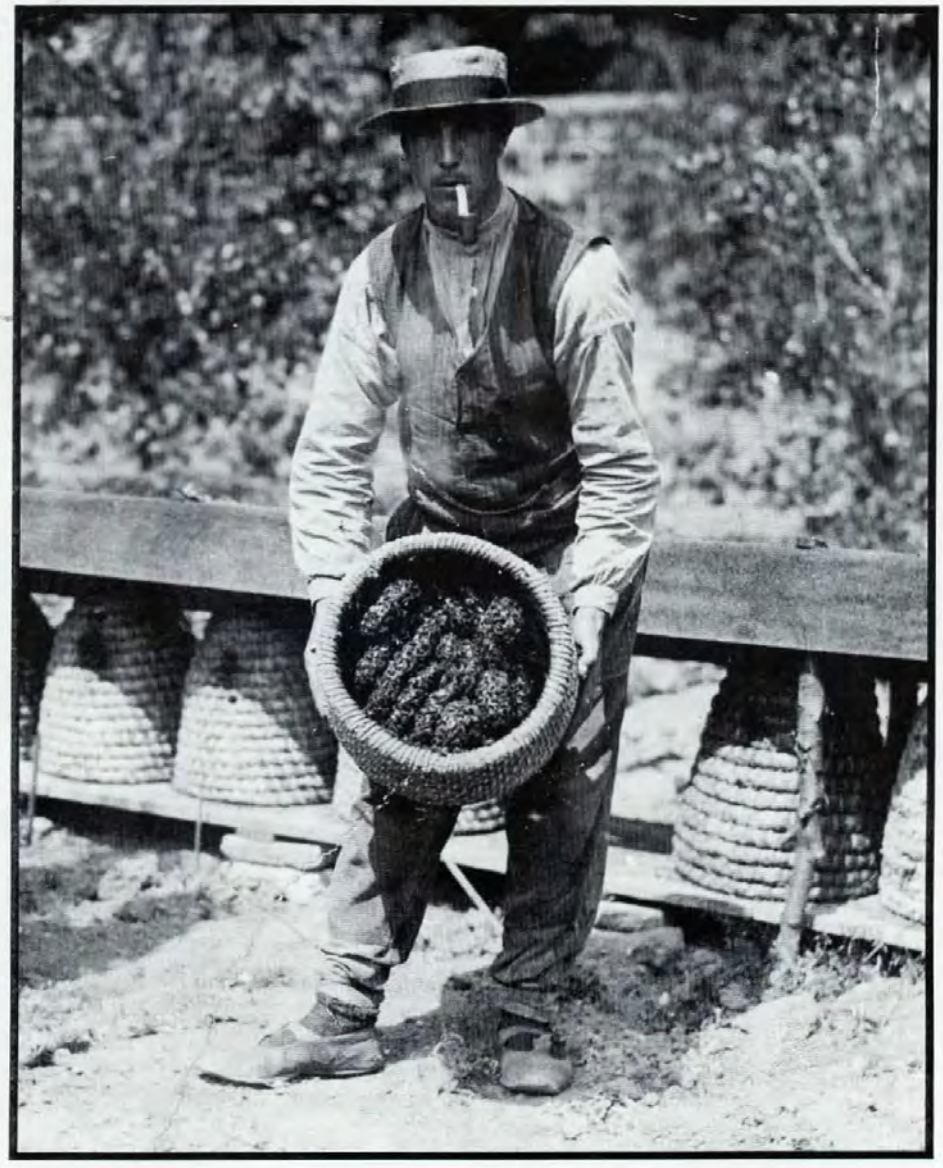
# GLEANINGS IN BEE CULTURE

JULY 1984



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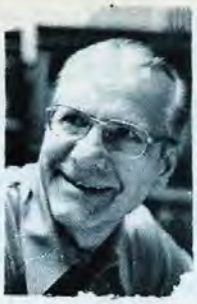

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# GLEANINGS IN BEE CULTURE


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**Created to Help Beekeepers Succeed**
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## CONTENTS



## COVER STORY

FROM OUR PHOTO ARCHIVES: A DUTCH BEEKEEPER SHOWS THE INSIDE OF HIS STRAW SKEP. FOR A FULL REPLICA OF THIS PHOTO SEE PAGE 347.

# Guest Editorials

## BEING THERE: The Key To Promotion

**By LARRY CONNOR, PhD — Director, Beekeeping Education Service and Editor, The Northeastern Edition of the** *Speedy Bee*

In the beekeeping industry, rarely do matters work out so well that we are inclined to write a 'success' story. Attached to this are a series of articles and letters which, taken as a whole, generate an entirely positive, engaging and encouraging story about beekeeping promotion.

This success story was written by one man: Dr. Erasmus L. Hoch — known to everyone in Maine as "Bob". Bob should be familiar to anyone who attended the 1983 Eastern Apicultural Society Conference in Orono Maine last August — Bob was the Vice President of the Conference and chaired several sessions.


The key to Bob's success was his ability to respond to a situation created by Maine's Associate Agricultural Commissioner Barbara S. Gottschalk when she wrote about the possibility of creating "COMMODITY AMBASSADORS" as a means of expanding the field of potential 'promoters' as compared to the commodity queen and princess programs.

Bob wrote to Commissioner Gottschalk and indicated that, while Maine had just started a Honey Queen program, he endorsed the commodity ambassador concept. Then he went one step further. Acutally, many thousands of steps.

Bob you see, is a remarkable individual, for in his goal setting, he had set out to run and complete the 26 mile Boston Marathon. He completed the Marathon before — when he was 65 years old. He wanted to do it again — now that he is 70 years young.

What happened from that point forward was a bit like Peter Seller's movie (it aired just a few weeks ago on network TV) — "Being There". In the movie, Sellers plays a man one who finds himself thrust into the limelight because of his ability to state things simply — the only way he knows how. The press and politicians pick up on this and his fame soars.

Bob must have felt like that when he was interviewed by NBC News and by the wire services; when a camera truck interviewed him — while running the marathon; while Wellesley co-eds ran with him to wish him well.

I think the mental image of a youthful 70 year-old-man running in the Boston Marathon, wearing a shirt endorsing Maine's honey, is one of the most positive, most constructive images which our industry has seen for many years. No one was asking about Chinese honey, killer bees, deadly mites, or damaging insecticides. Nor were there endorsements of honey, bee pollen or any other bee product — only the IMAGE if this delightful man doing what few of us would ever dream.

So I congratulate Bob Hoch in his moment of triumph! And to his quietly suffering wife Catherine, who somehow survives this man's passions for the unusual.

But most of all I thank Bob for giving us the vivid image of the Honey Ambassador — any age, either sex. Articulate, youthful spokesmen and women who share an enthusiasm for living and for their association with the honey bee and the products of the hive. People who appreciate the value of bees as pollinators, and are willing to learn more in order to promote effectively.

Why can't every state have a Honey Ambassador program? Men, women, teenagers — maybe a dozen or more in every state — who would do the industry proud.

Much like Bob Hoch did during the Boston Marathon.□

## A REBUTTAL

**By GLEN A. STANLEY**
**State Apiarist**
**Henry A. Wallace Building**
**Des Moines, Iowa 50319**

In reading the May issue of *Gleanings In Bee Culture,* I noted that a beekeeper, Mr. James Ford of Salt Lake City asks the honey industry to face reality. I agree with the need to face reality, but "a throw in the towel approach" cannot be called sound thinking. Mr. Ford's article DOES NOT FACE REALITY. In fact, it barely scratches the surface of the whole story. Instead of addressing the solution of our industry's problems he has written a bowl of mush which is as holey as swiss cheese.

Mr. Ford stresses that we don't amount to much economically by making a comparison of the payroll of Kennecott Copper company — Kenecott's combined wages in one year alone was more than the whole bee industry's production value per year. He also feels that we don't amount to much in the halls of congress. However, it appears that the congressmen see beekeepers, in general, as a relatively insignificant group within agriculture. I

CONTINUED ON NEXT PAGE

suspect, if anything, we are a pain to them.

Mr. Ford advises us to discontinue our letter writing campaign. . . "it is time to put away our letter writing campaign and prepare for the inevitable. . ." First, I agree that we are small potatoes in comparison with other segments of agriculture, and even less when compared with steel, auto and oil. I haven't noticed that any industry people, having an overview of the entire situtation, have tried to make a case just on the economic value of honey and beeswax. Our small industry is unlike all others, so I am having difficulty understanding the reason for making lopsided comparisons that have no real meaning. I am a firm believer that the pollination value of the honey bee is sufficient justification for public interest in the fate of the beekeeper and the entire beekeeping industry. Also, I am convinced that if justification of requests for government assistance was based on the value of honey and beeswax all efforts could be futile.

