to send a letter to Dreyfus, asking him to refrain from referring to honey as "Bee Poop". The letter was signed by Northwest District Secretary, JoAnne Weber and was co-signed by approximately 30 beekeepers and honey industry representatives attending the meeting. Wisconsin Honey Queen, Lynn Ludack also signed the "protest letter".

The letter read, in part:

"After visiting your office in conjunction with Wisconsin Agriculture Day activities, I felt it necessary to take to the Wisconsin Honey Producers Association Northwest District meeting what I felt were totally unacceptable remarks from you.

I think your comments on "Bee Poop" were disrespectful to the honey industry in Wisconsin. We consider ourselves an essential part of Wisconsin agriculture....these members of the Northwest District ask you to refrain from using terminology such as "Bee Poop" in the future! Even though you and your family seem to find this story about your wife humorous, we do NOT! We think your insensitive statements are a detriment to our industry. The negative connotation of your "cute" remark has far-reaching economic impact on the consumption of our product and we feel it detrimental to the Wisconsin Beekeeping Industry as a whole.

I'm enclosing signatures of members of the Northwest district Beekeepers Association, who, during their March 24th meeting in Menomonie, instructed me to write this letter. Signed: JoAnne Weber, secretary, Northwest District, Wisconsin Honey Producers Association."

Dreyfus sent angry responses to both the Amery Free Press for the Nerbonne column and to Weber for the honey producer's letter. In addition to the 5-page letter received by Nerbonne personally at the Amery Free Press, the editor received another 3-page letter from Dreyfus aid, Mary Williams. The newspaper printed both letters in their entirety.

In a stinging letter to Weber and the honey producers, Dreyfus said the group should concentrate on issues more vital to agriculture than whether his wife called honey "Bee Poop"

"We have truly difficult and important matters to deal within this area, and I'll not deal with this kind of trivia and nonsense" he said.

"I will not let you or anyone else, because of my entry into public-political life, change me into a sterile, cautious individual, who speaks with every word being weighed carefully and simply carries out the ceremonial functions of life without any attempt at genuine human interchange", he said.

Dreyfus told both Nerbonne and Weber that he would continue telling the family story about "Bee Poop" and added "The day I quit trying to reach people and quit telling stories about my own and my wife's childhood is the day they will plant me in this earth."

The original Amery Free Press column was printed on March 25th and by April 10th the Wisconsin News Services became aware of the communications between the newspaper, Dreyfus, and the honey producers. The story was picked up by both the United Press International and Associated Press and both ran numerous stories on their newspaper and broadcast wires. Hundreds of newspapers, radio stations and television stations around Wisconsin carried the stories, including La Crosse, Madison, Green Bay, Oconomowoc, Prairie du Chein, Eau Claire, Superior, Wisconsin Rapids, Milwaukee, Menomonie, Appleton and Chippewa Falls.

Both wire services also filed the story nationwide. Print and broadcast media around the country started to pick up the "Great Wisconsin Bee Poop Controversy". John Chancellor carried the story on his national television news broadcast. Newspapers in California, Florida, Texas, Arizona, Minnesota, Illinois, New York, Hawaii and other states carried the stories. A typical headline, such as run in the Los Angeles Times, read: "PARTY POOPER TOLD TO MIND HIS BEESWAX"!

Beekeepers from around the nation clipped newspaper stories and sent them to Weber, along with notes of support. Lloyd and Jeanne Shearman of Wimauma, Florida wrote "We're happy you took the Governor to task". Shearman is the president of the Florida State Beekeepers. "There have been too many misconceptions about honey in the past" they wrote.

Nerbonne received a letter from Waupaca County, Wisconsin beekeeper Dave Marcy. He said "Thanks for telling it like it is. Governor Dreyfus got his just reward for using a slang word for honey. I wrote him expressing my views and am sure that hundreds of other state beekeepers did also.

We have just started a county beekeepers association here in Waupaca County and only want to hear good things about honey and bees".

County beekeeping organization in Wisconsin also sent letters of disapproval to Dreyfus. County groups in St. Croix, Polk, Burnett, and Barron counties all went on record chastising Dreyfus and St.

(Continued on page 423)

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Fighting Adulterated Honey

By RICHARD ADEE AND
GLENN GIBSON

IT IS HARD to realize that 6 years have passed since the American Honey Producer's Association commenced work on the problem of adulterated honey. This matter was brought (forcibly) to our attention at our convention in Albuquerque in January 1974. We learned the current testing methods would not detect adulteration when honey was mixed with a newly developed syrup — isomerase.

This bit of shocking news caused us to take immediate action in a number of areas:

In the first place, we agreed on a quiet campaign with a minimum of publicity. We could see no mileage in shouting this from the house tops. We were fearful that every jar of honey on the store shelf might be viewed with suspicion by a wary housewife. This could result in a general boycott of our product.

We talked with others in the industry and they shared our fear and agreed that a low-key approach would be best. Nobody wanted the cure to be worse than the disease.

We, therefore, adopted the following policy:

1. Work with Congress and the Administration in developing a testing method and implement an enforcement program.
2. Quietly enlist the assistance of beekeepers and packers across the country.
3. Promote adulteration laws at the state level.
4. Relay reports of violations to the appropriate agencies
5. Avoid publicity at all cost.

Since that time, we have followed this policy. We put out a major effort on the original funding of the work done by Dr. Jonathon White and continued to bird-dog this until the project was completed. Continuous contacts with the Food and Drug Administration and several state health departments produced some results. However, much to our dismay, we learned the Feds would not become deeply involved until more funds were available for action.

We have heard a lot of criticism directed toward the FDA because they were not doing their job. However, the AHP has refrained from criticizing since

they have been doing their job (as directed by the Administration). Congress passes laws, appropriates money for their administration and authorizes the bureaus to promulgate rules for action. Rules, once established, have the force of law. Implied in all of this is the authority to establish priorities — and, as most people realize, the FDA, because of their limited resources, has given economic violations a low priority.

Obviously, our objective would be to get the FDA to change their policy toward honey adulteration. We realized that we must do this at the right moment. In December, 1978, we interpreted a conversation with a FDA official as an understanding that they would commence work — in earnest — in 1979. We did not learn that we had MISinterpreted the gentlemen until it was too late to do anything, in Congress in 1979. Consequently, we lost a year. **We didn't make that mistake this year!!!**

Late last year we laid some plans for action during the second session of the 96th Congress. We did the usual — such as getting mail to congress and lining up witnesses to testify before the Senate and House Appropriations Committees. Our association filed a statement, but more important, we had three top-notch witnesses to appear before the committees and ask that the Food and Drug Administration take more action in the enforcement of the honey adulteration.

Clarence Benson, Chairman of AHPA Washington Legislative Committee, Chuck Adams, President of the National Honey Packers and Dealers Association, and Dr. Roger Morse, Cornell University, collectively made a strong case for more action from the FDA. (Their prepared statements and oral comments are a part of the committee's hearing record.) Since the hearing we have done the necessary follow-up work, so that our efforts would not be forgotten overnight.

As this is being written, we have no way of knowing how much all of this pressure will change the FDA's policy. Still, are firmly convinced that this is the only route that will net concrete action. As we see it, the Feds are needed so that the state health departments can do a more effective job at the state level. If our pressure in Congress has not paid off, we will continue the same route with more vigor.

We deeply appreciate the efforts of all honey packers and producers who have assisted us. Also, we are grateful for letters to Washington urging action on honey adulteration from any source.

Everybody in our industry needs to assist in the battle of adulteration. If you are wondering what you can do and would like to become actively involved in this effort, write us and we will be happy to advise you. This is a battle **we must win** and we must be willing to **DO IT OURSELVES!**

Experience has shown that those outside our industry, though highly qualified and highly paid, do not have the interest or the important contacts in industry and government that are vital to the success of any industry-wide problem. It is important that each of us do his bit. And, in this way, we can do the job with a minimum of expense. We hope that we can count on you! □

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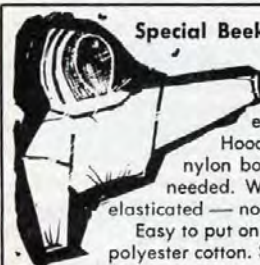
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Honey Plants

The Bush Honeysuckles

By **BERNIE HAYES**
Wellsville, N.Y.

IN A HUMID climate, the bush honeysuckle thrives in the forest openings and in the borders of fields, following Nature's plan to fill every nook and cranny with a useful plant.

Wherever rainfall is adequate and the sunlight is strong enough, this bush naturalizes readily and escapes cultivation. Only a few varieties are native to this country. As with most of the wild berries, bird-droppings provide the means of travel since the seeds germinate readily on the moist ground, in the springtime.

This heavily flowered bush is easily identified by the two one and one-half to two inch opposing leaves on the stem—a feature of this botanical family.

The bush bears abundant crops of a soft, seedy berry (usually red, but sometimes yellow), in July and August. Berries are about the size of the common, domesticated currant. The berries persist for a long time on the branches—which often bend down with their load. It blooms in May and June (with the exception of the Chinese variety which blooms in the very early spring) and is valuable for brood-rearing. Unfortunately, it is very "weedy" and it is difficult to prevent its spreading.

While most varieties of this plant have corolla tubes too deep for the honeybee to pollinate, the Tartarian (*tatarica*) is a very hardy plant of Russian origin and is an important bee plant—as is the Zabel honeysuckle. Both of these varieties are rated as good sources of nectar.

The New York Conservation Department has grown these shrubs for planting by landowners. They consider this shrub an important wildlife source since few woodland shrubs will set fruit as heavily or blossoms so profusely. The usual height of growth is about six feet and often spreading by that same amount. Often, if you identify a honeysuckle plant, it will be the Tartarian since it is a favorite in the nursery trade and the most cold-tolerant of any.

I find the honeysuckles the most common wild shrub that flowers and is worked by the honeybee in my locality—even exceeding the choke cherry. In recent years, the bees have worked honeysuckle here very extensively; even though flowering has been normal. I suspect the bees do work the honeysuckles. Possibly the lack of calcium and boron in the Northeast prevents some of the lesser honeyflows from becoming important. I am unable to

find a figure on the sweetness of the bush honeysuckle's nectar and there is little fragrance at bloom time. I will endeavor to add some lime for calcium and boron to a few plants to check the problem out.

Tatarian Lonicera seed is commonly stocked by tree seed companies and a pound currently sells for about nine dollars. The seed is relatively small—so a pound would seed a large area.

The name, honeysuckle, is of course, misleading—as is the honey locust tree. Neither of these are major nectar plants. For those that plant for the bees....and birds, the *Lonicera* is a good choice.

This plant may be increased by seeding early June, softwood cuttings rooted in damp sand—or by layering.

Continuing my efforts to introduce worthwhile nectar plant species to American beekeepers, I will mail a sample seed packet to any U.S. beekeeper providing a stamped, self-addressed envelope. □

References: Seed - F.W. Schumacher Co. Sandwich, MA. 02563
Plants - Pellett Gardens, Atlantic, IA. 50022
Barnes Nursery, Box 250L, McMinnville, TN. 37110 (Zabel only)

Double Screen Board

By **WALTER CRAWFORD**
Massillon, Ohio

WHEN ONE WANTS to develop a nucleus or raise a new queen above a strong colony, a special inner cover is used. The opening in the center is covered on both sides with a screen or $\frac{1}{8}$ " hardware cloth which will not allow the bees to pass through. The double screen prevents the queens from getting together and having a royal fight, the result of which is the death of one queen. A single screen will not always prevent this from happening.

A piece of screen can easily be tacked to each side of the opening but it is no little bother to pry them off when not wanted.

Many beekeepers do not use the Porter bee escapes when removing supers of honey. For these folks, the shape of the hole in the inner cover is not important. A round hole can be cut to fit a standard Mason jar ring as used for canning fruit and vegetables. The rings come in two sizes. I prefer the large one. A hole is cut in the inner cover to fit the ring snugly so that the rim will prevent it from dropping all the way through. If necessary to feed a colony, any jar which the ring will fit can be filled with sugar syrup and set top down into the hole. The standard sealing lid is used with three or more very small nail holes in it.

For use as a double screen, cut a circle from $\frac{1}{8}$ " hardware cloth to fit snugly in the ring. Then cut a square of the same material the size of the inside of the ring. Bend the corners down and trim them off so that it can be forced into the ring leaving a space of about $\frac{1}{4}$ " between the screens. This provides a handy double screen which can be removed or replaced in a second. It may be that if one opened up a mesh in each screen, large enough for a single bee to pass, it would act as a bee escape. I have not tried this but it just might work. If it does there should be no problem of dead bees blocking the escape.

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Let's All Get Involved!

By FRANK ROBINSON, Secretary
American Beekeeping Federation, Inc.

EVER SINCE analytical techniques have been available which could identify the adulteration of honey with the isomerase corn syrups, the Honey Industry Council and its member organizations have been involved in active programs which (it is hoped) will reduce or eliminate this most serious problem. Regardless of the type of program, its success depends to a large degree on the participation of the individual beekeepers. I am writing to inform the readers of this publication about a new attack on the adulteration problem and to request their active support in any way possible.

Many estimates have been made as to the extent of the adulteration problem and while these estimates vary widely they all agree that the problem is particularly serious for the large, bulk honey consumer.

Recognizing that the threat of public exposure can be a powerful deterrent, the Honey Industry Council has adopted a plan to provide free analysis of samples of bulk honey purchases so that the larger commercial users can be certain that they are using pure honey in their products and not some fraudulent product. To let the bulk honey users know about this opportunity, a letter was sent out to many national organizations representing Meat Processors, Bakeries, Cereal Manufacturers, Fruit Processors, and others. As noted in this letter, the cost of this program will be paid by the American Beekeeping Federation from the Honey Defense Funds and we hope that many of these national food processors will take advantage of this offer!

"ADULTERATION is the most serious problem facing the honey producer and the honey consumer today. It is a problem which the members of the American Beekeeping Federation are determined to solve or 'go broke trying'! Since many of the members of your organization use large quantities of honey in their products I am sure that they, too, are interested in solving this problem so their consumers are assured of getting pure honey in the products they purchase, and not some imitation product. Therefore, I am writing to offer our help by providing, without cost to your members, the analytical services necessary to assure that the honey your members purchase is PURE HONEY and not an adulterated product.

These analytical services will be provided by Honeytech, Inc., Navasota, Texas; and will include the carbon isotope ratio and, if necessary, the thin-layer chromatography and other tests. These procedures have been adopted by the Association of Official Analytical Chemists as the official methods for the analysis of honey. A report of the results of the analysis will be sent to the company sending in the sample and it will be left up to that company as to what action they want to take in any instances where adulteration is indicated. If desired, our Counsel will co-operate in any action contemplated.

We will appreciate, very much, your co-operation by notifying your members either by letter, or in your publications, that this service is available at no cost to them. On request we will send the appropriate instructions, as to how the samples should be taken, what information should be provided about the sample and where the samples are to be sent."

I would also like to remind all subscribers to this publication about the Honey Industry Council's "Self-Policing" program which was instituted last year. This depends on individuals submitting samples of any questionable products for analysis. Again the cost of these analyses is paid by the American Federation from the Honey Defense Funds and you don't have to be a

member of this, or any organization, to submit a sample for analysis. All samples should be sent to the nearest member of the Adulteration Task Force Committee, with your name and address, and complete details about the samples (where purchased, when purchased, cost of sample, etc.) should be sent to Mr. Robert Rubenstein, Counsel, Honey Industry Council of America, Sperry, Weinberg, Wels, Waldman & Rubenstein, 6 East 43rd Street, New York, NY 10017.

The names of the members of this Adulteration Task Force are listed below. and if we all join in this fight I am sure we can bring the problem under control in a fairly short time!!

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The Comb Honey Dilemma

"The Inspiration For This Article Was The Fact That The 12 Supers Of Beautiful Comb Honey Did Not Sell."

By WILLIAM G. LORD
Dept. of Entomology
N.C. State University
Raleigh, NC 27607

THOUGH NOT a recent introduction, comb honey production in round sections has experienced a great increase in popularity in the last few years. To those unfamiliar with the round comb sections, they were developed by Dr. W. Zbikowski, a Michigan physician and hobby beekeeper. Bees construct perfectly round sections of comb in the especially designed frames, and the resulting sections of comb honey are almost too perfect to be true. Round section production languished on the back burner for many years, but now several manufacturers are producing round section equipment and they are becoming increasingly popular.

As a producer of extracted honey, I became interested in the idea of producing round section comb honey in the spring of 1979. The May gallberry (*Ilex glabra*) flow in eastern North Carolina seemed perfectly suited to comb honey production, so frames and fixtures for 12 supers were ordered. After many delays (due to heavy demand, I was told), the equipment arrived and I discovered one of the primary reasons for the popularity of round sections. Compared to the tedious and laborious task of preparing standard comb honey supers, round comb super & fixture assembly is a joy and a pleasure. Every credit should be given to Dr. Zbikowski for the simplicity and ingenuity of his system.

The prepared supers were placed on the bees and, though hesitant at first, the bees soon filled and capped the supers with almost water-white gallberry honey. (Needless to say, visions of profits were dancing in my head.) The sections were removed from the super, trimmed of excess foundation, capped with clear plastic covers, and wrapped with an attractive label. My only problem was which select customers would be ALLOWED to purchase my small, select stock.

This narrative, thus far, has presented the beekeepers point of view. To the beekeeper, the round section appears to

be the wonder of the age and the solution to every problem! One well known columnist proclaims this very message almost monthly. He says: "sell the old extractor, use the excluders for hamburger grills, and mortgage the wife and kids if need be to buy more round comb equipment." But my advice is be cautious, and here is why:

Round comb equipment sells well to beekeepers because it is a marvelous system. It is simple, relatively inexpensive, and produces a wonderful product. However, as is many times the case, what is good for the beekeeper may not be good (or acceptable) for the honey buying public.

A good example of this is honey labels. Beekeepers buy honey labels, so label manufacturers put things that beekeepers like on the label, such as flowers, bees and hives. However, the reason people buy honey from beekeepers is that most people are simply afraid of bees and would rather let some other fool get himself stung. It would follow that honey labels depicting swarming bees and boiling over hives would probably turn many people off. But — the beekeeper buys the label, and so they are made for him. Something along this same line has happened in the case of round section comb honey.

The inspiration for this article was the fact that the 12 supers of beautiful round comb honey did NOT sell. The sections were given a moderate, and then low price and purveyed at flea markets, yard sales, and to many old and loyal customers. I had a friend hawk them at the N.C. State Fair, with thousands of people streaming by daily and many buying honey. (Few chose round sections.) Visions of profits were reduced to estimates of losses. The bulk of the round sections were given away as presents. My entire crop of extracted honey was sold well in advance of only few round sections. This was both disgusting and perplexing.

To help solve this dilemma, I decided to conduct a small survey of honey packaging preferences at N.C. State University. A fairly random sample of entomologists, zoologists, secretaries, general students, janitorial staff, and innocent bystanders were sampled one December morning in Gardner Hall on the N.C. State University Campus in Raleigh, N.C. Each person

was given a choice of light extracted honey, dark extracted honey, round comb section honey, square wooden section comb honey, cut comb honey in a plastic case, light chunk honey (piece of comb in extracted honey) and dark chunk honey. The subjects were asked to give their numerical preference for the different kinds of honey — if they were buying honey — and each of these packages weighed the same and cost the same. Some very interesting data was collected. Dark extracted honey rated first in the group. Light extracted and dark chunk honey tied for second place in the preference test. Light chunk honey placed fourth, followed by cut comb honey and square section comb. Round section comb was a distant last. The average age of the subjects were 29, with many states represented, about half of which were from N.C.

Aside from the interesting preference for dark honey, it is obvious that round section honey was not preferred. I asked many of the subjects why they chose it last, and most simply did not know what it was. Many were also turned off by the slick, plastic look of the round sections, claiming it did not look natural and they were incredulous when told that the bees built it that way. Several subjects could not see how to get the section open, but the resounding verdict was that round sections were chosen LAST.

These people may be educated to the merits of round section honey over time, and many will argue that this is the simple solution. This may well be true, but I think that this is a case where the beekeeper is sold a product with great beekeeper appeal, (but scant public appeal), and the beekeeper may well be the one left holding the bag — and the bills. Round sections are a wonderful product, but there has been a marked trend away from comb honey since the first pure food and drug laws were enacted in the early part of this century. Chunk honey, which is half comb and half extracted honey has always been a big seller in the southeast, but comb honey simply does not sell well in this region, apparently, especially so in the case of round sections.

This article is not intended as a disparagement of any person or product, it is merely an account of my experiences with round comb honey sections. □

How the Public Sees Us

"The Deadly Bees"

By GRANT D. MORSE, Ph.D.
Saugerties, N.Y.

ONCE AGAIN MY television set advertises that: "The Deadly Bees Will Be Shown on this Channel Tomorrow Night."

It would be easy for me to get excited about this advertisement...To deplore the venality of the show producers who are presenting what they know to be far from the truth...To regret the gullibility of a public that will allow themselves to be deceived by such an obvious exaggeration.

But I must take time to consider what is occurring: The movie-maker is trying to make an extra dollar by appealing to the lack of knowledge of the typical listener, and is attempting at the same time to give him a thrill.

Also — I must admit that somewhere out there is an individual who has a good knowledge of bee behavior who has collaborated with the film maker in presenting what he knows to be an untruth.

But there's still more to consider in analyzing this fake presentation. A significant factor in the situation is that the average citizen fears bees. He very much dislikes the prospect of being stung. Also to a large extent, he does not object to being deceived.

What can we as beekeepers do to counteract such a presentation as "The Deadly Bees?"

We can quietly and unheatedly show any layman who raises the question, how false the presentation is. Also, we can see to it (through our good beekeeping practices) that the public fear of bees is not aggravated or encouraged. We can be careful about the placement of our apiaries, and of our handling of the bees in our yards. We can continue to inform our lay friends how to avoid being stung. We can continue to instruct non-beekeepers about the differences between honeybees and wasps — and how these different species behave!

Bees Make Much Honey

Most laymen harbor the illusion that honeybees make tremendous quantities of honey. Here's an example of this belief.

A young neighbor (25 years old,

perhaps) called to ask if I would loan him a smoker and veil. He told me he'd found a bee tree. I provided the needed paraphernalia.

