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JULY 1985

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GLEANINGS IN BEE CULTURE

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112 Years Continuous Publication by the Same Organization

THE WORLD'S
MOST POPULAR ENGLISH LANGUAGE BEE JOURNAL!

CONTENTS

COVER STORY

A favorite of ours: the pride of E.L. Kinkade from Cherry Hills apiaries, Graysville, Ohio.

FRIENDS OF BEEKEEPING -- FRIENDS OF YOUNG PEOPLE

RESULTS OF OUR GLEANINGS *SCHOOLROOM CONTEST*

Heartwarming. There is no other word to describe the response received from our contest for the most classroom visits by a beekeeper. Although the number of those responding was only 20, the enthusiasm of their participation more than compensated. These are folks who believe, with a passion, that the true future of American beekeeping exists not in legislation or even in the beeyard itself, but in our ability to cultivate the resources of our young people. Out there in GLEANINGS readership are about 24,000 subscribers minus 20 who did not respond to the contest. I suspect that some of you folks have, in fact, visited schools but didn't write in. I also suspect, however, that many others have numerous excuses as to why they have not worked in schools this year. Well, I'm not going to give a lecture, but I will suggest that 24,000 yearly visits to schools throughout the nation is not something that is time lost -- it is time invested. As one of our contest winners, Doris Baker wrote: "I have asked myself why I do this, to which I answered -- If I don't tell them, they may not be told!" Even worse, I will suggest, is the probability that they will be told untruths or led to believe that bees are less than the beautiful creatures they are. Simply from a commercial standpoint, we must all recognize the value of schoolroom work. Interest in beekeeping not only generates more beekeepers thus causing that dimension of our industry to flourish; it causes a new generation of consumers to be interested in buying honey.

OUR WINNERS!

FIRST PLACE: With 32 visits: Syd McGraw of Garland, Texas, member of the American Beekeeping Federation! Syd will receive an observation hive and bees to use in an educational environment. Syd sees an added value of schoolroom work to be the good impressions children pass along to parents who might otherwise be intolerant to bees and bee operations within their communities. Syd has worked with slide shows, observation hives and equipment demonstrations in schools for about 7 years.

C. Divelbiss busy in the classroom

SECOND PLACE: A close 30 visits by Bob Haas of Hillsborough, N.C. Bob is V.P. of the Orange County Beekeepers Association. For those of you not currently a member of any association, we ask you to please consider joining or starting such an organization. Only by working together can we progress! For his great job, Bob wins 25 copies of our book: STARTING RIGHT WITH BEES. He can use these as gifts to promising young beekeepers!

THIRD PLACE: With 28 visits is Doris Baker of Va. Beach, Va., treasurer of the Tidewater Beekeepers Association. Doris has kept bees as a hobby for 5 years. It occurs to me that larger beekeepers who sometimes forget the great value of the hobbyist ranks, should note that hobbyists and sideliners, for the most part, are the good people doing the real legwork for the entire bee and honey industry. Doris says she's learned through 'trial and error" and stresses involvement rather than lecturing. Doris will receive 5 wall charts depicting the life cycles of honeybees.

SPECIAL MENTION: Please read the article MINER INSTITUTE ADOPTS LET'S BUZZ THE SCHOOLS PROGRAM on page 368 of this issue. Author, Loretta Suprenant discusses how the organization she represents has adopted and adapted an educational program initiated by the Southern States Beekeeping Federation. I want to publically acknowlege and commend both Loretta and the Miner Institute for their innovative and truly beneficial contributions to beekeping education.

OUR OTHER WINNERS!

We consider our other participants winners in every sense of the word, and want you to know who they are. So -- in no particular order except how their letters sit on my desk, these fine folks have also been helping us all by working in classrooms:

Caroline Comport: Sylmar, CA. Caroline is the 1985 California Honey Queen. We thank all who contribute to the very successful queen programs. They are a source of effective public relations.

Bruce Reed: Elleview, W.VA. Kanawha Valley and West Va. Beekeepers Associations

Continued on page 373

Commercial Beeman

By D.F. Mayer Washington State University Prosser, WA 99350

Elwood Sires is semi-retired. Retired from a lifetime of working nights moving and hauling, and days feeding and robbing his flying, fuzzy friends who've paid the bills. Elwood is a vibrant, vital voice in keeping the bee in the business of Sires Beeline Honey Company of Union Gap, Washington.

"I took over the honey bees from my Dad in 1942," says Elwood, a born and raised Washingtonian. "He took them over from his Dad in 1920. I've been in the bee business since I was a kid. Sold the bees to my boys, Dennis and Jeff, in 1982. Just like my Dad sold them to me. A lease-option with yearly payments for my retirement".

The Sires belong to a select group. Only about 35 families in Washington make their entire living from honey bees. Like the Sires, many are second and third generation beekeepers. In addition to the commercial beekeepers there are several hundred sideline beekeepers, with 25 to 250 colonies each, and about 2,000 hobby beekeepers in Washington. The 100,000 plus colonies maintained by these beekeepers produce an average surplus yield of 40 pounds of honey per colony. More importantly, honey bees pollinate over 500 million dollars worth of agricultural crops in Washington. Though small in number, beekeepers enhance the beauty and production of the Evergreen State.

"It's not so easy to produce honey and satisfy pollination customers as it may seem," says Elwood. "But it's enjoyable work, though not a highly lucrative business. No punching a time-clock. I'm my own boss and can take time off when I want. Outdoors during the summer and inside the winter. Sometimes 24 hours a day isn't enough time, especially during fruit pollination and honey harvest. I still stay pretty active. Have to protect my retirement, you know."

"Most of our income — about 78% — is from pollination. Our philosophy is dependable service with a quality product. Some of our pollination customers have been with us for 40 years and for the last 20 years we've been able to rent all our colonies for pollination."

"We run about 2,200 to 2,500 colonies of bees. The number varies depending on time of year," says Elwood. Each colony consists of a queen bee, several hundred drones (males) and 20,000 to 60,000 workers living together in a hive. The queen, a virtual egg laying machine, is the life-center of a colony. She controls the hive by releasing pheromones and worker bees respond to these odors. Drones are haploid. They have no father, though they have a grandfather. Their only function is to mate with the queen during her virgin mating flight. Workers are females that are usually not capable egg laying. They take care of baby bees, clean the hive and forage for food — nectar and pollen.

Modern beekeeping is migratory. "We take all our bees to California in late November and set them out on a 90,000 acre ranch," says Elwood. "In late January we go down and grade, feed and cull the bees. Then in February we move the rented colonies into almond orchards for pollination. Then along about March we move them back to Washington and set them in holding yards for culling and grading before renting them out for pear, apple and cherry pollination. I drug my feet about going to California, but along about 1976 package bees became too expensive. It used to be that field work lasted about eight months a year and we could take it easy the rest of the year. Migratory beekeeping means field work lasts all year."

In May, after the tree fruit pollination season in Washington, the Sires set most of their colonies in honey locations in the Yakima and Kittitas Vallies. "We try to pick locations where there's lots of blooming plants and where we feel there will be minimal pesticide damage," says Elwood. "In June, there's usually not much of a nectar flow from flowers and we feed the bees sugar to keep them from starving and build them up for the main honey flow. During the rest of the summer we examine the colonies every week or 10 days. We check for pesticide damage, brood pattern, diseases and honey production."

"Pesticide damage to our bees from insecticides used on blooming crops to control pest insects is our most serious problem," says Elwood. "I've never actually sat down and cried, but my heart's been broken when I've done everything right and then find 50 to 100 colonies at a location killed by insectides. We've been working together with farmers and pesticide applicators on this problem since at least the 1930's. We used to lose 25 to 25% of our colonies to pesticides every year. But, I don't think we lose as many any more."

"We start extracting honey about September 1st and it takes us about six weeks to extract the honey," Elwood says. "We leave about 30 pounds of honey with each colony for the bees to eat." The Sires average about 60 pounds of surplusoney per colony though Elwood remember one year when they averaged 108 pounds. They sell all their honey to Sioux Honey Co-op.

As far as retirement goes, Elwood smiles, "Well today is an example. The boys need to make a decision on the fall honey flow. To add more honey supers or not to add."

"We want Dad to take a peek in the colonies," Dennis Sires smiles back. "put all that experience to work."□

The Monthly Honey Report

Wholesale Extracted — **Reporting Regions**

Sales of extracted, unprocessed honey to Packers, F.O.B. Producer. Containers Exchanged	1	2	3	4	5	6	7	8	9
60 lbs. (per can) White	45.00	42.00	52.00	34.50	42.00	40.00	36.00	41.00	42.50
60 lbs. (per can) Amber	40.00	40.00	42.00	32.40	33.00	35.00	30.00	35.50	37.80
55 gal. drum (per lb.) White	.52	.55	.52	.59	.64	.60	.60	.68	.58
55 gal. drum (per lb.) Amber		.52	.42	.54	.53	.52	.50	.59	.54
Case lots — Wholesale									
1 lb. jar (case of 24)	30.50	24.00	23.75	20.40	25.00	24.00	24.00	20.40	25.20
2 lb. jar (case of 12)	32.50	23.40	22.75	20.16	26.20	22.50	26.00	19.20	
5 lb. jar (case of 6)	31.00	27.00	23.95	24.90	28.50	24.00	30.00	22.50	24.60
Retail Honey Prices									
½ lb.	1.00	.90	.75	.99	.90	.90	1.00	.95	.89
12 oz. Squeeze Bottle	1.50	1.25	1.29	1.09	1.25	1.35	1.50	1.29	1.19
1 lb.	1.50	1.40	1.35	1.19	1.50	1.55	2.00	1.69	1.40
2 lb.	2.70	2.60	2.45	2.50	2.50	2.60	3.00	3.59	
2½ lb.	3.75				3.55	3.25	3.50	3.29	
3 lb.	4.00	3.75	3.15	3.44	4.60	3.85	4.00	3.59	3.40
4 lb.	5.00	4.95		4.40	4.98	4.90	5.00	4.79	
5 lb.	6.00	6.00	5.25	5.50	5.75	5.80	5.50	4.99	5.25
1 lb. Creamed		1.75	1.45	1.40		1.39	2.00	1.99	1.40
1 lb. Comb	2.25	2.25	2.25		2.00	1.85	2.50	1.75	
Round Plastic Comb	1.75	1.75	1.85			2.00	1.75	1.65	1.75
Beeswax (Light)	1.35	1.35	1.10	1.40	1.25	1.40	1.25	1.15	1.50
Beeswax (Dark)	1.30	1.15	1.05	1.25	1.12	1.30	1.00	1.10	1.25
Pollination Fee (Ave. Per Colony)	28.00	20.00	27.50	15.00	20.00	21.00	25.00	18.00	25.00

Monthly Honey Report

REGION #1

Bees got off to a good start in Connecticut after feeding them an average of two gallons of sugar syrup. The extra feeding paid off and the bees were ready for a very large dandelion flow. All nectar plants seem to be in good shape at this time. Honey sales are very slow wholesale and retail. Package bees, nucs and queens are moving very good. A new industry in this area in the wake of the mite problem. People seem to want native stock and are willing to wait until May to get it. Swarming will be a problem for some and a pleasure for others. Many swarms are predicted.

REGION #2

Canadian honey in one pound jars appeared last week in two upstate New York markets at 39 cents. We have not seen prices like this since the 1950's. The quality is good though a month earlier the same firm was selling a "baker's grade", light but not so good tasting, honey at 68 cents in one of the above markets. In both cases the cheap honey was getting good shelf space and local beekeepers, with good reason, were worried about losing their space.

Bees are in excellent condition after a good dandelion flow and some still coming in from yellow rocket. Swarming was a few days earlier this year (started a few days early).

REGION

Most areas had a decent spring flow and colonies gained nicely. Some areas in Indiana are still dry and feeding is necessary. Southern Indiana is getting honey from tulip poplar while Northern Indiana is waiting for clover flow to begin. Illinois is still considered mite free. Starting a survey for varroa mites around part of Chicago and along Lake Michigan to Wisconsin border. In Wisconsin bees are ahead by 2-3 weeks. Dutch clover starting to bloom.

REGION #4

Many hives light in weight and just before clover bloom due to early heavy brood rearing in Missouri. Not much tendency to swarm. Sweet clover blooming in mid May two weeks earlier than usual.

REGION #5

In Kernersville, North Carolina we have made very little honey. Swarms have been few and far between. Last year I had 56 calls to pick up swarms, this year only two calls at this time (May 29th) and very small swarms. Our year started out warm in January and bees began to bring in pollen. Then in February it turned very cold. The cold lasted through the month of March with all records broken. Temperatures dropped to -18°F here in Kernersville. The cold got the Poplar trees again, two out of the last three years and that was the main flow.

Citrus is very low crop in Florida. Mostly good light colored Palmetto in

Continued from previous page

general is a complete failure. Galberry is regional but at the best if very low crop. Rainfall is over 20 inches below normal. Outlook is not good for bee activity. Colony loss is very high but those remaining have fair to good population.

REGION #6

Very warm and dry weather the first half of May in Kentucky gave way to cooler temperatures and scattered showers. Tulip poplar crop was well below normal but fair in a few locations. Populations have improved. Swarming has been non-existent. Conditions for the clover flow are promising. Most honey on government loan was delivered. Market conditions are unchanged.

REGION #7

No sales to packers due to imports in California. Retails sales down. Package and queen sales much below normal.

We have a chance for a good honey crop, in Oklahoma, plenty of moisture and lots of clover in bloom.

Still having cool nights only one morning so far with bees flying at daylight. Honey sales slow and looks like we will have to lower our price of honey to compete with foreign imports of honey. About 90 percent of all honey at the super markets is foreign honey at present time in this area.

As yet I have not seen any honey labels stating country it came from.

REGION #8

Good flows from mesquite, catclaw, Palo Verde in Arizona. Warm mild weather through most of May. Honey sales remain slow on the retail level.

Eastern half of Montana under drought conditions. Topsoil and sub soil moisture gone. Snow pack diminishes so irrigation storage is short. Rains expected end of May which should help topsoil. Volunteer alfalfa and white sweet clover are in good shape. Yellow sweet clover blooming in protected places which is average. The major plants need prolonged moisture.

Bees are responding to higher temperatures in Colorado with increased brood rearing and some surplus honey from dandelions and fruit bloom. Winter losses were minimal and most beekeepers are keeping increase below normal because of future market outlook.

Retail sales have been steady with promotions being offered on large size containers.

REGION #9

Honey sales are picking up as tourist season begins in Washington. Weather has been too dry, but have had a few showers towards the end of May. Bees picked up quite a bit of weight during apple blossom and dandelion bloom. Some feeding will be necessary before clover begins blooming in mid-June.

A few isolated almond growers have failed to pay pollination fees. No appreciable rain in northern California since late March has led to an early cut off of spring nectar bearing plants. On the other hand, queen mating has been the best in the past five years with good nucs and abundant queens. Feed demands have been heavy for these queen right nucs. The month of May was not overly hot making for shipments of hives on semi-tractor trailers easier than in hot conditions.

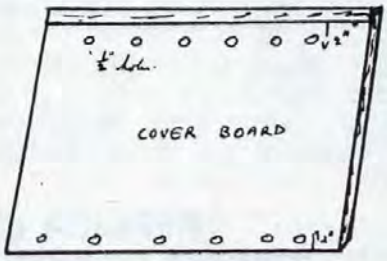
Unusual spring in Oregon. Bees are storing up honey like never before. It is the dryest spring on record (70-90 yrs.) We need rain at night because for and mists are not enough.

Extracting and Supering In One Operation

by ROBERT N.H. SKILLING, Kilmarnock, Scotland

Several years ago I visited a French beekeeper who lived in the south of France, but kept bees in the Ardennes in Belgium, more than 800 miles from his home. He also had a holiday chalet on the same site as his apiary. He told me that he only visited his Ardennes apiary in August of each year. He removed his supers, extracted the honey, returned the wet supers to the hives and left them until the following August. How could this system, or lack of system possibly work?

His hives were all of Modified Dadant pattern and he gave each queen two deep body boxes. Over the brood chambers he placed a cover board with a row of ½ inch holes back and front — see illustration. The supers were all piled on top. His theory was that the cover board discouraged, but did not prevent the queen from going up. In practice he found that it was very seldom that a queen made her way up into the honey supers but the bees readily made use of the supers for honey storage.



I inquired about the possibility of his losing swarms but he assured me that there was little evidence of more than an occasional swarm having come off. When he was removing the supers he also made a thorough examination of the brood combs and their contents. All inferior combs were removed. The bottom box was furnished with drawn comb only and replacement frames of foundation were confined to the top brood chamber. This ensured that the foundation was pulled out to give excellent comb. Of necessity requeening was left entirely to the bees.

Since meeting this beekeeper I have put this system into practice in my own out apiary and find that it really works very well. I have not left the colonies untended for a whole year but have not departed fundamentally from his practice. Last year the colonies in this apiary averaged 113 pounds. But last year was an exceptional year for we had practically unbroken sunshine from Easter until mid-August — something of a record for Scotland!

Testing Your Beekeeping Knowledge

by CLARENCE H. COLLISON Extension Entomologist, The Pennsylvania State University, University Park, PA 16802

Beekeeping is an ancient art that has fascinated humans for centuries. Honey robbed from wild colonies in trees or caves was early people's main source of sweet. For thousands of years, colonies of honey bees were kept in wooden boxes, straw skeps, pottery vessels and other containers. Honeycomb built in such hives could not be removed and manipulated like the movable combs of today. In the period between the importation of honey bees by the early colonist and invention of the movable frame hive, beekeepers had little capability of managing their colonies. Modern methods of beekeeping came very rapidly following the invention of the movable frame hive. Other inventions soon followed that made large-scale, commercial beekeeping possible.

How well do you know your beekeeping history and the individuals responsible for the important inventions in use today? Take a few minutes and answer the following questions to see how much you know about the topic.

Please match the following individuals with the correct invention or finding. (Each question is worth 1 point).

A. Charles Dadant
B. A.I. Root
C. Major Hruschka
D. George W. Demaree
E. J.S. Harbison
F. G.M. Doolittle
G. C.C. Miller
H. Rev. L.L. Langstroth
I. Dzierzon
J. C.E. Burnside
K. E.J. Dyce
L. Moses Quinby
M. T.W. Cowan
N. E.C. Porter
O. Francois Huber
P. W.L. Coggshall
Q. T.F. Bingham
R. Abbe Collin
S. Frank Benton
T. Johannes Mehring
U. C.J. Robinson
V. G.F. White
W. Captain J.E. Hetherington
X. L.R. Watson
Y. H.H. Laidlaw Jr.
Z. Julius Hoffman

1.___ Advanced the theory that drones developed from unfertilized eggs.
2.___ Father of commercial beekeeping in the United States.
3.___ Credited with the invention of the honey extractor.
4.___ First individual to make comb foundation.
5.___ Credited with originating the comb honey section.
6.___ Known as the father of American beekeeping.
7.___ Developed the bee escape that is in use today.
8.___ Invented the queen mailing cage.
9.___ Developed a comprehensive method of raising large quantities of queens.
10.___ Made the first shipment of queens by express.
11.___ First to make the self-spacing frame.
12.___ Described a process for making finely granulated honey.
13.___ First to demonstrate the method of instrumentally inseminating queen bees.
14.___ Determined the cause of American foulbrood, European foulbrood, sacbrood and nosema disease.
15.___ First to prove that queens could be reared from very young worker larvae.
16.___ Credited with the development of the perforated queen excluder.
17.___ Discovered the importance of the "valve fold" in the artificial insemination of queen bees.
18.___ Improved the early smokers to the point of making them practical.
19.___ Discovered the principle of "bee space"
20.___ Made and sold the first honey extractor in the U.S.

ANSWERS TO TESTING YOUR BEEKEEPING KNOWLEDGE

NUMBER OF POINTS CORRECT	
20 — 18	Excellent
17 — 15	Good
14 — 12	Fair

There were a possible 20 points in the test today. Check the table below to determine how well you did. If you scored less than 12 points, do not be discouraged. Keep reading and studying, you will do better in the future.

1. I
2. L
3. C
4. T
5. E
6. H
7. N
8. S
9. F
10. U
11. Z
12. K
13. X
14. V
15. O
16. R
17. Y
18. Q
19. H
20. H

The Washington Scene

By GLEN GIBSON Minco, Oklahoma 73059

The Department of Agriculture continues to remind us that the price of honey is too high and that the Secretary of Agriculture should be given discretionary authority to set the loan rate. We will stoutly contend that this decision should be based on facts— not generalities that attempt to justify fuzzy decisions.