Members of congress, who have been informed, feel that we are an important part of agriculture and we are definitely not a pain to them. Any industry member who thinks otherwise should walk up and down the halls with our seasoned industry lobbyists.

Fortunately, I have had that opportunity and pleasure on a few occasions. Informal visits to congressional offices will quickly prove the value of constituent letters. Instead of putting away or letter writing campaign we need to encourage MORE beekeepers to write their congressmen and tell them their problems. They should be told of the value of honeybee pollination and that only a very small percentage of pollination by the honeybee is a paid situation. They need to be told of the problems that are created by honey imported from other countries. Through a considerable amount of correspondence there is evidence that the entire congressional delegation from Iowa is well informed.

Others will probably address other points in Mr. Ford's article. He is certainly off base saying the pollination beekeepers will survive. "Audacity" is not a proper word to use in describing our requests for government assistance.

Here in our own country too little honey is produced for our own domestic use. The free trade on such commodity, without government intervention, could quickly wipe out the bee and all pollinating services rendered as to make possible the production of many agricultural crops.□


# The Monthly Honey Report

**June 10, 1984**

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

| **Wholesale Extracted** | **Reporting Regions** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Sales of extracted, unprocessed honey to Packers, F.O.B. Producer. Containers Exchanged | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 60 lbs. (per can) White | 42.00 | 38.00 | 42.00 | | 36.12 | 40.00 | 35.00 | 38.00 | 38.00 |
| 60 lbs. (per can) Amber | 39.00 | 36.00 | 40.00 | | 31.62 | 37.50 | 29.60 | 35.00 | 35.50 |
| 55 gal. drum (per lb.) White | .60 | | .56 | .58 | .57 | | .56 | .56 | .58 |
| 55 gal. drum (per lb.) Amber | | | .50 | | .57 | | .49 | .54 | .55 |
| Case lots — Wholesale | | | | | | | | | |
| 1 lb. jar (case of 24) | 30.50 | 24.90 | 25.75 | 25.92 | 38.40 | 24.50 | 24.75 | 26.25 | 28.40 |
| 2 lb. jar (case of 12) | 30.25 | 23.30 | 23.75 | 23.76 | 34.80 | 23.00 | 24.00 | 24.95 | 26.20 |
| 5 lb. jar (case of 6) | 32.00 | 27.80 | 25.40 | 23.04 | 27.50 | 25.50 | 24.25 | 27.25 | 27.90 |
| Retail Honey Prices | | | | | | | | | |
| ½ lb. | .90 | 1.22 | .80 | .84 | .84 | .90 | .88 | .90 | .90 |
| 12 oz. Squeeze Bottle | 1.50 | 1.44 | 1.30 | 1.25 | 1.75 | 1.35 | 1.42 | 1.40 | 1.27 |
| 1 lb. | 1.65 | 1.50 | 1.35 | 1.50 | 1.85 | 1.55 | 1.49 | 1.49 | 1.54 |
| 2 lb. | 2.70 | 2.60 | 2.65 | 2.65 | 2.72 | 2.60 | 2.63 | 2.65 | 2.60 |
| 2½ lb. | 3.50 | | | 3.27 | | 3.25 | | 3.26 | 3.50 |
| 3 lb. | 4.00 | 3.50 | | 3.87 | | 3.85 | 3.95 | 3.85 | 3.75 |
| 4 lb. | 5.00 | 4.95 | | 4.99 | | 4.90 | 4.51 | 4.89 | |
| 5 lb. | 6.00 | | 5.95 | 5.90 | 5.99 | 5.80 | 5.50 | 6.00 | 5.74 |
| 1 lb. Creamed | | | 1.50 | | 1.55 | | 1.50 | 1.59 | 1.67 |
| 1 lb. Comb | 2.25 | 1.95 | 2.25 | | 1.95 | 1.85 | 2.10 | 1.85 | 2.25 |
| Round Plastic Comb | 1.75 | 1.75 | 1.85 | 1.69 | | | 1.80 | 1.76 | 1.50 |
| Beeswax (Light) | 1.25 | 1.25 | 1.35 | 1.35 | 1.25 | 1.35 | 1.28 | 1.15 | 1.22 |
| Beeswax (Dark) | 1.15 | 1.20 | 1.20 | | 1.10 | 1.25 | 1.15 | 1.10 | 1.12 |
| Pollination Fee (Ave. Per Colony) | 21.00 | 23.00 | 24.00 | 18.00 | 19.00 | | 19.00 | 18.00 | 21.00 |

## MISCELLANEOUS COMMENTS

Honey sales through-out most regions have been reported to be slow to seasonably average. Primary reasons given: high quantity of foreign honey being sold at low retail rates in supermarkets, and inneficiency of domestic honey producers to market their own hive products.

Beekeeping Association attendance good to very good, but equipment sales average to 10 percent or so below normal. Primary reasons suggested: surplus of honey inhibits additional equipment purchases/many beekeepers waiting to see what happens with price support system, imported honey factors, and other problem areas with the potential to affect beekeeping


Swarming season has been average to moderately heavy in most areas.

Early honey flows greatly affected by regional weather. Cold, wet weather in most parts of the East, Midwest and Northeast have put things behind a bit, although things have improved within the past few weeks of late May and early June. Wet weather made for a short tulip poplar bloom, but record blooms and heavy honey flows have been reported from the South Central states. Dry weather, on the other hand, has stifled some honey crops in Texas, Arizona and western states north of that region. Consequently, package sales slightly off there, as well. Reports from the west coast indicate good year in terms of both honey flow and pollination activities.

Some regions reporting bad press, once again, on the botulism issue.

# OHIO BEEKEEPERS:

**YOUR PRESENCE AT THE SUMMER MEETING AT BALDWIN WALLACE COLLEGE, Berea, OH -- July 13-14 -- IS ESPECIALLY NECESSARY TO SHOW SUPPORT FOR OHIO BEEKEEPING. DIRECTOR MIKE SPROTT FROM THE OHIO STATE UNIVERSITY SYSTEM HAS BEEN SCHEDULED TO SPEAK. HIS INPUT INTO THE POSSIBILITY OF AN OHIO EXTENSION POSITION IN BEEKEEPING IS VITAL, AND IT IS VERY IMPORTANT THAT OHIO BEEKEEPERS TURN OUT IN NUMBERS TO DEMONSTRATE THE SUPPORT FOR APICULTURE IN THAT STATE.**

# Gleanings Mail Box

## Can You Help To Promote Beekeeping In Africa?

**Dear Editor:**

We are writing on behalf of Mr. Stephen Adjare who is a Research Fellow employed here as the Officer-In-Charge of the Apicultural Promotion Unit. His wife Mrs. Comfort Adjare is a school teacher who assists him in his numerous beekeeping promotion duties. They would like to work with any beekeeper who could teach them the basics of queen-rearing, bee-packaging and other related management practices. Period of assignment would be for one year maximum to begin in December, 1984.

**Stephen Adjare and the African 'Killer Bees'. An essential part of the TCC's beekeeping program is concerned with convincing potential beekeepers that they need not fear the honey bee once they learn its habits and the ways it can be handled.**

For the past five years Mr. Adjare has been deeply involved in promoting beekeeping in Ghana. He has been collecting vital information, distributing literature and directing craftsmen to produce beekeeping equipment which the centre distributes to beginning beekeepers. He has trained over 1,200 beekeepers from all parts of Ghana and other neighboring West African countries such as Nigeria, Liberia, Togo, Republic of Benin and Sierra Leone. He has direct contact with over 850 beekeepers employing over 2,000 beehives.

The first beekeeping manual to be written in West Africa *"The Golden Insect"* (a handbook on beekeeping for beginners) was written by Mr. Adjare. This book has become widely accepted and it has been necessary to translate in into French for the benefit of French speaking West African countries.

Fellow Beekeeper, you are aware of what honey can do to supplement the diet of poor countries and how beeswax can be collected and exported to earn hard currencies for such countries. By offering Mr. & Mrs. Adjare a place in your apiary you not only train a couple but also assist in promoting beekeeping throughout West Africa. The knowledge and experience they will bring back to Ghana will be an invaluable aid to the TCC's extension efforts.

If one of your readers could accept Mr. Adjare and his wife in his apiary, he should please contact me as soon as possible stating the conditions of employment. We will be happy to send more information and also some recent copies of the Ghana Bee News. By reading them one will know more about the activities of Mr. Adjare and our Apicultural Promotion Unit. **Dr. J.W. Powell, Director, University of Science and Technology, University Post Office, Kumasi, Ghana, West Africa.**

## The Need For Good Records

**Dear Editor:**

An unfortunate incident (with a happy ending) prompts me to write and advise all beekeepers to maintain good records of equipment purchases.

I had just placed six newly cleaned and painted hive boxes on pallets in preparation for the season. After admiring my handywork, I decided to clean up the bee yard.