"Would you like a few cakes of the honey?" he inquired.

"Surely," I told him, "if you get a surplus, but take care of your own needs first."

When he returned the borrowed equipment, he said nothing about giving me any honey but offered to pay me for the use of the paraphernalia. So I asked him how much he got.

"About a gallon," he told me.

You and I even, sometimes exaggerate, (at least in prospect), the volume of our expected crop. We say: "Let's assume a 60 pound yield per colony. Then we proceed to start multiplying. Sometimes we are pleasantly confirmed in our calculation. Often we overestimate. Maybe that does little harm unless we go into debt and trust a hoped-for big crop to pay off our obligations.

Beekeepers' First and Only Emphasis Is Getting Honey

Although many of us do not engage in the pollination business, most of us realize that pollination is the chief reason for the honeybee's existence.

It is the basic reason why flowers present themselves to the world in color — color being the initial step by which the bee identifies a particular flower. Once the bloom is identified by its color, the bee proceeds to determine whether the flower offers a reward of nectar or pollen, or of both.

Perhaps as many as five percent of the honeybees in commercial apiaries in the U.S. are rented out for pollination purposes. It is income from this source that helps many commercial beekeepers to remain solvent, and not totally dependent on the vagaries of the nectar flows.

There are few growing plants that cannot benefit from having their flowers cross-pollinated, even if their structure and anatomy do not demand it. This is true, for example, of corn. Ordinarily, gravity drops pollen cells from the tassels onto the silks of the plant and thus pollination is effected.

Many garden plants will thrive and produce good crops without pollination by the bee. Some must have such visits in order to offer up a profitable yield. Among them are the cucurbits — melon, cucumber, squashes, etc.

Many grains and grasses thrive on the pollination provided by the action of the wind. But some of the more delectable foods enjoyed by the cattle that furnish us our meat need the help of the bee. Included among them are the clovers, alfalfa, birdsfoot trefoil.

It is estimated by those who have studied the subject in detail that approximately one half of the plants upon which man depends directly or indirectly for his food, must be cross-pollinated by some insect agent. In these days of vast acreages of concentrated plantings, the honeybee is the most reliable factor in this regard. Examples are: Apples, pears, berries, some citrus, and some nuts. Even today, after many years of studying the problem of cross-pollination, the need for adding more bees to growing area in some instances is not fully recognized.

Beekeepers are "Peculiar"

What prompts this impression that we sometimes lend the public? I suppose it's because we occasionally don a veil, puff a smoker, and wield a hive tool — none of which other folks do. So we're peculiar.

The chief thing for us to remember is that we like to do these things. They're part of our trade. We should readily recognize that the working of the details of our occupation are different.

The average layman has no good defense against bees. He wouldn't think of challenging a whole hive full of them. So when someone else does it — he's quite amazed. He wonders why anyone should want to be engaged in such an activity.

When you stop to think about it, all occupations have their peculiarities. Think of the dairyman who tends a cow; or the physician who lives only with the sick — or nearly so; the lawyer who spends most of his working hours enmeshed in other folks' controversies; or the garage mechanic, up to his elbows in tire grease; and so on.

We, if we wish our occupation to be held in high esteem by people who labor in other fields, need only to make a success of our business. People everywhere respect success.

Honey Is Expensive

The present retail price of honey is sufficiently high to eliminate it from the grocery list of many people. It's purchase by the housewife is not so necessary as, let us say, bread, cereal, or milk. Some folks who like honey very much will buy it at any price. Not so many a budget-hounded shopper will.

What can we do about this? Not much — except to continue to offer a first class product, attractively packaged. Economy minded buyers often recognize that honey in a five pound pail may be their most economical buy. But the cost of five pounds all at one time scares some shoppers away. The result is that many buy a 1-3 pound glass jar of honey and ration it to their family members.

The Layman marvels At The Wintering Capability Of The Honeybee

I don't wonder that the layman marvels! I, too, marvel that a colony can survive the lengthy winters and the low temperatures to which they are directly subjected.

When you stop to examine the behavior pattern of a wintering cluster of honeybees, you can't help joining the layman in respecting the endurance of the bee colony.

Honeybees can survive cold temperatures because they are cold blooded animals, unlike man who must ordinarily maintain a room temperature of 66-72 degrees (F.) or else he must dress himself with layers of protective clothing.

A honeybee can stay alive in a temperature of approximately 43 degrees F. on the surface of the cluster. When the surface temperature of the cluster drops to 27 degrees F., bees die (unless they are permitted to move closer to the center).

Ordinarily, bees in a colony form a cluster when the temperature falls to 57 degrees (F). This is far from being a universal practice. I have often seen a few bees from a strong colony depart from the alighting board to seek nectar, pollen or water when the temperature outside was below 50 degrees F. I know that some of you will question the correctness of my figures, particularly that temperature. However, I checked both the flight behavior and the temperature carefully.

Honeybees have a particularly difficult time in maintaining brood rearing temperatures within the cluster of approximately 92 degrees F. or more. The bees at the inside of the cluster help maintain life for those on the surface by passing food to them.

As bees in the cluster consume food, they give off moisture in very considerable quantity. If there is no upward vent in the nest, this moisture condenses and falls back upon the bees thereby making life intolerable for them. Consequently, all good wintering practices provide a vent for the moisture given off.

We often hear beekeepers speak of the desirability of good air drainage. What is meant is that unless there is some movement of air outside the nest, it is more difficult for the moisture within the nest to escape. Apiaries located at low elevations sometimes suffer from lack of adequate air drainage.

Beekeepers who understand the details of the challenges that confront a wintering colony in the north as described above, invariably provide an exit for moisture. Some think that packing above the cluster can absorb all of the moisture which needs to be eliminated. Unless there is a vent from the packing area above the cluster, the packing almost invariably proves incapable of absorbing all that rises into it.

Winds can provide too much air drainage, particularly if the vent(s) are fairly large. Even paper wrapping can in some instances fail to ward off the chilling effect of persistent cold winds. Accordingly, beekeepers try to locate their colonies in areas at least partially protected from strong cold winds. This is as true in springtime as in winter, partly because the brood in springtime is usually more extensive.

Honeybees belonging to a race such as the Caucasian accordingly defer the production of large quantities of brood early in the springtime. Also, they demonstrate that lower vents should not be too large by sealing such vents with large quantities of propolis.

What Do You Do With The Wax When You Eat Honey?

Most of the honey consumed in the U.S. is in the liquid form. But occasionally a beginner in experiencing the delight of eating honey in the comb for the first time wants to know what to do with the wax.

Connoisseurs of honey, particularly of certain preferred flavors such as sourwood, clover, basswood, raspberry, when confronted with a piece of comb are often uncertain what to do.

Man has been eating honey in the comb for thousands of years. It was not until the year 1865 that the extractor was invented. Liquid honey sold prior to that time had to be crushed in the comb, then strained. Langstroth had, only a few years previously (1851), discovered the significance of bee space, and introduced the movable frame into general use. So eating honey in the comb is not new.

Many long-time eaters of honey will tell you that comb honey probably possesses a bit of added flavor because of the liquid being somewhat sealed in the cells by the cappings. Then, too, as one savors the flavor of honey over the prolonged period during which its presence in the mouth is retained by the wax, he comes to look upon the comb as a desirable element in the total eating experience.

So, when novices to comb honey inquire what to do about the wax, I say to them "chew it. Then swallow it slowly and with satisfaction".

Keeping Bees As A Hobby Is Expensive

Of course it is. Keeping a dog or a cat or a bird is expensive too!

Whatever it is that human beings favor as possessions, they usually find some reward from the experience. Even if a colony of bees doesn't yield a surplus, there are elements in the experience that can be very rewarding. Coming to know about the social life of a colony of bees can yield good dividends. If they never render a single pound of honey available for table use, it is comforting to know how they take care of themselves, how they pollinate so many essential food crops, how they multiply, how they accommodate both heat and cold.

But even a beginner usually feels the challenge to manage his colony(s) in such a manner as to secure a honey reward. This, as all experienced beekeepers know,

is a summons to master the few essentials that enable the hive to furnish its human overseer with a bonus.

"Don't Overdo The Sales Pitch On Honey"

This heading introduces the lead article in the monthly beekeeping report on Bees and Honey issued ten times per year by Elbert J. Wilcox, Extension Beekeeping Specialist at the University of Illinois (October 1979).

Dr. Jaycox is disturbed by the overweening statements and claims made by some enthusiasts in their assertions that honey is an all sufficient health food, packed full of healthful sugars, minerals and vitamins.

I think Dr. Jaycox is right. He points out that honey lacks vitamin A, folic acid (part of the Vitamin B complex), vitamin B, and vitamins D, E, and H (Biotin). He says further, there is none of the essential mineral, iodine, in honey.

The author goes on to state that the volume or quantity of those vitamins which are present in honey may be there in such small measure that one would have to consume several pounds in order to meet one's minimum daily requirement.

Dr. Jaycox quotes from the book, **Honey**, by Dr. Eva Crane as follows: The "non-sugar components of honey are present in such minute amounts compared with those in a normal diet that honey is not, in general, a useful source of them."

The author concludes his article with the statement: "Let's sell honey as a natural food, a way to obtain quick energy, and as a source of delightful flavors not found anywhere else. We don't need any false or distorted claims to sell such a wonderful product."

Nevertheless, there is another side of this question which all persons who sell honey should be familiar with, but not exaggerate out of proportion.

Honey DOES possess a wide range of elements needed by the human body. No one should expect it to be so all embracing as to provide the total minimum requirements.

Typical honey does contain several sugars, those in largest quantity being levulose, dextrose, sucrose, maltose, and others. Among its minerals (which may vary in quantity from one geographical area to another) are: Potassium, sodium, calcium, magnesium, chlorides, sulfates,

silica, phosphates, etc. Its vitamins include thiamine, riboflavin, nicotinic acid, vitamin K, folic acid, biotin, pyridoxine — all in a small quantity.

Reading this relatively long list of beneficial properties, we can see that honey (when eaten in conjunction with other healthful foods) can make its very positive contribution to the bodily well being of the human. Few other foods can match its variety or wealth of nutriment.

Beekeepers Have Few Problems

The lay public, in general, believes that beekeepers have few problems, and can't quite understand, given the current price of honey, why we don't all get rich quickly.

Their attitude is quite natural because they do not know the details that stand between the beekeeper and a fortune. To begin with, few men are able (handily) to care for enough colonies to yield a living. Six hundred colonies may be more than some individuals can care for. Six hundred colonies are scarcely enough to assure one person a good living. As soon as helpers must be hired, the operation has all the problems of any other business operation.

Then, one can't ever count on every colony's yielding a profit. As we all know, there are so many unfavorable developments which can occur that only the most expert operator can depend on a high percentage of his hives making their full potential contribution.

Some of the more common negative obstacles include the following: Swarming; loss of colony strength through disease, pests, marauders; thieves; failure to winter; poisoning from insecticides; lack of a nectar supply due to drought, windstorm and the like; breakdowns of machinery; fermentation of the honey crop; fire; inflation.

Satisfactory answers to many of these hazards are not too easy in some cases to master. More of us, probably, should protect ourselves with a greater variety of insurance. When I use the word insurance, I have in mind chiefly fire and liability insurance. I do not subscribe to the proposal that we insure against loss from insecticides under governmental supervision — thereby ensuring further freedom in the careless use of insecticides. To set up such a program would entail one more extravagant governmental "boondoggle", increased license in the use of insecticides, and losses to bees (which are not the con-

cern of beekeepers only, but of society — which is the beneficiary of all pollination work by the bees). Also, the cost to beekeepers would be confiscatory.

Loss from insecticides when it can not be controlled in any way, may necessitate moving, even a great distance. Drought can, to some small degree be combatted by diversifying apiary locations. However, drought is often widespread and deadly in its financial effect. Thieves can, to a large degree, be fought through membership in an active organization, employment of watchers, labeling equipment, and aggressive prosecution of offenders.

Wintering losses can be almost totally eliminated through learning to apply preventative methods that actually work; there ARE such methods. Swarming can be largely reduced by adopting proven preventive measures, and through hard work.

Many threats to our financial success can be rather successfully combatted. But the solutions are not easy.

Conferences with other beekeepers, and more reading can help us with the problems which the lay public does not suspect we have.

What the public thinks of us is important, of course; but what we think of ourselves is more important. Our attitude toward ourselves will largely depend on how successful we are in our occupation.

HEAT KILLED BEES FLOWN TO CANADA, SHIPPER SAYS

FIVE MILLION honeybees flown to Canada from Arizona last week died in the baggage compartment of a Boeing 727 jet—apparently from overheating.

Bee shipper, Ken Orletsky of Phoenix, AZ, said Thursday that government officials told him a thermal accident was suspected.

About two million bees were found dead Wednesday when the jet landed in Edmonton. Three million bees bound for Calgary beekeepers died the next day. The bees were being flown from Arizona to replenish depleted stocks.

Roger Topping, an Alberta bee specialist, said the bees had to contend with a temperature of 71 degrees; while the optimum temperature is 50 degrees. □

From the *Courier Journal* 4-26-80
Courtesy of James Steed. □

My Name is on Mt. Whitney

EARNEST MORRIS has been a beekeeper since 1950 when he first began keeping them in Milwaukee, Wisconsin in 1950. In 1957 he moved to California, where he now does his beekeeping.

At one time, while living in Hemet, California he acquired 20 colonies of bees by picking up swarms (on calls from the local police department). He still has two colonies of bees, or rather *did* have until the fall of 1979 when one colony was lost. He plans to replace it this summer.

You may not consider beekeeping as a suitable hobby, befitting your health or age. Consider this: On July 25th, 1979, Ernest Morris wrote his name in the ledger atop 14,445 foot Mt. Whitney, in California. In February a medal was given to him by the Lone Pine Chamber of Commerce honoring him as the oldest person to climb Mt. Whitney in 1979. He was born on May the 27th, 1889.

Fifteen years ago, at the age of 75, he climbed Mt. Whitney. Inquisitive fellow-hikers, on learning his age, passed the word along that a septuagenarian was on that very day ascending the mountain.

Last year Ernie Morris, now 90, decided to make the same climb. Not one of the hikers on the trail realized that a real, live nonagenarian was in their midst. Not to be outdone in 1979, at least in persistence, was 83 year old Hulda Crooks of Loma Linda, California who completed her 18th annual climb on August 13th.

Ernie's climb of Mt. Whitney, while it ended well, had some hours of discomfort. His success gives us an inkling as to what manner of man he is. He started up the trail on July 23rd at 9 A.M., carrying a pack of 35 pounds. He reached the 11,300 foot level at 5 P.M. to spend the night. The following day he climbed to the summit, signed the register and headed back down, planning to stop where he had left his gear and spend the night.

"But I underestimated the distance down to my camp at the 11,300 foot level where I had left my gear and at 12,500 feet it got suddenly dark" said Ernie. "I found a sheltered spot in the rocks, but spent a sleepless night under the stars with wet feet from wading through the melting snow". At dawn Ernie was on his way down to get his gear, stopping to share his breakfast of scrambled eggs and cheese with two chipmunks, a nutcracker, one rosy finch and a junco.

"A couple of days later I developed severe pains in my left side which bothered me for two days" Ernie writes. After a lot of X-rays his doctor told him that he had arthritis and that if the pain got too severe he would prescribe something to lessen it. Ernie told him "beekeepers never have arthritis", went home and had four bees sting the flesh where the pain was. He says he has had no trouble as a result of his self-proclaimed "indiscretions".

People are no longer surprised by Ernie Morris's climbing feats. A short time before climbing Mt. Whitney in 1979, he scaled 12,500 foot Kearsarge Peak out of Independence, California — as a warm up.

"Back in 1972, I hiked the first 800 miles of the Appalachian Trail and in 1975 I did the other 1,238 miles, thereby setting three records" writes Ernie. "First, I took longer to do it than any one else had; second, I never had a blister on my feet; and third, at 86, I became the oldest to have completed the Trail." The Appalachian Trail extends from Georgia to Maine.

When Ernie Morris sets out to do something one can be certain there will be no renegeing.

Ernie was born in Illinois in 1889 and was brought up on a farm. His early schooling was limited but he made up for

Ernie and his Bees.

it later — working his way through the University of Chicago, where he graduated in 1915 with a degree in Social Science. He went into the insurance business in Milwaukee, retiring after 20 years to become a Boy Scout executive. In 1957 he and his wife moved to Redding, California; where she died in 1963. He married again in 1963, his bride being the first woman ranger in the National Park Service, was stationed in Yosemite National Park. She died in 1970.

Morris took a trip to the Grand Canyon, after which he lived for a while in the Lone Pine area of California. He had wintered some in the Blythe area but said he got tired of listening to "old klunkers" talking about the past and now spends the year around in his trailer home just west of Independence.

Ernie has a son and a daughter, three grandchildren and two great grandchildren.

"Of course, to get much honey here I should practice migratory beekeeping but I don't" writes Ernie. "However, I get enough so that I can treat my friends and pay my social debts — and do they ever love it!"

"By the way" says Ernie, "if any of you who read this and are ever out this way look me up and we will talk bees and pitch some horseshoes." □



Varroa Mite Not Present In Maryland

By I. BARTON SMITH, JR.
Annapolis, MD

AN EXTENSIVE SURVEY for the honeybee mite: *Varroa jacobsoni*, has been conducted by the Maryland Department of Agriculture's Apiary Inspection Staff (in co-operation with the University of Maryland and the United States Department of Agriculture). After searching for 6 months for the devastating pest, no mite or evidence of mite damage was found in any Maryland honeybee colony.

REASONS FOR SURVEY. Two mites identified in November, 1979, as *Varroa jacobsoni* reportedly were collected near Adelphi, Maryland during August by a graduate student studying acarology at the University of Maryland. The mites were reported to have been associated with a single drone honeybee, collected from a flower by the student who was using a sweep net to make a routine insect collection. In late November, the student first noticed the mites in the bottom of a collecting vial of alcohol containing the drone bee. The mites were identified as *Varroa jacobsoni* at the Insect Identification and Beneficial Insect Introduction Institute, USDA. Unfortunately, the drone had been placed in a "used" vial that originated from a USDA acarology lab. Questions concerning the possibility that the vial or cap was contaminated with the mites could not be resolved. Once the collection was reported, the Maryland Department of Agriculture assumed that the collection was valid and planned surveys to determine if a *Varroa* mite infestation was established in Maryland.

DAMAGE AND BIOLOGY. The *Varroa* mite feeds on the blood of older larvae, pupae and adult bees. Populations of mites build up slowly but steadily during a period of several years, after which the mites begin causing severe damage by weakening and killing colonies. Most damage occurs in brood cells where female mites lay their eggs just after older bee larvae are capped over by the bees. Eggs hatch and young mites begin feeding on the brood in the cells. Pupae are either damaged or killed, especially when several mites are present in a cell. Those bees that do survive are often smaller and deformed — having crumpled wings and/or missing legs or wings.

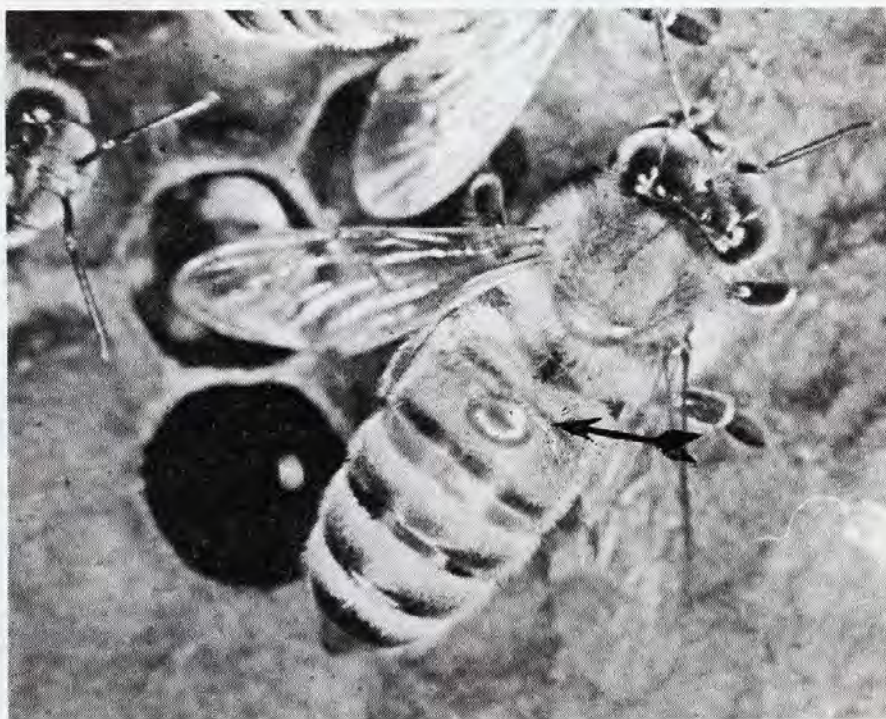
While still in the brood cell, male and female mites mate. When infested bees emerge (or dead brood is uncapped)

mated female mites come out of the cells and find either other host brood or adult bees. Once a colony becomes infested, the mites spread rapidly to other colonies in the area. This is done by drifting, robbing or swarming bees and by beekeeper transfer of infested bees.

The mite originally was confined to Asia as a parasite on the Asian bee, *Apis cerana*. The mite caused only minor damage to this bee. In the early 1900's when *Apis mellifera* was introduced into Asia as a more productive bee, the *Varroa* mite infested *A. mellifera*, causing severe loss to bee colonies. Since this time the mite has spread throughout much of the world, with the movement of bee colonies and infested queens. The only major beekeeping territories still free of the pest are North America, Europe (west of Germany), Australia and New Zealand.

SURVEYS FOR MITES IN MARYLAND. Since the *Varroa* mite had never been reported to occur in North America, it was imperative that a survey be conducted to determine if the mite were present in our honeybee colonies.

Varroa mite on honeybee abdomen. Photo taken in Japan by K. Takeuchi. Arrow points to mite.