The Department's strategy with our line is puzzling to say the least. An educated guess is that they feel we are a politically weak group that would be unable to overcome the power and prestige of the Secretary's office. Even more puzzling is their release of a mountain of misinformation to justify their original decision to terminate our honey loan program. (Perhaps they felt that the apathetic beekeeper would not be aroused to the point of talking with his congressman.) As beekeepers know, we have challenged the Department's statements appearing in news releases, speeches, and letters. Some erroneous points—

* Raise your pollination fees to offset the losses from cheap prices and pesticide losses;

* High prices causes overproduction;

*Price of honey does not have any relation to the availability of honey bees for pollination;

*Honey bee pollination is a minuscule part of the farming industry;

*Pollination in the U.S. is provided by wild bees or colonies managed by beekeepers.

And, so on, ad infinitum or ad nauseam. Knowledgeable beekeepers know that the above points are misleading and untrue. To date none of our questions have been seriously considered. Department replies are evasive and usually ignore the key points of our letters. I feel that the stonewall attitude will continue. So — our lobbying efforts will be directed to the Congress and the news media.

Working With The News Media

Last year, we concluded that the Secretary of Agriculture would not lend us an attentive ear and that the Department would continue its negative campaign against us in the halls and the news media. Taking a cue from Steve Forrest, we decided to promote somewhat favorable publicity. So far, we have little to report; but I am pleased to note that a number of our committeemen over the country have promoted favorable publicity in medium-sized dailies in their bailwick.

Fortunately, several good books covering the subject of how to get publicity are available. Also, several of the major lobbying organizations publish regular news letters that give good suggestions on favorable publicity. From this research I have concluded that one of the most effective ways of getting our message out, either to stimulate a grassroots response or to use when one makes contact with his congressional delegation, is the newspaper editorial. Editorials in the major dailies that are widely read in the Washington area are important. (Editorials covering our problems that have appeared during the last few years have been mostly negative because their main source of information was the Department of Agriculture. Major dailies are now receiving information from us.)

The same discussion would apply to medium-sized dailies, local weekly papers and farm magazines.

Television Publicity

Different problem. The major networkds are famous for messing up the story. This point is well understood throughout the industry. Should we agree to appear? Yes and no. If the answer is yes, please be prepared for anything. If you answer no, they will find someone else. So — the few seconds covering our problems will appear regardless. Under the circumstances one cannot criticize the unlucky member.

Local TV — a horse of a different color. A number of our members have had a pleasant time during a five to fifteen minute unedited broadcast. A number of times these short TV appearances have promoted favorable publicity in the state's newspapers. Some have told me that they appear at least twice a year. This type of publicity cannot be overdone.

When promoting publicity follow these general steps:

* Decide which paper you want to work with and learn who covers our issue.

*Provide this person with facts, figures and arguments in an easily digestible form. (You have a rich source.)

*Avoid criticism of any segment of the beekeeping industry.

*When in doubt, answer: I don't know, but John Doe can answer or I will get the information for you.

*Stay in touch regularly.

*Send copies of the articles to the ones you want to influence. (Congressman, Beekeeping Association officers, Land Grant College personnel, etc.)

Please Do This

*Continue your contact with your congressional delegation by mail, phone or personal contact.

*Promote favorable publicity in your bailwick.

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Research Review

By DR. ROGER A. MORSE
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Do Herbicides Kill Honeybees?

I am sometimes asked if herbicides that are applied to flowering plants kill honeybees. The answer is that most herbicides make flowers unattractive so rapidly that bees cease to visit them and there is little effect. Most flowers are so delicate that it takes little to cause them to wither. There is no question that in some parts of the country herbicides have reduced a number of weed plants that provide forage for bees but that is another question.

Still, on occasion a bee kill occurs that makes one wonder if all herbicides are safe under all circumstances. One such was called to my attention recently in New York State and I had no good answer. The loss took place at a time of year when not much else in the way of pesticide was being applied.

The only way we will reduce the number of bee kills is to document what is taking place. We are approaching the season when pesticids, especially insecticides, will be used in large quantity. If we can document losses, changes can be made in the recommendations that in the long run will have a favorable effect. It is especially important that country agricultural agents and people on the scene are called and see what is taking place. Sometimes newspaper reporters will respond when told about a bee loss and it is especially helpful if they take and publish pictures.

The best source of information on the toxicity of individual pesticides to honeybees is Leaflet 2883, Reducing Pesticide Hazards to Honey Bees published by the Division of Agricultural Sciences at the University of California at Riverside. The authors are E.I. Atkins, D. Kellum and K.W. Atkins. While it was written specifically for California my experience is that the information applies nationwide.

Chalkbrood Review

We saw far more chalkbrood in our colonies at the University this spring than I had seen in some time. White and black mummies were especially visible in the morning, or during rainy weather, on the landing area of the bottomboard. When bees can fly readily they carry the mummies, and other debris, some distance from the hive; however, when flight is not possible bees deposit the mummies they remove from the cells at or near the entrance.

Chalkbrood, for those not familiar with it, is a fungus disease. The fungus attacks larvae and turns them into semi-hard, white or black mummies. Whether the mummies are white or black depends upon the sexual stage of the fungus. The number of larvae killed can be so great as to deplete a colony's population.

Chalkbrood was found in honey bees in the U.S., for the first time, in 1968, in California. Very soon thereafter it was found in other states. When it appeared in New York State in 1972, the result was the loss of honey crops in several apiaries. It took some time to overcome the effects of the disease. We do not know how the fungus entered the country, but there is no doubt that increasing air traffic around earth is spreading all such problems rapidly.

The paper cited below reviews the spread of chalkbrood. Many beekeeping areas in the world have now reported the disease: it has not yet been found in Australia or India, but is in New Zealand and the Philippines. It was found in Argentina in 1980 but except for Mexico, Belize and Honduras has not been found in the rest of South or Central America. It is apparently not in cental or southern Africa.

There is no method of treating bees to control the fungus. However, several people have reported that Italian bees appear to be more resistant to chalkbrood. It appears it has not been a serious problem in North Italy, which has been the source of the Italian stock so commonly used around the world, despite the fact that is has been present in Europe since at least 1911. The reason for this resistance appears to be limited to the Italain bees' reputation of being good house cleaners. The best way to control any bee disease is to have bees that will remove the dead and dying promptly and thus remove the source of infection.

Our experience in New York is similar to that reported elsewhere. We found that the disease was worse in dark bees, especially in areas where some stock from the old German black bees could be found. Requeening with Italian stock proved most helpful. Of course, it is probably not just the Italian stock but the fact that any young queen stimulates bees to do a better job of cleaning the hive. The fact that we have seen so much chalkbrood in our own bees means we will be doing much requeening of our colonies this summer.

Reference

Occurence and distribution of chalkbrood disease of honeybees. *Bee World* **66:9-15. 1985.**

Water for Bees in Dry Climates

The central part of the Kalahari desert in Botswana in southern Africa is often without surface water for nine months of the year. Despite the lack of water some honeybees survive there and the question is where do they get the water they need. In the paper below it is reported that dew is a major source. The author once

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observed bees collecting it an hour after sunrise when the temperature was only about 50 F. (10 C). He also saw bees collecting blood from dead animals and even urine. Bees have been reported collecting both before; it is known that when given a choice bees prefer to collect water with some organic matter in it.

The bees observed in the Kalahari desert nested in trees with two exceptions, when they were found in a hole in the ground and among the roots of a tree. Probably less moisture is needed by bees to keep their nest cool under these circumstances. I have seen bees nesting in caves and the ground in some of the dry parts of the world but never in the northeastern U.S. where the ground moisture level is quite high.

The author below also saw bees refusing to eat crystallized honey, probably because they would not get the water to dissolve the crystals. They discarded the hard crystals outside of the hive. It is suggested that high moisture nectars may be especially attractive to bees living in dry areas.

Reference

Clauss, B.
Ex Africa: Botswana, some observations on biology and behaviour.
South African Bee Journal 56:113-6. 1984.

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QUESTIONS & ANSWERS

Q. What happens when a colony with a clipped queen swarms? **Samuel Ross, Hertford, NC**

A. The clipped queen gets lost in the grass, and the bees swarm with one or more of the virgin queens. These swarms are apt to cluster high.

—Richard Taylor

Q. How can bees be removed from the walls of an old building and put in a hive? **Jonas A. Hershberger, Sullivan, OH**

A. You can set a hive complete with combs or frames of foundation and one comb of brood with a queen near the colony entrance, and affix a small screen cone over the colony entrance so the bees can emerge from the wall but not re-enter. The colony in the wall will dwindle as the bees gradually take over the hive. This takes about six weeks, by which time the hive will become very heavy.

—Richard Taylor

Q. Recently I heard of some people planning to get honey crops by feeding their bees corn syrup to store in their combs. Can bees turn corn syrup into honey? If so, can it be distinguished from honey made from natural nectar? **James Gibbens, Clocolan, South Africa**

A. That is a criminal offense in this country, and is probably prohibited in your country as well. The result would not be honey, and yes, the difference can be detected by chemical analysis. I suspect the result would also be tasteless. The one time someone have me some "comb honey" made from sugar syrup I found it to be tasteless and worthless.

—Richard Taylor

Q. My comb honey customers ask me what the food value of the comb honey is. What should I tell them? **Donald A. Young, Coverse, IN**

A. I tell my customers that, while the wax in the comb honey has little if any nutritional value, it is good for them in other ways, like the fibers one hears so much about. I am convinced of this. Also, while I know of no scientific basis for this, many of my customers do swear that comb honey relieves their hay fever.

—Richard Taylor

Q. How can I keep the queens in the bottom story during July and August? Even with excluders some of them manage to get into the second story, and when that happens, the bees don't store any honey there. **Dennis Fay, Levering, MI**

A. The excluder is meant to keep the queen out of the supers, not out of the upper story of her own hive. So if you super over a two-story hive, put the excluder on the second story, not on the first. What is happening with your bees is that, early in the season, they are making their brood nest in the second story, and the queen must either force her way up there, to be part of that brood nest, or, more likely, she is left below to perish and the bees raise a new queen up above. Give the bees and queen the free run of both stories. They will store honey to winter on in the second story, and surplus honey for you in the supers. Do not try to separate a queen from her brood and brood nest with an excluder.

—Richard Taylor

Q. How does one know when robbing is occurring, and how does one prevent it? **Marshall T. Slotterbach, Sellersville, PA**

A. Robbing is very unlikely to occur in the spring, when the bees are building up, or when there is any kind of a honey flow in progress. I have left a super of honey in the middle of an apiary for days in the spring without the bees going near it. The bees will sometimes have a tendency to rob other colonies when populations of foraging bees are high and there is a dearth of nectar in the fields, as in late summer. Even then they are not likely to start robbing unless incited to by the beekeeper's carelessness. The most common incitements are exposing sticky combs in the apiary, and splitting colonies in such a way that combs of honey get moved to a new location in the apiary. The bees immediately undertake to bring it back to the old location. Robber bees look different from foragers, usually, but if you want to be sure, peer into the hive. If all is calm and well and there is plenty of honey still there, then it is not being robbed out.

—Richard Taylor

Q. I left my frames of comb honey in the supers for about four weeks, until I was ready to cut out the combs and package them. Some of the frames had tiny holes in the cappings and traces of larva webbing beneath the cappings. The room the supers were stored in is tightly closed. How can I avoid this wax worm damage next year? **Ed Gilliland, Liberty, MO**

A. Comb honey cannot be protected from wax worms just by storing it in a tightly closed room. There are, in most areas, already wax moths in the supers when you bring them in from the apiary. Comb honey should not, therefore, be left in supers more than a few days. To rid the comb honey of wax worms, wrap the frames individually in plastic, or in small plastic bags, put them in a deep freezer and allow temperature to go down to zero F., which takes two or three days, remove the honey and leave it wrapped until it gets back to room temperature. This destroys eggs as well as larvae.

—Richard Taylor

Q. I accidentally de-queened a colony and the bees started queen cells. I destroyed these, and introduced a mated queen. Would the bees have accepted the mated queen without my destroying the queen cells? And was there a risk of their rejecting her even if I had not destroyed the queen cells? **Ben Gordon, Redding, CT**

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A. A colony will not accept an introduced queen if they have queen cells of any kind, and yes, there is a risk of their rejecting her even if they have no queen cells, rendering themselves hopelessly queenless.

—Richard Taylor

Q. What can be done with a laying-worker colony, and how can it be prevented? **Robert W. Lawrence, York, NE**

A. Such a colony is very hard to requeen. Combine it with a strong normal colony. When the combs are filled with normal brood you can separate it from that colony, leaving the queen behind, and requeen it. Laying-workier colonies usually are the result of meddling by the beekeeper.

—Richard Taylor

Q. Some time ago you described a bee club in Ohio whose members use a common extracting setup and sell all their honey through the club. Isn't there a danger of spreading disease by all using the same extractor? **J.E. Carter, Honeoye Falls, NY**

A. There is little danger of this, especially if the extracting equipment is rinsed off and bees are kept out of the honey house.

—Richard Taylor

Q. My two colonies are in rather deep shade, although they get the winter sun. Is that good? **Burt Millette, New Fairfield, CT**

A. The shade will not adversely affect the bees or their productivity provided the spot is dry. I like my apiaries in light shade, for both my comfort and the comfort of the bees.

—Richard Taylor

Disease Resistance

by TOGE S.K. JOHANSSON
R.D. 1 Box 256A East Berne, NY 12059

An article by G.H. Cale in 1925 is relevant to the current interest in selecting bees for disease resistance. Cale reported that Dr. Bruce Lineburg of the U.S. Department of Agriculture had published some "startling" research on American foulbrood immunity in the November 1925 *Gleanings In Bee Culture*. Cale also revealed that John M. Bixler of Corning, Iowa had been selecting for such resistance for several years previously. Although some of Bixler's colonies did clean up the disease, and/or were not susceptible to it, others were not able to clean up the disease or showed varying degrees of resistance.

As a Representative of the Iowa State Legislature Bixler had sponsored a model disease eradication law, and the inconsistent results of his breeding made him reluctant to upset the system of inspecting and destroying diseased colonies that was in place. He had therefore gone about his research quietly, and had insisted that no publicity be given to it.

Bixler had been advised by microbiologists that genetic immunity may be lost if the host is not exposed to the disease at intervals. The selection of bees for their tendency to uncap and remove dead larvae is not the same as resistance to the organism that cause the brood diseases. As a matter of fact, this appears to be an excellent example of a mutation that insures the simultaneous survival of the host and the disease organism. When nurse bees remove dead larvae, this makes room for new larvae to be infected. If the colony should become too weak to defend itself, robbers from neighboring colonies clean out the honey which infects their own larvae to insure the propogation of *Bacillus larvae*. Disease, predators, and other adversities are a necessity to prevent so many colonies competing for nectar and pollen that none can collect enough to survive. Islands populated by deer without predators have become so denuded of vegetation that all the deer starved.

There is evidence that resistance to pathogens is genetic. Strains of albino mice were selected in which 85% and 15%, respectively, died after oral administration of *Salmonella enteritidis* that killed 37.4% of unselected mice. Such differences have been known for a long time: Algerian sheep are more resistant than European sheep to anthrax; Plymouth Rock and few other chickens are susceptible to Rous sarcoma. The lack of resistance amongst other native populations is classic: A small-pox epidemic reduced the once powerful Mandan tribe in Western United States to 27 persons. The black bees brought to North America were decimated by an epidemic of European foulbrood in 1900. That some strains of Italians proved less susceptible explains their undisputed popularity ever since.

A virulant strain of virus used to control the Australian rabbits reduced the population 90% between 1950 and 1955, but then it began to increase. The remaining rabbits had a degree of resistance so that not all infected rabbits died, and the virus itself was shown to be less virulent than when first introduced. Natural selection served to insure survival of both pathogen and host. Nature makes not judgement whether species are "bad" or "good", and "winners" are those who leave the most offspring. Man speeds up the process when he eliminates portions of a population with DDT or penicillin and selects out the resistant individuals whose progeny then explodes into the vacant territory.

The danger of humans contracting resistant disease organisms as a result of using antibiotics in animal feed has been discussed extensively in the media since the 1960's. In 1982 the investigators demonstrated that animal and human bacteria do exchange genes and editorials have urged restrictions on the use of antibiotics to preserve their usefulness in fighting human disease.

References

Cale, G.H. 1925 Bees Show Resistance To American Foulbrood. Am. J. 65(12). 563-564.

Consumer Reports 1985 (March. p. 170-172) Whose drugs are they, anyhow).

Beekeeping Technology

By DR. JAMES TEW
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Migratory Beekeepers (And Other Creatures Of The Night)

I don't pretend to be a true migratory beekeeper — heaven knowns I'm not. I'm just a beekeeper who reluctantly gets forced into moving bee hives long distances on occasion. I always do it with an attitude of positive dread. It reminds me a bit of taking polio shots in the old days. I don't know of any who actually wanted polio, but I don't know of any kid who wanted the series of injections either. Moving bees is always a rewareding, but difficult task. Many plans are made and most of the formulated plans are changed (and changed again).

To move bees from one state to another, a beekeeper must have permission from all states involved. The tracheal mite arrival did not make this process any easier. The beekeeper must get permits to move bees into the state. Such permits normally require several weeks to arrive. Procuring the permit involves inspecting the bees, certifying them disease and mite free and forwarding that information to the receiving state.

While all this permit procedure is developing, a staging yard should be arranged. Depending on the size of the truck, the staging yard should be large and easy to get to and on solid flat ground. It greatly speeds things along to have all the colonies in one yard where the bees are being moved from. It seems that many accidents occur on a truck that is partially loaded and is being moved from one yard to another. Low hanging limbs knock off hive covers, colonies topple off — in general, a partial load in transit to another yard is an appropriate time to worry.

When permits and yards are made ready, the actual time for the move approaches (No rain. Trucks bog easily and that results in a major hassle). Also, it wouldn't hurt to prepare mentally for the "dead head" run. That's the part of the trip to get the bees when the truck has no load. Most trucks ride rough when empty. Some trucks ride real rough when empty. For this reason and because I'm usually a nervous wreck, I eat only bland food on the trip. Good wholesome stuff like pancakes and honey — nothing fried or spicey. Stopping to eat leads me to an "aside" — I've noticed there are people of the night. I have trouble indentifying with that. I'm a confirmed believer in sleeping all night. Yet, I'll stop for gas and food at some obscure place at 3:45 A.M. and there will be someone drinking coffee and reading a newspaper. These people don't seem to be in transit. They simply seem to be drinking coffee and reading newspapers. I have an inclination to pry into his personal affairs and ask, "How do you do this? Do you sleep all day?" The other thing not in my world are the radio talk shows that go on from 2:00 A.M. - 5:30 A.M. Politics, religion, personal problems — anything goes. I try to imagine what my wife would say if, as we retired for the evening, I explained I was going to awaken at 3:00 A.M. to call a radio talk show. I mean no disrespect for people that do these things. It's just that on a long distance bee move, I am temporarily in the night world.

Enough of this! Back to the bee world. Finally, after the long, empty trip down, we're there. Depending on what's to be done preparing the hives for movement, the beekeeper may or may not have an easy day. Stapling hives, repairing the pallets, arranging nets, maintains trucks or whatever, the beekeeper waits for dusk so the carnage can begin. The lull before the storm.

I've never been good working bees at night. It seems I lose everything I'm not wearing. I guess I almost consider hive tools and hammers to be expendable. In the heat of battle, with bees clustered on front of a hive, the bottom board shifts, bees come roaring out, seemingly to sting everything that lived during the past 100 years. At that point all non-protective equipment has a low priority. The main thing is to get the bees on the truck and to get away from them. This situation becomes more critical if the beekeeper has perspired heavily resulting in his suit clinging to him. On numerous occasions, my few hives of bees have been for sale — cheap — at 3:45 A.M. Bees can really be obnoxious at that hour. They can't see to fly (except to the flashlight that the human sacrifice may be holding) so they crawl everywhere. As busy as the beekeeper may be; as hard as he may be working, bees have little else to do other than crawl all over the beekeeper, diligently searching for the smallest defect in the protective gear. And they will find one and the beekeeper will know they've found it. Even though the protective clothing has kept thousands of bees away, one gets inside and the beekeeper loses all confidence in his bee suit. The conversation is usually something like this, "Hey!! is there a hole in my veil? Is my collar turned up? Shouldn't we finish this job tomorrow night?" While this dialogue is transpiring the attackee is usually holding a flashlight directly in his face while profusely smoking himself with the smoker he's holding in his other hand.

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Sometimes it seems that anything that can snag, hang, bind, twist or break will before the night is over. Be totally prepared with good solid equipment. Expect narrow fence gates, low limbs, lost hammers, perspiration to cover your glasses and your smoker to go out. As prepared as I thought we were on our last move, we were not prepared to stumble upon two young lovers in their parked car in one of our yards. I'm sure they thought they had found the perfect site. I've wondered what the conversation must have been at the approach of this giant truck, with clouds of smoke coming from the smokers on the bed of the truck and having a crew of men wearing what appeared to be NASA space suits hanging all over it. They made a hasty retreat.