I carried a couple of junk hives a "safe" distance from the apiary and put a match to them. They were sitting on a metal hive cover to keep the grass from igniting. Since watching a campfire was not getting my other chores finished, I turned my back on the fire and finished straightening up my compost heap. . .and you guessed it—brush fire! The breeze carried some embers into the dry grass and I watched as my hard work, newly finished hives, frames and foundation became history.

My instinct was to save the hives. However, I ran to call the fire department and get a shovel to keep the fire from burning my neighbor's expensive construction equipment. If you've ever seen a hive burn, whether from brush or fire or to kill of foul brood, you know what a heart-wrenching experience it can be.

A call to my insurance company met with quick and positive results. I did have to give the adjuster a crash-course in hive construction and bee behavior. My loss was not great (in monetary terms) but it might be another story if there was more equipment involved, or if you have a more hard-nosed insurance company. These people are not aware of the heavy financial investment necessary for even a hobbyist like me, or all of the equipment involved. The adjuster and I also discussed the replacement cost of bees. (You should have heard his amazement when I told him they are purchased in pound quantities. He never asked how they are weighed, but I bet he's had more than one laugh over the story he related to friends.) He said more research was needed, but he thought bees might not be protected.

So keep records of purchases in case (heaven forbid) you suffer a fire loss. You might find that you need all the information you can get. **Clyde E. Witt, 3541 E. Smith Road, Medina, OH 44256.**

## Honey Promotion

**Dear Editor:**

The idea that, in this country, honey is a luxury has for too long prevailed. We, as beekeepers and suppliers of honey, are the only ones who will lead the educational program necessary to convince the American food consumer that honey should be here, as elsewhere in the world as a basic foodstuff and not "a luxury. . . (they). . .cannot afford". Quite frankly we, as an industry, are too small to attract this kind of leadership (or afford it) from outside our ranks. I personally doubt too that any "white knight" is going to surface from within this industry to lead this needed program; it's simply too large a job.

There is however, an alternative available in the stead of a national, centrally led campaign, and this is for all of our small, local clubs and associations to drop the prevailing attitude of "someone please help us" and get to work promoting the **everyday** use of honey. We are all fond

CONTINUED ON NEXT PAGE

of teaching the aesthetics of beekeeping and we put up wonderful displays promoting fancy packs and gourmet gifts of honey but not too many of us really promote the everyday, practical uses of honey and teach, actively, how to substitute honey for sugar. How many of us have checked with our local schools cook to see how they are using the surplus honey they have on their shelves? Chances are that it is sitting there, gathering dust, for the lack of recipe or conversion table that any of us can provide. Our first goal in increasing the consumption of honeyshould be simply to get people who do not now use honey to do so, and if we have to promote the government giveaway honey to accomplish this, I say, let's do it! I believe that once people start to successfully use any honey they'll soon come to us for more and we can supply a better product! Remember! All we have to do is double the amount of honey now used (the current average amount of honey-less than one pound per year) or get those now using to double their consumption and we would go a long ways towards wiping out the surpluses now sitting in the ASCS warehouses and make our honey once more competitive on the open market.

Remember, too, that the greatest number of beekeepers in this country produce less than five hundred pounds of surplus honey and if we work with that figure instead of the millions of pounds that are imported or the other millions of pounds that the government owns our problems become less insurmountable. By this I mean, if one beekeeper produces three hundred pounds of honey and he sells all of it in the fall he should not stop his marketing efforts but rather should promote the use of **at least** three hundred more pounds of someone else's honey even if this turns out to be ASCS giveaways. Now I think everyone would admit that this reduces things to a level we all can relate to without being overwhelmed. Multiply this individual effort with a club level project such as we here at the Eastern Montana Beekeepers Association have started and add to it the efforts of thousands of beekeepers and there is the solution we've been screaming at deaf Washington political ears to provide for us. One only has to look at the industries that have fallen apart these past few years to realize that no political help is forthcoming. Let's all get to work! **Steve Lundin, President — Eastern Montana Beekeepers, Route 1, Box 135, Fishtail, Montana 59028.**

# Beekeeping Technology

By DR. JAMES TEW
The Agricultural Technical Institute
Wooster, Ohio 44691

# Mixing Kids With Bees

A number of years ago as I was preparing to leave my office for the day, I was approached by a woman with a child in tow. The lady explained that she had promised the four year old a trip to the apiary as a reward for some task that had been successfully completed. For reasons that at the time were pressing but are now long since forgotten, I made a quick decision to open a four frame nuc that I would have rated "moderately strong". After covering the little girl completely with my bee veil and asking the mom to stand back a few feet, I opened the hive without smoke, hive tools, or protective gear. I clearly recall putting on an excellent impromtu performance that included showing all stages of brood, drones, and the queen bee. As I positioned the last frame, one lone bee abruptly, without warning stung me just inside my right nostril. I stood there snorting and crying like a baby.

With a tear stained face I attempted to assure mother and child that I was fine and that this kind of thing did not frequently happen. As I look back on the experience, I realize I didn't sell beekeeping to mother or child. I doubt the girl will soon forget the spectacle of a grown man crying after taking one bee sting. I have relived this event to point out that children are usually an appreciative, but difficult audience.

On many occasions I have visited kindergarten and early grade school classes. The scenario is nearly the same each time. As the observation hive is brought into the class, comments such as "Wow!", "How did you get them in that box?" and "Here—let them sting Betty Jo!" flash around the room. On one of my earlier trips to a kindergarten class, I effectively hanged myself several times over. I was trying to equate bee terms like queen and drones to kindergarten terms like mommy and daddy. I explained that the queen was the mother of all the workers

in the hive and that one of the drones was the father. A sharp eyed kid promptly picked out several drones, wanted to know which was the father, and who the other guys were. After making some insane comment like "They're sons of the mother and father", I promptly moved to the topic of honey production.

I explained how far bees fly to gather a honey crop and how most field bees work themselves to death doing it. The prompt question was "Why does the mommy bee make her kids work so hard?" Before recovering from that question, "Does the mommy bee cry when her children die?" was fired at me! I clearly realized I was losing control of this group. Time to break for honey and biscuits.

I really had no concept of how great a mess twenty kids could make with a pound of honey. Biscuit crumbs and honey were around everyone's mouth and on the bottom of everyone's sneakers. I can honestly say that addressing young groups is as difficult, or worse, than addressing adults.

An observation hive has always been a significant part of these presentations. So much can be shown so quickly with an observation hive. If such a hive could be fabricated from steel and double-strength glass, so much the better for younger audiences! Some children have incredible talent for immediately seeing the weakest part of an observation hive. After realizing bees were escaping form one I was using during a talk, I vowed to build a child-proof hive. (Some little guy had pushed a pencil through the ventilation screen and was gleefully watching the bees escape—one by one!)

A few months later while using my newly designed "kid-proof" hive, bees were released into a classroom after another boy realized he could gently push up on the glass and cause a ¼" opening along the bottom. I watched him do this for a few seconds. He would wait until a friend was nearby, release a few bees, and cause a localized panic. Of course, the victim wanted to try his luck frightening someone! That defect was corrected using double strength glass, hardware cloth, and good oak base that is "C" clamped to a table. However, I am confident another defect will be discovered by another talented child in the future.

With older children there is an added touch to the observation hive I sometimes use. A clear plastic tube approximately two feet long is snugly placed into the **screened** ventilation opening. When the hose is placed near one's ear, the sound of bees is clearly telephoned to a surprised child. Classmates delight in watching each other's facial expressions as they take turns.

The reason for all of these trips to schools is, of course, to educate children in beekeeping as early as possible, thereby, generating new beekeepers for the future. A number of books on beekeeping for children are available. *A Closer Look At Bees And Wasps* (Hughes, 1977) is an excellent example. Bright colored drawing supported by an informative script make the book a good tool for educating children. *The Pooh Cook Book* (Ellison,

CONTINUED ON PAGE 376

# Testing Your Beekeeping Knowledge

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

The characteristics of honey vary according to its plant origin and the conditions under which is was produced. By definition, honey is the sweet substance produced by bees from the nectar of blossoms or from secretions on living plants, which bees collect, transform, and store in honey combs. Honey is considered to be at its peak quality when properly cured and sealed in the comb by the honey bee. Honey quality is affected by many different factors from the time it is removed from the colony until it is sold for human consumption. Therefore, it is important for the beekeeper to be familiar with the characteristics of honey and factors that affect its quality.

Please take a few minutes and answer the following questions on honey composition and characteristics to determine how well you know your product.

The first six questions are true and false. Place a **T** in front of the statement if entirely true and **F** if any part of the statement is incorrect. (Each question is worth 1 point).