The Maryland Department of Agriculture Apiary Inspection Staff, with the help of Dr. H. Shimanuki and staff at the USDA Bioenvironmental Bee Lab, and Dr. Dave DeJong and Dr. Dewey Caron of the University of Maryland, proceeded to make every effort to determine if *Varroa jacobsoni* did exist in this state.

Between November 26 and December 4, 1979, the Maryland Department of Agriculture inspected all 50 bee colonies located within a 2-mile radius of the reported collection site. Adult bees were visually examined for mites and brood was checked for mite damage. In addition, 24 colonies were treated with the miticide Kelthane and then examined carefully for dead mites. No mite was detected.

Mr. Wayne A. Cawley, Jr., Secretary of Agriculture for the State of Maryland, sent a letter on January 7, 1980, to all beekeepers within a 5-mile radius of where the mites were reportedly collected. The beekeepers were informed of the mite detection, its potential threat (if present),

and action planned for surveys by the Apiary Inspection Staff. Beekeepers were also requested not to move bee colonies into or out of the area without obtaining permission from the Maryland Department of Agriculture.

January through March, 1980, all 164 colonies in 53 apiaries located within a 5-mile radius of the reported collection site were checked for mites using the following methods: White paper attached under 8-mesh screen (the screen keeps bees from removing material that has fallen on the paper) was placed on the bottom boards of colonies to collect any mites, if present, that had died during the winter. Papers were periodically examined during the three-month period using a dissecting microscope. In addition, during March and April, 1980, adult bees were visually inspected for mites, brood was checked for mite damage and a sample of 500 bees was taken from each colony and examined for mites in the laboratory. These bees were placed in hot detergent solution and shaken for fifteen minutes to dislodge any mites present. The bees were removed and the remaining solution was filtered through a fine cloth. The filter was examined for mites under a dissecting microscope. Dead bees from 13 winter-killed colonies were also collected and checked in the laboratory using the detergent-shaking method.

The report of *Varroa jacobsoni* being present in Maryland had taken on serious implications during February and March, 1980. Not only was the possibility of a *Varroa* mite infestation considered a serious threat to beekeeping in Maryland and the United States, but other countries that buy packaged bees and queens from the United States were concerned about its reported presence in Maryland. The United States annually exports \$8-9 million worth of packaged bees and queens to Canada, Australia, Europe and South America. If the mite were established in a bee colony in Maryland, all bee sales from the U.S. could be placed in jeopardy.

During March, 1980, Secretary Cawley appointed a *Varroa* Survey Committee. The Committee's purpose was to advise the Maryland Department of Agriculture regarding survey and/or control activities for the *Varroa* mite. The Committee members were as follows: Mr Phillip Bowman, Delaware Apiary Inspector; Dr. Dewey Caron, University of Maryland; Dr. Dave DeJong, University of Maryland; Mr. Richard Hammond, President, Maryland State Beekeepers Association; Mr. Phil Lima, Animal and Plant Health Inspection Service, USDA; Mr. Glenn Musser, Beekeeper; Dr. Charles Puffinberger, Maryland Department of

Agriculture; Dr. H. Shimanuki, Chief, Bioenvironmental Bee Laboratory, USDA; and Mr. I. Barton Smith, Jr., Maryland Department of Agriculture.

The *Varroa* Survey Committee decided that a more thorough survey technique, capable of detecting a small infestation, was needed to check for mites in the area of the reported collection. The following voluntary survey was carried out in 31 apiaries during March 27 to April 16, 1980:

The entire bee populations from 76 colonies (90 percent of the apiaries) owned by 29 beekeepers in a 3.1-mile radius (5 km or 30 square mile area) were examined for mites. Adult bees were killed in colonies during periods of no flight. Entire colonies with dead bees were moved to a central location within the 3.1-mile radius area. Dead bees were removed from the colonies and sent to the USDA Bioenvironmental Bee Lab for analysis. All bee samples were placed in a hot detergent solution and shaken for 15 minutes to dislodge any mites. The bees were removed and the remaining liquid was filtered through a fine cloth. The cloth was then examined under a dissecting microscope. All of the equipment and the frames were inventoried. Brood from colonies was removed, consolidated in deep hive

Unloading killed bee colonies at central work site. Photo by I. B. Smith, Jr.



bodies, and placed in a warm greenhouse to allow immature bees to emerge. After a period of 7-10 days, adult bees that had emerged from the brood frames were killed and sent to the USDA Laboratory for analysis. Some of the remaining dead brood that had not emerged was removed with tweezers and checked in the lab for mites. All Brood combs were fumigated with ethylene oxide in the Maryland Department of Agriculture's fumigation chamber.

After sampling and fumigation were completed, the equipment was returned to the beekeepers. Each colony was restocked with 10 pounds of bees and a queen. The replacement bees were donated by packaged bee and queen producers from the Southeastern United States (see acknowledgements). In addition, beekeepers were given a payment of \$30 per colony to compensate for loss of the early season honey crop because Maryland's major honey flow is in mid-May. This money was donated by beekeeping industries and organizations across the United States and was distributed to co-operating beekeepers by the Maryland State Beekeepers Association (see acknowledgements).

Most states (including Maryland) have laws giving regulatory agencies authority

to deal with bee diseases and pests found in colonies. However, since the only mites collected were associated with a field-collected bee, the Maryland Department of Agriculture could not take regulatory action. Likewise, the Federal Honeybee Act does not provide regulatory authority in this situation. The thorough survey conducted within the 30 square mile area was participated in by beekeepers on a voluntary basis. The beekeepers involved were understanding of, and sympathetic to, the problem and should be commended for voluntarily allowing their colonies to be surveyed by the radical methods utilized. The nine colonies (one apiary) in which all the bees not killed were thoroughly sampled for dead mites on the bottom boards of colonies for 3 months, the entire brood nests in colonies were checked visually during several inspections, adult bees were examined visually. Brood samples and samples of 500-1000 adult bees per colony were collected and checked for mites under the microscope and by the detergent-shaking procedure.

In summary, 411 pounds of bees sampled from all 85 colonies within a 3.1-mile radius of the reported collection site were examined for mites using several methods. Also, all colonies located within a 5-mile radius (78.5 square mile area) of the

reported mite collection site were checked for the presence of dead mites on the bottom boards using the white paper technique. In addition, those colonies located between 3 and 5 miles from the collection site were visually inspected for the presence of mites on adult bees, brood damage, and samples of 500 adult bees were collected from each colony and checked in the laboratory for mites.

QUEEN BREEDERS CHECKED. Maryland's three queen breeders who own 113 colonies located 100 or more miles from the suspect area were checked for mites as an added precaution. Detritus and dead bees on the bottom boards of colonies were checked for mites. Colonies were inspected visually for mites and 12.5 pounds of adult bee samples were taken back to the laboratory for analysis.

CONCLUSIONS. No mite or evidence of mite damage was detected by a thorough survey of all colonies located within a 5-mile radius (78.5 square mile area) surrounding the initial reported field collection site of *V. jacobsoni*. It can be concluded that a *Varroa* mite infestation does NOT occur in Maryland.

Perhaps the extensive surveys conducted will serve as a warning to

Collecting dead bees which were later analyzed in the lab for the Presence of *Varroa* mites. Photo By I. B. Smith, Jr.



beekeepers of the potential damage or economic loss that can result from an exotic pest entering the United States and discourage illegal importation of queens or bees into this Country. In addition, all beekeepers should be on the constant lookout for the occurrence of the *Varroa* mite pest in bee colonies. Any suspect material should be reported at once to state or federal regulatory officials.

ACKNOWLEDGEMENTS. Maryland beekeepers within the survey area should be commended for their co-operation during the project. Those beekeepers who sacrificed their entire bee colonies for the survey especially should be commended.

Sincere appreciation is extended to Dr. H. Shimanuki, Chief of the Bioenvironmental Laboratory, and to Dave Knox, Thor Lehnert and other members of the Bee Laboratory staff for their advice and untiring help in examining samples.

Sincere appreciation is also extended to Dr. Dave DeJong and Dr. Dewey Caron, apiculturists at the University of Maryland, for their assistance and counsel during the survey and to members of the *Varroa* Survey Committee.

I would like to acknowledge the generous donations of money or bees (as of May 12) by the following beekeeping organizations and industries:

California Bee Breeders Association
Dadant and Sons
Dauphin County Beekeepers Association of Pennsylvania
Eastern Apicultural Society
Eastern Beekeepers Pollination Association
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Maryland State Beekeepers Association
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Canadian Honey Council
Saskatchewan Beekeepers Association ☐



Installing 10 lbs. bees in colonies sampled for *Varroa* mite. Photo by I. B. Smith, Jr.

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Diary of a Beekeeper

By ALEX SUMMERS
Roslyn, NT

THE BEE TREE PART ONE

THIS ARTICLE deals with the wild, sweet cherry (*Prunus ovium*), planted by the birds many years ago in the uncared for California privet hedge bordering the golf course — across the street from our drive-way. Through the years I always had a fair-sized area which, while apparently neglected, is in fact a nursery for self-sown (actually bird-sown) woody materials (which I dig out and line out in nursery rows). It is of particular interest to me to find which of the many exotic trees and shrubs I grow will naturalize themselves.

Prunus ovium is actually an escapee of the cultivated European sweet cherry: such a Bing, Napoleon, etc. Since these bird-sown trees are seedlings, few resemble the cultivated parent and although sweet, are usually smaller. The sugar content varies from tree to tree. In any case, the birds grab them all. No doubt, the sweetness of the nectar also varies in individual trees — provided by the profuse flowers from April 25 to May 2.

My experience as a beekeeper began with this tree. Sometime late in the summer of 1978, while checking the area for some long-since forgotten reason, I noticed that bees were passing over the road and disappearing in the top of the 18 feet tall, too-long neglected, hedge. On checking further, sure enough — they headed downward into a knot-hole about 7 1/2 feet above the ground on the west side of the trunk. At this height the trunk measured 8 feet, 8 inches in circumference.

To back track a bit — there have been from 4 to 7 hives of bees here for sometime on a share-crop basis. First, under the ownership and care of a master beekeeper for 3 years. When he died suddenly in early spring of '78 I lost not only a master beekeeper but a good friend as well. At this time the bees were in 5 colonies, 2 stories high, confined to the lower level because new queens had been ordered. Two weeks later I was the owner of 4 hives of bees (the other one was sold before I made the deal).

This was peak season for a landscaper and I had no time to research bees. So I made arrangements with a beekeeper friend to take care of my newly acquired bees. Due to the confinement to one hive body, and perhaps other factors, the pro-

duction for the 4 colonies was about 150 pounds plus one swarm hived into a hastily prepared 8 frame hive. The previous year, production was 800 pounds from 7 colonies. So, I have no idea why requeening was decided upon. In any case, my first beekeeper friend's widow supplied me with a 10 year stack of *GLEANINGS* which I STUDIED.

I then decided that I could do no worse taking care of the bees myself!

..... THE DIARY

December 28, 1978. The landscaping season has ended and with my first free time I am looking at the bee tree. The temperature is 30 degrees. I figure they can't fly in freezing weather — so it would be a cinch to open up the tree. First, I bored a hole on the south side of the tree and found it 7 inches to the bee cavity. Another hole bored just above the knot-hole was 3 inches to the cavity. The decision was made to cut a rectangular segment out of the trunk at this point. I cut a 4 x 8 inch section out right at the knot hole used by the bees. Looking in, there were the bees — right there. The main cut was above this entrance about 6 inches wide and 16 inches high. On removal of the block of wood the bees were on approximately 5 combs in a cluster at the bottom of the hole, although the combs did extend a foot or so below.

Placing a hive body with 3 combs of honey and the balance of extracted combs on the ground. The next step was to remove the bees and comb. Comb was attached in two or three places but came out in segments, intact. Bees were brushed into the hive body. After I handled the first comb I discovered there was nothing wrong with the bees' "rear equipment" and they could also fly in freezing weather. So up to the house I trot to find a pair of gloves. With this protection I was able to proceed. After all the bees were in the hive, I took it up to the backyard and set it on a very weak hive (a grapefruit sized cluster) with a newspaper between. I figured they would combine and I would then have a larger cluster.

Examining the old combs, I found no signs of drone cells, queen cups or former queen cells. I took all the honey I could find and squashed and strained the lot

which gave me an inch of strong-tasting honey in the bottom of a teacup. The combs appeared to be at least 2 or 3 years old by the discoloration — maybe more. The bees soon chewed holes through the newspaper.

January 23: Cleansing flights were noticed. Temperature is 40 degree F.

February 8: A few bees noticed outside. Temperature is 30 degrees F. Six inches of snow.

February 23: Temperature rose to 40 degrees after two weeks of bitter weather with below zero nights on some nights and no warmer than 12 degrees on one day. Notes for hive 4 say: Bees dead. Tree colony failed to combine with resident colony. Bees appear equally divided in numbers. Plenty of honey.

May 29, 1979: Four scouts checking out bee tree.

May 30: Temperature is 75 degrees. Ten to twelve scouts at bee tree, a couple inside. Removed block and stuffed bottom with newspaper and set 4 shallow empty drawn combs on end in hole resting on the newspaper. (Full size would not fit). Replaced block.

May 31: Temperature is 75 degrees. Ten to twelve scouts at bee tree.

June 1: Temperature is 80 degrees.
11:00 a.m. — 20 bees at tree.
12:00 a.m. — about 50 bees at tree.
2:00 p.m. — temperature 76 degrees, 50 bees at tree....nearly half fanning air out.
6:00 p.m. — about 40 bees, no fanners.
8:00 p.m. — temperature is 65 degrees. Removed 4 frames from tree with adhering bees. I also scraped 4 handfuls into shallow super and set up on full sized hive body on bottom board. Replaced 4 shallows in tree. By this time bees are roaring, indicative of a missing queen. Replaced block.

June 2: Time is 6:00 a.m., temperature is 66 degrees. About 6 dozen bees on outside of bee tree. Removed block and 4 combs and about 1000 bees, set in bag. Placed in shallow super with others.
9:00 a.m. — about 200 bees clustered on outside of tree.
11:00 a.m. — Temperature is 76 degrees. About 40 bees on outside of tree.

GLEANINGS IN BEE CULTURE

7:30 p.m. — Temperature is 63 degrees. About 50 bees clustered on inside of tree in mass above and to one side of frames. Brushed about 300 into paper bag. Bees are now decidedly unfriendly and use their stingers. Won't stay in paper bag. Closed bag and carried up drive about 400 feet to hive and tried to dump inside. They decided they liked the bag and refused to leave. Dumped bag and all inside. Rub stung areas as I leave.

June 3: Temperature is 61 degrees. Rain.

8:00 p.m. — Checked super. Bees clustered in 7 frames. Bottom with 1 comb and rest of foundation looks empty. Removed the 2 empty comb supers and replaced with unsealed honey borrowed from another colony.

June 4: Visited beekeeper a mile up the road and learned he had a swarm from his hives in a tree for 4-5 days before they disappeared a few days ago. No wonder they were stinging like crazy when I got to them. Pollen coming in. Decided to leave the few hundred left in tree as I had enough stings. Wonder if I should have used gloves, smoker and veil. Probably should have set hive up on ladder but wasn't sure bees wouldn't prefer tree to hive.

June 10: Bees in super with uncapped brood. Tree with about 200 bees - doing nothing.

June 16: Less than 100 bees left in bee tree.

June 18: Removed the 4 untouched frames and foundation from bee tree. About 50 bees left in cluster.

June 29: Checked bee tree. No bees left.

July 15: Checked number 13 (the above bee tree swarm). All brood in super hatched. Four supersedure queen cells started. Some capped honey in super. Bottom hive body empty.

July 16: Opened up number 3 (my nasties) to remove one frame capped and uncapped brood to place in number 13. True to name they followed me all over the yard for a couple of hours using their rear ends whenever possible.

July 21: Eggs and uncapped brood next to one inserted July 16th. New queen must have been there somewhere — so, I got chewed up by my nasties for nothing. In case you wonder why I picked the nasties for a frame of brood and eggs, they use no winter stores. By spring the 2 hive bodies are still nailed to the ground while others need sugar-water and do they produce!!

August 13: Rather small queen capped brood up in shallow super. Top hive body is still foundation. Replaced with wet, ex-

tracted hive body and restricted entrance with grass to prevent robbing.

August 17: Five frames of capped and uncapped brood in shallow super. Removed 3 frames of honey from side and divided broodnest with 3 frames of foundation in center to induce queen downward.

August 25: Extracted last honey and placed 4 wet shallow supers on number 13.

September 1: Three upper supers licked out, next day one with 5 frames partly filled. None capped. Divided super with brood, each frame with an empty between; to induce queen to go down. No sign of queen. 5 queen cups.

September 6: Same as September 1st except no uncapped brood. Super above with some capped honey.

September 9: Capped and now uncapped brood in shallow super with empty frames between each. Brood also in lower hive body, newer combs with honey.

September 10: Added old frames full of honey to replace empties in upper and lower hive bodies. They came from number 5 where bees refused to leave in 20 hours with 5 bee escapes but instead started 4 queen cups with royal jelly, no eggs. Bees really like old combs.

September 18: After pleasant visit with Grant Morse on September 17th, followed his advice and drove down the bees from spaced out super with smoke. Removed and reset over queen excluder. (Finally found a use for it) Foundation-filled frames removed and brood pushed together. Honey-filled frames from super above added to fill box.

September 19: Bees back in super taking care of brood over queen excluder.

September 20: Temperature is 53 degrees. No unsealed brood left in super.

October 1: Temperature is 50 degrees. About 50 sealed brood left in super, some in process of hatching.

October 6: About 30 sealed brood cells left in super. Three frames with brood in bottom hive body.

October 6: (Second entry) Shifted shallow super with honey and 8 unhatched brood cells to number 1 to take down below.

October 17: No brood left in super. Lots of honey on number 1.

October 27: Reduced all but 4 colonies to 2 hive bodies.

November 18: Super mostly empty, a little honey left in 4 frames (now on number 1).

November 25: Supers still with a little honey.

December 23: Bees up to inner cover in super on number 1. Bees brushed off. No honey left in super. Finally removed. Temperature is 40 degrees at start, 50 degrees at finish. All colonies now down to 2 hive bodies. All but 2 colonies up to inner covers. (Guess they didn't read the book.) Supposed to be all down. Wish someone would tell me why a cluster is in an empty super with the honey below in the hive bodies.

December 24: Nasties are busy carrying in cracked corn dust from the bird feeder. No other colonies are out.

December 31: Peeked at bees. Eight frame cluster in number 1. Five frame cluster in number 13. Both at top. Temperature is 38 degrees. □

To Be Continued...

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Strictly Backlot

By CARL CALLENBACH
135 College Avenue
Elizabethtown, PA. 17022

FOR TOO LONG now, I gather, I've been toting beekeeping paraphernalia around in a cardboard box and lard can. The combination had seemed simple, functional and more than adequate, if messy — until a couple of weeks ago a friend of mine (real or imaginary), hinted that my beekeeping toolbox had NO CLASS.

"Look at that," he said, pointing to the dilapidated cardboard egg case. "And that!" He added, thumbing his nose at my lard can — overflowing with a smoker and miscellaneous non-flammable equipment. "The whole pile of junk has got no class!"

With real or imaginary friends like that....who needs enemies, right?

I was crushed. I drove home, pulled the box and can from the back of my truck, poured the contents of both onto the front porch floor: nails, hammer, stapler, binder twine, two empty queen cages, hardware cloth, tin snaps, hedge trimmer, a package of plastic garbage can bags, first aid kit, bottle of antihistimine, can of meat tenderizer, five rubber tie-down straps, masking tape, assorted notes to myself, and half of a chocolate cupcake.

I tried to make sense of the pile. (Must sense always precede class?) No matter how I tried to arrange things (the junk), two piles emerged: flammable items and non-flammable items. So, I stuffed the non-flammable materials into the can with the smoker and put the other stuff into the egg case and returned both to the truck. *So much for class.* I was ready, I thought, for my next outing.

I had not anticipated the lingering effects of my friend's curse: MY BEEKEEPING TOOLBOX HAD NO CLASS!

That night I dreamed of the OPTIMUM BACKLOT TOOLBOX.

.....Once again, I was on the porch with the contents of my trusty egg case and lard can strewn around me. My friends, real or imaginary, were with me. They were quiet, if slightly bemused. I noted a sign on the porch wall: **Attention Friends, Real of Imaginary. You may quietly, if slightly bemusedly, make fun of my beekeeping toolbox; but STAY OFF THE PORCH!.....**

I had to draw the line somewhere.

But my dreams are often filled with bizarre signs, and most of them are ignored. In fact, I can't remember an instance when my signs were obeyed. That is to say, my friends were crowded around me and my classless toolbox, on the porch.

The dialogue which follows is probably not the stuff most dreams are made of. I have problems, too, with dream chronology: events, a word here and there — out of place and/or kilter. But, most of all, I will have problems illustrating the OPTIMUM BACKLOT TOOLBOX. I have drawn the OBT as I remember it in my dream. No, that's not quite true. I've added the four six-ply tires and the heavy-duty shock absorbers and take full responsibility. Everything else may be blamed on my "friends".