Finally! — with what always seems to require super human strength, the hives are on the truck. Colonies are then lashed or secured in some way and a net is used to cover the load.

Time for rest? No. It's probably 3:30 A.M. (the second night with minimal sleep). For the sake of the bees, go ahead, get on the road and get moving. The air rushing through the stacked hives will cool the bees down. Dead, tired, grossly overworked, and stung all over, the long trip home is begun. Truck weight stations and mechanical problems are usually a way of life. On my last trip, the smaller truck blew a rear differential seal and ran hot through most of the mountain passes. In such a tired state bizarre things happen or rather seem to happen. On the last trip, the white lines on the highway began to stand up to meet me. I shook that off reasonably well. Shortly thereafter, I encountered three pink pigs, all riding minibikes, driving a herd of Aardvarks across the interstate. I promptly stopped at the next rest area and slept for an hour — regardless of how hot the bees became.

After an eternity, the trip was over. We have arrived at the staging yard in the receiving state. In our case, we have driven all day and it was early evening again. Thankfully, the colonies unload faster than they go on. There's usually a considerable number of dead bees all around. Unfortunate, but expectable.

All the hives are then in the new state, all located in one big yard. The next phase is to move 15-20 colony increments to permanent yards, but that comes later. After the third night with minimal sleep, I am tired and collapse shortly after the last hive is off the truck. By nature's design, I am not a real good migratory beekeeper.□

Bee Talk

By RICHARD TAYLOR
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I learned a long time ago how unpredictable are the fortunes of a beekeeper. You just never know what the season is going to be like. My hives all came through the winter as heavy as lead, just as I expected. There was no winter loss whatsoever, just as I expected. My hives are all one and a half stories— one full-depth hive body and one shallow super. That's plenty large, **provided** they go into the winter loaded with honey. So of course my colonies were all very strong when spring came. And spring came early, stimulating rapid buildup. So conditions were just right for swarming — severely congested hives, most of them honey-bound, early season, everything. But they haven't swarmed! Instead, they just settle down to make honey. I had comb honey supers filled and ready to harvest by the end of May. I never saw anything like that. I have been so busy preparing my comb honey supers and getting them onto the hives that I've been thrown behind on all my other jobs. Beekeeping chores cannot be put off, at least not in the spring.

I did have one swarm, and a second appeared from nowhere. I don't think it came from one of my hives. But that one swarm did. Before I noticed it I checked through all the hives in the apiary, looking for queen cells. I just pried the top story up and peered in there, knowing that if there were any queen cells at all, some would be seen there. No cells at all, except in one hive. So I added some more supers, then went back to deal with that one hive where I'd seen the queen cells. I was going to take out three combs of brood and bees and replace them with frames of foundation, that being my method of swarm control. But it soon became apparent that some of the queen cells had just hatched. So the colony must have swarmed, either that day or the day before. And then I tried to figure out, judging by the prevailing breeze and areas of openness, walked over to most likely large bush, and sure enough, there was the swarm, precisely where I expected to find it. Oh! That sort of thing does make one feel like a natural-born beekeeper, doesn't it? So I moved the hive a couple of feet, faced it the other way, and hived this swarm in a shallow super on the original stand, adding a queen excluder and two comb honey supers. Today I'll go back and see how they are doing. That is a lot of bees— the swarm, plus all the foragers who return to join it — and a small hive. So they should be making lots of comb honey already.

Now for the other swarm, here is what I did with it. I set up a standard hive with nine frames of foundation. Then I replaced three of the frames of foundation with three combs of brood from a hive that I though was getting so congested that it might swarm. The bees from those three combs I shook off onto a large cloth in front of the new hive. While they were moving on into the hive, I dumped the new swarm right there, to go in with them. That was so there wouldn't be any fighting. That worked fine. I had hived a swarm, very easily, and in the process maybe prevented another colony from swarming, by replacing three of its brood combs with frames of foundation. But that's not quite the end of the story. Each time I went back to the apiary, I took three combs of brood and bees from still another colony I thought might be on the verge of building queen cells, and exchanged them for frames of foundation in the new colony, until I had replaced all nine frames of foundation in that new colony. No need to shake any of the bees off now— I just added them to the new colony, bees and all, and there was no fighting. None of that took any time to speak of. It just meant opening the hive two more times. And, as you can guess, that hive built up in a hurry, what with all the new brood it got, so I gave it a comb honey super, and the bees went right to work on it. I managed to accomplish quite a lot with a minimum of effort, the result being no significant swarming, and lots of honey getting.

The books all say that the bees utilize the early nectar sources— fruit bloom, dandelion, ect., — for "their spring buildup." And that is true, of course. But what if they all are pretty well built up, overflowing with both bees and honey, when those early nectar sources start blooming? In that case they put the nectar in the supers, where you want it. There is nothing else to do with it. And you don't have to be terribly smart to conclude from this that it is a good idea to have your colonies not only alive, but strong, and heavy with honey, early in the spring.

We do read that "congestion causes swarming," and it is a natural sort of thing to believe. People think that bees swarm because their hives gets too crowded for them. But it is not as simple as that. Congestion does not **cause** swarming. If it did, then colonies would swarm every time their hives got congested. Almost all of my hives were heavily congested this spring, and there was virtually no swarming. Congestion is merely one factor that contributes to swarming, although it is an important factor. The condition of the brood nest and the age of the queen are also important factors. And it is a very simple matter to alter the brood nest a bit to discourage swarming.

This is the kind of spring that makes me think that it would be pretty hard for anyone to be happier than a comb honey beekeeper when things are doing just right. I read not long ago of some investment banker who had made several million dollars for himself in just a few weeks merely by moving papers around. He had, in the process, not done anyone else a bit of good. That must have made a lot of people envious, but it made me think once more, just what is happiness? And can there be anyone on the face of the earth happier than I am after a couple of hours in my beeyards, when everything is exactly right, and the bees are astounding me again by the speed with which they are filling the supers with lovely honey. It isn't hard to find the answer, in my own state of mind.□

[Questions are welcomed. Please make them short and to the point, send to this address, and include a stamped addressed envelope.]

Wintering The Honeybee Colony: Part II Factors and Strategies for Survival

by T.S.K, JOHANSSON and M.P. JOHANSSON
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Losses

There are ideal seasons when most colonies are able to survive the winter, but Tom Taylor (Saskatchewan) depends upon losing 2-3% from starvation as an indicator they are not being overfed in the fall. He also includes a 10% fall culling of colonies and a 9% loss of queens for a total average of 22% that require replacement[18]. Beekeepers who clip the wings of the queens find at the spring check that 50% have been replaced by the colony[19]. In Poland, 32,674 colonies in 348 apiaries sustained a loss of 4% of their queens during the winters of 1967-70, substantiating this important contributory cause of winter losses[20].

Winter losses are characteristically reported only in those years when they are catastrophic enough to be included in the obituary column[21]. The best records are to be found in the comprehensive annual statistical analysis in the Swedish beekeeping journal *Bitidningen*, with 81-83% of the members reporting. The percent of winter losses occurring for the years 1920-1977 are summarized below (median 12%). The total number of colonies kept by reporting beekeepers ranged from 68,854 in 1970 to 223,776 in 1949.

% Loss	No. Years	% of Dead Colonies
0-5	1	1.8
5.1-10	21	36.8
10.1-15	21	36.8
15.1-20	6	10.5
20.1-25	5	8.8
25.1-30	3	5.2

There was an equal frequency of years when losses averaged 5.1-10% (21) or 10.1-15% (21) for a total of 73.6% of the colonies that died. During 14 of the years, losses were greater than 15.1% accounting for 24.5% of the dead colonies. These Swedish statistics conform with the 10-15% average loss suggested by apiculturists for the United States.

There are, of course, apiaries and seasons in which losses may reach 50% and much higher. The losses in the winter of 1919-20 were the worst in 50 years due to an unusually long confinement of bees during the exceptionally cold winter with noon temperatures of -20°F[22]. The ideal winters of 1982 and 1983 helped to replace losses sustained during the severe winters of 1977-79 with 50% of the colonies starving.

In 1879 J.F. Hershey contended that bees starve rather than freeze if periods of severe cold prevent their moving to other combs of honey, when they use up the honey in combs on which they are clustered[23]. Although bees use very little honey for themselves, their consumption increases explosively when they start feeding brood in January, and maintaining a nest temperature of approximately 93°F. This is a differential of 143 degrees when temperatures outside the hive are -50°F. To perform this extraordinary feat the colony must have access to honey as a source of energy to produce heat by muscle contraction.

The life span of bees involved in brood rearing will be shortened proportionately, and E.F. Phillips considered initiation of brood rearing before pollen and nectar was available in the spring as evidence of some abnormal stimulus[24]. Now it is considered a regular, essential occurrence in the wintering colony, but in 1972 it was newsworthy to describe the grooming and feeding of the queen in an observation hive December 22, the shortest day of the year. Seven days later she began laying eggs. Hives on the outside were examined when they had a flight and eggs were found[25]. British beekeepers who had the first (1887) or later editions (through 1928) of S. Simmons' *A modern bee-farm and its economic management* had an elegant description of what was going on in their hives closed down for winter.:

> **"About the 21st of December the queens will begin to deposit eggs; in due time the young will hatch out, and slowly the brood nest is inlarged until by the time the older bees begin foraging, the consequent heavy losses are fully compensated by those brought to life while outside all appeared quiet.**
>
> **The production of young bees at this early age is not always without intermission; cold in itself never hinders it, as the brood is at the very heart of the cluster, but if unable to obtain water for many days together brood rearing ceases, only to be renewed as soon as the workers can get abroad. Pollen is as a rule always present in well-stored stock combs, and when this comes in freely, all fresh from the fields, the brood nest is rapidly extended. Now is the time to see that the bees have more than sufficient food to keep them going."**

Simmons' observation that there were interruptions (brood stops) has been corroborated, but there is an interesting alternative hypotheses by B. Mobus that brood rearing is a response to excess water and, in fact, an adaptive mechanism to remove it from the cluster[26]. That brood rearing

begins simultaneously in Saskatchewan and Florida is evidence of a common stimulus. Many activities of animals are regulated by photoperiodicity, and it may be that the lengthening days stimulate colonies to start rearing brood. But organisms also have biological clocks and may initiate light regulated activities even when housed in facilities where they do not see any day light.

Phillips' concern for colonies that undertake brood rearing during the winter was very correct. Large colonies can maintain necessary temperatures most efficiently, and are better able to withstand the death of bees whose physiological clocks run out as a result of brood-rearing. Colonies begin rearing brood whether or not they have adequate pollen stores, using protein from their own tissues. In some regions pollen can be collected almost every month of the year, but in others there is none available from October through March. If stores of pollen in the hives are inadequate, colonies will dwindle until the loss of productive potential actually exceeds that caused by the death of colonies that are starved[27]. The largest colonies are also the first to starve if unfavorable spring weather prevents flights to replace their fast diminishing stores of honey and pollen. Colonies kept in what seem like ideal climates also suffer when long periods of cool, rainy weather prevent bee flight. In the South, activity of bees during the flowerless season puts a great strain on colonies.

The causes and percentages of losses attributed by Vermont beekeepers to wintering are listed below[28]:

Too much cold	**23%**
Starvation	26
Dampness	8
Suffocation	8
Unkown	8
Weak Colonies	6
Management	5
Location	4
Hive damaged	3
Queen died	2
Wax moths	2

Starvation may be correlated with the long periods of cold and such factors as weak colonies and dampness. There is correlation between higher winter losses in the more humid east compared to the drier west[29]. Providing upper entrances would reduce the likelihood of suffocation when snow and ice block the lower entrance. If beekeepers have no choice as to location there may be not much that can be done except to protect colonies from winds.

The novice beekeeper may be puzzled that colonies are permitted to starve. The authors remember the first years when they debated how much honey to take off at the end of the season: sometimes only a comb or two in order that the colony would have the 45-60 lbs. that manuals recommend for overwintering. Later, to simplify harvesting we removed only entire shallow supers (including empty or partially filled combs). We weighed the hive to insure that we were leaving the prescribed minimum. Some colonies ended up with considerably more because removing another shallow would result in their having less than the minimum. Our losses averaged 10-15%, and 20-25% during hard winters.

The winter of 1969-70 matched the legendary blizzard of 1888 and resulted in losses of 40-100% in northeastern states. Ordinarily our apiary would not yield significant data, but the larger than usual losses provided a unique opportunity to see the advantage of adequate stores for survival of colonies confined for three months without any opportunity for flight. Of 29 colonies with 40-65 lbs. of stores, 13 (45%) were alive at the April count compared to 14 (82%) of the 17 with 70-105 lbs. Some of the dead colonies had considerable honey at some distance from the dead cluster. The average of 63 lbs. per colony that we left on the colonies in the fall was a total of nearly 1½ tons. The loss of 19 of the 46 colonies (40%) was as low as any reported[30].

As a result of this experience we now provide colonies with a minimum of 70 pounds of stores, and prefer to leave as much as 90 pounds or more. During seasons with late springs, summer droughts, early frosts or rainy weather during nectar flows there may not be enough surplus to harvest any for ourselves. We may also have to take combs from those with the most to give to those that do not have the minimum.

It may be surprising that disease was not included as a cause of losses by the Vermont beekeepers. Where *Bacillus larvae* (American foul brood) might have been present, we hope it was detected during the summer and the colony destroyed. If not, diseased colonies that died during the winter might have appeared in the "wax moths" category? Unfortunately, they may first have been robbed out by neighboring colonies who could become infected. Anyone who has experienced an orgy of robbing in their apiary knows what a frightening experience it is. Whatever manipulation is undertaken, it is important to not permit any honey to drip on the ground or give bees access to the combs.

Our bee inspector said there are beekeepers who react to the experience of getting stung by no longer inspecting the frames in the brood chambers. They treat their hives as if they were frameless box hives or skeps, putting on supers for honey and removing them at the close of the honey flow. It is then left to the inspector to pry out the brood frames once a year to check for disease. In states where inspection has been discontinued such neglected hives are a potential danger to other beekeepers.

Controlling disease with antibiotics has become an established practice: Fumidil-B in syrup for Nosema, and Terramycin in patties for *B. larvae*. As with human diseases, is it likely that the organisms will become resistant to antibiotics when their use becomes universal?[31]

B. larvae resistant queens are not selected for immunity to the disease organism, but rather for the ability of the bees to detect and remove dead (cold-killed) larvae. This characteristic is mutually beneficial: the colony remains alive to perpetuate the bacteria, and disease prevents colonies multiplying to the point where competition for nectar and pollen would make it impossible for any colony to survive. Once acquired, the infection is then

(Continued on next page)

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maintained in the colony, and not visible to inspection. Only when queens lack the housekeeping genes do we find dead larvae (scales). This may explain why the level of infection remains constant in spite of burning and chemotherapy?

The mite *(Acarapis woodi)* that has arrived among our bees does not seem to destroy the colonies, and that would not be in its best interest anyway. Excessively virulent strains of organisms become less destructive as they select themselves out by killing off their host before they have had the opportuntiy to reproduce themselves. but it remains to be seen whether bees can survive the stress of the mites when they are confirmed for many months in the cold winters of the northern states and Canada. After all, they come from countries with mild climates. If they did destroy all the colonies in one winter, that would be the end of bees and mites!

Coincidence Factor

The first inspection of colonies in the spring is often a traumatic experience for experienced as well as novice beekeepers. Among the dead and weak colonies will be some that were in first class condition in the fall: optimum population, more than ample stores of honey and pollen in dark brood-combs, hive prepared according to recommended local practices, and the location protected from wind. The sense of frustration is further heightened when it is realized that losses are not greater in those apiaries where the beekeepers took a chance and did not do anything to prepare their colonies for winter.

Alley took as given that during seasons when the bees are confined for nearly five months without a cleansing flight, there "**must** be loss". Ideally, weather conditions should ameliorate sufficiently every 4-6 weeks so that the bees can have a flight to defecate. Even in areas where such thaws are usual, there may be delays which can produce stress on the colony and reduce their chance of survival[32].

Long periods of continuous cold weather also increases the chance that the cluster will be separated from contiguous combs of honey as vividly described by M. Quinby[33]:

> **"Suppose all the honey in the immediate vicinity of the cluster of bees is exhausted, and the combs in every direction from them are covered with frost; if a bee should leave the mas and venture among them for a supply, its fate would be as certain as starvation. And without timely intervention or warmer weather, they must perish!"**

The bees will consume the honey in the combs they are clustered on until they reach the top. If there is no break in the cold, they will remain there to starve with plenty of stores below them because they cannot move to the other side. When the bees recluster after a warm spell, they may choose a position where stores are inadequate until the next thaw. A temporary split into two clusters may result in the death of the one that happens to have inadequate stores of food available on its side.

Natural comb has holes which provide for the passage of bees laterally instead of just upward as in combs using foundation as a base, particularly when made of plastic. Langstroth was convinced that such passages must be cut through the combs in his patent hive to successfully winter bees. Various cutters have been described as well as tubes of tin or wood, a device to locate position[34], and Dadant & Sons offer their plastic foundation with holes along the bottom. It was suggested these holes be 3" from the top of the frame. Nevertheless, Doolittle found clusters dead within ½" of such tunnels, underlining the difficulty bees have in moving laterally or downward from the cluster on freezing cold hive furniture[35].

Farrar stressed the need that the 2-3 combs in the center of the upper hive body should not be solid with honey. Without some area of open cells on which to cluster the colony may be forced to remain in the lower hive body, and after they begin to produce brood they will not desert it to move up onto the stores above[35].

Excess stores and optimum populations may be important to increase the chances that clusters will have sufficient stores to survive until there is a warm spell during which they can regroup, hopefully on combs with sufficient honey for the next cold spell. However, it is not advisable to rearrange combs in the fall after the colony has placed honey above and around the cluster[37]. The Dyment brothers selected and bred for bees with genetic trait to store honey around the brood in the lower Quinby-sized hive bodies which they used for wintering the colonies[38]. But if the bees' space for brood rearing is restricted in the fall by honey, the result may be a reduction in the population by spring as older bees die during the winter. Usually such congestion is avoided by the addition of honey supers well in advance of their being needed.

Weak colonies should be fed or united to some stronger colony. Replenishment can be secured by the purchase of package bees, or making early divisions from the strongest colonies as a preventative measure for swarming. The little colony can also be saved by transferring brood from a very strong colony, but better to place the weak colony above the strong one over a sheet of newspaper and two queen excluders. The heat and bees from below will help the colony to expand rapidly. To establish a small colony as an independent colony, the hive is moved away two miles or more in the evening after the bees stop flying, or in the morning before they have begun. The entrance is left open, and the hive bodies are fastened together with staples or strapping[39].

Winter Inspection

One of F. Benton's rules for successful winter: "There should be no manipulation out of season", seems very logical. But C.L. Farrar considered it good practice to check colonies during midwinter, and exchange combs when necessary to prevent starvation.

Hives can be checked at temperatures as low as 40-45°F, but it may not be wise to pull out brood combs unless the temperature is over

50°F, and then only for a few seconds. Taylor made an emergency inspection of 45 hives for disease when the temperature of -14°F, but the frames were not gummed up with propolis! Jaycox suggested that if there are no days with temperatures in the 50's, bright, sunny days above freezing should be used[40].

During an eighty-year period the eastern United States has had a pronounced thaw around January 21 to 23, with a few days earlier or later. In the Midwest the thaw usually combs a few days earlier. Europe has cold snaps during the same period in January. W. Keller considered robbing to be such a problem that he delayed an inspection to equalize stores until a warm spell during the winter. In Nebraska there is usually a time in December, and in late February, when the ambient temperature is nearly 60°F in bright sunshine. The lightest and heaviest colonies were then opened and equalized during midday before two o'clock. The colonies most obviously in need of stores had been provided for in the fall[41].

Using little or no smoke, the cover is removed carefully and the cluster located to see whether it is in contact with honey on both sides. A comb of honey can be pryed out from the side of the hive and, after moving over the combs on which the bees are clustered, the honey is inserted next to the cluster. If the cluster is up against one side of the hive, a similar move can be made. Should the cluster be in the bottom hive body, a check should be made to insure there are combs of honey in position above the bees. A red light can be used to inspect hives at night[42].

It is not surprising that this procedure is considered controversial. Queens may be killed by bees "balling" them, and colonies may start robbing. Young sealed brood exposed to cold develop shortened proboscises and forewings[43]. But this is the only way to intervene when colonies have used up all the honey around the cluster and are starving. One risk is a trade off for another, but there is less risk early in the winter than later when brood is present. Checking colonies during a brief thaw may be a useful option for hobbyists and sideline beekeepers, but less so for commercial operators with hundreds of colonies in far-removed locations.