1. _____ Light honeys tend to be injured by heat faster than darker honeys.
2. _____ In nearly all honey types, dextrose (glucose) is the predominant sugar.
3. _____ The enzyme responsible for most of the chemical changes that take place when nectar is ripened to honey is invertase.
4. _____ Honeys containing air bubbles, considerable amounts of pollen, or other particulate matter, crystallized much more quickly than honeys which are free of these materials.
5. _____ Fermentation normally begins at the bottom of the honey container and works its way upward.
6. _____ Gluconic acid is the most common-acid found in honey.

**Multiple Choice Questions (1 point each)**

7. _____ Honey will crystallize most rapidly at temperatures of: A) 45°F. B) 57°F. C) 63°F. D) 71°F. E) 80°F.
8. _____ Honey is an acid food with an average pH of about: A) 6.3 B) 5.8 C) 4.9 D)1.5 E) 3.9
9. _____ During honey crystallization, the sugar that crystallizes is: A) Dextrose (glucose) B) Levulose (fructose) C) Sucrose D) Maltose E) Raffinose

**Listed below are three instruments used in determining various characteristics of honey. Please match the following instruments with their specific use. (Each question is worth 1 point).**

**A. Refractometer B. Polariscope C. Pfund Grader**

10. ____ Device for detecting crystals, dust, pollen and bits of wax in honey.
11. ____ An instrument used to determine color classes of honey.
12. ____ Used to measure the moisture content or soluable-solids (sugars) of honey.

**Chemically, honey is a highly variable, complex substance. Listed below are four chemicals that may be associated with honey consumption. Please match the chemical with the correct description.**

**A.) Acetic Acid B) Hydrogen Peroxide**
**C) Hydroxymethylfurfuraldehyde D) Diastase**

13. ____ An enzyme found in honey that breaks down starch. Europeans who prefer their honey essentially unheated use this chemical as an index of heating since it is sensitive to heat.
14. ____ Protects diluted honey against attack by molds, fungi and bacteria.
15. ____ A final breakdown product associated with the fermentation of honey that gives fermented honey a sour taste.
16. ____ Produced by the degradation of sugars in the presence of acids and this occurs with aging of honey and is accelerated with heating.
17. Describe three ways to reliquefy crystallized honey (Question is worth 3 points.
18. What is meant by the statement that "honey is hygroscopic"? (Question is worth 1 point).

**Answers to Testing Your Beekeeping Knowledge**

**1. False** Honey quality is affected most by heating and moisture content. Excess heat drives off the natural, volatile flavors which make honey a unique product and chemically breaks down the levulose sugar. Dark honeys are more susceptible to heat than the lighter honeys.

**2. False** In nearly all honey types, levulose (fructose) is the predominant sugar. Research by Jonathan W. White, Jr. found that the average composition of U.S. honey was Levulose 38.2%, Dextrose 31.3% and Sucrose 1.3%.

**3. True** Two distinct processes are involved in ripening nectar to honey. Excessive water is eliminated and sucrose plus other sugars are broken down by enzymatic action into simple sugars glucose (dextrose) and fructose (levulose). The primary enzyme is invertase (sucrase, saccharase) which the bees add to nectar.

**4. True** Particulate matter in honey stimulates granulation by acting as nuclei for crystal formation. Heating and filtering removes these materials, thus delays crystallization.

**5. False** Sugar-tolerant yeasts occur naturally in honey and if they are not killed by heat, they can cause fermentation when moisture levels exeed 17%. Fermentation usually occurs after granulation. Since there is no moisture in the top layers of crystallized honey than in the bottom layers, fermentation begins at the top of the container and works downward.

**6. True** Acids contribute to the honey flavor complex. To date 18 organic acids have been isolated from honey and gluconic acid is the most common and important. A small amount of glucose is attacked by the enzyme glucose oxidase and converted into gluconic acid and hydrogen peroxide. The hydrogen peroxide protects diluted honey against attack by molds, fungi and bacteria. The glucose oxidase system works only in honey that is still being ripened or that which is being diluted for feeding to larvae.

CONTINUED ON PAGE 376

# Siftings

**by CHARLES MRAZ**
**Middlebury, VT 05753**

Recently I visited a beekeeper in the Big—Beautiful Province of Alberta of Western Canada, north of the border. I spent many years working with bees south of the border in Mexico, but not much north of the border. Form what one reads and hears, Alberta is a beekeeper's Paradise with large crops of beautiful, white clover honey.

My first day we managed to visit a few yards to make divisions and put in queens, from over wintered colonies. The rest of the week of my visit was mostly cold, rainy and cloudy. Rain is the most critical factor for honey production there. For the past year or so rainfall has been on the low side. Rain was most welcome.

In every area of beekeeping there seems to be change. South of the border is the Acarine Disease and the African bees that are going to make the change. North of the border the big change is the swing towards wintering bees rather than killing them off in the fall and replace with packages in the spring.

The climate seems to be similar to that of Vermont with willows and dandelions blooming about the same time. I have wintered bees in Vermont for some 56 years with good results;, bees should winter as well in Alberta. The Chinook wind helps to give the bees a flight in winter in Alberta. In Vermont often bees do not fly for 5 months.

I believe bees can be wintered over cheaper and with less labor than installing packages, but the interest is not entirely for economic reasons. With the Acarine and Varroa mites moving north into the U.S., the border may be closed to bees going into Canada. The beekeepers feel it is time to prepare to be self-sufficient in bees and queens. So far, wintering has been successful in Alberta with those that apply the basic principles for good wintering.

Of first importance is the queen, "Upon the queen depends everything in beekeeping", including good wintering. The queen is important in that she will produce bees that are "winter hardy" and with good wintering instincts. They must stop broodrearing as soon as the honey flow stops to conserve their food and energy. They must remain quiet with minimum expenditure of energy to maintain the necessary cluster temperature, not to heat the interior of the hive as some beekeepers may believe. This they cannot and should not try to do.

Next of importance is plenty of honey and pollen. Many beekeepers may think that sugar syrup is as good as honey for wintering, but sugar syrup is not good for brood rearing. If you do not believe this, winter a bunch of bees on full supers of honey and pollen, and another bunch on sugar syrup. If in the spring those on honey are not twice as strong as those on sugar syrup, you can call me a liar. I have only 60 years of experience wintering bees in the north, so I do not object if someone can prove me wrong, I might learn something. Next of importance is plenty of ventilation, both upper and lower. Last on the list is packing. They can go without it if the other three are taken care of.

Sid, my beekeeper friend is also interested in my work with Bee Venom Therapy. So much so, he rounded up some of his arthritic friends so I could demonstrate to him how to use bee venom therapy on the various forms of rheumatic diseases. On the last day of our visit, Sid took me to visit a beekeeper, a member of a cooperative commune. A year ago I visited communes *(Kibutzes)* in Israel. It is interesting to compare them as they are similar. The excellent condition and quality of all the buildings, equipment and machinery, appeared to be used with the greatest efficiency.

My most pleasant experience was to meet Christina. She is about five years old and was sitting on a wagon with other children in their typical clothing of the commune. The girls and women wear brightly colored long dresses buttoned at the collar, and colorful bonnets. The men wear plain black jackets and black, broad rimmed hats. They boys wore cadet type black hats.

The beekeepers invited Sid and me to the house for coffee. The little girl on the wagon came into the house and Sid's commune beekeeper friend, Chris, introduced us to his wife and daughter, Christina, their only child. Sid had told Chris that I worked with bee venom to treat rheumatic diseases. With this information, Chris showed me Christina's foot and asked if anything could be done for her. We could see when Christina walked into the house, her foot flopped inward, loose jointed, and seemed to bend at the ankle so that she seemed to walk on her ankle rather than the sole of her foot. Also her head seemed to be loose on her shoulders, tilting sideways. It appeared to be some sort of congenital deterioration of the tendons and muscles.

Chris said they took her to a children's hospital hoping that surgery would correct the lame foot. The doctor would not even consider surgery as it could do more harm than good. They said they waited nine years for this child and now there seemed to be nothing that could stop her from being a cripple. When the family means so much in a community like this, it is easy to understand how deeply they felt about their little girl and prayed for her to become well.

I do have 50 years experience with rheumatic diseases, so I searched back for some similar cases I may have treated. BV Therapy was most successful on several Duputren's Contracture cases I treated, where the tendons, skin and flesh of the palms of the hands atrophy and shrink like leather, to draw the fingers into a fist and make it almost impossible to use them. Again, surgery is used for this problem, but it just comes right back again. With BV Therapy results seem to be permanent.

Then there was my friend that had a "Wandering" or "Lazy" eye. It would wander out of line like Christina's foot. When I treated him for some arthritis he developed, his eye straightened out, permanently. His was a congenital condition also. Though an eye and a foot are different, they do move with muscles. So what is there to lose? I suggested to Chris and his wife, I had no idea if it would work, but it was worth trying. At least it could do no harm, even if it didn't work.