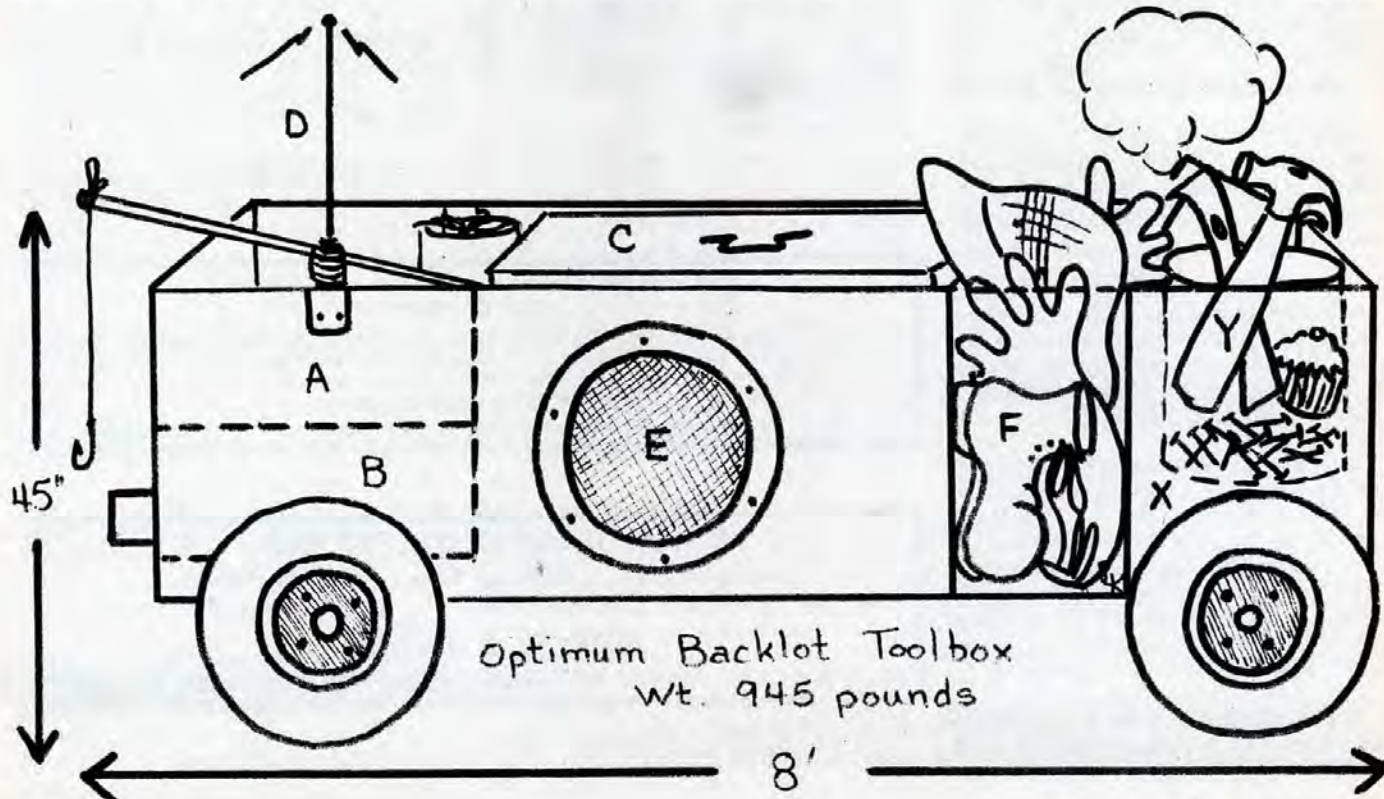
....."We are here," one began, "to help you add class to your backlot toolbox."

"But," I explained.

"Yours has no lemonade cooler (See A, Cooler Option)." interrupted one of my friends. And there was a great nodding of heads and clucking of tongues.

"I'm not too crazy about lemonade," I said. "Sometimes on hot days I carry my Mickey Mouse thermos filled with spring water. It fits in my egg carton very nicely. I mean a cooler would need electricity to run (See B, Generator Component; B-2, AC/DC Converter Kit)."

"And in case you get lost fishing (See



Option C, Fishing Tackle Component) between bee yards, here's the CB receiver-transmitter package (See D, Lost Module) which makes it possible for you to request help."

"I don't fish much," I said. "And I'm really very happy with my egg case and lard can."

"Here's the stereo outfit," said my friend with a plastic mono-speaker sticking out of his left ear. (See Stereo Feature, Option E)

"I do hum a lot when I work," I said. "But a stereo..."

"Your bees will work much harder

while listening to the Top Ten Golden Oldies," replied a friend with an absolutely rotten sense of humor. (Not only are my signs ignored in my dreams; my humming is often viciously attacked by the tone deaf.)

I was becoming angry. "Lemonade coolers, CB radios, Stereos! What happened to the beekeeping equipment?"

"Calm down," a friend cautioned. "Take a look next to the Wardrobe Compartment (Option F)."

"Look at it this way. Your egg case and lard can (See Basic X and Basic Y) make up the elementary kit. I'm sure we can hide them behind the vinyl exterior.

Remember, chrome trim and hand-painted Pennsylvania Dutch hex signs are popular options available on the EXECUTIVE MODEL OPTIMUM BACKLOT TOOLBOX."

"I can't stand any more of this," I shouted at them. I grabbed a large piece of paper and a felt pen and wrote another sign: **Until further notice I shall continue to use my cardboard box and lard can. Thank you. GET OFF MY PORCH!** And I took the stereo and inserted it into the lemonade cooler and christened the generator component with both.....

When I woke in the morning, they were gone, too. □

Productivity Award to Australian Pollen Producer

MR. STAN CHAMBERS of the W.A. Department of Agriculture has earned an award by the Productivity Promotion Council of Australia for fostering a new, major aspect of the beekeeping industry — the harvesting and sale of pollen.

The \$200 award and certificate was presented at a Perth function last Friday, March 21. Of the seven awards made, four went to officers in Government Departments of Instrumentalities.

Mr. Chambers of Wembley, who is the Senior Apiculture Instructor, has worked on the development of pollen trapping, processing and marketing for the past seven years.

He designed and perfected an efficient pollen trap to fit into beehives and designed and built an apparatus for drying and a winnower for finally grading the pollen.

He expanded the interest shown by a few beekeepers in pioneering pollen production and his work has put W.A. in the forefront of the pollen industry. He is recognized by beekeeping countries throughout the world and many overseas beekeepers and marketing agents continue to seek information from him.

Mr. Chambers urges pollen production in addition to honey production and believes it will be a highly profitable addition to beekeepers' earnings and State exports. For beekeepers who develop pollen production, it is an alternative to honey production in the event of reduced honey prices. W.A. exports 80 percent of its honey and the world price can fluctuate.

Stan Chambers has been with the Department for 20 years. In 1977 he was awarded the Watson Award by the Beekeepers' Section of the Farmers Union of W.A. Recognising assistance and service to the industry, the award was traditionally made to the beekeeper who had made the greatest contribution to the industry. For the first time it was made to a

person who was not a commercial beekeeper.

In the same year, three displays he helped to build and a film he helped to make won gold, silver and bronze medals at the Apimondia Congress in Adelaide, attended by 1435 delegates from 46 countries. □

Chairman of the W. A. Branch of the Productivity Promotion Council of Australia Mr. Doug Hawtin (left) presents the award to Mr. Stan Chambers.



Siftings

By CHARLES MRAZ
Middlebury, VT.

IT IS NOW the time of year to start thinking of the EAS Meeting to be held in Burlington, Vermont; August 13-16, 1980. I am sure there are many new hobby beekeepers that have never heard of the Eastern States Apicultural Society and its meeting every year in a different state. Meetings are usually held at the State University Campuses (for some 25 years now). Having been a member almost from the beginning, I feel its success has been because it is geared mainly for the hobby beekeeper. This is a place to visit many hobby beekeepers once a year in a new state and a new environment.

It is also an excellent chance for a very inexpensive vacation for a beekeeper and his family — besides being a lot of fun. The fact that it is a success, can be seen by the attendance that averages from 500 to 700 each year. 1962 was the last time the meeting was held in Vermont. So, after an 18 year absence, we hope this meeting will make up for it. It will be held at the University of Vermont in Burlington, on beautiful Lake Champlain. Part of the meetings will also be held at Shelbourne Farms — a beautiful estate on the shores of Lake Champlain, south of Burlington.

In the June 1980 issue of *GLEANINGS* there are announcements of two speakers to the meeting: Hal Neiman of California and Dewey Caron of University of Maryland.

Hal Neiman will speak on the production and marketing of bee products other than honey: such as pollen, royal jelly and propolis. This is a phase of beekeeping that needs much more interest and research in the U.S., and a phase of beekeeping that should be of special interest to the hobby beekeeper. There are great possibilities in the use of these bee products that the small beekeeper can experiment with on himself, family and friends. Since these products are all harmless, as far as we know, much can be learned from them by using them ourselves.

Dewey Caron will speak on back yard queen-rearing. This is a phase of beekeeping that should be of great interest to the hobby beekeeper: to raise your own queens. Where else can you get better queens than those you raise yourself? We do hope hobby beekeepers will make the EAS meetings a part of their vacation — for fellowship and fun.

Also in June *GLEANINGS* is the report of the Second International Conference

on Tropical Beekeeping. There is no question in my mind, the future of beekeeping is in the tropics. I have had considerable experience working with bees in the tropics and the only limiting factor so far, are the roads in many of these areas. I have spent many years with bees in Mexico — and in this country. Beekeeping has already developed to the extent that it is the largest honey exporting country in the world. Several years ago I spent a month travelling through Central Columbia and South America, visiting the beekeeping areas. This is a country with great beekeeping possibilities: both in the north coast and the interior. Dr. Swaminathan stated that bees greatly increased coffee production. There has always been a question if bees will actually increase the set of coffee beans. I remember visiting one coffee plantation in Columbia where they had a yard of strong bee colonies and healthy coffee plants. I have never seen such a heavy set of coffee fruit! The coffee berries were set solid on every branch, between every leaf. In fact, there seemed to be more berries than leaves. Pollination, I am sure, will greatly increase coffee production on healthy plants that can support a heavy set of fruit. I am sure this is true with many tropical fruits.

On page 349 of June *GLEANINGS*, Connie Krochmal of Asheville, North Carolina speaks of a recent visit to Romania. It brings back wonderful memories of a visit I made to Romania several years ago to attend the Apitherapy Congress in 1976. It is such a beautiful country and beekeeping is so well developed there. Of special interest is the promotion and use of all bee products, such as propolis, pollen and royal jelly — as well as honey. At the time I was there, the "Apitherapy" clinic was just being started and I am indeed glad to see that is now actually in operation.

Romania must be the only place in the world where the medical practice is using bee products in treatment of health problems! In this field of medicine, they are far ahead of anything that we're doing.

I do hope I will live long enough (and get rich enough) so I can visit Romania, Apimondia and the beekeepers there: such as my friend, George Puscasu (in Tulcea), on the Delta of the Danube River — where it flows into the Black Sea. George was then operating 5,000 colonies of bees for the State Beekeeping Collective and doing an excellent job. Bees there were moved to Delta for spring build up. Then to the large farms for sun flowers, basswood, legumes and other honey plants in other parts of the Great Romanian plain, from the mountains to the Black Sea.

That is what makes beekeeping such a wonderful business or hobby — you can find FRIENDS ALL OVER THE

WORLD! A good place to start meeting friends, "from all over the world", is at the EAS meetings. By the way, the next Apimondia Meeting will be held in Acapulco, Mexico in 1981. So, start planning for it. I am sure the meeting will attract (over 3,000) beekeepers from all over the world to this beautiful place. □

Eastern Apicultural Society



DR. ERIC ERICKSON, Acting Research Leader of the North Central States Bee Research Lab in Madison, Wisconsin, will speak on **ELECTRICITY AND THE HONEYBEE** at the Burlington, Vermont conference of the Eastern Apicultural Society August 13-16.

Dr. Erickson, born April 26, 1940, graduated from Colorado State University in 1963; and received his M.S. in Entomology in 1965. From 1965 to 1967, he served in the Army and spent time in Vietnam as a medical entomologist where he was awarded the Army Commendation Medal for Distinguished Service. Following Military Service, he returned to the University and in 1970 was awarded his Ph.D. from the University of Arizona—with special emphasis on apiculture and crop pollination.

(Continued on page 420)



Bee Talk

By **DR. RICHARD TAYLOR**
Master Beekeeper
Trumansburg, NY

I DON'T KNOW what beehives smell like in spring in other parts of the world — but here, in upstate New York, the fragrance is unique and heavenly. It was the same in Michigan, when I was growing up, and I'm sure there are thousands of beekeepers everywhere who will know just what I mean. To leave behind, for a few hours; the world of man, the sounds and odors of machines, sounds of main street and the marketplace. To move about the bee yard under the warm sun of May or June....To exchange the noise of the highway for the hum of the bees and a songbird choir....and, perhaps best of all: to just breathe that scent of incoming spring nectar, mingled with the odor of propolis warmed in the sunshine. Surely, this is where we belong! These are our best hours. Nature herself (in those times) teaches us more philosophy than a hundred books will—and more religion than a hundred sermons. The companionship of mankind has its place....but how lonely we would be without the companionship of our speechless honeybees. And how deprived—without the gifts we find there. Gifts that nature so freely bestows.

July marks the transition from spring to summer for me, and I begin to relax. Actually, May and June are a lot more relaxing than they used to be. I used to worry all the time about swarming. And that worrying was well-founded; for it seemed that no matter what I did, out would come the swarms. And sometimes, after a whole day of visiting my far-flung yard, I would arrive at the last one (tired and about ready to get home and think about some supper) only to find a couple more swarms needing to be dealt with. Swarming isn't much of a problem any more, though. For one thing, I've only got two yards instead of eight, and one of them is right near home. And here is what I did at the other. I really just spent a couple of hours there (where I've got about 30 hives), dealing with the swarming problem. That more or less took care of it for this year.

What I did was go around and peer under the top story of about half-a-dozen hives to see whether there were any queen cells with royal jelly in them. I didn't even have to lift those top stories off — just tip

them up and peer under. Well, there were cells in a couple of them. So, then I walked through the yard and picked out the strongest colonies, judging this by just the looks of the entrances. I selected nine strong ones; which I figured might be thinking about swarming. I put a pebble on each for identification.

Then I made up two brand new colonies, in the following way: From each of the nine hives I'd picked out, I removed three combs of brood and bees, making sure I didn't get any queens with them. And I made up the two new colonies — by just giving each of them nine such combs, bees and all. They don't fight when you add them together that way, because the older bees (which might do the fighting) all drift back to the hives they come from. Then I gave each of the two new colonies a new queen. Simple. But, that still left me with nine combs of brood and bees, from three of the original nine strong colonies. Well, I gave six of these to a weak colony, to build it up, and made a nuc of the remaining three, to sell for twenty-six dollars to anyone needing a nuc. No problem there. And, of course, I replaced the combs of brood in the original nine strong colonies with drawn combs.

That pretty much nipped the swarm in that apiary, I think. The bees had to get the three empty combs cleaned up and the queen had plenty of space to lay eggs for awhile. That took their minds off swarming. Though, of course, nothing is perfect.

On my next visit to that yard I found a swarm clustered right on a stack of empty hive bodies piled there. I'll never know

Basswood. Illust. By Cindy Diamond, from the THE BEEKEEPERS RECORD AND JOURNAL, Linden Books, Interlaken, NY.



which hive it came from, but it doesn't make the least difference. The swarming problem was, for all practical purposes, solved. Now the bees are staying busy, making honey.

July is the month for relaxing. The work is feverish, but it falls to the bees—not the beekeeper. The supers are on, and before the month is over the first comb honey will be harvested.

July is the month of basswoods. They bloom about the first week of July. Their pale, greenish flowers are largely concealed by the leaves that shelter them. People, with the exception of beekeepers, are largely unaware that they are blooming. But the bees certainly know! Sometimes bees will even gather from basswoods during a light shower. The position of the blooms, under the protecting leaves, protects them from the rain which would otherwise wash the nectar away. But, hot days are necessary for a really good flow from this—or, indeed, any other source.

It can hardly be too warm for the bees, provided the hives themselves are not subjected to the stress of extreme heat. It is abundant sunshine that causes the nectar to flow. The same warmth increases the activity of the bees—so that sometimes, on a hot July day, your scale hive will show a gain of twenty-five pounds or more. It is no wonder that the supers (which a week ago were almost empty) are sometimes suddenly full. You look with rejoicing at comb after comb, filled to the edges and capped with unstained, snow-white wax.

It is hard for a beekeeper not to be happy in July. The anxious days are over. The supers are piled on the hives and the bees increase your prosperity from hour to hour. □

Information Sought On Bee Poetry

JUMP RIVER PRESS, Inc., a non-profit, cultural, publishing organization, is currently seeking (for possible publication in a booklet anthology) poetry related to bees and beekeeping. They are interested in all forms and themes, but especially those relating to bees in myth, legend, superstition, etc. Payment will be in copies. All rights for subsequent publication will remain with the authors.

Mail to: 819 Single Avenue, Wausau, WI 54401, U.S.A. Please enclose a self-addressed, stamped envelope.



Research Review

Protecting Against Pesticides

A REVIEW of the pesticide situation in Wisconsin shows that five to seven percent of the honeybee colonies in that State are adversely affected by pesticides each year. Sevin, malathion, lannate and parathion are the four most serious problem insecticides.

The bulletin listed below gives some recommendations as to how a beekeeper might avoid losses. I talked with one of the authors. What they have done is to collect a variety of methods which have been recommended, including some techniques which are still being tested. I was told that the idea of engorging bees with sugar syrup in an area about to be air-sprayed with an insecticide, showed promise. Doing so, of course, depends upon the beekeeper knowing that an application is to be made in the vicinity of his apiary. Unfortunately, as most beekeepers know only too well, they are rarely told what is going to happen.

It is also advised that pollen traps attached to the entrances of colonies in (areas where pollen supplies are being contaminated), would help to reduce losses. This idea is not new and has come under heavy criticism. In the tests where the idea was found to be helpful in Wisconsin, the pollen trap used was a large, specially designed model, the cost of which might well negate any value the trap might have. Since field bees collecting contaminated pollen can still be killed, there is great danger of colonies suffocating if the entrance is blocked.

The bulletin discusses many steps which both beekeepers and growers might use to reduce losses. It is important to discuss these matters—so long, as I have discussed elsewhere, that we do not lose sight of our long range goals of finding alternatives to using so MUCH and so MANY pesticides.

Copies of this bulletin are available for fifteen cents, by writing: Agricultural Bulletin Building, 1535 Observatory Drive, Madison, Wisconsin, 53700.

Wedberg, J.L. and E.H. Erickson. *Protecting honeybees from pesticides in Wisconsin*. A3086. 8 pages. 1980.



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

Japan and the Price of Honey

Japan is the leading market for exported U.S. agricultural products — almost double the next largest foreign market (Russia). Last year Japan took 5.26 billion dollars worth of our goods, honey included. This amount was up 18 percent from the year before. It is therefore important all of us that the economic climate in Japan continue to be stable. Also, Japan imports all of the oil she uses. At present there is great concern that the money used to pay for this oil be re-invested in Japan. If it is not — Japan's balance of payments will not be met, which could affect her buying of agricultural products. Honey, being the luxury product, could be one of the first products affected.

A one percent world honey surplus could depress honey prices by as much as four percent. The reverse is also true: a one percent world shortage could INCREASE the wholesale price by four percent. These are the figures used by agricultural economists who follow the changes in the world market.

What is taking place in the area of foreign agriculture is covered monthly in a publication distributed by the Foreign Agricultural Service of the U.S.D.A. (appropriately named FOREIGN AGRICULTURE). There are 12 issues per year. The magazine is distributed through the Superintendent of Documents (U.S. Government Printing Office, Washington, D.C. 20402) for \$14.00 a year.

Editor. Japan sales almost double those to next best market.

7Foreign Agriculture. XVII(5):8-9. May 1980.

Pesticide Loss Compensation

The debate over how to avoid pesticide losses and how to compensate those who do have losses continues. I fear that many people are losing sight of the original goals expressed about a decade ago when the Environmental Protection Agency was founded. What people wanted then, and I think, may still want today, are fewer and SAFER pesticides.

A formal paper by an agricultural economist reviewing the California situation suggests that beekeepers be taxed — so much per colony when their colonies are in the orange groves. This money would be used to compensate those who have pesticide losses. It is estimated that pesticide losses for California amount to about four percent of the value of the honey crop. (The paper is not an easy one to read as the author is carried away with using large words; there is also an excessive number of essentially meaningless mathematical formulae which could have been reduced to a few simple words.)

The problem with such a program is that it removes the burden from those who use pesticides and puts it on the backs of those who suffer the loss. It think it also clear that not all beekeepers in California produce orange honey and those that do would be required to cough up the needed money.

The lesson to be learned from this paper is that the beekeeping industry must continue to point out that the pesticide problem is not going away. The integrated pest management programs which were to have relieved us of many of the honeybee-pesticide losses have yet to be implemented.

Siebert, J.W. Beekeeping, pollination and externalities in California Agriculture. *American Journal of Agricultural Economics* 62:165-171. 1980.

PLANS PROGRESSING ON HONEYBEE EMBOSSED ENVELOPE

ON APRIL 30TH, Eugene Killion of Paris, IL. met with Mr. W.L. Davidson, General Manager of the U.S. Postal Service Stamp Division, to view the artwork on the embossed envelope honoring the honeybee. The three-color design shows the embossed honeybee hovering over orange blossoms. They are getting in touch with Dr. Shimanuki for pictures and more details about the bee.

The artist is Mr. Jerry Pinkney, of Connecticut, who has done other designs for the Postal Service.

They will also be designing and printing a program for the Dedication Ceremony. □

Beekeeping Technology

By DR. JAMES TEW
Wooster, Ohio

Supplemental Carbohydrate Feeding Techniques

RECENTLY, ALL SUPPLEMENTAL carbohydrate feeders were removed from the Agricultural Technical Institute's bee colonies. Several devices or techniques were employed, each having specific advantages and disadvantages. It is impossible to choose the "best" feeder, as hive management techniques vary so greatly.

Beekeepers having a small number of hives may successfully use feeders that are convenient, but limited in other ways. A good example of this is the well-known Boardman feeder. This common feeder is easy to install and easy to refill. However, during cool periods, bees may have problems leaving the cluster to collect syrup. In other instances, vandalism may be a problem. Other feeders, somewhat similar to the Boardman, are containers that are suspended in the hive in place of a frame (Division Board Feeder). Or a covered tray - placed on top of a colony (Top feeder). Several variations on the top feeder are available, but all use the principle of providing access to the syrup by a passageway on the end or in the center of the feeder. An improvised top feeder was used this past spring in ATI colonies. An empty super was placed above the brood nest. A sheet of plastic was used to line the empty super. The plastic did not slip since the plastic is draped over three super sides. In some tests, frames were placed back into the plastic-lined super; while floats were tried in others. One outside frame was wrapped once with plastic, resulting in a side-opening for bees to gain access to the syrup solution. This served to close the fourth super side. Further tests are planned in the near future. In both top feeder and division board feeders, some type of support or syrup floats are absolutely necessary.