As these lines are being written, the authors had the unique opportunity of a thaw in the last week of February with a temperature of 56°F. Although all the colonies had bees flying freely, we opted not to open any hives for fear that robbing might cause worse loss than if we waited until the first nectar and pollen is available. An accessory that might have given us courage to try would have been a cage built of screening, thin plywood, plastic sheeting, etc. on a light framework. There is no need for a bottom or top. The returning bees fly down to the bottom of the cage in an attempt to find the entrance to the hive. If the ground is not level, it would be necessary to cover any openings along the bottom edge. The cage described by Tantz with 3 or 4 sides measured 8x5x6½" high, but other shapes and dimensions could be used[44].

Wintering The Honey Bee Colony, Part III will continue next month with subjects on: Emergency Feeding, and Packing.

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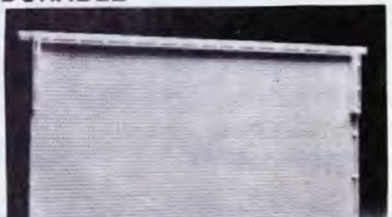

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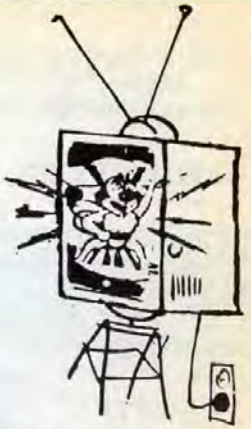

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Madame Tussaud's London Wax Museum

by KATHY & ROGER HULTGREN 155 Lovell Road Holden, Mass. 01520

A traditional landmark in London is Madame Tussaud's Wax Museum. This woman perfected a technique which utilizes beeswax to produce life size figures. Even today, her technique is being practiced and her collection is increasing with 30 new editions each year.

Madame Tussaud

On December 7, 1761 Anne Marie Grosholtz was born. In checking references one will note a discrepancy as to her birthplace with some stating Strasbourg, France and others citing Bern, Switzerland. Shortly after her birth, Anne Marie's father died and her maternal Uncle Dr. Matthew Philip William Curtius took on the responsibility of raising his niece. Dr. Curtius was a physician by profession and one who was gaining recognition for his wax and enamel portrait miniatures. With the support of the Price of de Conti, Dr. Curtius moved to Paris and opened *Cabinet de Cire,* a wax works and studio. It was at this time he legally adopted Anne Marie who became intrigued with his wax portraits. She was the one who first created a life size figure using beeswax as her medium. King Louis XVI's sister, Princess Elizabeth, summoned Anne Marie at the age of eighteen to Versailles. Here she remained as the Princess's companion and art tutor til the outbreak of the French Revolution. To escape the guillotine herself, she made death maskes of the heads of guillotined victims, some of whom were her friends, during this reign of terror. With the death of her uncle in 1793, she inherited *Cabinet de Cire.* Two years later she married Francois Tussaud who was an engineer from Macon. With the Peace of Amiens in 1802, Madame Tussaud along with her sons went on tour in England with her 36 wax works. Francois Tussaud had remained in Paris to continue Madame's exhibit there. While on tour, the war resumed and the English Channel was closed preventing Madame's return to France. Francois continued the Paris exhibit til 1847 while Madame Tussaud toured England for the next thirty years. During this time she was enhancing her collection. In 1874, she established a residency on Baker Street and founded her world famous Wax Museum.

The Craft

Madame's craft of casting in wax is first initiated with the creation of a plaster mold of her subject. Before the filling process is begun, the mold is soaked in warm water to inhibit the porousness of the mold. A small sumac tree's berries when crushed produces the needed tallow wax called Japan Wax. This when mixed with the light colored beeswax produces a close resemblance to human flesh. This mixture is then slowly poured into the mold. When the wax has solidified approximately a ½ inch in from the sides of the mold, the remaining wax is poured off. The resultant hollow wax head is then allowed to cool further. This particular methodology is deterent to beeswax's tendency to shrink and crack as it is cooled. The mold is carefully chipped away and the surface area is cleaned. This mixture of wax is similar to the human skin in it's translucent quality. To acquire the exact skin tone for each subject, additional coloring is impregnated beneath the wax surface. The eyes for each subject are of medical glass. This glass is imported from the country of Germany which has long been recognized for its optical glass. From Italy, human hair is imported and the tedious process of inserting each strand of hair by means of an electrically heated needle is undertaken by the artist. The male subjects often times have beards which are created using this same delicate procedure. Even on the clean shaven male figures one can detect a faint stubble on their chins. This means of operation, which adheres to the smallest detail, is what adds to the realism of each piece.

The Museum in London was partially destroyed in 1925 from a fire but was restored in 1928. The exhibits are topical and historical in nature and include infamous as well as famous figures at their peak of glory. Voltaire Ben Franklin, Madame's self portrait at the age of 81 and the death heads which are contained in the Chamber of Horrors are the most applauded pieces in the collection. In addition to the Museum in London there is a sister museum located in San Francisco. Other wax museums which are not affiliated with Madame Tussaud are located throughout the United States. These museums can be found in Los Angles, California, St. Augustine, Florida, Washington D.C., New Orleans, Louisiana, Plymouth, Massachusetts, Gettysburg, Pennsylvania, Williamsburg, Virginia and Jackson, Wyoming.

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Champagne 15 Cents A Gallon

By MARION and ALICE SAUNDERS R 35 Box 58A Fort Myers, FL 33908

If we use the dictionary terms for champagne we find: 1. "The sparkling dry, white table wine from the region of Champagne. 2. A similar sparkling wine produced elsewhere." Accurate as these descriptions may be, they fail to convey the connotation that champagne has for most of us. We tend to think of it as expensive, glamorous, the one wine most likely to be selected for the celebration of romantic occasions. Yet any Beekeeper can make a delicious champagne for about fifteen cents a gallon.

A short time ago there appeared in *Gleanings In Bee Culture* an article on making mead. This is the halfway point for champagne or "sparkling mead" which, I believe, is one of the finest wines made. This wine is not obtainable on the open market so one has to make it one's self.

To start with, one must have the proper equipment and a determination to have patience. Following is a list of equipment.

1 or more stone of food-grade plastic containers at least five gallon capacity.

1 pot approximately 3 gal. (aluminum, stainless, or porcelain)

1 wooden spoon

1 hydrometer (not an absolute necessity)

1 five gal. bottle (plastic or glass)

1 airlock with cork to fit the five gallon bottle

1 siphon (plastic tubing ¼ inch or so in diameter)

Bottles enough to hold the finished product (Note: use either regular champagne bottles, or Pepsi, Coke, or regular beer bottles)

1 Bottlecapper

Sufficient bottle caps or corks

In making mead one has many choices of materials. It can be made with nothing but honey, citric acid and yeast. Any fruit juice available may be utilized rather than citric acid. Adding fruit juice to the honey does two things to it. It gives the mixture an added flavor when mixed with the honey and provides the acid the mixture needs. Each fruit has a different acid content so one should test the mixture for acidity because it does not necessarily hold that a recipe calling for six quarts of juice of one kind of fruit will produce a good wine if produced with a different kind of fruit.

Here is the formula which I use and have found to produce the tastiest wine.

3 quarts of honey

3 quarts of grapefruit juice

1 teaspoon of tannin (or one cup very strong tea)

3 teaspoons of nutrient

1 packet of champagne yeast

Mix the honey with about one gallon of hot water and stir until dissolved, heating to about 180 degrees to kill the wild yeast contained in the honey. Mix in the tannin and nutrient. Be sure the tannin is dissolved. Pour contents into the stone crock or plastic container and add cold water to make four and one half gallons. When mixture is no warmer than body temperature add the champagne yeast, cover with cloth and let mixture work for four or five days. Make sure the cloth is tight so that gnats cannot work their way into the mixture.

After it has worked four or five days, siphon the liquid off the dead yeast in the bottom of the container into the five gallong bottle and install the airlock. The bottle should contain only a little over four gallons at this point. The extra space is needed for the mixture to work. In a day or so it will start working very hard. You can watch it boil and usually there is a considerable amount of froth formed on the top. As the mixture slows down (about one bubble per second) fill the bottle up with water to approximately two inches from the top and let it continue working until it starts to clear. At this point siphon the liquid off from the dead yeast again and if the liquid is lower than three inches from top add water to bring it up to that level. Reinstall the airlock. Let it stand until the liquid is crystal clear.

You now have mead and it is drinkable at this point but will improve with age. It does change and improve in flavor as it gets older. If you wish to stop here you will have a very dry wine and that is what you must have if it is to be turned into champagne.

The next step to make your champagne is to set another packet of yeast to work. Combine one cup of honey, approximately one ounce of some kind of juice, one teaspoonful of nutrient, one cup of water or your wine and packet of champagne yeast. Make sure the temperature is no warmer than body temperature. Mix thoroughly, cover with cloth or loose lid and let it stand unitl it starts to work, usually one to five hours. Siphon off the clear liquid, making sure you do not suck up the dead yeast, add the new mixture to the old and stir thoroughly. Bottle and cap or cork.

If you use 16 ounce soda bottles put only 14 ounces of liquid in them. In the process of carbonation there is a great deal of pressure created and air will compress but the glass and liquid will not. Filling the bottles too full will cause them to explode.

Let the bottles stand for at least two weeks before you even think about testing the product. The wine will be dry, sparkling and will have the combined flavors of honey, fruit juice, and champagne yeast which has a very delicate, distinct flavor. As the wine ages it will change its flavor as it gets older.

This formula produces a must that will read 1.085 on the hydrometer which makes for a dry wine, of 10% alcohol content. The specific gravity of the cleared wine, before adding the last yeast, should read no higher than 0.995. The acidity which I prefer is .2 to .25. Instructions come with the test kit and they are very easy to follow.

Note: do not try to make a higher alcohol content by using more honey in the first fermentation. The wine must be dry in order for it to produce the second fermentation after it is bottled.

Probably your biggest question is where do I get the champagne yeast and other equipment. There are many places in the country that sell beer and wine making supplies but I buy mine from.

Semplex of U.S.A.
4804 Lyndale Ave. North
Minneapolis, Minnesota 55430

Even through the mail I usually get an order back in seven to 10 days.

Champagne for fifteen cents a gallon? Yes it is true. Once your initial investment for the equipment is out of the way, that is about all it will cost. It helps defray the expense, I must admit, if you have a fruit tree or grape arbor in your back yard.

Give it a try. Before long, you will find that you can drink a toast to your Honey with your very own champagne. And at fifteen cents a gallon you can turn every dinner into a festive, gala occasion.□

Miner Institute Adopts "Let's Buzz The Schools" Program

By LORETTA M. SURPRENANT Miner Institute Chazy, NY 12921

Last November I ventured to the Southern States Beekeeping Federation meeting in Williamsburg, Virginia. It was there that I picked up on an idea at a "Let's Save the Bee" campaign.

The program, entitled "Let's Buzz the Schools", was developed by Claudia Linkoos, who is a North Carolina grade school teacher, John T. Ambrose, an Associate Professor at North Carolina State College, and the Southern States Beekeeping Federation.

Upon returning from Williamsburg, I presented the program to the William H. Miner Agricultural Research Institute where I am employed. The program was adopted by the Institute as a continuing effort to bring agricultural education to north country residents. Revisions were made in the packet to better fit the needs of the north country elementary school teachers. Each day's activities were compiled in separate packets to make everything as easy and well organized as possible. Teachers were impressed with how little time and effort it took to adopt this program for their classes.

An introductory letter was sent to all elementary school principals in Clinton County stating that Miner Institute and the Southern States Beekeeping Federation had developed a new outreach program called "Let's Buzz the Schools" and that an Institute staff member would be contacting them to discuss the program in further detail.

After the introductory letter was sent, a followup phone call was made to each principal explaining the program and asking to set up an appointment with those teachers who might be interested in such a program.

Upon meeting with the teachers, we explained that the beekeeping industry was in serious condition. Pesticides, imported honey and a new bee disease called the acarine mite were threatening our vital industry. People need to be made aware of the importance of the honeybee. We further explained that there are 210,000 beekeepers in the United States operating more than 4.3 million colonies of honeybees which adds approximately $19 billion to the agricultural economy of the United States. Of those beekeepers, 94% are hobbyists with 1 to 25 colonies.

The true purpose of "Let's Buzz the Schools" is to inform the general public through their children. People have misconceptions about bees that are developed during childhood. We want to show them that the honeybee is a friend not an enemy; that they sting only out of defense; how the honeybee lives and functions within the colony; and how important they are to mankind.

Loretta demonstrates to a group of students.

What's unique about this program is that you do not need a background in beekeeping. All necessary information is included in the 13-day activity packet such as background material, lesson plants, visual aids, and reference materials. The program covers a variety of issues in the beekeeping industry at levels geared for Kindergarten through 5th grade. We ask that they introduce this program to their science classes as an ongoing program from year to year.

Two weeks after talking with the teachers, a followup is made with each person and at that time any questions they may have are answered. We also inform them that we will be happy to give demonstrations to their classes if they so desire. We explain that there is a very active Champlain Valley Beekeepers' Association which also would be glad to help in any way."

Response to this program has been excellent, far beyond our expectations. To date we have introduced this program into 23 different school systems in Clinton County. Awareness certainly has become a key word in Clinton County. □

Beekeeping In Sweden

by STEVE TABER of TABER APIARIES 3639 Oak Canyon Ln. Vacaville, CA 95688

In April this year I had the good fortune to be invited by Eric Osterlund, representing the Swedish Beekeepers Association, to present four lectures to the National Bee Congress held in Orebro, Sweden. Before and after the Congress I was taken on tours to visit beekeepers, honey packing facilities and the research laboratory in Uppsala. This article is about some of the sights and conversations with beekeepers that I though might be interesting to readers of *Gleanings*.

The hives and frames used are quite different from ours but not unnesessarily decorative or difficult to work with as I have seen in some other European countries. Hive boxes were made with a layer of wood inside and outside with insulation in between, making the wall of the hive about three inches thick. The frames were not made with a self-spacing end bar as most of ours are but instead there there were pins placed in the frame, top and bottom, to give the proper bee space between combs. Wintering bees in Sweden is their biggest problem because of the long winters, with the bees having to go almost four months without a flight. On April 11, while I was there in the bee yard, the bees had their first flight of the year and you can well imagine the spotting on the hive entrances and snow.

Brother Adam talking about the Buckfast Bee with translator Ulf Gron. When we were visiting Bro. Adam informed me he had been keeping bees before I was born in 1924.

Honey production has changed for the better in the past few years so that there are now more and more people getting into beekeeping as a full-time pursuit or as active part-timers with a hundred or more colonies. Honey yields of 180 pounds are not uncommon from an oil seed crop, *Brassica campestra*, called rape, that is being planted over much of southern Sweden. And would you believe it, Swedish beekeepers are having the same problem we are having in the USA, with cheap, imported honey coming in from Poland and other eastern European countries. What to do? What are you American doing about the problem, was their frequent plaint to me.

I told them they should follow the West German example of promoting **all** honey while suggesting that German honey is really the best. Also they should enforce their laws already on the books of not over heating honey (no hotter than 104F) and of having honey with no foreign particles in it. This puts a high quality honey on the market that has increased per capita consumption of honey in Germany three to four times the per capita honey consumed in either the USA or in Sweden.

The visit to the honey packing plant, which is owned and operated by a beekeepers' coop, showed how honey can be handled in large volumes without excesive heat for rapid flow and straining. The bulk storage of honey, many tons, and the already packed honey is kept in a cool room to prevent any heat damage to it. It is only brought out to be warmed to 104F, agitated to make it flow, packed into consumer containers, then returned to the cool room. No honey that I saw is packed liquid but a beautiful creamed produced with an attractive label. Most members of the coop have but one or two colonies, but there were large commercial producers, too, with several hundred colonies.

One of the beekeepers I visited is making his hives at the rate of about four per hour of polyurethane foam. He has several hundred of these hives in use now and feels very confident that the product is superior and cheaper than wood. Another innovative technique of his is to not use frames in honey supers. The combs of honey are all cut out and ground up with the resulting comb-honey mixture centrifuged to separate the two components. The whole honey operation was well automated so that several tons per hour could be produced.

Insulated Plastic bee hives made by Bjorn Lagerman shown here opening hives on a drizzelly day. He uses no frames in honey supers and grinds the beeswax and honey before it is separated in a centrifuge. He operates several hundred colonies.

Swedes are interested in stock improvement as beekeepers are everywhere. This is being managed for now in a complex (to me) arrangement involving a doctor (M.D., not Ph.D) who has a degree in genetics, doing the inseminations and drawing up the breeding plans. Bert Thrybom visited the USA several years ago to consult and observe various establishments such as mine here in

Continued on next page

Continued from previous page

California as to methods of breeding and stock improvement before setting up the program in Sweden. He has received some of his funding from the beekeepers and about $20,000 Swedish crowns (i.e., $2,000 U.S.) from the government to augment various expenses. Inseminated queens are placed with beekeeper cooperatives for testing.

Several years ago as many as 10,000 queens were imported to Sweden annually; only 3000 were imported last year and there will be none at all in 1985 because of government regulations. Since I had sent 50 or so of my queens to Sweden in the last several years it was interesting to hear good reports of their performance under harsh Swedish conditions.

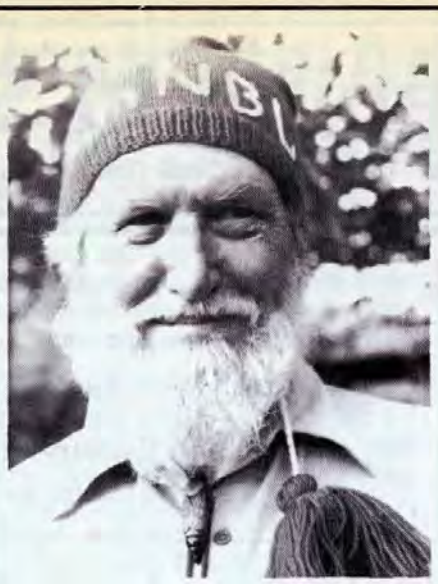
Research on bees is conducted by three persons at the Swedish University of Agricultural Sciences within the Department of Animal Husbandry, in well-equipped labs and apiaries. Research publications I received as reprints covered subjects on pollinations, wintering, honeybee breeding, honey production and diseases. The University library serves all Swedes in that books and periodicals may be ordered out by request at the local town or city library. Certain rare books and periodicals are excluded and on occasion a requested article from a journal is copied and the copy sent to the requesting person.

For entertainment on the night of the Congress banquet, a group known as the "Nordic Beemaster League", made up of eight persons from Denmark, Norway and Sweden, sang Nordic drinking songs and spoofs of various kinds. The group elected me as an Association Member, which meant that I had to wear one of the little red knit ski caps and also sing and dance on stage in front of 300 beekeepers. This performance was followed by the more usual commercial entertainment and the giving of gifts to all participants.

For those beekeepers planning a trip to Sweden wishing to see the beekeeping there, contact the following:

Ingemar Fries, Bee Division
Dept. of Animal Husbandry
The Swedish University of Agricultural Sciences
Uppsala, Sweden

Eric Osterlund
P1 5056 B, S-69400 Hallsberg, Sweden



I was elected to that distinguished group Nordic Beemasters League/NBL that sang and danced at the evening of the banquet. But since I am an outsider my cap, which is quite red, reads "A M" for Associate Member.

ASSOCIATE MEMBER BLUES

Chorus:

Associate Member of the Nordic Beemaster League

Associate Member of the Nordic Beemaster League

UP BY THE POLAR CIRCLE,
NBL HAVE THEIR FUN
THEY MINGLE WITH THEIR BEEHIVES
BELOW THE MIDNIGHT SUN

Chor:
ASSOCIATE MEMBER....

SOMEONE WHO GETS HOOKED ON LIQUER
SOMEONE WHO GETS HOOKED ON BEE,
NBL'S GOT NO LIMITES
THATS WHY YOU FEEL SO FREE

Chor:
AS AN ASSOCIATE MEMBER....

YOU CAN'T BECOME ELECTED
YOU'RE PICKED OUT OF THE CROWD
YOU'LL NEVER KNOW WHAT HIT YOU
THAT'S WHY YOU FEEL SO PROUD

Chor:
AS AN ASSOCIATE MEMBER....

NOW I'VE GOT OBLIGATIONS
I KNOW WHERE I BELONG
I PLEDGE I'LL DO MY UTMOST
JUST LISTEN TO THIS SONG

Chor:
FROM AN ASSOCIATE MEMBER....

We've had this photo on file for a few months but can't find the caption. Anyone know who these two nice folks are?