Checking Christina's foot, I found what I thought might be a "trigger point". The commune had large freezers, but no ice, so I put a frozen sausage on the trigger point to make it cold and appled the sting. It is the first time I treated a five year old girl, but from past experiences, I knew young people usually could take it well.

CONTINUED ON NEXT PAGE

Christina howled for a few minutes, and then ran off to play outside.

Chris's lovely wife confessed to having arthritic pains in back of her shoulder that made it almost impossible for her to sleep at night, as well as arthritis in just about all her other joints. She was only about 40. Similar cases I have treated by the hundreds and they usually present no problem, with good results. I demonstrated to Chris how to treat his wife on the area she has pain. If he carries out the therapy, she should have excellent results.

Chris than took us out and showed us the community's church, bakery, kitchen, laundry, dining room, etc. All emaculate and the best equipment. We looked at the bees that Chris had and returned to his apartment for a cup of coffee before returning home. Christina walked in from outside towards her mother and suddenly her mother cried out, "Look at Christina! Her foot is straight!, She is walking normally!" I don't know what else she said, but I looked, and sure enough, her foot pointed straight to her mother just like the other foot without flopping around and bending! I must admit I too was surprised, I never expected anything like this. I have seen many miracles performed by BV Therapy. this along with several others, and I will never forget the thrill to see a "miracle" happening. My only regret is that I could not stay to follow through to see if it could be made permanent.

Also I completely forget about her head. Would BV Therapy help to bring her head back into place? Strengthen those tendons and muscles? I am sure Chris will follow through with the BV Therapy. We all hope and pray Christina will continue to improve to be a normal, healthy, lovely girl. Of course, it may not help at all, but the look on Christina's mother's face when she saw her little girl walk with a normal foot even for a moment, is a thrill that few people can experience. That thrill is reserved only for those that have faith and experience in Bee Venom Therapy. Every beekeeper's should learn more about it. Very few of you that read this I know will even believe it. That is because you are not Christina's mother.□

# Questions and Answers

**Q.** I have read that terramycin should be given to bees mixed with powdered sugar, but I have also read that powdered sugar should never be fed to bees. Should the terramycin be mixed with granulated sugar?

Also, why are there so many names for supers, brood chambers, boxes, hive bodies, etc.? **Al Clarkson, 4810 South 76th St., Milwaukee, Wis. 53220.**

**A. Yes, terramycin should be mixed with powdered sugar, not granulated sugar, and it must be fed dry, not in syrup. Normally one would not use powdered (confectioner) sugar as a bee food, but this is the exception. Only minute amounts are needed: 1 tablespoon terra/per 3 tablespoons sugar will treat 3 colonies. Reduce to ½ teaspoon terra per 3 tablespoons sugar if using terra 50. Give each colony about a tablespoon over the brood frames a couple times in the spring before adding any honey supers, and maybe once in the fall after supers are off, to prevent foulbrood. Do not try to use this as a cure for disease.**

**As for the question of vocabulary, it is confusing. I recommend the term "hive body," which can be used as a super, brood chamber, food chamber, etc.**

**—Richard Taylor**

**Q.** The banning of EDB as a fumigant for honey combs has produced something of a crisis for those who produce cut comb honey on a large scale, particularly in the North Florida-South Georgia comb producing region. We are now getting orders from overseas for our gallberry comb full in the frame. We have devised a method of packing, but without fumigation some wax moth eggs are sure to remain no matter how careful we are. Can this problem be solved, on a large scale, by the cold treatment? **Douglas McGinnis, Tropical Blossom Honey Co., Inc., Edgewater, Florida 32030.**

**A. Wax moths can be destroyed in all stages— eggs, larvae, pupae and adults— be reducing the combs to 0ºF. The method is essentially the same as with section comb honey. Place the combs, packed in their final containers, in plastic bags, and place these in a good deep freezer, already cold, together with a thermometer. Wait until the temperature goes to zero F., or as close as you can get to that. This may take two days or more, depending on the quantity of honey. Remove the bags, and allow to go back to room temperature with the honey cartons still bagged, so that frost will accumulate on the outside of the plastic bags and not on the honey packs. This is a complete solution, but for added assurance it is desirable not to subject the honey to the cold treatment for four or five days after harvesting, to allow any eggs to get hatched. They will be too small to be visible, but the tiny larvae are much more easily killed than the eggs.**

**—Richard Taylor**

**Q.** I plan to use the shook swarm method of getting comb honey, and have two questions. First, can I use an entrance guard to confine the queen instead of a queen excluder? Second, can I throw two natural swarms together, instead of shaking the bees from a strong colony. **Thomas Carson, Rt.1, Box 1450, Stroudsburg, PA 18360,**

**A. Entrance guards, with wires spaced like those on a queen excluder, were once popular as means of confining the queen to the hive and thus, it was thought, preventing swarms from absconding, and of preventing drones from entering the hive.**



**They are not much used any more, but yes, such a device would work beautifully for preventing a shook swarm from leaving. You would want to be sure to remove it after a few days. And yes, two natural swarms can be thrown together to create one super swarm, and they will mingle peacefully. There will, however, be two queens, and you should try to eliminate one. This will facilitate the comingling of the two swarms.**

**—Richard Taylor**

# Bee Talk

By RICHARD TAYLOR
Route 3
Trumansburg, N.Y. 14886

Recently I wrote that if you find a swarm in your apiary, you have no way of knowing what hive it came from. You have to guess, I said, and you will probably guess wrong.

I was mistaken. There is a way, and I should have thought of it. It is based on the fact that, deprived of their queen, the bees will return to their hive. So here is what you do: Put an empty hive body on a queen excluder which is raised up off the ground on a couple of bricks or blocks of wood, shake the swarm into that, then put another excluder on top of the hive body, and an inner cover covering most of that and puff smoke in. Some of the bees will return to their hive and stand at the entrance with their tails high in the air, signaling with their scent glands for the rest to follow. It will thus be easy to tell, by the behavior of those bees at the entrance, which hive threw the swarm. The rest of the swarm will stay with their queen in the hive body.

It was Mr. Ben Direr, of Wakefield, Michigan, who pointed this out to me, and it is a useful trick to know sometimes—especially if you want to padgen that colony. Some beekeepers, thus knowing which hive threw the swarm, will want to reunite the swarm to that parent colony, thus restoring things to the way they were. That will mean cutting out every queen cell and making sure there is only one queen in the colony, which is not easy to do. I don't recommend it. I think you'll be better off setting that parent hive off to one side, hiving the swarm in a new hive on that original stand and perhaps using it to raise comb honey. After a day or two you can build it up still further by shaking more bees from the combs of the parent colony, thus creating a powerful honey producer. The parent colony that was moved, meanwhile, will get its virgin queen mated and build up to be one of the very best colonies the following season, requiring no further attention until then.

It has been my experience that, once the bees have definitely made up their minds to swarm, you won't get anywhere trying to buck them. Try instead to prevent them from getting to that point. And once they have actually swarmed, then again, let them have their way. But there are ways to take advantage of the swarming impulse, tricks you can play on the bees, so to speak, without their realizing what's going on. The simple manipulation just described— moving the parent colony to one side and hiving the swarm on the original stand— is a perfect example. It is called padgening.

Simplicity is the key. Don't go in for comlex and Herculean systems. Keep your manipulations to the minimum, keep them simple, have a definite purpose for each, and make every one count. Beyond that, leave them alone. You'll be happier, with more time to do the things you enjoy, and the bees will be happier, not having you constantly poking into their hive and disrupting things.

Some beekeepers are perpetually opening their hives and fooling around, scraping propolis only to have the bees replace it, checking for this and that. I've even known some who thought the brood combs should be replaced on a regular basis, every three or four years— why, I do not know. In any given year I don't even see the inside of more than about a third of my hives. I split a few combs out of those I think might swarm, and that's about it. There's no need to check to see whether they have a queen. Of course they have, or they wouldn't be carrying in pollen. No need to check for disease. I've given each colony a couple of preventative applications of terra in powdered sugar early in spring, to nip brood in the bud. If the bee inspector wants to check the colonies, he can, but he'll be wasting his time. My objective is very simple: To get very powerful colonies, minimum swarming, get my comb honey supers on in plenty of time, and harvest good big crops of honey on the earliest flows, leaving all the late honey for the bees, to insure zero winter loss and good strong colonies the following season.

I reflected on all these things this spring, when I resumed the annual cycle of honey getting. Some of the equipment seemed to be in rather sad shape. One of the covers fell apart when I took it off. Several have developed cracks and holes from which the bees were flying, instead of using the regular entrances. All the hives need painting. But in spite of these things, those colonies had what counts: everyone was still heavy with stores, gathered last fall, every one was a powerhouse of bees, none had even come close to perishing from the unusually severe winter. Now all I've got to do is pick out those I think might swarm, perhaps a third of the total, take a simple precautionary measure with those, then begin to pile on the supers and, with a bit of luck with the weather, harvest a great big crop of beautiful snow-white comb honey. I'm writing this in mid-May. The next few weeks will be the crucial ones.□

[Questions are welcomed. Please make them short and to the point and enclose a stamped envelope].