Many years ago, bottom feeders were quite popular. One of these: the Minnesota Feeder, looked much like a top feeder— simply placed beneath the colony brood nest. The Alexander Feeder was also a bottom feeder. Its main component was a tin tray suspended under the brood nest. Unfortunately, syrup capacity was small. A present-day procedure, used by some commercial beekeepers, that employs bottom feeding concepts requires lifting the front of the hive approximately two inches and pouring syrup on the bottom board. Bottoms in good condition have normally been sealed with propolis by the bees and work surprisingly well as impromptu feeders.

Friction-top cans are very successful when used as feeders. Normally, four to five small holes (as small as possible) are punched in the can lid. After the can is filled with syrup, the lid is replaced and the can inverted, a vacuum forms and drops of syrup are suspended from holes in the can's lid. The can MUST sit level for the idea to work. Normally, an empty super is placed around the can so that the hive top may be replaced. Common disadvantages are rusting and can storage. In many instances, large numbers of loose frames are generated when empty supers used as feeder shells are required. Filling drawn comb with syrup is a technique that is labor-intensive or requires specialized equipment. However, in many instances, it is desirable to have the syrup supply near the cluster or brood area—especially when trying to prevent late winter/early spring starvation.

All procedures described so far involved feeding inside the hive. In some instances large numbers of hives are fed "feed lot" style. A common technique, in some parts of the U.S., is to dig a pit, line it with plastic, toss in a few floats, and then fill the hole with syrup. Obviously, several problems exist with this procedure — but labor requirements are greatly reduced.

A technique used by some commercial beekeepers in Ohio involves leaning a drum at a 45 degree angle and filling it

with syrup. If drums are available, this is probably easier than digging a hole—plus, dilution by rain-water is not as serious a problem.

In a couple of cases, it is possible to feed bees solid sugar. Recipes are available for making sugar candy for candy board feeders. Normally, sugar "patties" or candy boards are placed above the brood nest.

If emergency feedings are required, granulated sugar may be poured on the inner cover or in some instances directly into the colony. Unfortunately, bees waste much of the sugar; but once again, labor costs are reduced.

Float-controlled internal feeders are currently available. These are small units designed to fit into a frame after a piece of the comb has been removed. Each feeder is supplied with syrup through a plastic hose from a central tank. After hives have been fitted with these devices, only the central tank requires refilling; as opposed to filling individual feeders.

Obviously, many techniques for hive feeding are available. Many beekeepers employ several techniques—depending on hive conditions. Hopefully, the procedures listed or described will help some beekeepers experiment with other techniques. □



Bee Fever

By J.G. STEVENS
Roanoke, VA.

Grampa's bee gums stood on a makeshift, slap-dash bench in a grove of longleaf pines in eastern South Carolina — where hoot owls hooted at night from the tops of tall tupelo trees and rattlesnakes slithered among the gallberry bushes on the higher ground.

In addition to the tupelo and gallberry, tulip poplar was abundant. So, it was a very fine locality for beekeeping. Even with the old log gum hives, Grampa got a lot of honey. Also, he got lots of swarms.

He harvested pine tar and turpentine from the trees around his bee yard, and Grandma made a mighty good cough syrup for home use by mixing pine tar with honey.

While this was going on, the First World War was raging in Europe and I was almost seven years old. I thought the bees swarmed every day but I had never seen it happen. I wanted to see some ACTION!

Well, I saw some action. And FELT it too! Even though I had been sternly ad-

monished to stay away from those bee gums, because the bees were "as mean as a snake and would sting a scarecrow". I was determined to see some swarming going on.

So, I went out to the bee yard and found a huge swarm hanging from an oak limb about five feet above the ground. Grampa hived them while I looked on — gradually moving closer to the action. Neither one of us got a sting. So — after that I just didn't believe that tale about bees stinging people.

The next day was cool and cloudy. I went back to look for another swarm and couldn't find a bee outside. I noticed that each gum had two notches at the bottom, and I decided that one notch was for going into the gum and the other for coming out. But, when I started probing in a gum with a cornstalk, I found out immediately that both notches were used for coming out in such emergencies as I had created.

An accurate report of what followed would not be fit to print. Since I don't use profane language, it would just be an ex-

ercise in futility to attempt to describe their ferocity. But since they did make honey and pollinate fruits and legumes — I'll just say they were VERY IMPOLITE!

Fortunately, I was alive the next morning, the pain was gone and the swelling was subsiding. I resolved NEVER to be a beekeeper. Never while I lived!

After a few years, however, my older brother was keeping bees, reading *GLEANINGS IN BEE CULTURE* and *ABC and XYZ of BEE CULTURE*, talking bees and beekeeping very day. I was envious of his knowledge and enthusiasm about such a fascinating hobby. It rubbed off on me and I was soon reading his bee literature more than he was. He gave me a colony of bees in a modern hive and I was on the way to becoming a successful and happy beekeeper.

An old beekeeper with some gum hives died and I asked his widow about selling me a gum of bees. I wanted to transfer a colony like I had read about.

(Continued on page 420)



J. G. Stevens

A Solar Wax Melter

HAVE YOU EVER considered the possibility of using the hot rays of the summer sun to melt your cappings, odd pieces of brace and burr combs and even old combs?

With a minimum of expenditure for materials it is possible to build a suitable unit in your home workshop that will accommodate a fairly large amount of wax-bearing comb or cappings. The summer sun shining through the glass cover will raise the interior temperature well above the melting point of the beeswax. As the melting beeswax is channelled into a container it hardens into a solid block. Use a plastic container of sufficient capacity to hold an anticipated yield of molten wax. A plastic pan with sloping sides will release the cake of wax much easier than one with perpendicular sides and ends. After the cappings and combs have melted the remaining gummy residue may still contain some wax; but the only way to recover this remaining wax is to send the residue to a commercial wax-rendering plant which uses a hot water press.

The sloping position of the glass panels provide the maximum exposure to the sun. If the unit is turned periodically to face the sun, melting will be hastened.

You may wish to modify the dimensions of your solar wax melter to suit your own requirements but it is usually best to provide extra space so as to take, for example, queen excluders. To allow for this, the metal pan on the floor of the solar extractor should be at least four to six inches deep and large enough to take excluders measuring $16\frac{1}{4}$ inches by 20 inches, and at least 2 full depth frames ($19''$ by $20''$). Consider the possibility of making one or more cappings baskets of "expanded metal" (or of hardware cloth on a wood frame) that will fit into the sheet metal pan. Various other pieces of hives may be cleaned of excess wax by placing them in a solar wax melter.

Any honey remaining in the cappings, or in comb being rendered, will drain into the receiving pan and accumulate at the bottom of the wax. The color of this honey may be darkened by this process of rendering; but it would be perfectly satisfactory to feed back to the bees if it comes from healthy colonies.

Before using, the entire unit, including the sheet metal pan inside the box, should be painted black. The glass cover may be with two sheets of double strength glass,

set in the frame with about $\frac{1}{4}$ inch between the panes. This will help to retain the absorbed heat.

The solar wax melter is very attractive to robber bees and must be kept tightly closed except with loading and unloading.

In constructing the metal pan avoid using brass, copper, iron or zinc. These metals give undesirable tints to wax, making it unsatisfactory for use in beeswax products. A galvanized metal is satisfactory — stainless steel would be better.

A solar wax melter is much safer to use than many of the traditional methods of rendering beeswax (using heating stoves and boiling water.)

Note:

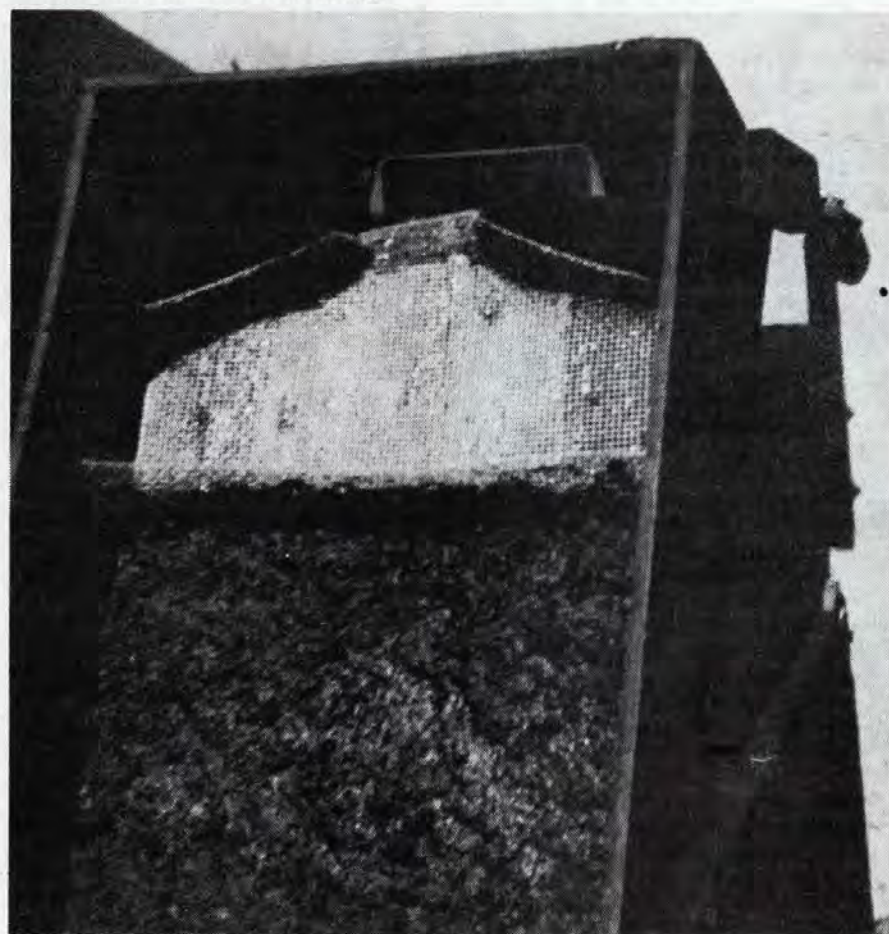
The accompanying photographs were made by A. Carlton Johnson of Reidsville, N.C. He also arranged to have the drawings made to illustrate the various construction details and the dimensions.

The solar wax melter illustrated measures 2-ft. by 3-ft., will hold 15 shallow frames or about 5 queen excluders. It is made from $\frac{1}{2}''$ outside plywood, 2x4's for legs and has a 3x4 hardware hinge latch. It requires $8\frac{1}{4}''$ bolts, 4" long. The top lifts off completely. Quarter-inch plate glass from an old 3-ft. by 5-ft. carpet display rack was used to the top. □



The Solar Wax Melter

A look inside the wax melter in use.



The Alfalfa Seed Industry and The Beekeeper

By JOE TRAYNOR

HERE'S A SWITCH; picture the following news release:

AG SCIENTISTS ANNOUNCE BREAK-THROUGH: ALFALFA SEED YIELDS LOWERED BY 50%!

Over a 10 year period, alfalfa seed yields have been reduced by as much as 50%. The decrease has come through alfalfa breeding advances that have reduced self pollination. Alfalfa breeding programs are providing improved seed that in turn gives significantly higher alfalfa yields and alfalfa that is resistant to attack by insects and diseases.

The above headline has never been seen and never will be — although the last sentence has been the subject of numerous news releases.

There has been a revolution in alfalfa seed breeding in recent years with new, improved varieties accounting for an increasingly larger share of the alfalfa seed market. This revolution is related to a decrease in per acre alfalfa seed yields because in order to come up with improved varieties, plant breeders must, in most cases, reduce the amount of self-fertilized seed produced.

Self-fertilization is the bane of plant breeders because seed produced from self-fertilization is usually weaker and gives poorer quality plants. On the other hand, seed produced by crossing between plants is usually more vigorous, containing more of the desirable traits that the plant breeder is trying to impart in a species. The sticker is that reducing the amount of self-fertilized seed will also significantly reduce overall seed yields, but a number of studies have shown that "cross-fertility is positively correlated with the ability to set self seed." (1).

One method of reducing self-fertilization and increasing cross-fertilization is planting 2 cultivars, one male-sterile (producing no pollen), the other a normal, pollen producing variety. Seed is harvested only from the male-sterile plants, thus there is no self-fertilized seed. This method was tried briefly on commercial scale but abandoned — space taken by the pollen cultivar significantly reduced overall seed yields and bees did not readily work the pollen barren cultivar.

Using plants as breeding stock that have inherently low self-fertilizing capabilities increases the relative proportion of cross-ed seed produced but not necessarily the total amount. For example, there is a significant positive correlation between pollen tube length and the degree of self-fertility in alfalfa (2) — the longer the pollen tube, the greater the chances for self-fertilization. Reducing pollen tube length reduces self-pollination but it also reduces cross-pollination and the total amount of seed produced by a plant. Because it takes long pollen tubes to reach the bottom ovules of an alfalfa flower ovary (later to become a pod), any reduction in pollen tube length reduces the number of seeds per pod. The ovary of each alfalfa flower contains approximately 9 ovules or eggs, each capable of producing a seed when fertilized by a pollen tube nucleus. If an alfalfa variety produces pollen with pollen tubes shorter than the length of the ovary, the ovules at the bottom do not get fertilized and therefore do not form seeds. Cross pollination stimulates pollen tube growth and is one of nature's ways of increasing cross-pollination (with resultant superior progeny). However, if pollen tube length is genetically limited from the start, even the added boost of cross-pollination does not allow pollen tubes to reach the bottom of the ovary.

Fields averaging 4 seeds per pod yield half as much seed as fields averaging 8 seeds per pod. Two alfalfa fields can receive equally good pollination, i.e., identical number of flowers tripped by bees, yet one field may significantly out produce the other because of a higher seed per pod count which in turn can be due to longer pollen tubes.

Plant breeders are aware that breeding-improved alfalfa varieties often means sacrificing seed production and they are concerned about this. A 1975 study put it this way: "Because good seed production is essential for a variety to succeed in commerce, one may doubt the wisdom of selecting for self-sterility...."

From the viewpoint of practical plant breeding, intensive selection for self-sterility, without regard for the cause of that sterility, would probably lead to cultivars with low seed producing poten-

tial. On the other hand, intensive selection for self-fertility might encourage selfing in seed production so much that the vigor of the cultivar would be impaired. Before a more precise recommendation on the breeding of alfalfa can be made, we need a better understanding of how factors controlling fertility in alfalfa interact to suppress inbreeding and promote out-crossing. It is likely that some seed production is sacrificed in normal populations in a complex system that balances fecundity with heterozygosity." (1).

Plant breeders readily acknowledge that many of the new varieties of alfalfa are poor seed producers and companies sponsoring these varieties pay alfalfa seed growers a premium price to produce seed from these varieties. The premium price is intended to offset the lower yields from these varieties.

What does all this have to do with the beekeeper?

In California, the beekeeper supplying honeybees for alfalfa seed pollination is a vital and integral part of the seed-producing process. A better understanding of the alfalfa seed industry and the economics of alfalfa seed and alfalfa hay production can help beekeepers in setting pollination fees. Alfalfa pollination fees in California are relatively low. However, the beekeeper sees low seed yields and is aware that the alfalfa seed grower isn't getting rich even if he does get a premium price for private brand varieties.

If the alfalfa seed growers aren't making enough to pay increased pollination fees, then maybe the seed companies should be paying seed growers even more for seed. Seed companies would argue, and with some justification, that they aren't getting enough for their product to warrant paying more for seed. The private brand seed varieties sell for up to 50% more than the old line varieties. (private brand seed varieties sell for about \$2.30 to \$2.60 per lb. vs. \$1.50 to \$1.70 for old line varieties). Seed companies argue that the premium price received for their improved varieties is used to pay for research and development costs as well as promotional costs for the new varieties.

If the alfalfa seed grower can't pay more for bees because the alfalfa seed

companies can't pay more for seed, then the last man on the totem pole is the alfalfa hay grower. Bee rental prices for alfalfa pollination are eventually paid for by the alfalfa hay growers that buy the alfalfa seed, so any increase in pollination prices will also be paid for by the alfalfa hay grower.

A look at alfalfa hay economics shows that hay prices have fluctuated from \$60 to \$90 per ton in recent years with 10 tons per acre considered a good hay yield (in California). At \$60/ton, hay is not a money making crop for most California growers at (today's production costs) — at \$90/ton it is. Because hay consumption is dependent on livestock numbers, price of competitive livestock feeds and annual rainfall (which affects livestock rangeland) none of which are constants, there will always be some instability in hay prices.

At seeding rates of 15 to 20 lbs of seed per acre, seed costs can range from \$20 to \$50 per acre. This is a significant, but not a major production cost for alfalfa growers when spread over the 3 to 4 year life of the stand. A 10% yield increase from some of the 1st year of the stand, even at \$60/ton hay.

Seed companies feel that profit differences between the new, improved varieties and the old line varieties can add up to hundreds of dollars per acre (3) and they could well be right. Thus, even if hay prices are depressed, hay growers can justify paying \$5 to \$6 per pound of seed. In turn, seed companies could justify paying \$3 to \$4 per pound of seed to the seed grower and the seed grower could then justify paying beekeepers more for pollination.

Rather than waiting for the hay grower to pay more for his seed and let this increase work its way down to the beekeeper, the beekeeper might be better off to reverse the process, i.e., let increased pollination fees work their way up to the hay grower. There are indications that this trend has already started (although not with honeybee pollination prices) in areas using leaf cutter bee boards for pollination. One Idaho seed company that also supplies its seed growers with leaf cutter bee boards is taking 23 to 25% of the seed crop as payment and growers seem well satisfied with this arrangement (4). Such payment could well exceed \$200 per acre. Individual alfalfa growers that make and stock their own leaf cutter bee boards can easily have \$100 per acre annual costs tied up such a project.

In California, a leaf cutter bee that can withstand the hot summer temperatures

has not yet been developed on a commercial scale. Although there are future possibilities of increasing populations of already acclimated leaf cutter bees to commercial levels, it is likely that the honeybee will play a dominant part in alfalfa seed pollination in California for a long time to come.

The honeybee has a distinct advantage over the leaf cutter bee in that alfalfa honey helps to defray pollination costs for the seed grower. Many beekeepers depend on a 30 to 50 lb. honey crop during alfalfa pollination and this honey production is considered in setting pollination prices.

Since alfalfa seed growers in areas using leaf cutter bees have shown that it is economical to spend up to \$200 per acre for pollination, it can be seen that there is a lot of room for grower investment in honeybee pollination. Fifty dollars per acre (3 hives at \$16 a hive) is currently about the top cost in California. Increased expenditures for honeybee pollination might include using up to 10 colonies per acre (during peak bloom), removing or protecting bees during insecticide applications, rotating bees (bringing in fresh bees) during the pollination season and providing water sources close to the bees — possibly in-hive waterers.

An intriguing possibility for improving honeybee pollination of alfalfa is the feeding of sugar syrup to stimulate pollen collection. Feeding sugar syrup can switch nectar collecting bees to pollen collecting bees and is recommended by Free and Williams (5). The increased use of frame sugar syrup feeders in recent years makes such a practice more feasible than it has been in past years. However, pollination fees would have to jump considerably for this to be economically practical for the beekeeper.

Substantially increased alfalfa pollination fees should allow the beekeeper to take a more personal interest in maximizing per-acre alfalfa seed yields. Today most California beekeepers move bees into seed fields, hunker down for the inevitable pesticide losses and hope to get the colonies out in time to get them rebuilt on another flower source before winter. The desire to supply the strongest hives possible for pollination is tempered by the realization that such hives will significantly decrease in strength during the pollination period.

The major difference between beekeepers supplying honeybees for alfalfa seed pollination and the growers and seed companies that manage leaf cutter bees is that the latter put maximum effort into getting the most possible pollination from their bees — their major concern is setting the biggest seed crop possible. Beekeepers are more concerned with

honey production and with keeping their hives from deteriorating excessively than they are with setting seed because, at current pollination fees, beekeepers cannot afford to manage bees so as to maximize seed production. Such management would mean increased labor costs and lower honey production and could not be done without a big jump in pollination fees.

There has been no significant changes or improvements in honeybee pollination of alfalfa seed in over 30 years — because there has been no monetary incentive for beekeepers to improve! The level of honeybee pollination could well prove to be beneficial for both the seed grower and the beekeeper. □

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N.C. APIARY LOCATION

THIS APIARY, belonging to Mr. J.E. Sisk of the Forsyth County Beekeepers Association of North Carolina, is a good example of location and arrangement of bee hives.

Beekeeping In Angeles National Forest

By WILLIAM BUCK
Gardena, CA

THE U.S. FOREST SERVICE annually issues over two hundred "special-use" permits to California Beekeepers wishing to establish apiaries on federal forest lands. Fees are very reasonable, and permit regulations for apiaries serve to protect the beekeeper from losses caused by vandals or from diminished yields brought about by the overstocking of good locations. Situated near the densely populated L.A. Orange County Region, Angeles National Forest may provide an excellent opportunity for the beekeeper to pursue his or her craft — free from the fear of officious neighbors or local authorities mounting an anti-honeybee campaign against them. Sage, California buckwheat, and manzanita are but a few of the many nectar sources available to colonies in the Angeles Forest. The proximity to an expanding megapolis assures a fast and ready market for the surplus which can be produced in quantities often exceeding the average.

Apiaries meet approval in the national forest provided they are situated a minimum of three miles from other known bee yards. A location for bees is also deemed unsuitable if within one mile of any paved road, posted hiking trail, campground, or building. These provisions enable each beekeeper to take full advantage of the available nectar flows. They also serve to keep robbing and the spread of brood disease at a minimum. Restricting hive sites to a distance of a mile recreational or other inhabited areas helps reduce the incidence of vandalism, theft, and public complaints about stinging honeybees.