93 year old Percy Howe from Groton, NY. Thanks to Dana Cochran for the photo. Hope you're honey season's a good one, Percy and Dana!

CLASSROOM CONTEST

From page 338

Richard Crawford: Morrisonville. NY. Richard is President of the Champlain Valley Beekeepers which is active in conjunction with the Miner Institute mentioned above.

Joann Manes Olstrum: Reedsport. Oregon -- Oregon State Beekeepers. ABF and WAS

Mimi Troisi: Cogan Station. PA. (See reproduced letter with this article)

Barabara Horn: Fairdale. KY -- Kentuckeana Beekeepers Assoc

Dan King: Bath. NY Dan also attend fairs.

Steve and Ellie Conlon: New Martinsville. W Va -- Tri- State Beekeepers Assoc

Anton Zacharias: Parma. OH Cuyahoga Co. Beekeepers Assoc

Norbert Gubert: LaPlace. LA -- Tri-Parish Beekeepers Assoc.

Albert Bell: Billings. MT --Eastern Montana Beekeepers Assoc . and author of journal articles.

Paul Goossen: Wayland. IA -- Southeast Iowa Beekeepers Assoc.

Terry McFall: Jasper. TX -- Texas Beekeepers Assoc.

Joan Borghi: East Chatham. CT -- EAS and Southern States Beekeeping Federation

Leonore Bravo and Louis Dubay. 111 classes since 1977. plus articles on the subject! Leonore and Louis calculate they've reached 3335 children in that time!

C.A. Divelbiss. Mansfield. OH. After 42 years in public education. Mr. Divelbiss retired in 1967 yet continued to work with children by developing and presenting numerous programs about bees and their value.

FROM ALL OF US IN U.S. BEEKEEPING, FOLKS, THANK YOU! THANK YOU!

Mark Bruner
Medina, Ohio

Young beekeepers: left to right -- "Buzzy"Gubert; Joshua Ladwig; Ryan Bergeron; Jamey Fread

Dear Miss Troisi,

Thank you for coming and telling us about bee keeping. I think when I grow up I am going to have some honey bees. And I hope you come back next year.

Your friend,
Christy Mundorff

We love what we do and we were told here not to long ago that we were wonderful Public Relations people.

~~Good luck in the future.~~ It has been fun, but low this year. Maybe next year we will do better.

Sincerely,
Barbara R. Horn

Dear Mr. Divelbiss:

Thank you so much for presenting your bee assembly to the students of Ruggles-Troy School.

You are wonderful with students and very knowledgeable about bees. The students loved your talk. Your assembly was the best deal I've seen since I've been principal.

I will mention you to other area principals.

Sincerely,

RUGGLES-TROY SCHOOL

Sharon M. Ickes

Sharon M. Ickes, Principal

A Scout Bee Flying Around The Globe

by JACOB Van der Plas Appetado Postal 500 Naucalpan, Mexico

Beekeepers have asked me, how much do you spend on sales promotion? Our turn-table with large plastic jars filled each with different honeys, and a pot with small wooden spoons, attract people. It is a feast of tasting for free. And on a Sunday two pounds of honey are consumed. Sometimes we get nasty children who swallow spoon after spoon, and their parents don't say anything. When mother has decided which honeys to buy, we open one of her jars, and take out several spoons of honey without saying a word.

I remembered that as a little boy I had to help Mom when buying bread, cheese, eggs, cough syrup from the drugstore. The supermarket with everything didn't exist yet. I had to walk a long way, and visit many cozy small but good smelling stores. The owners of the stores treated me nice, many times giving me candy, and another for the road. Now I am grown up, the other day I visited a new bank they opened near my place, and large glasses filled with candies were on the counter desks. For the shy people the clerk would give with money several candies. Soon that bank did a big business because in all adult people a little of a child's desire stays alive forever. We want to get something for free, a candy. I give spoons of honey. In the beginning this costed me a lot, but sales went up soon, and now a 1% of total sales is tasted. With each sale of a new client we give a way a four page sales brochure, costing 3%. But we have another hook, quite costly; discounts. People come from far away, and don't come back that easy. So when somebody purchases four jars (each three pounds) of different honeys, we give a 20% discount. And on our other presentation of one-and-a-half pound jars, purchasing five of them, of any taste, a 15% discount is given. Our honey is priced 10% higher than average supermarket prices, because our honey is not over-heated, and as we insist, "better quality".

How do we obtain a not over-heated honey? First I have to tell our story about packing honey in jars. When my son at age 14 initiated with bees, he collected used glass jars with friends and neighbors. Becoming larger he exchanged 20 clean jars for two pounds of honey. Also, as a side-line he exchanged honey for paint. People always have left overs of paint in their garage, and when my son saw those cans, he offered honey in exchange. This way he saved money and his supers and hives are very colorful, always well painted. This is another way of advertising: our pleasant colorful painted apiaries in the wood. People think unconsiously, well maintained hives must produce quality honey.

My son's bee business grew larger and a truckload of glass jars was purchased. It was a bedroom full. When I was traveling around the globe for the company, I always tried to find a simple gift for my son, related to his bees. Visiting in France, a huge bee equipment supplier, I saw the solution to voluminous glass jars. Plastic, cone formed jars, which can be stacked empty one inside another. In a cubic yard you can store 1500 plastic jars versus 300 glass ones, besides the last ones break. This French store was selling several simple plastic cone jars, decorated different and a beautiful designed clear transparent one, with a comb on the lower part. From the point of view of industrial design, the form is a prize winning example. Unfortunately, the one I purchased was taken from my hotel room's writing desk by a cleaning girl, who must have thought it was a gift for her because I had placed it on the desk. However, lucky enough, I had a catalog from that equipment supplier. The catalog is a collectors item, due to everything printed in beautiful colors. From the catalog I made a sketch, accompanying this article (next page). I think a bee equipment supplier should try to get the manufacturing license for this jar of half a kilo, and one kilogram (slightly over a pound, and two pounds.) The plastic jar is silk screen decorated with flowers. No bee, because bees on a label are related by most people with stings. And lately with the exaggerated stories of the African bee, I have the same opinion, no bees on labels. Another advantage of plastic, it can be triturated with other garbage and after 20-30 years it will disintegrate. Meanwhile, glass jars will be garbage for ages, a long time contamination to our soil.

All the honey we harvest is filled in plastic jars, but becomes hard, it crystalizes in six to eight weeks. Years ago we kept honey in drums, and with a hive tool, we had to scrape chunks of honey and heat these in a pan, sitting in warm water. It was a slow, messy and heavy 30 pound job at the time. The kitchen always got sticky. But luck came to us. We had subscriptions to several bee magazines, and in a tiny article of about six lines was written the solution. Several evenings I went through 8-12 year old issues to find the name of the writer of his excellent idea, however, in vain. If he is still a beekeeper reading this, he has won a fortnight vacation in Mexico with sightseeing, so grateful I am for his suggestion of heating crystalized honey in jars. Remembering his lines more or less: many people throw away their old refrigerator, and you can pick them up for free. A refrigerator can at no cost be converted in a honey warmer. Under the lowest shelf hang a 100 watt light bulb, put jars with crystalized honey on the shelves, and in 24 hours it is liquid, without overheating.

We improved the basic idea three times, due to ever increasing sales. The lamp will heat 20-30 jars. With a hot-plate, with thermostat, we heat, in an old freezing cabinet with three shelves, 48 large jars (3 pounds) and 24 small ones (1½ pounds). Jars are stacked one on top of the other, that is another advantage of plastic jars. Heat is set at 550°F (290°C). A four times larger than the hot plate aluminum sheet is put on top of the eplate to disperse better heat. This $^{1}/_{8}$"

Continued from previous page

thick aluminum heats the air, they air the honey jars. The hot plate is placed on a piece of wood since most refrigerators are plastic lined, to isolate the heat to the bottom. Our hot plate is the same one as for making wax cups for queen cells.

Once, I was flying around the globe, an assistant forgot the hot plate, besides he had a thermostat at maximum. After three days honey dripped on the floor. Several plastic jars had melted, but worse, the plastic lining of the old regrigerator had almost caught fire, and was all wrinkled inside. Lucky enough, for free, we picked-up another used refrigerator, but improved the system, and made it idiot proof. We installed a second temperature control from Honeywell® . Let me clear something, this company has nothing to do with honey. They manufacture many control systems for the industry, my experience with them was air-conditioning. I purchased a hot air controlling unit T675A1466. The temperature control bulb we fitted under the top shelf with small wires. From the bulb goes a long thin copper tube, with liquid inside, to a control box, which we mounted on the side of the refrigerator. We drilled a hole in the wall, slightly larger than the bulb, because this one may never be disconnected from the control box. The large hole was later sealed with wax on the outside. The control box has a variable temperature setting, our dial is in the metric celcius system and is from 15°C to 75°C. We put the control at 45°C. Converted in Farenheit 60°-170°F., set at 115°F. (A control dial in Farenheit exists, the catalog number will be different). Our control box is electrically connected to a relay, because the contact points cannot handle the load of the hot plate. Try to get a relay for 15 amps at 120 volts. Your wall contact outlet should have the same capacity. The relay switch is lifted by command of the control box, and switches on or off the hot plate, but still the setting of the hot plate is kept at 550°F. Be careful when heating with glass jars, unscrew the lids a little, heated honey expands a lot. Never fill glass jars till maximum, leave space for honey expansion. We get always on heated honey a floating white scum, which with a spoon we clean. And here one of my great questions: what does this scum contain chemically, and what can we do better with it than feeding it to the bees? The bees eat only half the honey we picked with the spoon, and leave it to me the unknown other half, in crumbs. But I feel sorry to throw it away, because one of the nicest things in

Container produced by the Thomas company, France.

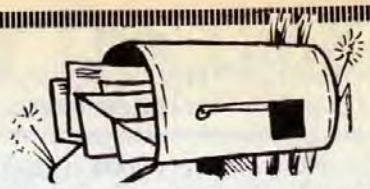
beekeeping is, we have no waste. Every apparent waste can be recycled, dirty honey back to the bees, wax into stamped wax, or candles. We made candles from stamped wax, but that is a story for another issue. I learned this in Switzerland.

Another recent improvement on our honey warmer. For our ever increasing sales I should pick-up a second old refrigerator, plus hot plate. But I am short of space. Besides I wanted to shorten the 24 hour heating time, but with the same low temperature of 115°F (=45°C), because when selling our honey we guarantee that it was never overheated, to conserve vitamins, minerals and the exquisite taste and perfume, especially this last one of our orange honey.

What I needed was a forced airstream by means of a small ventilatgor, to blow over the aluminum sheet and hot plate, because warm air heats our honey. Luck was again with me when reading the magazine *Popular Science*. That magazine that shows how inventive America is. Each month several new tools. In an advertisement by American Surplus Trading, 62 Joseph St., Moonachi, New Jersey 07074, Toll Free 800-288-2028, ext. 825, they sell small pumps, blowers, timers, etc., from surplus productions. I purchased the ideal "finned hot plate" 8 x 8 x 1½". A round tubular heating element (120 volt, 1500 watt) is embedded in 50 large metal fins, placed like the spokes of a bicycle wheel. The plate has a brand name Electromade, part No. 3954, Pat. No. 2007222, and is mounted with two screw bases. I placed it 4" below the lowest shelf with $^{1}/_{8}$" x 1" aluminum strip. Also I purchased from the same company a small ventilator, a five (high-impact plastic) blade blower 115 CFM (cubic feet of air per minute) MUFFIN FAN, 115 volts, 60 Hz, $4^{11}/_{16}$" square 1½" deep, with a D-SC O-100% adjustable speed control, which we set at 75% of speed. Both costed in September 1984 less than $25. The ventilator will be hanging 4" below the finned hot plate, and should clear minimum 2" from the bottom of the old refrigerator. It works wonderful, in 12 hours a full load of crystalized honey became liquid at 43°C (109°F) maximum.

And another small but effective suggestion for success in beekeeping. Everything that I read or see, and could be applied to beekeeping, I make a small note, with short description, date and page of magazine, and they go into my "dream" file. Because they are things I would like to have, but cannot afford at the moment. The finned hot plate was such a dream filed for over a year, the air ventilator for three years. The light bulb in an old refrigerator was kept on file for two years, but I forgot to write date and page of which magazine issue. Well by that time, ten years ago, I was not thinking of, nor capable enough to write about bee pariphenalia. I have several "dream" files about traveling, museums, antiques, cabinet making, old silver utensils. I never dared to start a file labeled "money", but I have hopes with HONEY.□

Gleanings Mail Box



Dear Editor:

In sifting through your various monthly publications, I ran across the article concerning "Honey Roast Peanuts," appearing on page 127 of the Feb. 1982 issue. The article states that the ingredients are: peanuts, sucrose, honey, peanut oil, salt and modified peanut starch. I was wondering if you had any information as to the preparation of this product. Specifically, as the title seems to imply, are the nuts treated with honey and then roasted or are the nuts first roasted and treated with honey?

Robert Holper, 3118 Calverton Blvd., Beltsville, MD 20705.

Dear Editor:

As a result of this letter in *"Gleanings"* which appeared in the July 1984 issue, I invited Mr. Stephen Adjare and his wife here to Fallbrook in January to learn the ways of American beekeeping. (Unfortunately, as you know most Africans still harvest honey by burning down the hives and thus destroying the bees in the process!)

Because your organization was instrumental in bringing Mr. Adjare and me together, I'd like to share with you the opportunity to help lessen the hunger problems in Africa through beekeeping.

I'd like to introduce Mr. Stephen Adjare from Ghana. He is trying to change the way his countrymen waste what could otherwise be vaulable and abundant resources: honey and beeswax. He is with me learning how to rear queens, an essential part of modern bee management, especially for work done with the African bee.

What Mr. Adjare will do on his return home is to disseminate his knowledge and skills in beekeeping throughout Western Africa. (He is also interested in rabbit raising which he feels is another industry that could make a real difference in the self-sufficiency of his countrymen.) I have learned from Mr. Adjare that all the resources for successful honey production are already present in Africa. It is only the American know-how and the American tools and machinery that are lacking.

But, let me tell you more about Mr. Adjare. His is an African success story, born in a remote village in Ghana 40 years ago, he overcame the many obstacles created by poverty and deprivation to become a Research Fellow at the University of Science and Technology in Kumasi, Ghana. He has authored the only manual on beekeeping published in Western Africa, *"The Golden Insect"*. He has recently completed another manual on African beekeeping, to be published soon by the United Nations, already incorporating new information he has learned here. His mission as a Research Fellow is to promote the skills of beekeeping throughout Western Africa. Already within the past few years he has almost singlehandedly shown thousands of Africans how they can provide for their families and increase their meager incomes, using only available local materials.

The potential for beekeeping is great in Africa. About 80% of the land produces vegetation quite suitable for honey production. Some of the more than 2,000 hives which Mr. Adjare has helped people establish, have collected as much as 250 pounds each of honey per year. Yet vast amounts of honey go unharvested for lack of know-how and simplest of materials.

Mr. Adjare compares Africa to a fine tailor who has vast quantities of high quality available in his shop, but who sits idle for the lack of a needle and thread.

This is the plight of much of Africa's industries today. Although labor and materials are plentiful, a few key elements are entirely missing. For example, Mr. Adjare has the knowledge and expertise to help his countrymen build bee hives and rabbit hutches. Yet he is without a reliable vehicle to drive the rugged dirt roads into the remote villages where he could reach the people who need his help most. And although there are plenty of trees to supply wood for hive and hutch construction, the saws and nails are lacking. The costs of such materials and tools are either astronomically high or are totally unavailable at any price.

Mr. Adjare's visa will expire within a few months and he and his wife will return home. I hope that they will be able take with them the American know-how along with the vital tools and equipment that will enable him to bring self-help to his struggling, emerging nation, an international friend of America's.

Stephen Adjare

Together, Mr. Adjare and I have made a list of items that will most help him carry out his work (list on next page). If anyone can provide any of these, or financial help to purchase or ship them, we would be most grateful for your generosity. I can think of no better way to help these people help themselves than through the hard work and dedication of Mr. Adjare.

Please call on me and/or Mr. Adjare if you wish any further information or details.

Tom Glenn/Glenn Apiaries
1358 E. Mission Rd.
Fallbrook, CA 92928
Ph: 619-728-3731

Continued from previous page

LIST OF ITEMS NEEDED

4-Wheel drive pick-up, diesel

2-ton truck, diesel, capable of handling lumber for beehive construction

2 and 4-frame honey extractors

Wax melter and processing equipment

Antibiotics

Queen excluders

Audio-visual materials for use in Mr. Adjare's beekeeping workshops and seminars

Dear Editor:

I had an ad in *Gleanings In Bee Culture*, about Vitex Seed. Due to the great demand for the seed, my supply has run out.

To all who write requesting Vitex Seed, I will keep the letters and supply the seed next fall, when the seeds mature. If anyone has any seed you would like to swap, I would be pleased to hear from you.

Louie Olds
Rt. 3 Box 124 C
Roanoke, Ala. 36274

P.S. Anyone who writes SASE would be appreciated.

INCREASE NOTICE

Having been zinged by the U S postal increases and by boosts in both the cost of printing labor and printing material, we are forced to raise GBC subscription to $10.75 per year and $20.90 for two years. Association discounts for both one and two year subscriptions remain at 25 percent. Foreign rates will be $3.95 additional per year.

Obituaries

MENDON — WESLEY T. ROGERS, 56 of 81 Mowry Street, died Monday, April 22, 1985, in the Milford Division of Milford-Whitinsivlle Hospital after being stricken at home.

He was the husband of Jean M. (McLaughlin) Rogers.

Mr. Rogers was a dairy farmer with his brother Earl W. Rogers for more than 25 years at the Ashway Farm on Thornton Street, which they owned as a partnership.

He was a local beekeeper and active in many farm organizations throughout Worcester Country and the state.

Honeybee Prospectors

by FREDERICK ROSS P.O. Box 87 Brackendale, B.C. VON 1H0

For thousands of years our winged friends *Apis mellifera* unknowingly have been doing the work of the prospector! Today the tireless workers bee may be on the verge of replacing the rough clothed lonely recluse we picture searching for precious metals.

Major mining companies in Western Canada are showing interest in experiments conducted at the University of British Columbia on the work of the honeybee as prospector.

Dr. Harry Warren, retired professor of geochemical engineering and Mrs. Stanya Horski, geological scientist, have in recent years analyzed pollen samples taken from a variety of areas. Dr. Warren is convinced that trace elements in plants reflect the type of minerals below.

Dr. Warren has been described as a pioneer in the field of biogeochemistry. Thirty years ago he published a paper suggesting that the high lead content of plants bordering highways was the result of lead emissions from automobiles. Subsequent studies have eventually led to the emission standards and lead free gasoline of today. Dr. Warren is well known and highly respected in Western mining circles.

Dr. Warren had been experimenting with isolating elements through analysis of plants and plant foliage. He turned to the use of pollen however, on the strength of research in Britain which suggested that plant diseases are transmitted by trace elements in the plant's reproductive system. Knowing that pollen is a part of the reproductive system, Dr. Warren enlisted the aid of beekeepers in collecting samples.

In his analysis Dr. Warren determined that trace elements are much more concentrated in pollen than in other parts of the same plant. In layman's terms, trace element counts from pollen are expressed in parts per million, wheras results from plants are expressed in parts per billion!

The world wide recession in metal demand has resulted in a slowdown in mining exploration generally. There is however, genuine interest in Dr. Warren's work and more experimenting in prospecting by this method lies ahead.

Tables displayed in the May 1982 issue of *The Western Miner*, a mining industry publication display interesting relationships:

Area Sample Taken From	Parts Per Million			
	Zinc	Copper	Lead	Molybdenum
Endako Mine (Molybdenum)	59	7	8	48
Fraser Lake	97	10	8	NES
Gibraltar Mine Site (Copper)	80	45	1	3.5
Gibraltar Tailings Dam	117	30	ND	5
Williams Lake	72	10	ND	7.5
Williams Lake	89	10	2	3.5
Afton Mine (Copper)	5	79	ND	NES
Brocklehurst (10 miles East of Afton)	27	7	ND	2

NES — Not enough sample ND — Not determined

Dr. Warren notes that Endako is the largest molybdenum mine in the Commonwealth wheras both Gibraltar and Afton are major copper mines. The pollen collections taken at the other locations were control samples. These tables do point to the reliability of Dr. Warren's belief.

I learned of Dr. Warren's work and contacted him to ask if he would be interested in receiving pollen samples from the area of a gold mine. The Ashlu mine near Squamish, British Columbia operated in the 1930's and was being reactivated. His enthusiastic acceptance set me to placing a pollen trap in one of my fifteen colonies.