# Fire Fighting

By P.F. THURBER 5522 127th Ave. N.E. Kirkland, WA. 98003

A nasty little bug has almost driven me and some of my friends out of the hills where I have been taking bees to the fireweed for over fifteen years. Until the bug showed up the moving of the bees, building the fence, driving the logging roads, worrying about bears and fire, and then taking off beautiful fireweed honey was the fun part of beekeeping. The effort never made much money. I never had many hives, but I averaged well over 100 pounds of honey per hive per year and others with locations often averaged say 50 pounds from huckleberry, 50 from blackberry plus over 100 per hive from fireweed. Those others were also probably better and I know younger and stronger beekeepers. Since the bug came, I have been taking a licking. Annual yields (surplus) have been from 25 to 60 hive pounds with a surprising 150 pounds two years ago. The buddies who share the yards we have used have similar yields.

While I would be the first to conincide that all the yield variation has not been entirely the bug's fault — the weather is always a big variable and we have also moved to perhaps poorer locations in an attempt to get away from the bug. It has been the major problem. Accordingly let us look at the bug.

There are, I am told by four entomologist friends two or more different bugs, all leaf beetles, that live, eat and breed on fireweed. I am informed that two for the beetles, are from the family named *Chrysomelidae*. They are visually quite different, and supposedly can be identified in that manner and surprisingly to me at least, they can also be identified by their eating patterns. One eats circular pieces out of the fireweed leaves. Another one eats out slots. That is if I understand what I have been told.

I am so darn disgusted that I have not taken the time to drive 50 to 80 miles up in the hills to get leaves they have been chewing on which I could do even now, and I do not suppose I will make an effort to go get more live specimens to send to Washington State University next spring to replace those which were mangled in the mail but I can describe the bug.

The dimensions are about $^{5}/_{16}$" long and less than $^{1}/_{8}$" wide. It has no snout or clearly visible head to it really looks sort of like a snoutless, skinny but long lady bug beetle. It's color viewed looking down on it is all shiny metalic brownish bronze — sort of like a blued firearm but instead of blue. It has wings and can fly although I do not know how well or how far, but it has a known range of Oregon, Washington, and British Columbia. It probably extends East, but no one seems to know how far. Since bugs hitch hike on vehicles, etc., I see no reason it could not and may have in fact spread across the northern states. It was first identified and named, I understand, on Vancouver Island in the 1920's or 30's. What the beetle's reproduction rate is and what its natural enemies if any are I do not know but I have noticed some areas so badly hit there have been no visible fireweed bloom even though the plant is well established. Then apparently the beetle population crashes, and a year or two later there are not noticeable firewed beetles. The fireweed then blooms and may yield profusely. If that won't make you climb the walls, nothing will.

**Main spike chewed off by fireweed beetle caterpillar stage. The strong plant tried to grow a new spike. This is not typical.**

Another situation I have seen is many or most of the main fireweed blossom spikes are absent. However, the plant blossoms but they are a great deal fewer in number and they appear on lower side branches of the plant. Now while the leaves get chewed, and obviously that does not do the plant a lot of good, what truly ruins the fireweed crop is the nesting habit of the bronze beetle. You have all seen the spit nests some bugs make. Well, the fireweed beetle I have encountered crawls to the top of the plant where the main bud spike would normally form. There the female bug makes a tiny spit nest and lays her eggs. This location is presumeably the most succulent, most tender, and most nourishing part of the plant. The eggs turn into very small caterpillars maybe up to half an inch long, but I think commonly a bit less then three eighths of an inch. They eat off the base of what would be the main flower spike. That does it, because I think most of the time the first generation of bug after it matures goes down to the lateral branches and repeats the nesting process so you have quite probably no bloom anywhere on the plant.

I would be the first to agree I am perhaps a slow learner. For some years I had noticed here and there a few fireweed plants in a field in beautiful bloom that had the tops cut off. Who told me or did I decide that deer had eaten the tops off the plants? Darned if I know but I will tell you now I know for sure it was not deer. It was the beginning of the fireweed beetle infestation. I should add that actually I do not believe anyone could have been as stupid as I was because some of the eaten off main spikes were growing on top of rotting stumps. Only a giraffe could have reached them. However, the honey plants most likely to grow on top of old rotten stumps are wild huckleberry around here.

Because of the fireweed beetle we have tried to scout additional locations and precheck former locations. That incidentally takes a lot of time and costs a lot of money. Cruising up and down logging roads often in lower gears in the back country beats up trucks and takes a lot of expensive gasoline, but we must do it. We go out about two weeks before fireweed blooms, and when we get to a likely area or even what we know was a good area, we get out of the vehicle and start checking say about a hundred plants for spit nests or chewed off tops. If we find none or almost none, we go up and down the roads within the area checking and rechecking. If anywhere we find 20-25% infestation, we go somewhere else because for sure in two weeks and continuing through much of the bloom period there will be further expansion of the beetle population which means that area is a total waste. If we find good beetle-free locations with what we hope have the right aspect, facing, elevation, water for bees, and lack of winds we try to get a permit which is not always possible. Maybe for example we do not even try because the vandalism or theft pro-

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bability from an otherwise good location precludes its worth.

Have we been successful in relocating? Well, truthfully not very. We face constraints. How much time can we search? How far is it reasonable to go when the hives my group owns number less than forty? Are other beekeepers already using that area? Would a location interfer with logging operations including movement of incredibly big trucks with huge loads of logs along the forest roads? Is the area due to be sprayed by the owner to kill plants competing with new plantings or fir trees? Add that all to the fact that only a few clear cut areas have fireweed, and that even if an area is good, you have to be able to find an site you can drive to, unload, and fence, you see I hope there are a lot of problems to which there are no really good solutions and perhaps no solution at all.

As if the above was not enough to turn you off, let me go on. I doubt that many, if any, beekeepers own the land on which they set bees so you have to get permits. The permits normally cost money — either there is a minimum flat fee for so many hives with an additional per hive fee for more hives or you pay a minimum fee plus an additional fee based upon honey produced. That is not unreasonable and believe me some knothead who sneaks hives up in the hills without a permit is not only looking for trouble, he is also causing trouble for everyone else. As a point of fact one major timber company here has a policy that says no bees on their property will be permitted and any found will be poisoned and then bulldozed into bits. This policy is a result of just one beekeeper's misdeeds. I suppose I should also mention that beekeepers take a dim view of people who, whether they have permits or not, put down bees without bear fences because bees without protection just teach bears to eat bees and honey. Possibly I know of eighteen or twenty hives placed without permits which were loaded up by someone and dropped over a cliff in a heavily timbered area. I know of hives poisoned with a quickly biodegradable insecticide so they would be robbed out. Well, feel free to speculate.

Now the above should give you the idea that it pays to be friendly, accomodating, considerate, and polite when trying to obtain a permit. You will find the owner of the land will probably require you to have a certain type of fire extinguisher of specified minimum size in each truck, a shovel, possibly a pick mattock, and/or brush hook, and for sure a water bucket (mine is a canvas collapsible, war surplus, bucket). Maybe even a logging chain or cable will be required to be with you at all times. You will probably be advised when or whether or not you may smoke on their land and whether or not you may use smokers. The corporate or public land owner may also insist on an insurance policy that meets their requirements. I have found the American Beekeeping Federation Group Policy has been accepted, but perhaps you should get a blank sample policy to show to the land owner before you buy it if you are already not insured. It follows I think you will agree that getting the permit may take considerable time and you normally apply for permits in January or February for outyards you want and won't be able to use till late June or later. I should point out that even when you get the permit you will not automatically be able to go visit the outyard. All state fire marshalls have authority to close all access to forested lands and the land owner too may decide to close his land or suspend logging operations when the woods are too dry. If the access is closed you do not go up; if the logging operations are suspended, you may be able to go up . . . this, I think, normally would be spelled out in the permit. If it is not, ASK so you do not wear out your welcome because obviously the permits do not make the timber people money. They barely pay for the cost of preparing them and having their law people check them.