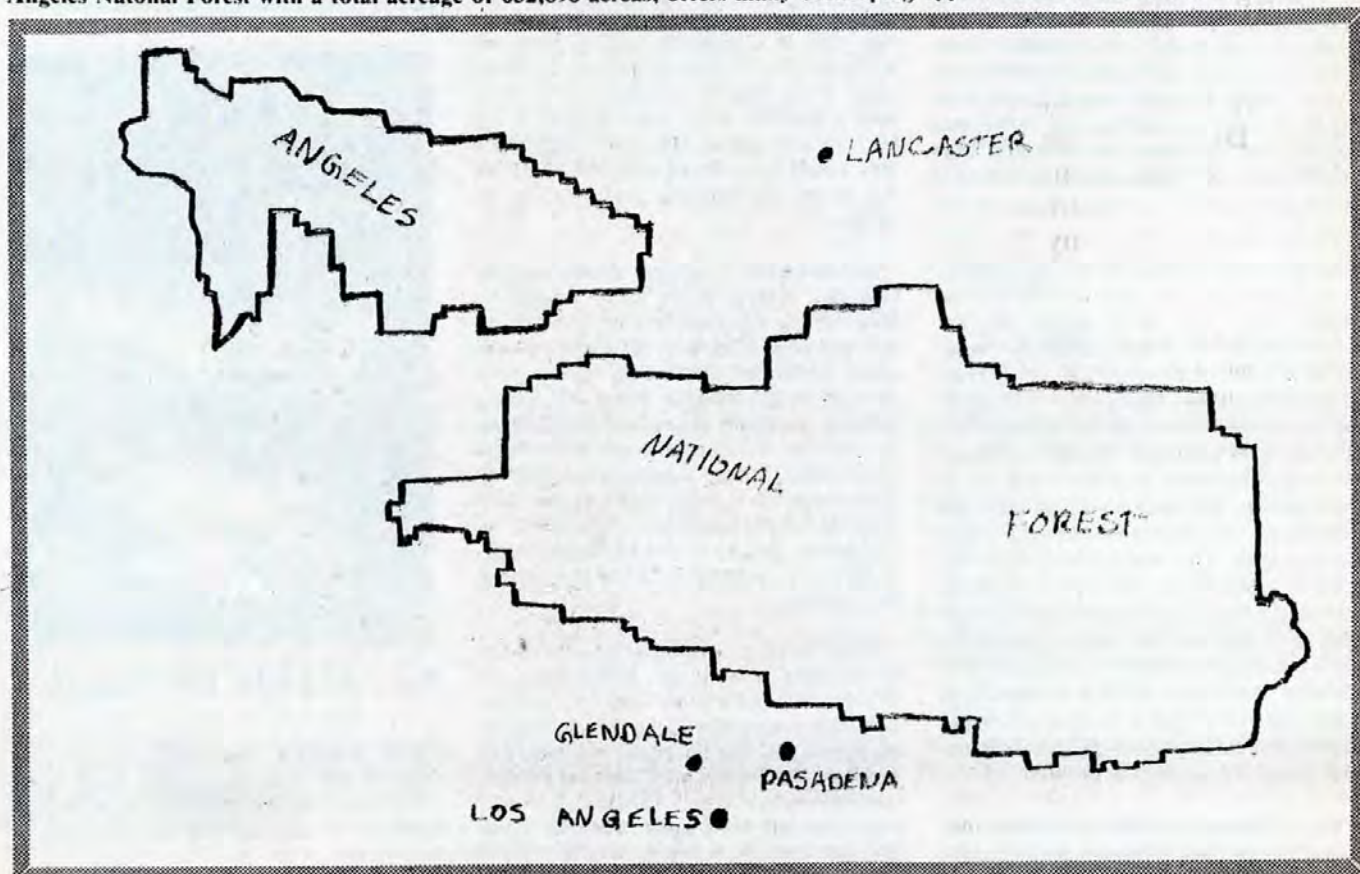
To obtain a permit one must either select a spot or consult with the District Ranger to obtain a listing of possible areas that might be considered. Once the beekeeper chooses a location, the proper application form is filed and a ranger is assigned to inspect the location and sub-

mit a report either approving or denying the application. If given the O.K., the beekeeper then pays a pro-rated annual fee of fifty dollars. From 0-150 hives may then be kept at the approved site.

Unfortunately, the most suitable locations are presently stocked — and because of the increased recreational use of Angeles Forest, otherwise good beekeeping areas fail to meet permit criteria. Furthermore, otherwise excellent locations are too inaccessible, lacking even rudimentary roads and often of such terrain as to make even slow foot travel difficult.

The present paucity of apiary sites in Angeles Forest excludes many beekeepers who would like to expand their operations beyond the hive or two in their "postage-stamp backyards". None-the-less, the national forests can be a valuable resource for beekeepers who, for a nominal fee,

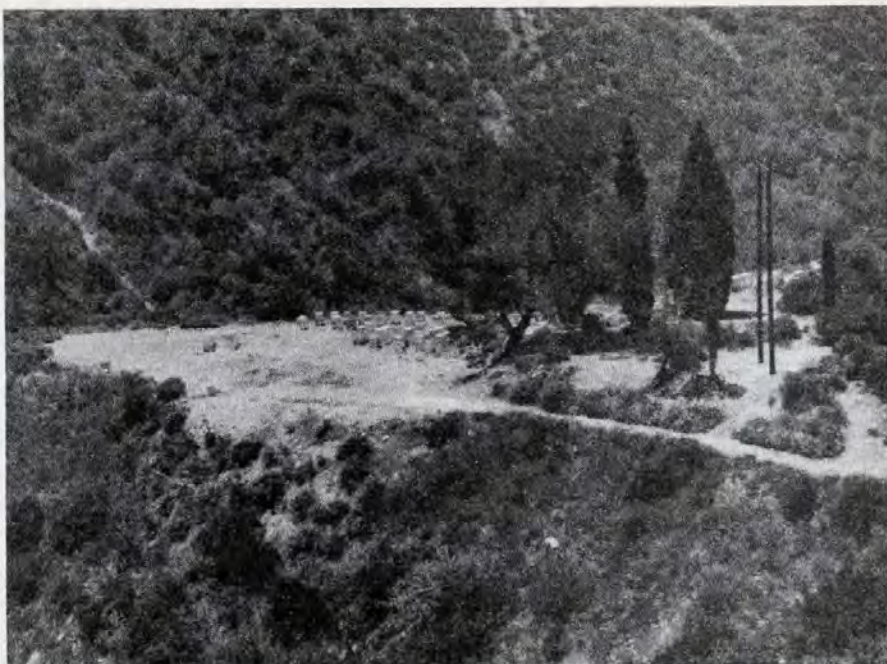
Angeles National Forest with a total acreage of 652,898 acres, offers many beekeeping opportunities for the urban dweller.



may obtain the use of protected areas for his or her "angels of agriculture".

It is hoped that in the future more sites will become available in the Angeles — as well as other forests; thus giving the urban resident an opportunity to pursue the art of apiculture, free from the worry of complaining neighbors and local bureaucrats. □

Typical apiary at lower elevation in Angeles National Forest.



Increasing Your Honey Sales With Fund Raisers

By TIMOTHY HOSEY
Bloomington, IN

"It's Like Having Your Own, Large, Door-To-Door Sales Force — Except You Don't have to pay any Commissions, Overhead, Or Do Any Supervising!"

EVERY YEAR, literally BILLIONS of dollars are raised in the United States by charitable organizations who sell everything imaginable door-to-door. They sell light bulbs, candy cookies, pretzels, cheese, and sausages. So how come they're not selling honey — YOUR HONEY?

Only because you haven't asked them. Every charitable organization needs money. These groups are constantly engaged in trying to raise money for their activities.

SINCE they have tried just about everything else, they are extremely receptive to any new idea they can use to raise money. When you go to them with the new approach of selling honey, they are usually ecstatic to see you.

But why should you, as a beekeeper, sell your honey this way instead of through the usual markets? Let me give you four excellent reasons:

First, fund raisers allow you to sell your honey directly to the consumer. You might want to bypass the usual retail, or wholesale markets because a competitor has them sewed up maybe you don't have time to work them or you can't get enough money for your honey. The usual markets might also sell your honey too slow or be slow-paying.

The second reason is that the sales method is VERY PROFITABLE! Not only can you move huge quantities of honey this way, but you can usually sell your honey for a higher-than-normal price.

Fund raising groups will sell the honey at a high price because people are willing to pay in order to support the charity. This allows you to sell the honey to the charities at a little higher price.

The third reason: Fund raisers are a great way to build your future sales!

Honey is a consumable product. No matter how much honey someone buys, sooner or later they'll have to buy even more. After the local population falls in love with your honey they bought from a charity, later they'll want more. And they will come directly to you.

The final reason is that selling honey this way is easy! It takes some effort to get started. But after the initial organization, the fund-raising groups do all the work.

It's like having your own, large door-to-door sales force, except you don't have to pay any commissions, overhead, or do any supervising!

Okay! So how do you get started? Here's a step by step plan to follow:

1. Locate the groups in your area who would be interested in what you have to offer. You have two ways in which to do this.

The first is through your local newspapers. They are always reporting on the activities of groups in your area. List the name of each group you find in the paper on a three by five card with the type of fund-raising activity they do.

The second thing to do is go to your phone book. Copy on the cards the name of each group you can contact, along with their address and phone number.

Some headings to look under: Fraternal groups (like the Moose, Kiwanis, Elks, Optimists), hospitals, church groups, foundations, fire companies, the police department, fraternities and sororities, college groups, colleges, all kinds of schools, general civic groups, volunteer organizations, philanthropies, and anything else you can think of that might operate fund raising programs. This should give you an idea of the number of prospects available.

2. Prepare your product! You have to consider the kind of honey you're going to use, the kind and size of container, and the labeling.

You can offer a group more than one kind of honey: Like maybe clover and wildflower. Just be careful you don't confuse everyone. It's usually better to present just one kind of honey that most people in the area would like.

You can also confuse people if you offer too many sizes of containers. The most popular sizes for fund raisers seem to be one-pound glass and eight ounces. Kids prefer honeybears.

There is a slight preference of glass over plastic.

Labels are extremely important because they are what really sets your honey off from someone else's. You have two ways to go with labels. You can use your own (and get all kinds of advertising for yourself), or you can buy blank labels and have a printer put the name of the fund raising group on them.

Many organizations really like having their names on the honey, while others, like the boys scouts, aren't allowed to do that. Ask a group its preference.

3. Prepare your plan. This step consists of preparing all the written information you and your clients are going to need. You'll need to type up a price sheet, something that tells a little about you, and a brochure that describes your honey. This last sheet is important because it will SELL your product to the fund-raising group. The fund-raising group can use it to sell honey to the consumers.

You will also need a policy sheet (this can be combined with the prices) to cover things like: Financial arrangements — whether all orders will be COD or you'll collect after the group has sold everything, and what your policies will be towards breakage, returns, or any other problems you might foresee. A policy sheet can prevent arguments later on.

Xerox all your literature so you'll always have plenty on hand.

4. Contact your prospects. This can be done either by mail or by phone. However, phone is by far the best.

When working by mail all you do is send out a packet of your literature to the addresses of the groups on your three by five cards. The problem with this is that people in such groups are usually so busy that your information can easily be misplaced, lost, or just plain ignored.

These things can't happen to you if you call. All you have to do is call each group and find out who is in charge of the group's fund-raising programs.

Call that individual and simply explain who you are and what you have to offer. If they're interested, make an appointment to talk to them in more detail, face-to-face.

Be sure and write on your three by five cards the results of each contact so you won't become confused later on.

5. Present your plan. Whether or not a group will do a certain fund raising usually has to be decided by either a board or committee of that group, or the entire membership. In any case, you just go to one of their meetings and present your product and plan to them.

Be straight forward — tell them who you are, what your product is, and that you want to help them. Take along anything you might need for the presentation. Samples with lots of spoons are a MUST. Show them your prepared literature. It helps if you know something about the group before you go.

It is also important that you be enthusiastic when you talk to these people. You have one of the best products in the world! Tell them so! Your enthusiasm will be contagious. They'll burn up the streets selling your honey for you.

If you have some past references, you might also take them along.

6. Set dates. Everyone has decided to sell your honey, (it was easier than you thought it would be). Now you have to set the overall operating calendar.

Set the starting date. Be sure to give yourself, and the group, plenty of preparation time. Set the closing date. If you're going to meet (say, once a week) for check ups, set those dates and times also.

If you're running more than one fund-raising program, make sure the involved groups don't overlap geographically or time wise. That's a great way to get yourself hung!

7. Publicize! Have the group publicize the event in organization bulletins, press releases, and through posters plastered all over town.

Many groups also use "telephone squads" where each member of the group calls five friends and tells them what's going on.

8. Go into action. A few days before "D-day", be sure and call the chairman to make sure all will go without a hitch.

Then, on the appointed day, you either have the group pick up the honey at your honey house, or you deliver it. If the group is going to pay you after the program, be sure to give them an invoice so everyone knows how much money is owed you.

10. Collect. If you've done everything right, at the end of the fund drive a pile of money will be waiting for you. If you want to leave any prizes for the top salespeople, or the chairman, (like a free case of honey) now is the time to do it.

11. SMILE! You have helped to raise some badly needed money for two worthy causes ... theirs and yours! □

Farming Uncle International Journal
Magazine for Countryside People
We cover: Gardening, Small Stock, Health, Bees and Much More.
Subscription rate: \$6.00 a year.
Farming Uncle®
P.O. Box 91 Liberty, New York 12754

Questions and Answers

Q. An article I am most interested in but have not seen published is: "what to do for bee stings". I wear white cotton socks, tan khaki pants and oxfords. Each year I am stung several times on my ankles. The stingers as a rule remain in my socks — however, enough gets into my system to cause my ankles and feet to swell and stay swollen for several days, with fever.

I think an article or news on this would be helpful. Yesterday both ankles were stung and hives appeared on hands and head. I went to the emergency room. He had no suggestion other than to explain what was happening and give me a prescription for a Bee Kit to use next time. I feel sure there is recommended medicine for home use that might help those of us who get stung but who are not yet allergic to the stings. What can be done to make a person more comfortable and reduce swelling? A.B. North Carolina

A. Stinging is a problem to those who suffer from some form of reaction to a sting. It is very important to carry the bee sting allergy treatment package which you now have. These kits which are carried as a precautionary measure are available from a doctor or by prescription from a drugstore. In cases of severe reaction immediate attention is necessary. Aside from the above actions, necessary only in the instance of a severe reaction to a sting, there is little that can be done to relieve the momentary pain of the sting and any consequent swelling. Many preparations have been suggested and sold for this purpose but nothing will consistently and completely afford relief from the temporary pain and discomfort.

Persons truly allergic to bee stings should take the series of injections now available which are prepared from pure bee venom.

In regard to your protective clothing we would suggest bright, white, loose-fitting clothing with no openings for the bees to enter. A tight fitting veil should always be worn. The trouser legs should be long enough to fit inside shoes which protect the ankles. In your case I would also advise the use of bee gloves.



Q. Will you please tell me if it is alright for me to use last year's foundations? I had stored these in the cellar where it was damp. Now they appear green with mold.

Will this kill the bees when they try to clear up the foundations? A.B. New Jersey

A. It is quite possible that the foundation can be used by the bees — as they are capable of cleaning the surface of the wax before building the comb. Perhaps a trial with a few sheets would be a good idea prior to using the bulk of wax because I've never experienced using wax with a green mold. Stored beeswax will develop a light colored bloom which is natural and harmless.



Q. I have just bought an entrance guard to confine the queen to the hive. I placed it in the entrance of the hive as directed; but have a problem. The bees can go out through it all right, but in trying to get back in through the guard with pollen they have the pollen knocked off, going through the guard wires.

The type of bees I have is Italian. Have other beekeepers had this problem and what can I do to correct it? C.M. Ohio

A. The purpose of the entrance guard is to prevent the queen from leaving the hive at swarming time. Other than during this short period of time, which usually takes place during the last two weeks of May in our part of Ohio, we suggest not using an entrance guard.

Although some large loads of pollen may be dislodged from the incoming bees, this has not been a common complaint from our experience. The wire is queen excluder material which should not hinder worker bees in passing through with loads of nectar and pollen.



Q. I had heard about the shipment of honeybees from the west coast to Canada on Paul Harvey's News and Comments. He was amazed at the large number of bees that was being airlifted. Five million?

Several days later he asked: "do you remember the other day about all those bees being sent to Canada? Well, every one of them was killed in transit."

The fact that they died in transit is what I couldn't understand and, apparently, Paul Harvey didn't have the answer either.

This was my original inquiry. I thought maybe *GLEANNINGS* would do a story on the tragedy. D.T. Ohio

A. Large shipments of package bees (if you wish to count individual bees) would amount to many times the number men-

tioned. Such shipments are made regularly from the Southwest and West (California) to the provinces of Canada, sometimes by air. Shipments begin in late March and occasional losses occur due to inclement weather in Canada. The public does not understand the logistics of moving large numbers of package bees from the package producer to the honey producing regions. Popular news broadcasts may regard a shipment lost in transit, or upon arrival, as a newsworthy event even though not a rare happening. Such an event must have precipitated the report which you have heard.

Since the receipt of your question a brief explanation has been received and will appear elsewhere in this issue. □



Q. I have been asked recently (by two couples who are seriously allergic to insect stings) for a list of plants that are not likely to attract stinging insects to the average flower garden or landscape.

Can you direct me to any literature that contains such a list? E.D. MA

A. Our literature deals with the specific plants which attract honeybees and, therefore, tends to disregard those which are not attractive. We would suggest using your own observations in regard to the common garden flowers. I am sure that you will be able to compile a fairly extensive list. Most horticultural flowering plants do not attract bees except for short periods when pollen may be available.



Q. My beginner's manual says queens produced under the supersedure impulse are of superior quality.

Is there a way to induce the bees to supersede at will?

This would provide a source of a few queens of high quality for requeening. L.W. Texas

A. If a queen is destroyed or removed from a hive and she leaves behind fertile eggs (normally) the colony will build queen cells using these eggs and hatch a new queen — an approximation of the supersedure process. There are certain risks involved in doing this; but it is one way of accomplishing the purpose you have in mind. The queens may not always

be of high quality compared to those raised under controlled conditions by a breeder or through natural superseding. It must be kept in mind that replacing a queen by this method involves about 21 days without brood rearing.



Q. I have in my yard a large buckeye tree (very large) and every year it produces a heavy bloom. The bees work it very heavily. The roar in it sounds like a swarm. What kind of honey does it yield? Is it dark and of what quality? There are a lot of buckeye trees around this area.

My other question is, what is the best thing to do if one has chalk brood in a hive? O.N. Ohio

It would be difficult to accurately describe the honey produced from your buckeye trees (*A. glabra*) since they are only a minor source, even in our "Buckeye State". It is unlikely a colony will produce enough surplus to have a pure crop of the honey. I presume it would be dark, but I am not certain. The California buckeye (*A. californica*) yields much surplus nectar but it seems to have a narcotic effect on the bees. I had the opportunity to observe this recently in California. Some say the nectar and/or pollen is poisonous to bees and brood. Beekeepers move bees out of the foothills when the California Buckeye is in bloom — it being very common in the ravines of the dry foothills.

There is no recommended treatment of chalkbrood. It is a condition which usually clears up during the summer. Cool, damp unfavorable weather appears to be related to the outbreaks of this problem.



Q. I would like to ask what difference there is between honey and white sugar? While it may be that honey is not for a sugarless diet, I would like a personal reply to statements made in our local paper that "honey is just as much a villain as sugar" in a sugar-free diet for controlling low blood sugar.

I have ten colonies and have helped several people get started in beekeeping. F.M. MA

A. The honey-sugar issue is one which has been debated considerably of late and will never be settled — as long as differences of opinion occur between beekeepers and nutritionists. We at *GLEANINGS* are not nutritionists and are willing to abide by the information given to us by people in this field of science if (and this is an important if) the

role of honey is properly defined in relation to total nutritional needs. We beekeepers do have our personal opinions and most of us believe that honey has nutritional benefits which may not be evident on the nutritional chart when compared with other sugars. If pollen is included in the honey it certainly has an additional nutritional value beyond that of ordinary table sugar. Honey varies considerably in mineral, vitamin and nutritional elements though it admittedly is not nutritionally rich in any of these elements. We feel that honey is a delightful condiment which can enhance the food value to a degree and certainly improve (considerably) the enjoyment and therefore better utilization of foods, such as the cereals and in the preparation of meats, vegetables and baked goods.

Of course, for people on a sugar-restricted diet we certainly agree with the statement of the nutritionist that honey can be as harmful as any other sugar when they are following such a diet aimed at controlling low blood sugar.



Q. Could you tell me please what I am doing wrong. My extracted honey always appears somewhat cloudy. The honey goes from the extractor through a pump to the storage tanks and is being filtered only through a fine nylon cloth. The honey is not being heated. Any suggestion, other than heating, to produce honey would be greatly appreciated. H.M. Quebec, Canada

A. We can only advise what our idea may be; but, of course, it could be something other than this. The honey pump which you are using is evidently incorporating air bubbles into the honey being pumped into the tank. The air comes in around the shaft bearing. In some cases the bearing can be tightened or replaced, if worn. Running the pump at the slowest possible speed will reduce the problem. It is a common problem with some types of honey pumps. If foamed honey is not allowed to settle for a reasonable length of time in the tank the bubbles will appear in the bottles, giving the honey a cloudy appearance. Raising the temperature of the honey by warming will aid in the length of time required to dispose of these air bubbles.



Q. What is the commercial process used in bleaching beeswax?

What is the process for sun-bleaching beeswax? On page 133 of the March 1980 *GLEANINGS*, Bill and Wilma Ruhl are shown with awards for sun-bleached beeswax. J.T. NC

A. There are two chemical processes most widely used in bleaching beeswax. One is the mixture of diluted sulphuric acid with melted wax to whiten it. This essentially burns off the impurities present in the wax. However, handling, washing and disposal of the waste materials are the basic disadvantages. Another chemical process is the addition of potassium permanganate; which does essentially the same thing. This chemical is in a crystalline form and when added to water makes a purple chemical which stains practically everything, especially the skin. But it works to lighten beeswax. Excessive flushing with water is necessary. We understand it is biodegradable and can be put down in a drain, but this should be checked into on a local basis. The filtering process using diatomaceous earth and other purification filter aides is another popular method of lightening beeswax.

Sun bleaching beeswax is simply exposing it to a strong sunlight. Sun-bleaching beeswax is simply exposing it to a strong sunlight after it has been cut into fine chips.



Q. Last year I was given a summons for keeping bees as a hobby because a neighbor saw a swarm of bees on a tree on my property — about a hundred feet from her house. The summons was dismissed in court because the prosecutor didn't show up in court.