Logging of the first growth fir and cedar stands in the Ashlu River valley began in the early 60's. The clear cut logging method leaves vast areas of charred stumps which in a few years produced magnificent fireweed. In 1975 I moved bees into the area using trailers equipped with a solid roof and heavy chain link type fencing to prevent damage from the ever-present black bears.

After a few seasons I noted that the fireweed was being replaced by trees and moved my bees a few miles further up the valley. I again located a yard in recently logged fireweed country, this time close to the Ashlu mine which because of access on the logging road was being re-opened. The mine, when it operated in the 1930's had been served only by pack horses.

When Dr. Warren phoned to give me the results of the pollen samples he told me that his assistant; Stanya Horski was excited with the analysis. The results revealed for the first time the presence of gold in a pollen sample. The sample had been divided into five pollen colors and the results tabulated:

Color of Pollen	Parts per Million			
	Gold	Silver	Zinc	Copper
Red Brown	.3	.11	32	10
Cream	.7	.09	72	21
Buff	.2	.10	33	12
Light Grey	.4	.08	70	10
Dark Grey	.4	.08	41	7

During the following summer, I collected a sample from the Northair gold mine property in a different valley which revealed gold at .9 parts per million. During the same summer I took a sample from the alluvial Pemberton valley which contained no measurable gold.

A fairly large area could be prospected in a season placing strong single super colonies in substanial wire cages, using a helicopter for transport and moving them every week or so. This method of prospecting would not immediately set mining machinery into motion but would provide indicators of areas which are anomalous in various materials. After the pollen indication of promise, more intensive prospecting could begin. Areas accessible by logging road could of course be prospected using my 4 x 4 truck.

Pollen collected near Ashlu Mine — contains traces of gold. Photo credit — Shirley Fowler.

Dr. Warren hopes to further refine his methods by identifying the plant types from which the pollen is taken. In this way he feels that it may be possible to closer pinpoint specific areas.

Dr. Warren has had inquiries from people searching for arthritis treatments which may replace the injections of gold now being used by some. Dr. Warren has been asked to determine the form in which gold is present in pollen. The presently used injections have some undesirable effects which it is felt might be avoided by simply eating pollen.

The author checking snowbound bee trailer in April, 1985. Photo credit — Shirley Fowler.

Dr. Warren has been retired for fourteen years, and, although he has the use of university facilities, he is going to considerable personal expense in this work. In this project he seems to possess the tenacity and enthusiasm usually found only in the colony. Through my association with Dr. Warren I have become convinced that we will see the honeybee in its never ending work of pollen collecting filling the role of prospector.□

Obituaries

JAMES RUFUS RAY, 81, a beekeeper for 63 years, died at Eliza Coffee Memorial Hosptial, Florence, Alabama, Tuesday, March 19, 1985. He died of kidney failure.

He was born in Athens, Texas, July 7, 1903 and later lived in the Montgomery county area until 1951 when he moved his family and bees to Van Buren, Arkansas. He was an active member of the Arkansas Beekeepers Association and helped organize several local beekeeping organizations.

He moved to Alabama in 1967. He was a commercial beekeeper until his death.

Survivors are four sons, Obed, North Little Rock, Arkansas; Fred, Denver, Colorado; Norman, Florence, Alabama; Marvin, Savannah, Tennessee.

Tall Tale

by DONALD COX 1623 W. Wayne St. Lima, OH 45805

June, 1923, Grandfather Zakery visited our home in northwest Illinois. Grandpa still lived in southern Illinois. I was just thirteen years old at the time, but I'll never forget one story he told about several beekeepers in southern Illinois.

Look at the map of Illinois and follow the description of the area in which the story is said to happen.

The old Mississippi River flows south then takes a turn toward the north and then another "U" turn toward the south and then another toward the north forming a "W". It was in the first "U" that Lil Pinch was located—it no longer exists. There were four families living there in the early 1900's. The houses were all within sight of one another. Not really enough to be a town, but what else would one call it? Only a track separated the houses across from each other. There was a signpost on the "track" near the the first house. It said LI. .L PINCH; the rest of the letters had faded, sun rotted, but for some unknown reason the eight remained, paint gray on a background that had once been white but was now a parched-looking board like a dried up and weathered old beehive.

The five families consisting of thirteen people were all of the English extraction and had some of the odd English names. There was Joe Golightly, the Stan Em Tall family, the Cutting Payne family, the Ugli family and Grandma and Grandpa Cox.

Ugli was the beekeeper and was training his twin boys, You are Are, to become beekeepers. He has six hives of bees at the house in Lil Pinch, which he had transformed from boxes and logs to teach the twins beekeeping. Ugli was a knaver and "Poor-boyed" most of the home place equipment from other beekeepers in the Southern Illinois Beekeepers Association.

I forgot to tell you that to locate where Lil Pinch did exist, note the town of Olive Branch on the map. Start south on the main road through Olive Branch and Lil Pinch was 20 miles from the resume speed sign at the village limits of Olive Branch.

The village of Pinch was across the river from Lil Pinch and located in the narrower of the "U" bends and is north of Cairo, Illinois. In Pinch there was a beekeeper by the name of Long. First name Amble and middle initial A (Amble A Long). One day at a meeting these two started to argue, which of the two could produce the most honey from a single hive. After considerable arguing and name calling, which I won't repeat, old Bill Fogbottom told them to put his money where his mouth was and a bet was made— old Bill to hold the money.

This was in the days before double queening, but I am not sure that it was not the start of this type of manipulation. No one in the association knew that Ugli had been buying a new modern beekeeping woodenware and that he had a second apiary about eight miles from his home apiary. It was located on some good bottomland in that "U" bend near an area wooded with maples, wild cherries and briar underbrush. Also the marshy ground was abundant with wild flowers, weeds and clovers.

Ugli, for his demonstration hive chose to set it up against the east, or peak wall, of the combined barn and spring house. Another thing he did was to make an auger bit hole in the front of all his hives and supers. In his out apiary he crowded down three of his strongest hives into a hive body with new frames and foundation and immediately added a queen excluder and two deep supers with drawn comb.

Back at the home place, Ugli prepared the demonstration hive in the same manner he used in the out apiary except he shook the bees into a deep super. He set the thin zinc excluder into the top rim of the brood chamber so that it could not be detected from outside of the hive. By the way, he set the demonstration hive against the side of the barn so that a ladder could be set up beside it. Old Bill was contacted, over in Pinch, to come over and inspect the demonstration hive.

This first inspection was made the week before Memorial Day. On Memorial Day Ugli hitched up the horse and wagon and drove to the out apiary and collected one of the prepared colonies. The nectar flow was in its first week, and if the weather held, could be counted on for five to six weeks. He removed the bottom board of this first out apiary colony and set it on top of the demonstration hive. Old Bill was contacted to come over from Pinch to inspect and initial and date each of the boxes. Old Bill was not about to lift off the added supers to inspect. However, he did initial and date each box. The original three boxes now had two sets of initials and dates.

At one week intervals Ugli brought in the other two colonies which had been prepared and added them on top. Each week Old Bill climbed the ladder and initialed and dated each box. The nectar flow was starting to taper off, but Ugli's tall one now consisted of 12 boxes high. In fact, the height had started to worry him some so he fastened screw eyes into the side of the barn on each side of every other super. Rope was fastened to an eye and around the super to the eye on the other side to hold them in place.

Old Bill kept Beekeeper Long informed of Ugli's progress and Long came over to Lil Pinch to look at the stack. He conceded that Ugli had won the bet without extracting the honey and having it weighed. So ends the tall tale.

Author's note: If you believe this one you will believe everything written about beekeeping.

Industry Coalition to "Save The Bees"

by STEVE FORREST

The month of July will be a busy month for beekeepers all over our nation as we buzz the media to tell our story and promote beekeeping.

To approach a radio station you should call and make an appointment with either the general manager in small stations or the operations director in larger stations. Explain our problems and make an appointment to come in and talk about them. Be on time and take honey. Give them a copy of our news release and fact sheet which accompany this article. Consider copying articles from previous issues of this magazine to further prove our points. Ask for their advice in helping you to get our message out. Are there interviewers they might be able to use? Would the station consider making an editorial comment on the value of bees? Can you furnish honey for an on-the-air give-away? Does your local Agriculture Extension Agent have an existing program and can he help us? Can the news department use the news release? Try to develop a relationship by going back in. Take more honey and try to leave a "sweet" taste in their mouth for beekeepers.

You should approach a newspaper in essentially the same way you did the radio station. Call the editor (not the farm editor) and make an appointment. Be on time and take in some honey. See if they can run our news release. How about an editorial? Are farm or agriculture columns already being written and might these people help us? Again keep going back and develop a relationship.

The form of media with the greatest impact in society and television. There should be a beekeeping club in any city with a TV station since there are

Continued on page383

FACT SHEET

The Birds The Bees and The Government

The "Birds and the Bees" is a euphemism for the basic facts about sexual matters, such as they might be explained to a child. Most people assume they know quite a bit about that subject, but resluting consequences often prove them to be misinformed. Recently, this confusion has extended to include real bees, in this case honey bees. The U.S. beekeeping industry is at a definite crossroads and proposed action by the federal government may result in the collapse of the present industry.

Almost everybody assumes they know something about honey bees but much of that knowledge is superficial information. There is nothing wrong with superficial knowledge unless that knowledge is used as the basis for making decisions that will have a major effect upon the subject, which in this case is the beekeeping industry. The U.S. beekeeping industry is a major contributor to this country's agricultural successes but the scope of the contributions is often ovelooked. Dr. John T. Ambrose, the Apiculturist or bee specialist at North Carolina State University, points out that in addition to producing approximately $200 million in honey each year, that bees are also involved in the pollination of over $19 billion agricultural crops. Without honey bees there would be fewer apples, berries, nuts, and seed crops available to the American consumer, and those that were available would be of inferior quality.

In spite of the importance of honey bees to American agriculture, the Reagan administration has introduced legislation which would probably destroy a major portion of the nation's beekeeping industry. For many years, beekeepers have had the option, as have many agricultural producers, of securing a federal loan of their product. The purpose of this honey loan progam was to allow the beekeeper to hold his honey until he could obtain a fair price on the open market. After selling his crop, the beekeeper would then repay the government loan with interest at no real cost to the U.S. government or taxpayer. However, for the last several years, the honey loan program suddenly changed into a government purchase plan for American honey.

The probelms with the honey loan program are a direct consequence of U.S. trade policy. As our government persues an "open door" trade policy foreign countries with lower labor costs take advantage and grab our markets. The production of honey is labor intensive and many countries have geared up for producing honey for world trade. From 1980 to 1984 U.S. imports of hoeny have increased 245%. In a free economy when supply increases prices falls and U.S. beekeepers have watched world prices fall way below their costs. The choices that they are faced with are bankruptcy or placing their honey under government loan. Last year the government purchased through the honey loan program over half of the national crop of honey.

The U.S. government, through the U.S. Department of Agriculture, has decided that the beekeeping industry is being unfairly subsidized and has introduced legislation to completely eliminate the honey loan program. Such a drastic change could eliminate a large portion of the American beekeepng industry according to Dr. Ambrose. He points out that many beekeepers could not contnue operations if the loan program was suddenly eliminated, and that a gradual reduction in loan support levels would be a more realistic solution to the problem.

The elimination of the honey loan program would save the taxpayers about $100 million per year, but it would also produce increased costs in food production. According to Dr. Ambrose, the major contribution of honey bees to the agricultural econmy is through crop pollination. USDA scientists state that over 90 American benefit from the honey bee pollination and these crops represent a value of over $19 billion. Yet, the U.S. Secretary of Agriculture has been quoted as saying, "Honey bee pollination is a miniscule portion of the farm industry". One can only wonder if the Secretary of Agriculture, John Block, has bothered to read the information produced by his own department's scientists. The honey loan program seems to have become a political issue and the potential loser is the American consumer unless Secretary Block learns a little more about the "birds and the bees"

Colony Strength, Colony Relocation & Rotation For Better Pollination

By E.A. Karmo and V.R. Vickery

Most tree fruits and small fruit crops require pollination during May and June while honey bee colonies are building up rapidly. At this time a much higher proportion of the population of a colony is occupied with brood rearing than will be the case later.

For pollination, the foraging bees are the important colony members. A colony with many foraging bees will be more efficient in pollination than a colony with fewer field bees. In spite of this, some fruit growers and beekeepers as well, continue to use newly hived package bee colonies for pollination.

During the spring of 1954 we made actual checks of the weights of adult bees from two pound (0.91 kg) package colonies installed at intervals at the N.S. Agricultural College, Truro, N. S. Two package colonies were installed on each date. On June 3rd, all of the adult bees from each colony were shaken and brushed into shipping cages. These were weighed and the bees were returned to their hives. Dates of installation and average weights attained by June 3rd are as follows:

Date Installed	Apr. 8	Apr. 17	May 5	May 18
Net wt. bees at installation (kg)	0.91	0.91	0.91	0.91
Net wt. bees on June 3rd (kg)	1.81 1.73	1.47 1.30	1.42 0.91	0.82 0.71

The original population in each colony was 0.91 kg. (approximately 8,000 bees). Packages established for two months had doubled in the weight of bees; late packages had not returned to original weight.

In order to determine the numbers of foraging bees for colonies of differing strengths counts were made as follows:

	Av. No. bees leaving/min.
1.4 kg (3 lb) pkg. colony	15
2.3 kg (5 lb) pkg. colony	48.5
1.9 kg (3½ lb) overwintered colony	64.5
3.2 kg (7 lb) overwintered colony	128.3

Photo by C. Grimes

The greater the efficiency of wintered colonies is due to low brood-rearing to foraging bee ratio in these colonies. A strong overwintered colony may have up to 7.25 kg (16 lbs.) of bees plus 0.25 kg (about 1000) new bees emerging daily. During this trial in 1954, one wintered colony swarmed at mid-apple bloom, the swarm weighing 3.6 kg (8 lbs.). While swarming during the pollination period is not desirable, this does not indicate the strength which a wintered colony in Nova Scotia can attain by the time of fruit bloom.

Another factor is that stronger colonies tend to work (and work longer) at lower temperatures.

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Colony Relocation and Rotation for Better Pollination

During the period 1951-1961 intensive work on crop pollination was carried out in Nova Scotia. This report is based upon that work.

The working area of an individual honey bee is rather small, 5 to 10 square meters in dense to moderate bloom. The working area of an established colony is approximately 16 square kilometers. Colonies on permanent sites often perform poorly as pollinators of adjacent crops. The field bees will already be working other bloom before the desired crop begins to bloom. Honey bees exhibit a high degree of fidelity to species and so continue to work where they were working as long as these alternate sources provide the nectar and pollen that the bees require.

The bees which are available for recruitment by scout bees to work the blossoms of the crop are those which are "graduating" from house duties to field work, a rather small proportion of the entire foraging force. They may be supplemented somewhat by bees whose working areas are no longer supplying sufficient pollen and nectar, and are thus also available for recruitment. In the case of competition between apple and dandelion bloom the number of displaced bees will be insignificant. Dandelion nectar is often slightly higher in sugar concentration and may be preferred to apple nectar by the bees although the reverse is true with respect to pollen.

Colony Relocation

A colony which is moved to a new location gradually extends its range from a few meters from the hive to more than a kilometer within a few days. (See Karmo *et al.*, "Rate of Spreading of Foraging Bees in New Locations" in this series). The actual rate of spreading depends largely upon the density, uniformity and attractiveness of bloom of the crop to be pollinated. As range is extended scout bees are almost certain to find blossoms of other plant species and those most attractive to scouts will be selected and advertised to new field bees. In a large homogenous field, the bee population per unit area remains higher within 120 to 180 meters from the hive than farther afield. These data were established several times during 1951-56 but the original raw data is no longer extant.

The fact that foraging density tends to be greater close to the hive in profuse bloom means that to ensure adequate pollination the following practices are necessary.

1) Colonies should be moved into crops only when the crop has sufficient bloom (and supplies sufficient pollen and nectar) to ensure that all or most of the foraging bees will work that crop. In the case of tree fruits this is no earlier than blooming of all central blossoms of a bloom cluster.

2) Colonies should be places strategically throughout the crop rather than all in one place. Although very high density of foragers produces competition for available nectar and pollen and causes more rapid spreading of foragers, strategic colony placement and more even distribution and better pollination.

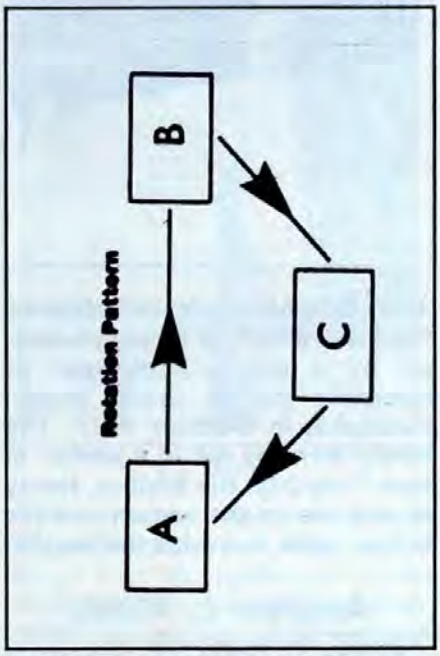
Dimunition of Foragers on Crop

In the spring, 1000 or more honeybees become foragers each day. These bees will observe dancing scout bees and will visit the areas and kinds of blooms which are advertised most vigorously by dancing bees. Some new foragers may be induced to visit the crop but others will almost certainly be diverted to the competing blossoms of other plant species. Some older foraging bees will be diverted to the crop bloom or to competing bloom farther afield as the blossoms near the hives are pollinated and fail to produce sufficient nectar. At the same time, older field bees are leaving the force through natural mortality at a rate which may exceed that of additon of new foragers; thus the actual foraging force may decline.

Colony Rotation

As the range of a colony can be restricted temporarily by moving the colony to a new location, rotation of colonies can be used to restrict the range of foraging bees to the crop and area desired. This practice is particularly useful for long-blooming crops such as low-bush blueberry *(Vaccinium spp.)* and is less useful for pollination of tree fruits.

Colony rotation should be carried out only when the bees are not flying. Colonies should be moved a distance of 2.5 km after having been on site for three or four days. Growers (and beekeepers) can cooperate in double or triple moves (see diagram).



The foragers of each colony in a new location must learn the landmarks around the location and tend to work close to the hive and to gradually extend the range. They will begin to disperse quite soon if placed in a crop like low-bush blueberry which is not of prime attractiveness to bees as it provides only very small amounts of highly acidic pollen. This can be overcome by rotation at least once (A — B, B — C, C — A) or twice (the second move after three or four days) thus (B — C, C — A, A — B) all colonies will have worked intensively in all three sites.

In very large areas, short-move rotation can be practiced. Colonies should be moved at least 350 meters after two or three days and must be set on the same spots as moved-out colonies, otherwise some field bees will be lost. This will ensure a high concentration of bees over restricted range. Before exchanging colonies over such a limited distance, beekeepers must ensure that no disease is present in any of them. There will be some exchange of foraging bees between colonies, with the risk that any disease could be spread from colony to colony.

Rotating colonies entails labor and expense. It is efficient to rotate colonies on crops where competition with bloom of other plant species is a problem. In areas where composition is negligible, the cost of colony rotation could exceed returns.

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SAVE THE BEES

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only 650 stations in the U.S. Work through you club because it takes knowledge of the programming to be able to approach a TV station. All stations produce some of their own shows and each has its own producers with whom you should speak. Some of the names of the shows might be "Good Morning Piedmont," "The Scene at Noon," "Top of the Day," "Cooking with Betty," "PM Magazine," or even "Square One." If your are unsure as to the name of the producer, call the station switchboard and ask. Remember — call, make an appointment, be on time, be prepared, take help and take honey. Check to see if the news department can use our news release. Tailor your presentation to the individual program you are approaching. After your spots have run, take in more honey and say 'thanks' again.

If you would like a media pack to help then send $1.00 each to Southern States Beekeepers' Federation, NC State University Box 7626, Raleigh, NC 27695-7626.

Obituaries

Clarence Kolwyck

We are very sorry to report the death of Mr. Clarence Kolwyck on December 5, 1984, at the age of 83. In addition to being a prominent lawyer and civic leader in Chattanooga, Mr. Kolwyick was an enthusiastic beekeeper. He began beekeeping at the age of 13 and later used his bees to earn some of his college expenses. For many years he was active in the Tennessee State Beekeepers Association, and as a charter member, helped to write its bylaws. He taught apiculture at the University of Tennessee at Knoxville and wrote a number of articles for *Gleanings In Bee Culture* and the *American Bee Journal*. The history of beekeeping in Tennessee was of special interest to him and he worked on a book about it, though it was not published. In December 1942 he became a charter member of the Hamilton County Beekeepers Association (now called the Chattanooga Area Beekeepers Association) and actively contributed to it until his death. It is to Mr. Kolwyck's credit that Chattanooga was privileged to host the Tennessee State Beekeepers Association annual convention about three years ago. The Chattanooga Area Beekeepers will miss the friendship, knowledge, leadership, and inspiration that Mr. Kolwyck shared with us for so many years.