**Clump of fireweed long after blossoming and seeds set. Note bloom spike at top of plants (taken in a beetle free area).**

Having mentioned that you have to apply for the permits long in advance, how do you crank in the fireweed beetle into the permit process? Frankly the reason I have taken the time and effort to write this is because I suggest that when you go to ask for a permit you take a high quality photocopy of this article with you to explain how a piece of land may be completely unproductive and arrange that your request, you hope, can be considered as a request for a tentative permit in such and such an area. For instance, "in the Cascade area of the Weyerhauser timber lands hopefully in the North Fork of the Snoqualmie River drainage area actual legal description to be supplied to the area supervisor after later survey and selection by the beekeeper of mutually agreed upon possibilities where there is no fireweed beetle infestation which preclude a crop." Then having asked about a permit and explained that you know the area supervisor or his designate may be busy, ask that they read this article and let you know if a permit is possible. Your next step, I think should be to get with the local head of the company's or US Forest Service's fire guards and patrol. Take him a jar of honey and a copy of this article too, and ask him for assistance. He knows his area like the back of his hand and checks it frequently and thoroughly. Ask him if he has any suggestions as to where you might locate an outyard and you just might be surprised at the locations he might suggest if he feels like it. For example, one US Forest Service fire guard, bless his soul, had a couple of passes made with a road grader which was working in the area so that when the friendly likeable beekeeper came up with his bees, he found it smooth as a tennis court location just where he truly wanted it and did not have to settle for a difficult access. Look, this will not happen initially to you and may never but could and hopefully might because many people who work in the woods love the woods and nature. If you are a nice guy appreciative of and working with nature, things just might happen for you. If you are a SOB, you will get nothing perhaps not even a permit. Believe me, people can find a lot of reasons to justify a "no" decision both in industry and government.

Now I guess that covers the matter and the problems except I cannot furnish the names of the several(?) fireweed beetles, but maybe you can get local entomologists to advise you. However, the one I have encountered is said to be *Altica tombacina* and is a leaf living flea beetle bronze in color as I described earlier. I hope you never encounter either but do keep your eyes open.

In closing I wish to thank and acknowledge information, advice, and assistance from Ms. Sharon Collman, Entomologist, King County Cooperative Extension Service in Seattle, Dr. Carl A. Johansen, Entomologist, Washington State University, Burnaby, B.C. I also wish to specially thank Dr. Arthur L. Antonelli, Entomologist Western Washington Research & Extension Center in Puyallup for accompanying me up into the hills. Although he was sure we were going to be lost forever, he still showed me the bug, patiently explained its nesting and foraging habits, and how to estimate infestation.□

# Wintering The Honeybee Colony: Part 3 Preparation Of Hives In Summer Stands

By T.S.K. JOHANSSON and M.P. JOHANSSON
Queens College of CUNY, Flushing, NY 11367 and Queensborough Community College of CUNY, Bayside, NY 11364

## Feeders

The Boardman entrance feeder is easy to use, but inadequate for large scale feeding, liable to be robbed, and bees cannot get to it when it is cold. The Doolittle division board feeder replaces an outer comb in the bottom brood chamber, and is filled by shifting the upper hive body(ies) to one side. Construction ranges from nailing two sides on to a frame to very elaborate models. Plastic versions may require a screen ladder for bees to climb up on, and floats to reduce the number of bees drowning in the syrup. Plastic bags placed around one or two empty combs, and then filled with syrup, can also be used for feeding.

A simple feeder can be made from an open tin or jar with narrow folded wire-screen ladder reaching from the inner-cover opening to the bottom of the container. A fitted float of light insulating board will prevent bees from drowning in the syrup. It has the advantage that it can be filled without removing the feeder. A tight hive body and cover keep robbers from getting at the syrup.

Inverted glass jars or tin pails with small holes in the lid and placed over the holes in an inner cover are excellent feeders. The Taylor feeder made of plastic pail with 40 or 50 [.015] mesh brass screen, and holding 30 pounds is inverted over a hole in a plywood cover. The syrup can be kept warm by placing an empty super and insulation around the feeder, and covering with a lid. Commercial operators also use Miller type tray feeders that hold 2-8 gallons of syrup and fit on top of the hive. Feeding should be done quickly so as not to stimulate brood rearing.

The ultimate feeder may be the gasoline engine (or electric motor) powered machine used to fill the cells of empty combs developed by N. Bartel in 1960-61[71]. Beekeepers have made such comb filling devices using a hand operated gas or diesel fuel, hand transfer, double-diaphragm pump on a 55 gallon drum[76]. They are used primarily for emergency and early spring feeding. Combs can be filled indoors and carried to the yard in bee tight conveyances to avoid robbing.

**Honey vs sugar.** The inefficiency of first removing honey, and then feeding sugar warrants an analysis of the costs involved since honey may be better for brood rearing[77]. Even partial substitution of sugar for winter stores of honey may reduce colony yields significantly, and be uneconomic unless there are spring and early summer nectar flows[78]. Feeding sugar or a mixture of sugar and honey does result in a lower incidence of dysentery but less brood[79]. Sugar syrup infected with yeast leads to dysentary and may also be toxic.

**Feeding antibiotics.** Anyone considering the addition of antibiotics in syrup as a preventative for disease should consult their state apiculturist for current recommendations, and for information as to whether resistant disease strains have been selected out in their area.

**Pollen.** Pollen provides bees with protein, and they are programmed to collect is assiduously from the first flower in spring to the last bloom in autumn. The small colonies the authors overwintered in a greenhouse scrubbed the stamens of every flower clean of pollen every day. Pollen is stored at the sides and below the brood nest, and it is imporant there be ample space for this excess to be used when weather prevents the bees flying or when blooms are scarce. A 3-story brood nest of deep frames, or equivalent, is none too much for a large colony at the height of the season. The lower portion of the nest also serves as a receiving area for incoming nectar and eventually the queen will be crowded into the lowest hive body to lay eggs. At the end of the season, the brood nest will contain combs of solid pollen for using during spring brood rearing. Such stored pollen is called bee bread because the action of yeasts has produced lactic acid, as in grass silage. It is more nutritious than fresh pollen, but has a lowered capacity to stimulate egg production. In the fall, the narrow band of pollen between the brood and honey will be covered with honey and capped[81].

Although bees keep their pollen close to the brood nest, they will collect it from remote parts of the hive when necessary. The small observation hives the authors kept in a bee house had a frame of stores above their single frame of brood. Small groups of bees were seen collecting bee bread from individual cells scattered throughout the frame. But when brood rearing begins in January, only pollen close to the brood nest will be available. It seems it therefore should be ideal if pollen is scattered throughout the combs. The authors have such combs in their hives. When one bee inspector saw the resulting brood pattern early in the season, a mixture of capped and open brood, he assumed the queen needed replacing. But it results from the queen beginning her egg laying amongst cells filled with pollen. As the pollen is consumed the cells become available for the queen to lay in, resulting in a mixed pattern of brood.

There are some regions or seasons when beekeepers complain of pollen-clogged combs, but that is not the bees' perception since being excessive and overdoing is the key to survival—like laying in supplies for that season in the antarctic bunker. It is estimated that a colony uses 45-65 pounds of pollen annually, or even as much as 110 pounds is not an unreasonable estimate. Farrar asserted that pollen reserves of 300, 600, or 1,000 sq. in., depending upon the locality, were necessary. He considered that the number of bees reared during January-March affected the next season's yield, a conclusion which Ribbands did not reach on the basis of the data. Bees can rear one cycle of brood without any pollen, cannibalizing the protein of their own bodies. The explosive increase in brood by April 10 after Farrar added 303 sq. in. of pollen on March 28th shows the rapidity with which a colony can expand its brood nest. In some years a smaller colony is more advantageous than a larger one, but the difference is unpredictable since timing and type of spring bloom in so variable. Hence colonies are programmed to overdo in storing honey and pollen.

There are regions where there does appear to be a deficiency of pollen in quantity and/or nutritive value. This may be especially true where monoculture agriculture is practiced, often under irrigation, and flora of the varied brushy, weedy fence rows and waste lands of older agricultural regions are not available from early spring to late autumn. Pollens are not equal in their amino acid composition. H.H. Haydak found the vitamin content of royal jelly considerably higher when produced by colonies using naturally collected pollen

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compared to experimental colonies fed on bee bread or pollen substitute.[82].

Feeding substitutes in place of pollen remains a possibility, but to date pollen supplements containing 20-25% of pollen collected the previous season have shown the most promise[83].

## The Location Of Hives

Although Dzierzon did not include location in his list of essential considerations for wintering, it has appeared in the list of other apiculturists. C.C. Miller was convinced that a windbreak is more important than packing. Merrill measured the effect of a windbreak during four winters in Kansas using the numbers of bees that 7 colonies had lost or gained when weighed in the spring. Without a windbreak a 2-story hive averaged 6,346 more bees than a 1-story hive, and 6,978 with a windbreak. The windbreak made an average difference of 8,600 bees for the 1-story hive, and 7,969 for the 2-story hive[84].