Now, the zoning board is going to regulate bees by passing a zoning ordinance which limits beekeeping to lots with one acre or more. I am on a one quarter acre lot but I have many acres of empty fields behind me which are uninhabited.

When the zoning ordinance is passed do I come under this new law since I kept bees before this new zoning was passed? I would like to know how to get the reading material on the problem. If there are any organizations in this area which are familiar with cases of this nature I would like to know of them, as well. M.K. New York

A. Only a local lawyer can tell you whether you will be protected by the "Grandfather Clause" which normally allows pre-existing uses. Probably that is not the intent of the people drafting the law. Ordinances against beekeeping are becoming more of a problem all over the country. The best precaution is a good public relations program with your neighbors. For this we would be glad to send any of our readers **POINTS TO CONSIDER IN KEEPING BEES IN A RESIDENTIAL NEIGHBORHOOD**.

When the drafting of a law is in progress ask for BEEKEEPING IN RESIDENTIAL NEIGHBORHOODS. There is no charge involved.

Some beekeeper organizations have combined the efforts of their members in opposition to such zoning ordinances, if only to have them modified to allow beekeeping on a restricted basis — such as allowing only a couple of hives on a small lot.



Q. Some honeybees will supersede their queens as needed to maintain a strong colony apparently forever. Other honeybees, when the queen gets old, will dwindle and die out if the beekeeper does not requeen.

My question is: why? What makes the difference? I have two swarms I caught — one seven and one eight years ago. They are always strong. They produce in the top 20 percent of my colonies and I have never requeened them. They are a little aggressive and I work them last in the apiary and then no more than necessary.

Several colonies established with purchased queens have, when the queen gets old, just dwindled down. On one occasion a hive had only a small amount of sealed brood. I could not find a queen. I gave

them a frame of brood, larva and eggs. They did nothing but feed and cap the brood. No queen. they really needed a queen, but would not produce one. D.B. IL

A. Why most colonies will maintain themselves by superseding while some will not is still a mystery. Possibly it is due to the factor we call "colony morale". I am sure there is much to be learned about this behavior as related to build-up, honey gathering and survival of the colony. Probably colonies which supersede their queens in a normal manner are inclined to do so because of their genetic inheritance. Those that do not, fail because of some abnormal behavior that is genetically related. The background breeding of the queen is no doubt related to the inability of a colony to survive after the loss of a laying queen such as you have experienced.



Q. I have been messing with bees for about three years. In this period of time I have had numerous bee stings, none too serious. I am always dressed in all of the beekeepers' clothing, but I still get stung right through it. My wife and eight year old daughter can be right beside me and neither of them get stung. My question is: can a person have a certain body

chemistry that makes them more susceptible to bee stings? A reader, Indiana

A. Don't be embarrassed by this. Some experienced beekeepers, working in a hive, will be stung unmercifully while some curious onlooker — usually a non-beekeeper — looking over his shoulder and wearing no protection whatsoever, will be completely ignored by the angry bees.

There is certainly the possibility that we unknowingly communicate apprehension, possibly fear, by odors or by actions, to the so called "lower animals" — such as bees. Studies of the reactions of animals led to the supposition that they do indeed exist. These "signals" are not usually detectable by other human beings. Nor do all animals react equally or in the same manner. Bees (apparently) sometimes react to fear in a human handling them, though not always in a hostile manner. These "signals" are without a doubt due to our body chemistry as you have suspected. Practice and experience in working with bees, development of discipline in controlling emotions and the resulting self-confidence will usually allay any disquieting influence we may have on bees while working with them. Wearing suitable clothing, including a good veil and the proper use of a smoker, will usually prevent any serious stinging; even though we may be ill at ease around bees.

Problems In Transporting Bees...

THIS PAST APRIL, 526 packages of bees — valued at about \$12,000 — died during an air shipment from Phoenix, Arizona, to Canada. Each package contained 2.5 pounds of bees and a queen intended to start new colonies for crop-pollination and honey-production this coming summer.

The current Canadian export market for package bees exceeds \$5 million annually and is increasing. It is difficult to winter bees outdoors in Canada, and many apiarists find it more economical to purchase starter bees in the spring than to build winter storage buildings.

OT researchers went to Arizona and worked with bee shippers and airline carriers to develop improved packaging and shipping procedures for bees. The researchers found that overheating during transit was a major factor in the shipment where all of the bees were lost.

They also found that most aircraft cargo compartments do NOT have positive air-ventilation and that temperature in the compartments generally is maintained at 70 degrees F. by electric

heaters in the aircraft walls. These electric heaters are not thermostatically controlled; therefore, when a large number of heat-producing animals is stowed in the compartment, there is a tremendous amount of heat built up.

A small test shipment of 60 packages of bees was made by OT researchers with instruments to record temperature and humidity build-up. The bees in this shipment arrived in good condition, but the sugar-water packed in cans to feed the bees had all leaked onto the floor of the cargo compartment. This problem had also been reported in previous shipments. It was determined that pressurization changes caused this leakage, since the cans were packed at sea level and the cargo compartment was pressurized at 8,000 feet.

The shippers maintained that the bees needed some type of liquid to prevent dehydration during flight, where relative humidity levels may go as low as 15 percent. OT researchers mixed "super slurper", a moisture-absorbing starch derivative developed by USDA, with the

sugar-water which formed a gelled substance. Small cotton muslin bags were filled with the gelled sugar-water and stapled inside 125 shipping cages.

These cages were packed with bees for a second test shipment. The plane's cargo compartment was pre-cooled with a ground air-conditioning unit prior to loading the bees. The shipment of bees arrived in Canada in excellent condition and without food spillage.

Office of Transportation researchers plan to work further with the airlines and shippers on procedures for loading and maintaining cargo-hold environments for bees, baby chicks, and other small animals which are shipped routinely by air. □



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Partners In Pollination

By **ELWOOD SIRES**
Past President
Washington State Beekeeper's
Association

Presented to:
The Washington Horticulture
Association
December 3, 1979.
Yakima, Washington

This is an informal presentation covering problems the bee industry faces in maintaining and placing bees for pollination service, and the relationship these problems have to growers who depend on the bee industry to pollinate crops. It is my premise that we are mutually dependent -- each industry on the other -- and if we do not work together, we will surely fail together.

After forty years as a resident commercial beekeeper, I am sure that commercial beekeeping in Washington cannot survive without substantial pollination revenues. Income from honey and beeswax production alone is insufficient to support a business of commercial size in this state.

It is just as true that the tree fruit, alfalfa seed, clover seed, vegetable seed and berry industries are, in varying degrees, dependent on honeybee pollination for economic production.

Currently, the tree fruit industry is undergoing an almost explosive acreage increase, yet growth of the bee industry is remaining static or decreasing, with little prospect of expansion. With this in mind, it becomes obvious that making efficient use of the available supply of bees and cooperating in efforts to protect them, provides mutual advantages for both growers and beekeepers.

Beekeeping Growth Limited

Commercial beekeeping has two overriding problems which limit or negate prospects of future industry expansion. Agriculture's overwhelming dependence on chemical pest control is the greatest problem the bee industry faces -- as these products kill bees as well as pests. Diminishing available forage areas due to changing crop patterns, urbanization, and weed control practices, runs a close second.

Integrated pest management concepts hold forth promise of considerable relief to bee industry. A growing community of agricultural consultants are committing to this concept, but progress is painfully slow and in the meantime to this concept, but

progress is painfully slow and in the meantime, severe bee losses from pesticides continue.

The bee indemnity program was enacted by congress in 1972 to partially indemnify beekeepers for losses of bees, honey crops, and pollination fees due to damage caused by USDA approved pesticides applied to blossoming crops, or allowed to contaminate cover crops and weed on which bees were foraging.

The concept of the indemnity program was that it would enable the bee industry to survive while less damaging pest control methods were developed. Truthfully, there has been little improvement. Damage claims have continued to rise, the rate of indemnification has remained static and the bee industry has lost ground.

Understandably, congressmen are reviewing the effectiveness of the program and coming up with negative findings. Some urban oriented, uninformed opponents of the program are attempting its deletion by distorting its original intent. One congressman remarked for the Congressional Record, "The bee industry has had 12 years to learn to live with pesticides and if they haven't learned by now, they never will."

It appears most likely that the program will be discontinued and if so, a further exodus of resident commercial beekeepers is to be expected. They will, out of necessity, remove their hives to areas where the pesticide risks are less severe and prospects of honey crops more certain -- as Washington has no commercially suitable forage areas that are not also high risk pesticide damage areas.

Some improvement in forage areas could possibly be realized by seeding roadsides, medians, canal banks, and public lands to bee forage plants. Some plants have been successfully used in other states with the dual benefit of weed control and bee forage. But there is much question as to the success of such a project in eastern Washington and Oregon. To date, attempts to establish bee refuge areas in uncultivated regions of eastern Washington have not been successful.

Beekeepers in Washington are also apprehensive about the proliferation of tree fruit plantings into the row crop areas where we are now pasturing our bees.

Many orchards have cover crops or weeds which bloom all summer, making them inviting to bees within foraging range -- which is up to 4 miles. Combine these facts with the regular pest treatment schedules normally followed for tree fruits, and you have a hazardous situation for apiaries and thus a further reduction in forage areas.

However, if growers planning to establish new plantings are made aware of these problems, they can take protective measures to minimize bee damages and help ease the situation. Planting non-blossoming cover crops, incorporating pest monitoring programs, using specific, least damaging materials applied at the lowest effective dosage rate during a time when there is no foraging insect activity, will go far in protecting bees with the added advantage of aiding predator insects and producing an economic crop.

Using Bees Effectively

Few growers appreciate the logistical problems beekeepers encounter in preparing and placing the 70 to 80,000 hives of bees needed for pollination each year. Such an understanding will not only result in more efficient use of the bees, but less unnecessary work and expense for the beekeeper as well.

With regard to placement, the bees will work most effectively when set in the open where they receive full sunlight, (particularly early morning sun), instead of being set under or very near trees. This will often add an additional hour per day of working time for the bees and enables the beekeeper to render better service by facilitating the delivery and removal of the colonies.

Bees in the open will benefit from the maximized working time and can have an orchard pollinated in a few days, (or sometimes hours), during peak bloom. This allows prompt release of the colonies, thus lessening their danger of exposure to neighbors' early cover sprays.

Many beekeepers now handle their hives on pallets with a forklift. This expedites handling, cuts labor costs and is easier on the bees, but it has created a problem -- they are also easier for growers to move.

Once set in an orchard, the bees must not be relocated. Movements of less than 2

or 3 miles causes disorientation for the field bees, they return to their previous location, cluster on a tree and die — their services to the grower lost. Then again the beekeeper arrives in the middle of the night to pick them up and can't find the bees!

Careful Spraying Important

For the most part, growers who rent bees to pollinate crops do their best to protect the hives from pesticide damage while they are on their place. However, they must also be aware of the colonies located on neighboring ranches because after all, there is no way of keeping the bees contained to the property where they were set. By being aware of what neighbors are doing and working with them for the protection of bees, everyone will benefit.

Beekeepers have noted a trend toward delayed application of dormant sprays. These sprays sometimes incorporate a chemical that is persistent and noxious to bees and should not be applied nearer than one week, (preferably 10 days), before blossom time in order to allow the chemical to dissipate and protect the bees that may have been moved into the same area for an earlier blossoming crop.

Occasionally, (due to oversight, lack of information or poor advice), a treat-

ment is made that damages bees on a grower's ranch or those of a neighboring one. Being alert to the fact that it is never permissible to use pesticides on a crop that is in blossom or a crop that has blossomed undercover, can help reduce such accidents. In addition; non-blossoming cover crops, clean cultivation, chemical weed control, mowing or beating before pesticide treatments and using the lowest possible dosage of short residual pesticides applied in late evening or at night, will all help drastically reduce pesticide damage to bees.

Usually this kind of painstaking pest control is more expensive. Yet, by aiding the preservation of an industry so vital in producing economically profitable crops — growers are making a wise investment in the future.

Cooperative Efforts

Heavy pesticide kills in late summer or uncommonly cold winters, greatly affect the number and quality of bees available for pollination for the following spring. During the past few pollinating seasons, spot shortages in the resident bee supply have occurred and with the recent removal of over 8,000 colonies of Washington bees to Montana and the Dakotas, such shortages are likely to increase.

Explicit data is needed in order to gain

effective pesticide protection for bees and this summer the Washington State Beekeepers' Association helped initiate some statistical gathering projects. One was a mail survey that was sent to 2,094 Washington beekeepers. The study was a cooperative effort, (on the part of WSBA, WSU Extension Service and WSDA), to obtain reliable statistics on the bee industry and its contribution to Washington's economy. The response rate was excellent, just short of 80%. When the survey is categorized and interpreted, we will be able to furnish important facts and figures to interested persons.

Pesticide bee kill data has been greatly needed. So great is this need that a group of commercial beekeepers voluntarily subscribed to a pesticide damage monitoring program conducted by independent agricultural consultants. If continued, this research will eventually point out specific hazardous materials, treatment methods and areas.

The Washington State Horticulture Association created the Pollination and Bee Preservation Committee as a tool to be used for the benefit of both the tree fruit and bee industries. The bee industry wishes to work closely with this committee disseminating information and helpful advice aimed toward furthering our mutual interests.

How The Honey Bee Sees

By
ED WOLFE
Houston, TX

This is going to be a very controversial article. If I were a young entomologist with a career to defend and a personal reputation to protect it would not be worth the risk. However, since this is not the case, any damage it may do to my reputation is of no consequence.

Bees have five eyes. One on each side of the head and three in the center of the forehead. The eyes in the center of the head are sometimes referred to as smaller, simpler eyes for field and long distance work. Unfortunately, the next expert may hold just the opposite view, that the large or compound eyes on the side of the head are especially suited for this purpose, because their unique construction provides a radial view.

For the purpose of my reasoning, and not because of any research or laboratory proof available to me, I am required to assume that two eyes, one on each side of the head, provide most or all of what we humans regard as sight or vision. For this same purpose three eyes found in the middle of the forehead do not provide vision as we humans understand it, but should properly be considered as sensors.

Humans see three of the four colors found in the light spectrum: blue, green and red.

WAVE LENGTHS IN NANOMETERS:
Ultraviolet Blue Green Red Infrared
200/400 4/500 5/600 6/700 700/1200
::the extent of human::
vision

It is to be assumed that the light perception of bees is as reported by those having done research on the subject. We will accept as valid that bees see three colors also, but not exactly the same as humans; bees see ultraviolet, blue and green.

WAVE LENGTHS IN NANOMETERS:
Ultraviolet Blue Green Red Infrared
200/400 400/500 5/600 6/700 7/1200
::the extent of bee vision::

The difference that exists is that bees see ultraviolet which humans cannot and humans see red which bees do not.

Since reading of the research as to color

perception of bees and that bees are color blind as far as the red spectrum is concerned; that red flowers are a minority and that red flowering trees are exceptionally rare, I have been obsessed with the idea that we are all missing something that is vitally important to our understanding of our little winged friends. I could not come up with an acceptable idea or reason for nature's omission of vision in the red spectrum until the snake came to mind.

The snake, another one of man's friends and also cold-blooded like the bees, can go into a prairie-dog hole in the middle of the darkest night and find its prey with the greatest of ease. How is it done? By having a forked tongue that nature has designed to be very sensitive to heat radiation and some think odors as well. The tongue being forked allows the snake to triangulate its prey both horizontally as well as vertically, telling it just how large, how close or far away it is; and by additional help of the odor, exactly what its' next meal is going to be, all in the dark. My contention is that this particular characteristic of the snake would be unlikely to work if it did not utilize the

heat radiating from its prey in the red or infrared spectrum of light. Again, it is my contention that honeybees utilize the heat radiating powers of red/infrared spectrum in much the same way that snakes do, but for a different purpose.

Just imagine that you are in an airplane at an altitude of 35,000 feet. It is the middle of the night and your superior has just instructed you to photograph a parking lot on the ground. You are using an ordinary industrial camera that can be purchased by anyone but there is one difference; this camera is loaded with highly sensitive infrared film. The next day when the film is developed it shows that the parking lot was for the most part empty but it also shows something else. Because the lot had been full of cars during the day parts of the lot had been protected from

the sun's rays and therefore all parts did not radiate the same amount of heat. This difference in radiation is shown clearly in the picture. You can tell the different size and shape of each vehicle parked on the lot and in some instances that not all of the vehicles had been parked the same length of time. All of this information obtained from a photograph taken in total darkness.

This discussion of snakes and infrared photography in this article is for one reason only; it is to clearly illustrate how effectively heat radiation from the red/infrared spectrum can be utilized, in total darkness. It is indeed relevant to our principal subject because of the dramatic impact it has when properly related to the honeybee.

Nature by way of natural selection always chooses those among each species best suited to survive with the least amount of wasted effort. Since bees need to see color to best determine which flower to visit to gather pollen and nectar, who is to say which came first: the omission of red in the honeybees' vision or the minority status of red flowers and red flowering trees.

One more discussion about the nature of light and color has to be introduced at this time; you may think of your spouse as having brown hair, your house as being white, your money as being green and your bank account as being in the red, but such is not true. Objects and/or subjects do not have color; only light has color. If your car reflects green light for you to see,

The arrow points to one of the smaller, simple eyes, three of which are located in this region of the head.



it is only because whatever substance the car was painted with has the ability to absorb red and blue and not reflect these colors from the light spectrum.

That living things generate energy that is measurable is a well established fact. That matter can and does absorb and radiate energy is also not questioned. Energy is radiated on wave lengths and as for light, these wave lengths are also well established. Because the energy level may be too low for humans to perceive does not mean that it is not present, especially if it is in the red/infrared spectrum where we, as humans, have no vision.

For what purpose would the queen in your hive put her head in an empty cell in a frame brood if she had no means of telling what would be found in the cell? How, at night in total darkness, could she make this determination if the three eyes in her forehead were of no use to her? It is my contention that she sees by infinitesimal amounts of radiation in the red/infrared spectrum. Why this? Because she is red color blind. For this reason she uses this part of the spectrum to guide her activities in the dark. She triangulates living matter with her three eyes in much the same manner as the snake uses its forked tongue and is capable of establishing the size and shape, distance and bulk of things in the same way. This ability, with the aid of odors, governs every action in her life. Carrying this one step further, the nurse-bee functions in much the same manner as the queen; she reacts immediately to genetic programming and is instantly aware of what is in a single cell at any given moment and is programmed to know exactly what is required of her.

So little is known and so much is totally in the realm of abstract reasoning, one wonders to what purpose the three eyes are put in the daytime flights of the worker bee? How do they affect the mating flights of the queen? Do they play any special part in the life of the drone? Perhaps they are navigational aids.

One thing is certain, regardless of whether queen, worker or drone — all bees must have some means to function in a hive in the dark. This means each bee must have some way to determine where it is in the hive and precisely what and for want of a better work, who it is dealing with. It must, in some fashion, see in the dark. I believe this is done by the three eyes in its forehead. Not as we think of seeing but by nature having constructed the three eyes as sensors, using red/infrared energy below the level of light.

I have no intention of trying to defend this article. The truth is, this is all speculation based on what is already known. There is this much that I am certain of, it

(Continued on page 431)

Damaged Comb Salvaged

By STANLEY COMSTOCK
Geneva, NY

AS WAS TRUE OF many beekeepers, the winter of 1976-1977 was a time of considerable stress on my bee colonies. I lost half my colonies.

The next summer (1977) I had more hive bodies of comb than I was able to use either for new colonies or for supers. During the summer of 1977 and the succeeding months I spent considerable time and effort looking for wax moths since I did not use any moth crystals. However, I was not entirely successful in eradicating the wax moths which appeared. Even with the comb being stored in my house basement with its storm door and storm windows the wax moth gained access and caused considerable damage.

Since the price of new frames and wax is high, I wondered if these damaged combs could be salvaged. Therefore, in 1978 I placed one of these damaged combs along with eight normal combs in a super. Note the excessive moth webs present in the picture dated April 23, 1978. Then the super was placed directly above the two brood chambers of a strong colony.

The end of June I checked the comb again. Picture No. 2 is what I found. Note the fact that the bees have removed all the webs. The comb is not perfect, but some of the damage was repaired as the new white wax made a sharp contrast with the old dark comb. The comb is not good

(Continued on page 431)



Before placing comb on hive.

After placing comb on hive.



NEWS and EVENTS



OHIO Honey Queen Selected

Clara Mae Switzer of West Milton, Ohio, was chosen Ohio State Honey Queen for 1980 at the March meeting of the Ohio State Beekeepers' Association. The meeting was held at Capital University in Columbus.

Clara, age 17, is the daughter of Mr. and Mrs. Albert Switzer and attends Milton Union High School. She plans to go on to college in pursuit of a career in Home Economics.

Clara was crowned by Melissa Ratliff, the 1979 Ohio State Honey Queen.

NEW JERSEY Beekeeping Course

"Bees and how to handle them" will be the subject of a three-day course to be offered this summer by Rutgers University.

A course in advanced beekeeping will be held July 16-18. The class will meet on the campus of the State University's Cook College and are held with the cooperation of the New Jersey Department of Agriculture.

The course will be taught by Dr. Radclyffe B. Roberts, program coordinator and a member of the Department of Entomology and Economic Zoology in the State Agricultural Experiment Station at Cook, and Dr. Robert Berthold of the Delaware Valley College of Agriculture and Science.

The advanced course will focus on commercial pollination, honey house design, marketing honey and queen rearing, among other topics.

Registration for the course is due by July 1. For additional information, contact Norma Wanson in the office of resident instruction at Cook College, P.O. Box 231, New Brunswick 08903. Or call her at 201-932-9271.

MASSACHUSETTS Middlesex County Beekeepers' Association

The regular monthly meeting of the Middlesex County Beekeepers' Association will be held Saturday, June 28, 1980, at 2:00 p.m. at the home of Mr. and Mrs. Joseph Uttaro: 11 Steep Rock Road, Arlington, Mass. 02174. Phone: 617-643-0940.