A long-time member and past president of the City Farmers Club, Mr. Kolwyck developed an interest in beekeeping at age 13 and four years later owned 64 bee colonies. He taught beekeeping part-time at the University of Tennessee and over the years had written and lectured extensively on the subject.

John A. Burghardt Sr.

John A. Burghardt Sr., 86, of New Ulm, Minnesota died December 11, 1984, at his home. He was born October 24, 1898, in St. Libory, Nebraska to John and Mary (Argus) Burghardt. He married Esther Marie Scholz on May 6, 1930, at St. Mary's Cathedral, Grand Island, Nebraska.

At one time, he was a Nebraska state bee inspector. He raised bees commercially for over 50 years in Nebraska, then Iowa and later Minnesota. One son continues the business in the New Ulm area.

In 1927, Mr. Burghardt shipped the first carload of honey produced by a single beekeeper in Nebraska from Grand Island, Nebraska, to a packer in New York City.

His survivors include his widow, three sons, four daughters, 22 grandchildren, four great-grandchildren and other relatives in Iowa and Nebraska.

John Burghardt (center) shipped the first carload of honey produced by a single beekeeper in Nebraska out of Grand Island, Nebraska, in October 1927. The honey went by rail to a packer in New York City. His brother, Henry is pictured in the wagon and his father, John, is beside the wagon.

Andrew L. Webb

Andrew L. Webb, Sr., founder of Calvert Apiaries, Calvert, Alabama, passed away on February 7th, 1985 at the age of 86 years.

Mr. Webb, one of the eldest commercial queen breeders in the U.S.A. established the business back in the twenties and was active until he had stroke and heart attack in 1982. At this time his grandson, Andy, took over the business.

A.L. Webb, III (Andy) had been with him 22 years. Also, his son A.L. Webb, Jr. came in with them later. A.L. WEbb was the third generation of beekeepers, leaving a long tradition of beekeeping.

Mr. Webb was not only a good queen breeder, but was an upright Christian gentlemen, very active in his church, serving on the official board until 1982 when he had a stroke, and was an honorary member until the time of his death.

He was still interested in every phase of the bees and gave instructions to the boys from his easy chair. Always listened to the weather reports being concerned about the welfare of the bees.

Aileen Jaclyn (Jackie) Vaillancourt

It is with sorrow I report the death on February 2, 1985 of Jackie Vaillancourt, after a long, courageous battle with cancer.

She and her husband, Myrrel (a former Quebec Director of EAS) attended and enjoyed the Annual EAS Conferences as long as her health permitted travel.

A school-teacher, she started her career in her home province — Novia Scotia, later moving to Ottawa, Ontario, where she taught for many years.

After retirement she continued working in her chosen profession, teaching English to many embassy people who lived in Canada's capital. The unusual fashion show she organized and conducted from a wheel chair at the 1979 Ottawa Conference of EAS was made possible through her friendships with diplomatic corps students. Those who attended that Ladies' Luncheon will remember the fascinating native costumes worn by women from Norway, Sweden, Turkey and Mexico, to mention a few.

A woman of many talents, she earned the Thomas E. Raney Award for Honey Cookery in 1982. Jackie was also a Past President of the Women's Auxiliary of the Ottawa Humane Society. In 1983, when ill health prevented active fund-raising, she wrote and published a small cook book for the society.

She is survived by her husband, Myrrel, of R.R. 1, Chelsea, Quebec, to whom we extend our deepest sympathy.

A Few Notes from the United Kingdom

by B.J. SHERRIFF "Five Pines" Mylor Downs Falmouth Cornwall TR11 5UN

I live in the county of Cornwall situated at the extreme Southwest corner of England and my home is on the south coast just 23 miles from Land's End. Here, the Atlantic Rollers smash up against our granite cliffs and the nearest land to the west is America, 3,000 miles away.

Back in 1968 I visited the Royal Cornwall Agricultural Show at Wadebridge in North Cornwall and it was here that I saw an observation hive for the first time. I was in the marquee of the Cornwall Beekeepers Association, and in the center were rows of exhibition honeys with prize cards on them showing the best honeys produced in the county.

There were classes for clear honey, granulated or set honey, dark honey, medium and light honey, honey in the comb, beeswax and other classes like honey cakes and beekeepers inventions.

There were also several trade supply stands and I stopped by one of these to have a look at a beehive for sale. It was a British national beehive made of western red cedar with a galvanized metal roof. The salesman showed me how the hive came apart and demonstrated the combs, and I can still remember the smell of beeswax foundation in the combs, and the scent of western red cedar. Next, he showed me an observation hive full of yellow banded honeybees. He pointed out the queen with the red blob of paint on her thorax, and than the drones and workers, explaining how each type of bee had a special job in life and how the worker had special jobs to do at different stages of her life. I was easily hooked, and came away having placed an order for one British national beehive with bees to be delivered as soon as possible after the show had finished.

The time came one evening when the beekeeper salesman arrived with my hive, and we set it up at the bottom of the garden on two concrete blocks set on their edges.

Next, when we were appropriately dressed, he lit the smoker, and opened a nucleus box and gently placed the combs one by one into the brood chamber of my hive, pointing out the queen as he did so.

That first year, I had no honey, but underred, I ordered another hive and the next year I proudly bottled 140 pounds of honey from the two hives.

I next heard of a beekeeper retiring from the hobby through ill health and wanting to sell his 13 W.B.C. hives. These are English double-walled hives with sloped roofs, and which look good in a cottage garden. W.B.C.

B.J. Sherriff

hives are named after their inventor William Boughton Carr, circa 1860. I bought them all, together with other equipment including a 12-frame hand-cranked galvanized Herrod Hempsall extractor of unknown vintage but very efficient if you don't mind hard work. I still have it as a spare should my motorized extractor fail me. Also there were two bottling tanks, two wax extractors, a heater honeypress and lots of other bits and pieces.

I had several beekeeper supply catalogs and selected the least expensive hive that I could find, and this was the Smith hive, which was invented by a Scot and had been developed for migratory beekeeping, especially for moving bees to the heather moors in the highlands of Scotland.

I wrote to the manufacturer and asked if this type of hive would be suitable for commercial beekeeping and they replied giving me the name of a local commercial beekeeper in the west of England who might give me advice. On contacting this beekeeper, he kindly invited me to work with him at weekends and any time I could and this was most interesting and a valuable experience for me. I also learned from him that a Scottish commercial beekeeper was selling off 2000 Smith hives, as he was re-equipping his bee farm with Langstroth hives. This was just what I wanted to I wrote away and found that he had just 300 Smith hives left which I ordered right away. They were all made from Western red cedar, and each consisted of a floor with entrance block, brood chamber, queen excluder, two supers, a cover board, and clearer board, Miller type feeder and roof with galvanized metal top. All frames had drawn comb, and I also bought 40 colonies of black bees to start me off. Next came the problem of moving everything from Scotland to the south west of England — some 900 miles. All the empty hives came down on a truck so I decided to go North and collect the hives wth colonies of bees myself using my two wheel government surplus trailer.

My wife and I went to pick them up in October when the weather is on the cool side and bees are not too active. When we arrived the colonies had been placed in two rows on a concrete surface with room to reverse the trailer down the center of the rows for loading.

It was a cold day and the trees had their colorful winter foliage but it was warm work loading them on the trailer. By the time we had finished we must have had about a ton and a half on a one ton trailer! The tires bulged more than usual and the springs curved down instead of up!

Continued on next page

Slowly and gingerly we drove away and after completing about 150 miles we pulled in for the night. We were towing the trailer with our Dormobile motor caravan so we had all home comforts. In the morning, I lightened the trailer by taking some of the hives off and placing them in the Dormobile and at the next service station I checked the tires and inflated one which was low on pressure. However, I did not know what the correct pressure should be and neither did a truck driver, garage propietor or service man from the Automobile Association — they all suggested different pressures so I decided on 40 pounds p.s.i. which was the same as the Dormobile. We covered another 50 miles or so on the motorway and then with a loud bang one tire burst on the trailer! The spare tire also burst after a few miles so I had to leave the trailer by the roadside and find a service station where I could buy another one, that also burst so I contacted the man who sent a transporter onto which they winched my crippled trailer and we arranged to meet at my home still some 500 miles away.

On arrival at home, there was no transporter and the next day as it hadn't arrived I telephoned the A.A. who told me that my trailer with its load of beehives had been unloaded from the transporter and placed in a warehouse because they needed their vehicle for carrying broken down cars and their passengers which they thought were more important than a trailer loaded with beehives. At this stage they didn't know that the beehives contained bees — they hadn't asked so I hadn't told them!

The next day they still hadn't arrived so I made another call to the A.A. and learned that the trailer was in a heated warehouse and I then told him that the beehives had bees in them and if the temperature was over about 48° some bees may be out to have a look around. That did it, and five hours later two small vans with flashing lights appeared escorting a transporter with my trailer on it, complete with beehives all very well tied down! Well they arrived safe and sound and after the trailer had been unloaded I told them that they had transported about 1½ million bees. They certainly went home with a story to tell!

I then started my career as a commercial beekeeper.□

SEAL For Ventilation

by DAVID M. RUNYAN 421 Hayes St. Greenville, KY 42345

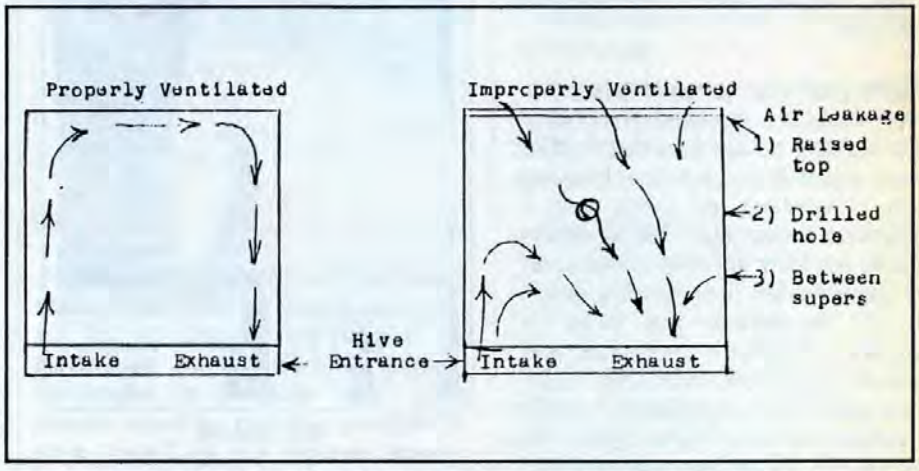
In opposition to the practice of cracking tops and drilling holes for hive ventilation it is my opinion that we should help the bees seal every crack and crevice in the hive both winter and summer. Tip the front of the hive, plus or minus an inch lower than the back, for moisture drainage, and then close up everything but the entrance.

The premise for making the above statement comes not only from my own personal observations but also from the laws of physics as they apply to underground mine ventilation. To my knowledge there is not other endeavor by man that resembles the inner workings of a bee hive as does that of underground mining.

Bees were ventilating their hives long before man began underground mining and when man went underground he had to take his air with him. Mining uses one of two ventilation systems. The Forced Air system whereby air is pushed into the mine; and the Exhaust Air system whereby air is pulled into the through the mine. It either case air must travel up the Intake (one side), and across the Face (top) and out the Return (other side). Any short circuit (air leakage) into or out of this air flow pattern defeats the laws of air current and causes decreased ventilating efficiency. This, in my opinion, is why bees seal all cracks to prevent air from leaking into the hive.

My observations are that bees use the Exhaust system of ventilation. They point their bodies outward from the hive (heads toward hive), occupy one side of the entrance and with the use of a sufficient number of bees to reduce the air pressure begin fanning to start an air current.

The following diagrams are presented to show proper and improper air flow:



In a properly ventilated hive there is no air escaping into the hive. Therefore less force is required by the bees to overcome resistance in order to generate and maintain an air current. With the improperly vented hive the air escaping into the hive causes the bees to use more force and energy to generate and maintain the same air current but with some areas receiving less circulation. It must be kept in mind that air currents will seek the shortest path to the outside. In the properly ventilated hive as the air enters the intake side it is warmed as it passes through the hive where it absorbs moisture which is exhausted outside. This action would be reversed during the summer for a cooling process.

In my years of beekeeping almost all methods offered by the experts and amateurs have been tried. They system of tipping the front, closing the tops and letting the bees seal seems to offer a better ventilation system for my operation.

My credentials for the preceding presentation are: 1) fourteen years beekeepeing experience operating 150 hives; 2) ten years underground mine ventilation experience; and 3) being attuned to the scientific method and laws by virtue of holding a university degree.□

NEWS and EVENTS

TEXAS

Father and daughter take Texas honors at the November 1984 meeting of the Texas Beekeepers Association. The "1984 Jim Petty Memorial Beekeeper of the Year Award" went to Charles Engle, Jr. of Wolfe City, Texas while his daughter, Marsha, was crowned the 1985 Texas Honey Queen the same evening.

Charles Engle Jr., is a third generation commercial beekeeper with a 3,800 colony migratory operation between Wolfe City, Texas and New England, North Dakota. He has taken an active role in beekeeping all his life. His father and grandfather were two of the five founders of the Souix Honey Association, and were themselves active in initiating positive changes within the beekeeping industry. Engle Apiaries will be celebrating its 75th birthday in the beekeeping business this year.

Mr. Engle has been especially interested in the fight against low tariffs on imported honey, and is currently serving as the National Political Action Chairman for the American Honey Producers Association. In addition, he is a past president of the Texas Beekeepers Association. He resides in Wolfe City, Texas with his wife, Maxine. Their 20 year old daughter, Marsha is a sophmore at Austin College in Sherman, Texas.

Marsha is interested in carrying on the family tradition and is currently contributing her talents toward promoting the beekeeping industry as the 1985 Texas Honey Queen.

OHIO

Development Beekeeping Seminar V

The Ohio State University Agricultural Technical Institute

FINAL DEADLINE JULY 1, 1985
$100 Discount on Reservations Received by June 1, 1985

A comprehensive and intensive introduction to development beekeeping that will enable developmental managers and workers to take better advantage of the apiculture potential in developing countries. The main focus will be on tropical and rural subsistence level beekeeping.

Week 1—Basic Beekeeping July 22-26

Led by Dr. James E. Tew and the ATI staff, BASIC BEEKEEPING will provide a combination of classroom and apiary work directed toward inexperienced beekeepers. Week 1 will cover the following basics:

Hive Management; Honey Production; Honey and Wax Processing; Disease and Pest Control; Pesticides; Queen Rearing; Crop Pollination; Bee Biology and Behavior.

Week 2 — Development Beekeeping July 29-August 2, 1985

A wide range of topics in the field of development apiculture will be explored by qualified and experienced persons. Some topics are:

Management of bees in various tropical regions; Organizing co-ops; The hazards of importing and exporting bees; Diseases, pests, and predators; Finding competent advice and literature; The Africanized bee in South and Central America; Pesticide effects; Other related topics.

Seminar Coordinators

Dr. James E. Tew
Associate Professor
Coordinator, Commercial Beekeeping Program

Dr. H. Shimanuki
Chief of Bee Bioenvironmental Laboratory
Beltsville, Maryland

Costs/Registration
Tuition/Room/Meals

Week 1: $1,000 Week 1 & 2: $1900
— $100 Discount on Reservations Received by June 1, 1985

Final deadline for receipt of $200 deposit and reservation form is July 1, 1985. Cost includes three meals per day.

Registration and Information

Dr. Norman Stanley
Agric. Tech. Institute
Wooster, OH 44691 USA
Phone: (216) 264-3911
Cable: ATI-WOOSTER

Only travelers checks, money orders and cash — no personal checks cashed. Allow $200 - $300 personal funds for travel, transfers, etc.

Symposium of Practical Beekeeping

Iowa Department of Agriculture Apiary Division

July 30, 31 and August 1, 1985
Starlite Village Motel, Ames, Iowa

Tuesday/July 30

8:00-9:30 Registration

10:15-12:00 "How To Get Started Keeping Bees" and "Equipment Needed for Honey Production"

1:00-2:45 "Locating Apiaries and Pasture for More Honey Production"

3:00-4:30 "Managing Packages for Honey Production" and "Installation of Packaged Bees" (demonstration)

Wednesday/July 31

8:30-10:00 "Managing and Requeening Colonies via Brood Equalization"

10:15-12:00 "Bee Yard Demonstration and Disease Diagnosis"

1:00-2:30 Managing Colonies for Maximum Honey Flow (Liquid & Comb)

2:45-4:00 "Demonstration of Summer Management (apiary)"

7:00-9:30 Banquet

Continued on next page

Thursday/August 1

8:30-10:00 "Management During Honey Flow" (Con't)

10:15-12:00 "Care of Honey, Honey House, Selling Honey"

1:00-4:00 "Extracting, Bottling Honey" — Trip to the Stanley Honey House

Participants are asked to bring their own protective equipment as much of the Symposium will be held in an apiary with live demonstrations.

Mail check to:
Beekeeping Symposium, Iowa Department of Agriculture, Wallace Building, Des Moines, Iowa 50319.

$10 per individual or per family
$25 meals per individual
(3 luncheons, 1 banquet included)
PLEASE NOTE: Motel accomodations are your responsibility!

Santa Ana, California Introduction to Beekeeping For Fun and Profit

Q. What will be covered in "Introduction to Beekeeping?

A. The course will primarily cover the basics of beginning beekeeping. The students will learn how to start, and maintain a colony of honey bees. The students will also learn how to harvest honey from beehives.

Q. Do I need my own beehive or any special equipment for the class?

A. No, only a notebook and pen.

Q Will the class cover any special topics in detail?

A. Yes, the class will also cover Africanized bees in this country, how to raise queen bees, and how to make honey wine.

Q. Where and when will the class meet?

A. The class will meet at Santa Ana College in room W-101, from 1:00 PM to 4:30 PM. The class will run from Sunday, July 28, to Sunday, Aug. 11.

Q. How much will it cost?

A. $30.00

Q. Great! Where do I sign up?

A. Please contact Community Services at (714) 667-3096, after June 1, 1985, or contact the instructor Morris Ortrofsky, at (714) 667-3248.

New York Meeting

The Annual Summer Picnic of the Empire State Honey Producer's Association will be held at the home and apiary of Thomas J. Webb. The meeting will be held on Sunday, July 27, starting at about 10:00 a.m. The Webbs live in New Jersey, just south of the New York—New Jersey border. Their home is 4½ miles south of Exit 2 on Interstate 84 on Mountain Road. There is adequate space for overnight campers.

Virginia

The Virginia State Beekeepers Association will hold its annual summer meeting Thursday, July 11 to Saturday, July 13, 1985 in Harrisonburg, Virginia.

It will feature: David Bell, a Queen & Package Bee producer from Moultrie, Georgia; Doris Pharris from the Walter T. Kelley Company; and Dr. Larry Connor of Beekeeping Education Service—just to mention a few.

There will also be a tour of a commercial honey and wax rendering operation and much much more.

The meeting will end with an afternoon of fellowship and a Shenandoah-Style Chicken Barbecue. Don't miss this special event!

Full conference fee is $70.50 per person in double room or $63.50 per person in a single room age 15 years or older. This fee includes registration, 1 year membership in VSBA, Chicken Bar-B-Q, and all meals from Thursday dinner to Saturday lunch.

For a more complete program listing or detailed information, please write: Mary Ethel Miller, Route 1 Box 600, Montross, VA 22520; or call Robert Wellemeyer at (703) 987-8152.

WISCONSIN

The Wisconsin Honey Producers Annual Summer Meetings will be held on July 15th and 17th this year. The Southern district will meet on the 15th at the Riverside Park in Watertown, while the Northern district will hold its meeting the 17th at the County Park in Lake Eau Claire.

A full days program has been scheduled for both sites with officers of both the ABF and APH headlining days activities.

For more information on either meeting, contact: Art Kehl, P.O. Box 95, Watertown, WI 53294. Art can also be reached by calling the A.I. Root branch in Watertown 414-262-9796.

Minnesota

The meeting will be held July 18, 19, and 20th at the Sunwood in St. Cloud, Minn. The meeting begins Thursday evening with the marketing meeting.

There will be speakers during the day on Friday. The banquet will be held that evening.

The meeting continues with more speakers on Saturday morning.

The tentative schedule includes the following speakers: Dave Severson, Madison Bee Lab—Wintering Bees; Richard Adee, American Honey Producers Association—Beekeeper and Political Action; Frank Robinson, American Beekeeping Federation—The Federation in Action; Jack Barclay, University of Connecticut—Bees and Wildlife; Richard Hyper, State of Minnesota Apiarist—State Apiary Report; Honey Promotion Committee—Direct Sales of Honey To Fund Raising Groups, Promoting Sales and Minnesota Honey.

For registration and a full agenda please contact Marlin Swanberg, 1606 Bluff Ave., Brainerd, MN 56401

South Carolina

The South Carolina Beekeeper's Association will hold its annual summer meeting on July 18-20 at Clemson University in Newman Hall — Food Industries Auditorium. The Clemson House offers rooms at $8/night for double occupancy. Membership is $5/year and registration begins at 11:30 a.m. The meeting is open to all people interested in beekeeping.

A variety of topics will be addressed. Doctor Al Molinar will speak on allergic reactions to bee stings. Activities are included for ladies. A chicken bar-b-que dinner capped with a horseshoe pitching tournament on Friday is a trademark of the South Carolina Beekeepers' Association. For more details write to Mr. Jimmy Howard, 202 Barre Hall, Clemson University, Clemson, S.C. 29631.

BUY & SELL

Classified rates: 49 cents per word, each insertion, payable in cash in advance. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it) count as one word. Not less than 10 words accepted. Copy or cancellation orders MUST be in by the 1st of the month preceding publication. Send classified ads to the A.I. Root Company, Advertising Dept., GLEANINGS IN BEE CULTURE, Box 706, Medina, Ohio 44258-0706 . **Note: BLIND ADS: Any ad sent in that does not contain the seller's Name and Address within the ad, will be charged an additional $6.50 per month.**

MAGAZINES

THE AMERICAN BEEKEEPING FEDERATION needs your support! Join in supporting efforts to stop adulteration, to improve marketing conditions and to encourage the continued research on African Bees and Varroa and Acarine Mites. Send for information, membership application and sample copy of bi-monthly News Letter! Write To: **THE AMERICAN BEEKEEPING FEDERATION, INC., 13637 N.W. 39th Avenue, Gainesville, FL 32606.** TF

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

The INTERNATIONAL BEE RESEARCH ASSOCIATION urgently needs your membership and support to continue its work of publishing informatin on bees, beekeeping and hive products. Write for details about publications and the benefits of membership to USA Representative, H. Kolb, P.O. Box 183, 737 West Main, Edmond, OK 73034 (phone (405) 341-0984); or to IBRA, Hill House, Gerrards Cross, Bucks SL9 ONR, UK, regularly publishes new information on bees, beekeeping, and hive products, for beekeepers and scientists all over the world. Mail inquiries from USA: H. Kolb, P.O. Box 183,, 737 West Main, Edmond, OK 73034, Phone: (405) 314-0984. IBRA PUBLISHES: **Bee World,** a quarterly journal for the progressive beekeeper: **Apicultural Abstracts,** a survey of scientific literature from all languages. **Journal of Apiculture Research,** for original bee research papers. Books and pamphlets on all beekeeping topics. Catalogues of publications and details of journals and membership $1. Specimen copies of **Bee World**; **Journal of Apicultural Research** or **Apicultural Abstracts** from INTERNATIONAL BEE RESEARCH ASSOCIATION, Hill House, Gerrards Cross, Bucks. SL9 ONR, England. TF

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

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

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

BEE CRAFT — Official (monthly) magazine of the British Beekeepers Association. Contains interesting and informative articles. Annual Subscription $5.10 (Surface mail) and $7.10 (Airmail). The Secretary, 15 West Way, Copthorne Bank, Crawley, Sussex, RH10 3DS TF

INDIAN BEE JOURNAL Official organ of the All India Beekeepers' Association, 817, Sadashiv Peth, Poona 411030. The only bee journal of India Published in English, issued quarterly. Furnishes information on Indian bees and articles of interest to beekeepers and bee scientists.

Annual subscription postpaid in foreign countries: For individuals US $7.00 for institutions, companies and corporate bodies US $10.00 or it's equivilent, to be received in advance by IMO or bank draft, payable in Poona (India). TF

WANTED

WANTED—All varieties bee gathered pollen. Must be clean and dry. Pollen traps available. Hubbard Apiaries, Onsted, Mich. 49265. Phone: 517-467-2151. TF

Help Wanted: 2 Professional bee men for year-round work. Must have large scale queen rearing and package bee experience. Also can use 2 part-time bee men for package season February through May. Absolutely NO DRUG USERS. **Huck Babcock, P.O. Box 2685, West Columbia, SC 29171. Phone: 803-256-2046.** TF

WANTED: Writers, Artists, Photographers.
Beekeeper's Life
Box 1064
Suisun, Calif. 94585-1064
7/85

FOR SALE

"BEEKEEPERS LEARN"
35 years of successful
WINTERING & SUMMER MANAGEMENT
Explained "Step by Step"
Write Box 6696-G — Saginaw, Mich. 48608
TF

Inventory Reduction: 280 shallow supers, 72 deeps, 2-5,000 lb. capacity stainless steel tanks w/lids and other misc. equipment: lids, bottom boards & excluders. $5,000 or highest bid. Choteau, MT. Phone: (406) 466-5430. 7/85

INSEMINATION DEVICES. For prices write Otto Mackenson, Box 1557, Buena Vista, CO 81211 TF

For Sale: clean, fresh, dry, Bee Pollen. $6.50/pound. You pay shipping. Honeycomb Apiaries, R.R. 3, Box 74, Wrightstown (Kaukauna), Wi. 54130. Ph: (414) 532-4314. TF

FOR SALE: Bee Operation on 15 acres. 14' x 60; wood frame building on cement. Also 20' x 30' storage shed. Excellent line of equipment plus 500 hives. 25 yard sites available mostly on Sweet Clover. Call 873-5900, Renaud Realty, Box 416, Tisdale, Sask. SOE ITO TF

For Sale — 100+ colonies in Northwestern Ohio, available in the spring. 419-478-3829 after 7 p.m. WD TF

FOR SALE

Complete 700 hive operation in south western Manitoba including buildings, house, trucks and all related equipment. Write to:
Gleanings In Bee Culture
P.O. Box 97
Medina, OH 44256

1-40 single hives with bees — each $50.
WES ARCHER, Box 839, Windsor, California
Phone: 707-433-3261
7/85

FOR SALE: $10. used brood and honey standard boxes, 3 semi loads, shallow honey supers $8.50, 1200 new 10-frame deep supers with foundation, painted, 4 and 6 way pallets, good selection of other equipment. Call for delivery or financing. BOB BENNETT, Greenville, Wis. 414-757-5115. 7/85

For Sale — Bogenschutz uncapper $2,000. Two 3,000 gallon stainles steel outside tanks, cork insulated, stell jacket $2,000 each. Bobcat Trailer just overhauled $900. Also Forks & Apron and Barrel Holder. Two-wheel heavy duty hand carts and drip pallets. Ph. 608-356-7038. 8/85

For Sale: Twenty years accumulation of Gleanings and Gleanings. Nintey percent complete. M.O. Riley, Aliceville, Alabama 35442. 7/85

For Sale: All Stainless 9-18-28 & 36 Frame Radial Extractors 275 Gal. SS holding tank water jacketed with 220 vold heather and 1" bottline outlet. 412-654-6521 AB 7/85

For Sale by Owner: Famous Supply and Honey Business, Retail-Wholesale. Gift Shop, Bottling Plant, over 30 years same location, extremely well known. Business, Stock Buildings, Accounts. Store 24' x 54' on well traveled highway. Owners retiring. Jack's Honey Farm, R.R. 2, Box 953, Asbury, N.J. 08802. Phone 201-537-2088. 7/85

For Sale: Kelley bee hoist $500.00 or will trade for bees. Call Larry Howell 517-862-4640 7/85

Due to death of husband, have 45 colonies of bees with equipment to sell. Pontiac, Michigan. 313-335-4466. 8/85

For Sale: Several colonies plus small extractor. Richard Taylor, Trumansburg, NY 14886. 7/85

FOR SALE: 30 inspected colonies for sale at $50/hive; also hive bodies, supers, nucs. M. Caulk, 6137 Ely Rd., Wooster, Ohio 44691. Ph. 216-262-1074 7/85

For Sale: Sugar for bee feed. 16 to 20¢ per pound dependant on quantity and arrangements. Henry Moon, 2416 Wright Ave., Greensboro, N.C. 27403. Phone: 919-294-6013. 7/85

RETIRING — 800 colonies. Pollination Apples, Almonds. Honey customers $25,000/yearly. Extracting plant, woodshop, trucks. Established 30 years. STEG APIARY, Oroville, Washington 98844. Phone: 509-476-3878 8/85

BEES — 100 doubles, 400 ¾ depth supers. R.D. Burgess, Warren, Ohio, 1-216-372-5488 7/85

For Sale: 1100 — **6⅝** supers of worker comb. 400 deep supers of workers comb. No Friday night or Saturday calls. (209) 562-1110 8/85

For Sale: 300 two story colonies, Queen rearing outfit, 69 two ton truck, Kelly loader, good honey outlets. Best offer. Andrew Hutchison, P.O. Box 6993, Boise, ID 87707 TF

For Sale: Honey Farm off Interstate 40 highway. Thriving tourist business. Failing health. In business 22 years. Five buildings, 400 hives of bees and two bedroom home. Wilhelm Honey Farm 73545. Phone: 405-526-3675. 8/85

BEES & QUEENS FOR SALE

WE USE ALL POSSIBLE CARE in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for a certificate of inspection as a matter of precaution.

3-Frame Italian Nucs. $35.00 each or 3 for $100.00 POSTPAID. Queens 1-10 $6.00, 11-25 $5.25, 26-up $4.75. Box's Better Bees, 410 N. Lide, Mt. Pleasant, TX 75455. Phone 214-572-0428. TF

20 Colonies of bees three supers deep $50.00 each. (216) 467-5507. Sagamore Hills, Ohio. AK TF

BEE SUPPLIES FOR SALE

HONEYSTRAINER — Really Works! Guaranteed. Ppd. $3.50 each. 2-up $3.00 each. Try Your Dealer. Beckman, Box 633-G, Stuart, Florida 33495. TF

WRITE FOR CATALOG—Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. Hubbard Apiaries, Manufacturers of Beekeepers' Supplies and Comb Foundation. Onsted, Mich. TF

I have 2 more semi loads of those 2½ and 1½ lb. jars. 12 per case with lids. These are great for packaging honey, sorgum & apple butter. Amish are using them to can in.

2½ lb. — 10 or more — $2.25
over 100 cases — 2.00

1½ lb. — 10 or more — $2.00
over 100 cases — $1.80

William Wilson, Rt. 5, Fredericktown, OH 43019. Ph: 614-694-5071. 8/85

5 Frame Nucs — Package bees, Italian or Starline — High fructose syrup, Meyer Stingless Goat skin Gloves — Complete line of supplies at commercial prices. WOLF BEE SUPPLY, Box 707, Baldwin, WI 54002. Phone 715-684-2095. 1/86

MEYER STINGLESS GLOVES* are back on the market! The BEST in bee gloves. Goatskin — $13.60, Cow-hide $11.95 Plus 1.00 postage. WOLF BEE SUPPLY, Box 707, Baldwin, Wisc. 54002. Phone: 715-684-2095. 1/86

FOR TOP QUALITY BEE SUPPLIES and advice on beekeeping problems, visit your nearest Root dealer and send for your FREE Root catalog. Satisfaction guaranteed. The A.I. Root Co., P.O. Box 706, Medina, OH 44256. TF

ALL WESTERN BEEKEEPERS: Lock-corner supers — tops — bottoms — frames. Complete stock — supplies & equipment. Phone or write for quantity prices. UNITED BEE CRAFT COMPANY, 600 Harbor Blvd., West Sacramento, CA 95691. (916) 371-9340. TF

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RADIAL HONEY EXTRACTORS-5 and 10 frames, Patented, factory made of stainless steel. Gamble's Bee Supply & Candle Company, P.O. Box 7997, Greensboro, NC 27417-0997 USA. Ph. (919) 299-3973, Day or Night. TF

HONEY EXTRACTORS FOR HOBBY BEEKEEPERS — Affordable Prices. FREE Literature. BEE LINE MANUFACTURING, 1019A Saint Elmo, Austin, TX 78745 TF

HOBBYISTS HONEY EXTRACTORS — SUPPLIES. Free Literature. **BEE LINE MANUFACTURING, Box 15682-B, Austin, TX 78761. 12/85**

REVOLUTIONARY NEW IDEA:
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PINE BEE SUPPLIES

9-5/8" hives dovetailed ..... **$4.00** each
6-5/8" supers dovetailed ..... **$2.75** each
5¾" supers dovetailed ..... **$2.50** each
Select grade heavy duty frames, all sizes
$31.00 per 100 **$280.00** per 1000
Hoffman 9-1/8, 6¼, or 5-3/8 specify style
Powers super frames 6¼, 6 and 5½
Wooden lids and bottoms (migratory)
$2.25 each or **$4.50** per set
Bee Pallets Cut To Order ..... **$6.50** & Up
Foundation available — plain or wired
Sale Price ..... **$3.00** lb. in 25 lb. box only
Wax rendering — combs, slum or cappings
Allow manufacturing time on all orders

MARVIN SMITH APIARIES
Rt. 1, Box 1268
Phone: 208-722-5278, Parma, Idaho 83660

Four-Frame motor driven Extractor. Complete with motor and honey gate $100, truck freight extra. Strainer screen for honey tank included. Dick Smither, 1548 Greenwood Rd., Danville, IL 61832. 7/85

SWEET HARVEST BEE SUPPLY
Serving the Black Hills and Upper Mid West with Quality From Root, Maxant, Strauser and Perma Dent Foundation
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Phone: 605-393-0545 6/86

NO HEAT OR ELECTRICITY USED. Uncapping fork (not just a scratcher). No flavor loss and better flavor retention. No burnt fingers or shocks. Honey from dark comb not discolored as with hot knife. $11.00 ea. pp., Blossomtime, P.O. Box 1015 Tempe, Arizona 85281. TF

MISCELLANEOUS

RENDERING every day in our all new plant. All honey saved from cappings. Rendering slumgum and old combs. Write for FREE shipping tags and rates. HUBBARD APIARIES, Onsted, Mich. TF

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By mail or phone. SASE for
Free material to **WANDR FARM**
Box 125, Keysville, Va. 23947
7/85

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FRESH, PURE, Bee Pollen available in 1 pound containers at $8.50 per pound postpaid. 10 pound bulk pack at $7.90 per pound. Large lots, ask for price. Hubbard Apiaries, Inc., Onsted, Mich. 49265. TF

Pure Fresh Bee Pollen in 1 lb. jars $6.50. In 50 lb. bulk — $5.00 per lb. Prairie View Honey Co., 12303 12th St., Detroit, Mich. 48206. TF

BEE HEALTHY & ENJOY Canada's Best Bee Pollen. Air dried at 110 degrees F., from the pure north of British Columbia. Excellent flavor, superior quality, and guaranteed pesticide free. 3 lbs. $20.00, 6 lbs. $39.00, 10 lbs. $54.00, 20 lbs. $100.00. Free UPS shipping. BLOSSOMTIME, P.O. Box 1015, Tempe, Arizona 85281. TF

CLEAN FRESH FROZEN AMERICAN BEE POLLEN, give us your needs and we will quote prices. Howard Weaver & Sons, Rt. 1, Box 24, Navasota, Texas, 77868, or phone: 409-825-7714. TF

SPANISH BEE POLLEN. Excellent taste and quality. 3 lbs. $20.00, 6 lbs. $36.00, 10 lbs. $50.00, 20 lbs. $90.00. Free UPS shipping. BLOSSOMTIME, P.O. Box 1015, Tempe, Arizona 85281. TF

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PURE FRESH Royal Jelly, 2 oz. bottle, $22 pp.; 1 lb. $120. Prairie View Honey, 12303 12th St., Detroit, MI 48206 TF

BEESWAX

BEESWAX WANTED — Highest prices paid in cash or trade for bee supplies. The A.I. Root Co., Medina, OH 44256. TF

PROPOLIS

PROPOLIS U.S.A. has stopped buying until further notice. TF

BOOKS

Bee Books New & Old. Write for quarterly list to BBNO, Tapping Wall Farm, Burrowbridge TA7 ORY, Somerset U.K., Visa/Access American Express welcome. 4/86

HONEY WANTED

BEEKEEPERS TAKE NOTICE — We cannot guarantee honey buyer's financial responsibility and advice all beekeepers to sell for CASH only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. Hubbard Apiaries, Onsted, Mich. TF

All Grades of Honey. Any quantity drums or cans. Call Toll Free 800-248-0334. Hubbard Apiaries, Inc. Box 160, Onsted, Michigan 49265 TF

WANTED — All grades of extracted honey. Send sample and price. Deer Creek Honey Farms, London, OH TF

COMB HONEY White to water white, 10 oz. square cut comb. Send sample and price to: Moorland Apiaires, 5 Airport Dr., Hopedale, MA 01747 TF

Established Beekeeping Business with buildings, acreage and up to 200 beehives. Preferable West Coast, including British Columbia. Gabriel Mikoleit, P.O. Box 927, Mercer Island, WA 98040. Phone: (206) 232-5668 or 232-8767 (Business).

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. Hubbard Apiaries Onsted, Mich. TF

HONEY FOR SALE

CLOVER, ALFALFA, Buckwheat, Tulip Poplar, Wild Flower or Orange in 60's. Dutch Gold Honey Inc., 2220 Dutch Gold Dr., Lancaster, PA TF

Bashkir Bees and Bears

by TOM KORB 508 W. Marshall Ferndale, Mich. 48220

In the 18th and early 19th centuries the Bashkir tribe of the southern Ural Mountain district was known as Russia's beekeepers. Besides having domestic apiaries at their homes, every family cultivated hundreds, and sometimes thousands of wild-bee colonies in the forests.

Maintaining the wild bees was a full-time job because of the problem with bears. No hive on earth was safe from them, so the Bashkirs devised a way to foster their bee population, and control the marauding brutes at the same time. They chopped bee houses high in the trunks of deciduous trees, and protected them with traps.

A hatchet and a hank rope was all the beekeepers needed to climb a tree. Before ascending, they'd stand against the tree trunk, wrap the rope loosely around themselves and the tree, and tie it into a loop. Next, they'd chop a nick in the trunk with the axe, the lean into the trunk. In one quick motion the slack end of the loop was tossed skyward, and they'd step up into the notch. Then, leaning back into the rope for stability, they'd cut another notch for the other foot. By repeating the process, they'd move up the hole 25 to 30 feet.

Once they reached the desired place, a foothold for both feet was cut in the trunk so they could lean on the rope for full leverage and chop a cavity in the tree. Using the hatchet, and perhaps a chisel or gouge, they carved out a smooth bee-house suitable for a large swarm. When it was finished, a board with appropriate size egress holes drilled in it was secured over the hole, and one of their traps set in place.

The most simple and least effective trap was nothing more than a heavy (20-30 lb.) chunk of wood hanging from a rope. The wood hung in front of the hive where a thieving bear's head would be. Since the block hindered his progress, the bear pushed it away. The piece of wood reacted with a smart blow to the skull. The angered bear pushed it again with more energy. As the process went on, and the animal increased his violence, the block returned with an equally proportional force. The sparring continued until the bear was knocked sensless and fell on the stakes driven in the ground below.

Russian Tree-climbing and Bear Trap.

The most common device was an arrangement of broken knife and scythe blades, and sharp pieces of iron driven in the trunk with their sharp edges turned upwards. This allowed a bear to climb the tree, but when he descended backwards, as bears do, the points would cut and tear deep fatal wounds in his flesh. Some old bears were wise to this trick, and took the precaution of bending the points down with their paws.

When this happened, a more ingenious contrivance was constructed. As the illustration shows, it was built on the principle of a swing. When the platform seat was suspended at rest, it hung some distance from the trunk. To make the trap, another rope was used to draw the board from its natural position to the trunk. The trap rope was then fastened to the door of the hive so the bear had to tear it to pieces to get at the honey.

When the bear found this convenient seat, he sat on it and started ripping the obstruction. No sooner would he succeed, when the chair swung back to the perpendicular position. If he didn't fall from the sudden movement and be impaled on the stakes, he had a choice. He could voluntarily leap from his predicament and be skewered on the stakes, or stay where he was and be shot. His choice mattered little to the bashkirs. Either way there'd be one less bear to rob their hives.

The Bashkirs devoted their lives to supplying Imperial Russia with honey, and the whole country recognized their skill. Bee management wasn't an insignificant and subordinate branch of husbandry there, as it was in the rest of the world. Honey was an important commodity in every home, and the Bashkirs were honored for providing it.□

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