OHIO Agricultural Tech. Institute

A one-day course on honey queen rearing will be taught at the Agricultural Technical Institute, Saturday, July 19, 1980. The subject material will include discussions on hobby queen rearing as well as beginning commercial queen rearing. Dr. Malcom T. Sanford and Dr. James E. Tew will instruct. Registration cost is \$10.00 per person.

A one-day course on comb honey production will be taught at the Agricultural Technical Institute, Saturday, August 9, 1980. The subject material will include discussions on management of hives for comb honey equipment. Dr. James E.

Tew and Dr. Mark Headings will instruct. Registration fee is \$10.00 per person.

For complete information about the above two courses contact: Dr. James E. Tew, Agricultural Technical Institute, Wooster, Ohio 44691, phone 216-264-3911.

OHIO Ohio State Beekeepers Association

The Summer Meeting of the Ohio State Beekeepers' Association will be held on the beautiful campus of Miami University in Oxford, Ohio, July 25 and 26.

His experiences using bee venom will be the subject of a talk by Charles Mraz, Vermont. Also on the program will be a visit to the Langstroth cottage and commemorative sculpture. Entertaining at the banquet Friday evening will be the Reverend Richard Connelly, Chaplain of the Cincinnati Bengals.

In charge of arrangements including advanced registration is Dick Osborne, 1411 Winona Drive, Middletown, Ohio 45042.

SOUTH CAROLINA S.C. Beekeepers Association and Southern States Beekeeping Federation

A cordial invitation is extended to all beekeepers and persons interested in beekeeping, to attend a joint meeting of the South Carolina Beekeepers Association and the Southern States Beekeeping Federation — to be held at Clemson University, Clemson, S.C., July 10th thru the 12th. Guest speakers will include: Dr. Larry Connors-Genetic Systems, Inc. of LaBelle, FL; Dr. Al Dietz, Dept. of Entomology-University of Georgia, Athens, GA and Mr. Bernard Draper of Draper's Super Bee Apiaries, Millerton, PA.

Several bee supply companies and dealers have indicated that they would like to display their supplies.

Door prizes will be awarded at unannounced times throughout the meeting. A minimum of one queen per hour will be given away.

Rooms will be available at reasonable costs and meals can be taken at the University cafeteria at students rates.

Please advise Mr. Jimmy Howard, Room 212, Barre Hall, Clemson University, Clemson, S.C. 29631. Or phone 803-656-3006 of your intention to attend, so that arrangements can be made for your accommodations.

ILLINOIS

Illinois State Beekeepers' Association Summer Meeting

This meeting will be sponsored by the Tazwell Beekeepers' Association, July 12, 1980 at the Tazwell County Agricultural Center, 1505 Valle Vista, Pekin, Illinois (North of Route 9, behind Holiday Inn). Registration is at 8:15 to 9:00 (\$2.00 per person).

The program will feature such outstanding features as "Things are buzzin in Illinois" by Eugene Killion; Beekeeping Advertising, Let The Buyer Beware by Elbert Jaycox; Hilarious Experiences of Two Hobbyist Beekeepers by Mr. and Mrs. Harold Gilmore; Commercial Beekeeping by Ronald Hunter; and Law for the Beekeeper by Joe Graham, Editor of The American Bee Journal.

NEW YORK

Finger Lakes Beekeepers Club

The Finger Lakes Beekeepers club will have its summer picnic at Taughannock State Park in Ithaca, beginning at noon, July 20. Everyone is welcome.

OHIO

Ohio Honey Producers, Hi-Point Honey Producers

The Ohio Honey Producers and the Hi-Point Honey Producers will hold their annual picnic on July 27th at 1:00 p.m.. The meeting will start at 2:00 p.m. at Moore's Honey Farm, 24461 Clairbourne Road, Marysville, Ohio. Phone 513-246-5943.

Bring a favorite covered dish, table service, folding chairs, a friend and a hearty appetite. An interesting and informative program is being planned.

ALABAMA

Madison County — North Alabama Beekeepers Association

The Madison County — North Alabama Beekeepers Association will hold its annual field day at Monte Sona State Park at Huntsville, Alabama on Saturday, July 26.

For additional information contact Madison County Beekeepers Association: P.O. Box 3069, Huntsville, Alabama 35810.



Left to right, observing candle making techniques are: Kathy Nelson, Dr. Berthold and Terry Somerville.

MARYLAND

Maryland State Beekeepers Association

The July meeting of the Maryland State Beekeepers' Association is scheduled for Saturday, July 26, 1980. The morning program will feature a beeswax talk and workshop presented by Dr. Robert Berthold of Delaware Valley College, Doylestown, PA. His talk will include methods of obtaining and purifying beeswax — as well as many of its uses including candle making. During the afternoon portion of the program, Dr. Berthold will also serve as a member of a question and answer panel.

The meeting starts at 9:30 a.m. with coffee and doughnuts. The formal meeting will start at 10:00 a.m., with the wax talk and workshop starting at 10:30 a.m.; lunch at noon; announcements at 1:00 p.m.; followed by the panel discussion.

The meeting is free, and is open to all interested persons. Further information can be obtained from Mrs. Ann Harman, Program Chairperson, 6511 Griffith Road, Laytonsville, MD 20760.

OHIO

13TH Annual Honey Festival

The 13th Annual Honey Festival will be held at Lebanon, Ohio on September 11, 12 and 13, 1980. The event will feature exhibits, demonstrations, sales booths and entertainment. The hours are 11:00 a.m. to 11:30 p.m. daily.

NORTH CAROLINA

N.C. State Beekeepers Association Summer Meeting

The Summer Meeting of the N.C. Beekeepers' Association will be held at Appalachian State University, Boone, N.C. on July 17, 18, and 19.

Some of the outstanding speakers and subjects are as follows: Dr. R.D. Fell, Contaminants in Nectar, Honey and Pollen; Dr. and Mrs. A. Krochmal, Beekeeping in Romania; Jimmy Greene, Report From The North Carolina Department of Agriculture; L. Barnhardt M.D., Bee Stings and Allergies; Dr. William Cobb, Adulterated Honey; Dr. J.T. Ambrose, N.C. Beekeeping Review and Prospects.

The Friday afternoon sessions will include five individual workshops, from 3:30 to 5:30 p.m.. A banquet will be a 6:30 p.m. Friday. The meeting will close Saturday at 12:00.

For further information contact John Ambrose, 1403 Varsity Drive, Raleigh, N.C. 27606. Phone 919-737-3140.

WISCONSIN

Beekeeping Programs

Two University of Wisconsin-Extension beekeeping programs — "Special Course for Beekeeping Instructors and Advisors" and "Seminar for Experienced Beekeepers" — will be held July 24 and 25, respectively, at the Sheraton Inn, 706 John Nolen Drive, Madison.

The July 24 instructors course is for teachers or persons who want to teach beekeeping courses and for Natural Science teachers who include bee subjects in their curriculum.

Program topics include bee health, bee culture as well as a discussion on resources available to teachers and tips on teaching adults.

The July 25 experienced beekeepers seminar will include discussions of bee nutrition and behavior, overwintering problems, public relations and sunflower production in Wisconsin and its potential as a source for honey. Beekeeping experts will be available to answer participants' questions about current problems in apiculture; Gojmerac says.

The second day's program includes a tour of the U.S. Department of Agriculture's North Central Bee Research Laboratory in Madison.

Each of the programs qualifies for one-half unit of continuing education credit (CEU).

There is a \$20 registration fee for each program.

For additional information on each of these beekeeping programs and for registration, contact the Agricultural Conference Office, Jorns Hall, UW-Madison, Madison, 53706. Telephone: 608-263-1672.



MONTHLY HONEY REPORT

(Continued from page 378)

Region 8

Bees have built up strong in Colorado on the spring honey flows. Retail sales of honey remain strong and most customers are buying in larger size containers (it is reported in Colorado). Very little bulk honey is left in the hands of producers as packer demand picks up. Above normal rainfall cut off some of the spring honey flow in Idaho. Bees are strong and plant development is well along in early June. Prospects are good for the main honey flow in Idaho. Honey sales are above normal and most producers are sold out of honey in Idaho. In western Montana, volcanic ash and adverse weather seemed to spell gloom but rain and sunshine have produced optimism for a honey flow from alfalfa, sweet clover and white clover. The plant bloom is ahead of normal in blooming. Eastern Montana needs rain. A strong honey flow promises the beginning of a good crop in Montana where rains

have been received. Honey is moving slowly in the retail stores.

Region 9

The local honey crop looks promising in Oregon. Some fallout from the volcanic eruption does not appear to have hurt the crop prospects so far. In California, there was no build-up of colonies in the almonds because of constant rains during the bloom period. In March and April the bees did well on wildflowers in California. The central valley is dry, which is normal. There is a good supply of irrigation water from the heavy winter snow in the mountains. About 200,000 colonies of bees will be moved out California by June 15th which had been moved in for pollination of crops. There has been a good citrus honey crop in California of excellent quality. Limited honey supplies are being held by producers and trading with honey packers is very light. Inventories of honey packers is being maintained at a minimum level. Imports of honey are moderate. Some purchases from Peoples Republic of China and Canada. Prospects for a good crop of buckwheat honey in California.

BEE FEVER

(Continued from page 404)

"No, I wouldn't sell a dead man's bees," she said. "It's bad luck to do a thing like that."

It looked like the deal was off. But then she said, "I'll give 'em to you. I can't keep 'em." Her belief...my bees. Of course, I gave her some honey.

Because people are afraid of bees, they see a swarm as being about ten times its actual size. A preacher told me about a swarm that would have filled a 55-gallon drum.

I knew a beekeeper who tied a black silk cord around each of his hives — just for good luck. He hived a swarm of very cross bees in a dynamite shipping case marked: HIGH EXPLOSIVES. It was appropriate, he assured me.

I was returning from an out yard with perhaps a hundred bees in my station wagon. A man behind me who wanted to be helpful followed me all the way home (going out of his way) just to tell me there were some bees on the back glass. I told him I would let them out. He disappeared like a rat going through a knot hole! He was a preacher, also.

I offered a hitch-hiker a ride. No siree, not with bees in the car. Better to walk than to get stung!!

I was making 50 in a 25 MPH zone. When I heard the siren, I stopped. When he saw bees in the car, he waved me on.

Being associated with bees and beekeepers since childhood has been of immeasurable benefit to me. Not so much in terms of money, but in the quality of life I have enjoyed — and am now enjoying. Life would be empty without bees.

I find real pleasure in helping enthusiastic beginners get started on the right path in beekeeping.

One Saturday afternoon, a young man with real interest in beekeeping came to my room, where I was employed in a city far from home. He wanted to ask me some questions about bees and getting started in beekeeping. He said he wouldn't take up much of my time. We had already had the evening meal, so we sat down to talk bees.

At four o'clock Sunday morning he left to go home. Neither one of us had slept a wink. We had talked bees all night. It's like Dr. Richard Taylor says, you can never quit.

Some people have a word for it: BEE FEVER! □

EASTERN APICULTURAL SOCIETY

(Continued from page 400)

Eric H. Erickson was appointed Acting Research Leader of the North Central States Bee Research Laboratory, Madison, Wisconsin; as of April 23, 1978. At Madison, he has concentrated his research chiefly on inter-relationships between bees and crop plants—particularly soybeans and hybrid carrots. These studies have stimulated much interest because of their significance to both beekeepers and agronomists. He has shown that bees can increase yield of soybean varieties which produce nectar and attract bees. Some varieties on certain types of soil have been found to yield nectar quite well. Improved nectar yield from soybeans would be of obvious benefit to honey producers. Dr. Erickson has also had a long-time research interest in environmental electricity and its possible application to bee foraging and control of some pesticide problems. At present (5-80), he has an NSF grant to continue studies in this area.

Besides membership in beekeeping and entomological associations, he is a member of Sigma Xi, Gamma Sigma Delta (Agricultural Fraternity), the International Bee Research Association, the International Commission for Bee Botany, and the American Society of Agronomy. He is an Associate Professor of Entomology in the Departments of Entomology and Biomedical Engineering of the University of Wisconsin. He has published over 40 scientific and technical papers—mainly on bee foraging behavior and crop pollination. □



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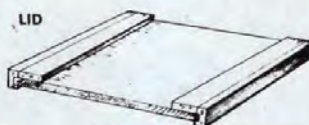
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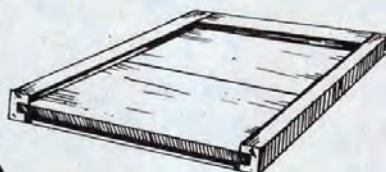
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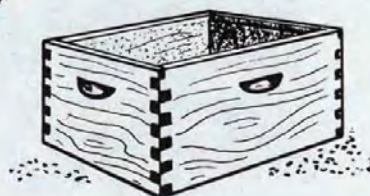
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Although not evident in the photo the hive on the right is painted dark green and the one on the left is a light blue.

Camouflage Those Bees

By STEVE GOULD
Saugerties, N.Y.

SNUG THOSE BEE HIVES in the back of an old barn or garage, as I have done in the photo. Your neighbors will wonder where the bees are coming from on their flowers and fruit trees, but it will be very hard for them to detect your hives from a distance. I paint mine with dark greens and reds—flat material. The hive at the right is painted with a dark green and

blends in with the background. The hive on the left is painted a light blue and can be detected more easily.

Of course, in the summer-time, when the foliage is green they would be less conspicuous (Why not stay friends with your neighbors?). □

WISCONSIN BEE POOP CONTROVERSY

(Continued from page 380)

Croix County demanded an apology. Dreyfus did not reply to any of the county beekeeping groups.

Because of the nation-wide publicity, it was inevitable that "Great Bee Poop Controversy" collector items would hit the market. A Milwaukee firm is putting out bumper stickers that say: I EAT BEE POOP and feature a bee wearing a red vest, a Dreyfus trademark. A Wisconsin radio station has bee poop T-shirts and proposed that Wisconsin be changed from the "Dairy State" to the "Bee Poop State".

The Wisconsin Honey Producers are already receiving positive effects of the publicity. The Milwaukee Journal ran in

excess of a page of honey recipes in the April 28th edition under a headline of "DEAR MRS. DREYFUS" and the food editor-writer promoted the use of honey in cooking and baking.

The governmental sphere in Wisconsin is now recognizing that the Wisconsin Honey Producers are a viable political force. The honey producers made a united stand and have gained the respect of consumers throughout the United States. □

BEE INTERESTED

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DAMAGED COMB SALVAGED

(Continued from page 417)

enough to have the queen lay eggs in it, however, the comb may be used on the outside edge of a brood chamber or possibly used in a super.

Therefore, it was shown that comb damaged by wax moth can be partially salvaged.

HOW THE HONEYBEE SEES

(Continued from page 417)

deserves further consideration by serious beekeepers. It is also a place for some bright, young person, who may be interested in pure research, to start a career. Who can say how many mysteries about bees that exist today will be common knowledge tomorrow?



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Index to Display Advertisers

Adams & Bremer	397	Fields of Ambrosia	372	Papio Valley Honey	373
American Bee Journal	423	Forbes & Johnston	385	Perrin's Apiaries	425
American Cancer Society	421	Froehlich Apiaries	427	Pierce Mfg. Co.	383
American Racing Pigeon News	431	Garden Way Res. Dept.	375	Pierco	383
Arnaba Ltd	383	Genetic Systems, Inc.	397	Plantation Bee Co., Inc.	421
Australasian Beekeeper	431	Glenn Apiaries	425	Prairie View Honey Co.	381
Australian Bee Journal	431	Glorybee Honey & Supplies	385	Queen's Way Apiaries	425
B&B Honey Farms	385	Griffin Apiaries	423	R & M Farms	381
B. C. Bees	425	Happy Hive	377	Root Co., The A. I.	383, Back cover
Bee Flat Scale Co.	375	Happy Valley Apiaries	425	Ross Rounds	379
Bee Island Apiaries	424	Hardeman Apiaries	426	Rossman Apiaries, Inc.	425
Beekeeping Education Service	375	Hive Fountain	377	Simon Apiary	379
Bee Supply Co.	385	Homan, Holder	424	South African Bee Journal	431
Betterbee, Inc.	375	Hubbard Apiaries	Inside Back Cover	Speedy Bee	413
British Bee Journal	395	International Bee Research	377	Stoller Honey Farms, Inc.	386
Calvert Apiaries, Inc.	395	Irish Beekeeping	421	St. Jude Children's Res. Hosp.	421
Canadian Beekeeping	431	Jackson Apiaries	4273	Stover Apiaries, Inc.	426
Cary Corp., M. R.	423	Johnson Co., Carl E.	385	Strachan Apiaries, Inc.	424
Chrysler & Son, W. A.	385	Jones & Son Ltd., F.W.	425	Strauser Bee Supply, Inc.	422
Clear Run Apiaries	421	Jurica Apiaries	385, 425	Sundance	372
Cloverleaf Mfg., Inc.	372	Kelley Co., Walter T.	432	Vanren Co.	385
Cook & Beals, Inc.	372	Leaf Products	375	Vaughn Apiaries	426
Cornell Univ. Press	381	Maxant Industries	372, 375,	Walker-Lee Co.	426
Craddock Apiaries	423	McCary & Son Bee Co., G. D.	426	Weaver Apiaries, Inc.	424
Crain Apiaries	426	Miller I. Enterprise	379	Weaver Howard & Sons	427
Dadant & Son	Inside Front Cover	Mitchell's Apiaries	424	Wenner Honey Farms, Inc.	423
Daniels & Co., R. C.	381	Moffett Publishing Co.	379	Werner, H. E.	379
Desert Honey Co.	375	Montgomery & Sons Apiaries	424	Wicwas Press	372
Dickman & Sons Apiaries	427	New Zealand Beekeeper	386	Wilbanks Apiaries, Inc.	424
Employment of the Handicapped	375	Norman Bee Co.	426	Wildwood Apiaries	427
Farming Uncle International	410			York Bee Co.	427

The Revolutionary New

HUBBARD



Extractor



All the extractors have V shaped sloping bottoms with large center drains. The extractor tank and reel are made of heavy 16-gauge 304 quality stainless steel. Note the continuous weld and reinforced construction on reel and tank.



Note the easy to use controls. The top dial is the speed control; the bottom dial sets the acceleration time.



Model Number	2401	4401	8001
Frame Capacity	24 D/44 Shal	44 D/60 Shal	80 Frames
Voltage Required	110 volts	110 volts	110 volts
Motor Type	1/4 Hp.	1/2 Hp.	3/4 Hp.
Drain Diameter	2" FPT	3" FPT	3" FPT
Tank Height	34"	36"	38"
Tank Diameter	30"	38"	55"
Reel Diameter	28"	35"	52"
Shaft Diameter	1 1/4"	1 1/4"	1 1/2"
Brake Type		Electric Disc	Electric Disc
Warranty	One Year Complete	One Year Complete	One Year Complete
Catalog Number	HO 61050	HO 61070	HO 6140
Price	\$1250 Net	\$1945 Net	\$2790 Net

REMEMBER — YOU GET WHAT YOU PAY FOR!!

PACKAGE BEES ★

★ Pick Up at Onsted Store Only!

2 Pound Package

1-24 Packages \$22.50 ea. 1-24 Packages \$28.00 ea.
25-up Packages 21.75 ea. 25-up Packages 27.25 ea.

3 Pound Package

*Package Bee Will be Available in Late April and Early May. No Deposit Required. Telephone Order In for Early Arrival.



QUEENS

1-24 Queens \$7.25 ea.
25-99 Queens 6.60 ea.
100-or more Queens 6.10 ea.

Queens are sent post paid air mail.
Telephone order in for early arrival.
*Prices subject to change without notice.

THE FOLLOWING ARE NET PRICES — NO DISCOUNT

	9 1/8"	6 1/4"	5 3/8"
100 Hoffman Top Bar Std. Frames, Commercial	\$ 38.00	\$ 38.00	\$ 38.00
1000 or more Hoffman Top Bar Std. Commercial Grade	275.00	275.00	275.00
5 9 1/8" Deep Bodies, 9 1/8" Frame, Commercial Grade			28.85
50 9 1/8" Deep Bodies, 9 1/8" Frame, Commercial Grade			280.00
100 9 1/8" Deep Bodies, 9 1/8" Frame, Commercial Grade			375.00
5 5 1/16" Shallow Bodies, 5 3/8", Commercial Grade			22.00
50 5 1/16" Shallow Bodies, 5 3/8", Commercial Grade			200.00
100 5 1/16" Shallow Bodies, 5 3/8", Commercial Grade			375.00
5 6 1/8" Shallow Bodies, 6 1/4", Commercial Grade			22.00
50 6 1/8" Shallow Bodies, 6 1/4", Commercial Grade			200.00
100 6 1/8" Shallow Bodies, 6 1/4", Commercial Grade			375.00

FRESH PACKED

Pure Bee Pollen

2 lb. Can \$12.95

Postpaid in USA - Canadian orders add \$1

FOOD APPROVED GREASE

For Extractors and Food Handling Equipment. Packed in Tubes for Alemite Guns. \$5.50 per tube

HUBBARD APIARIES

ONSTED, MI 49265

Telephone 517-467-2051

SELF SERVICE SUPPLY

DEPARTMENT OPEN YEAR ROUND

BELLEVUE, FL 32620

Telephone 904-245-2461

OPEN DAILY: 7:00 a.m. to 4:00 p.m.

Closed Saturday and Sunday

Bee Veils That Are Bee Tight And Air-Cooled Smokers!



This may never happen to you if you use quality bee veils that are bee tight. All our veils are made with a quality material that enables you to move freely and see clearly, and that adds greatly to your comfort. There are five different styles to choose from.

Root smokers puff fresh air between the fire chamber and the outer wall keeping the smoke cooler. They come with; disposable fire chambers, a long well-directed nozzle,

special galvanized steel for strength and durability, anti spark draft tube, convenient finger grip opening and durable, long lasting bellows.

Buy Root quality bee supplies, we guarantee you'll be glad you did.

For more information and a free catalog write your nearest Root dealer or one of the outlets listed below.

The A. I. Root Company

Factories at Medina, Ohio 44256 — Council Bluffs, Iowa 51501

P.O. Box 9153, San Antonio, Texas 78204 — Branch at Elizabeth, New Jersey 07201

Distributors in Principal Cities — Dealers Everywhere