Wind blowing directly on a hive increases the rate of heat loss as it does on the human waiting for a bus on an exposed corner. In recent years this "wind chill factor" has assumed more emphasis in the daily weather reports than the actural air temperature. At 0°F a 20 MPH wind will have cooling power equivalent to -40°F. The arctic winds during the winter of 1981-82 produced a record breaking windchill of -25°F in Atlanta, Georgia, and -98°F at Fargo, North Dakota.

Predictions of maximum winds at any location may require 30-40 years of meteorological observations, but the shapes of trees can be a good indicator of wind force on them and are being used to locate wind powered generators. Plants are influenced by wind distribution, and building a wall permits a different community of plants to grown on the leeward side. Hives in exposed windy locations cannot be moved in the fall. It is therefore important that the essentials of wintering be taken into consideration even before the beekeeper chooses his equipment. In some instances, it may be impossible to create the ideal conditions. There is then no choice but to make the best of it.

If natural windbreaks against the prevailing winds do not exist, a few rows of coniferous trees can be planted. A row of trees 35 feet high will reduce a 30 MPH wind to 10 MPH for 100', and 15 MPH out 200'. The windbreak must extend beyond the hives as currents of air flow around the ends. Open hedge shelters do not provide adequate windbreaks as the bwind velocity through the base is 10% greater than with no shelter at all[85]. Hives placed near buildings or solid walls are also subject to harmful currents of air[86]. A 7' tall windbreak of boards can be built with 2" spacings to prevent the backward swirl of strong winds. Slat snow fencing is useful as a temporary windbreak, and bales of hay or straw, or a portable shed are other alternatives.

The ideal location for an apiary is midway on a slope facing south, with a belt of trees at the top. This provides drainage of water and air to remove moisture from the hives. The cold, damp, air that drains down the slope collects at the bottom of the hill, and the top of the hill is likely to be windswept. Sunny clearings in wooded areas provided excellent sites.

The admonition to place hives with an unobstructed southern exposure is based on the assumption that during the warmest part of the day, the bees may be able to take a flight[87]. As with many other generalizations, there are those with differences of opinion. Tupper and Savery suggested hives should face north so bees are not lured out by the sun when it is too cold to fly. That the best colonies in a beehouse over a period of 10 years were those facing north appears to support their view. Dyce and Morse caution that an overly protected site with temperatures 10-15°F above the surrounding area can result in the death of bees that fly out, become chilled, and cannot return to the hive. Cutting trees will increase the circulation of air[88].

## Procedures

Once determined that the colony is large enough, disease free, and has more than enough sealed honey and pollen, the actual preparation of the hive for winter can be done relatively quickly. A checklist of essential procedures is given below.

**After Frost.**

1. Remove the queen excluder so the queen is not left behind when the cluster moves into the 10-frame supers of honey above the brood nest.

2. Replace the equipment in need of repair or replacement. Frames or comb needing attention can be placed along the sides of the hive body, and marked with a thumb tack for removal during the spring inspection.

3. Provide an upper entrance for ventilation and exit where hives cannot be observed frequently, and the lower entrance could be blocked by dead bees, ice, or snow. Various methods of doing this were listed in the October 1983 article on ventilation. Most beekeepers use a small hole at the top of the hive bored through the wall of the hive, or the inner cover is turned upside down with a slot cut out of the rim. Other beekeepers use strips of shingle, a nail, or a stick to jack up the inner cover approximately $^3/_8$". Some beekeepers use a $^3/_8$-$^5/_8$" rim to fit on top of the hive with an opening at one end, and place the cover on top of this. If telescope covers are used, a hole can be bored in it opposite the rim opening. This eliminates boring a hole in hive bodies[89].

4. Fasten down a water tight cover so it will not blow off. Although stones or bricks placed on the cover are a common method, more elaborate devices such as a rope tied to a stake at one end and a weight at the other have been used. Clamps, such as Van Duesen's are no longer listed in bee supply catalogs. C.H. Pease used a half-round weight of cement with wire loop handle[90].

5. Leave a bottom board opening (essential to prevent dampness), but reduce it to $^1/_4$-$^5/_{16}$" x 2-4" before the colony is clustered and mice move into the hive to disturb the bees. Mouse guards can be made of 3 to the inch hardware cloth, and bee supply catalogs list those made of sheet metal. The authors use a piece of aluminum flashing bent at right angles which fits over the top and outer surface of the reducing block. A portion is cut to fit the reduced entrance and bent inward. In the rainy northwest galvanized plaster lath with $^3/_8$" triangular openings has been used aross the ¾" opening of the bottom board[91]. If there is any doubt whether mice have entered, it is best to move the hive bodies off of the bottom board and check to be certain before closing down the bottom entrance.

6. Raise the back of level hives slightly so that any moisture condensing in the hive can run out the front entrance.

7. Trim branches of trees or brush that might touch the hive in a wind as such disturbances may have a detrimental effect on the colony lasting two days.

**Optional Procedures**

1. Some beekeeprs advocate placing a shade in front of the entrance so bright light reflected by snow does not entice bees to fly out, becoming disoriented and chilled when they fall in the snow[92]. A block with an offset entrance which fits in front of the regular entrance reducer prevents the direct rays of the sun from shining into the hive[93].

2. Protection from soil moisture can be provided by placing the hives on a sheet of plastic or other waterproof material. The advantage of having hives on the ground is that they can be tipped over backwards for inspection[94]. But hive stands are necessary if soil drainage is poor.

3. Ice cold top bars and honey are a formidable barrier to the cluster during the coldest winter months. It was once the practice to poke holes through the combs from side to side with a pointed hoe handle, permitting the cluster to move laterally to honey located towards the sides of the

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hive. The combs of wild colonies have such passageways, as do combs built in hive frames without full sheets of foundation. Langstroth considered such passageways mandatory for successful use of his hive. Taber and Owens, with much deeper frames, discovered that the colonies starved unless they punched holes through the combs. Tin winter passage cutters were available in the 1880's. R.W. Moody believes that shallow supers are superior for wintering because they do provide better possibilities for lateral movement than deep hive bodies[95].

4. Many beekeeprs provide some form of wrapping or packing where it is not possible to relocate or provide protection against the wind. This subject will be discussed in a later article.

### Special Problems

1. If bothered by skunks, a piece of chicken wire placed under the front of the bottom board and extending out 24" has been suggested as a method to discourage them. The animal's underside is raised up and therefore more vulnerable to the stings of bees flying out from the warm center of the cluster. Disturbances by livestock can be prevented with fencing.

2. Protection against bears may require the construction of strong electric fences, but even these may be ineffective against experienced animals. Ten hives can be strapped together witha piece of ¾" plywood on the top and bottom. Such a "condominium" could be secured to stakes.

3. If hives are located where vandalism is a problem, the hive components should be stapled together.

4. Where there is danger of hives being stolen by thieves, chaining and locking them together may be a deterrant. In Africa and Europe hives are commonly kept in beehouses for protection.

5. It is obvious that hives left on floodplains are in danger of being swept away by water from melting snow or unusual periods of rain.

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# A GLEANINGS INTERVIEW

## WITH PHILLIP AND FRED ROSSMAN

Phillip Rossman preparing to cage a queen.

Fred Rossman addressing shipment of queens.

**In 1928, J.G. Rossman ("Mr. Joe" as he became known as), began beekeeping in Moultrie, Georgia. After a number of years working in partnership with Emerson Long of St. Paris, Ohio, Mr. Joe bought his partner's interest and began Rossman Apiaries in 1952. Eventually, his eldest son, Fred, joined the company in 1966 as did another son, Phillip in 1969, and the three worked together until Mr. Joe's death in 1983. Fred, the company's production manager, knew as early as the 10th grade that he wanted to work in the profession of beekeeping. He went to college after high school but never interviewed for any other job, sensing that beekeeping was something of an "inborn thing" with him. Although Phillip, too, grew up with beekeeping, his interests gravitated toward radio broadcasting and electronics. As a student at Auburn University, however, he was offered a job maintaining some university bee colonies and progressively found himself growing back toward the family business. The Rossmans are well known to many in the beekeeping world. Both have been active in the workings of commercial beekeeping and association functions. Phillip recently completed a term as President of the American Beekeeping Federation. The Rossmans maintain approximately 4,000 colonies of bees in an 85 mile radius around Moultrie, Georgia. Each year their operation provides thousands of pounds of package bees and queens to beekeepers throughout the world.**

**GLEANINGS:** What are some of the continuing challenges faced by package bee and queen breeding operations?

**FRED ROSSMAN:** The challenge with the bees themselves is getting them built up in time enough to fill our queen nucs and have queens available at a specific time. It is a great challenge to sit down and try to figure out when you can start grafting, and when is the latest date you can graft and still fill customer orders. For example, last year we had just beautiful weather in January. We normally start grafting between the 15th and 20th of February; yet, when it got to be the 15th, it turned awful cold and we had to stop and figure out things to try and out-guess Mother Nature. As far as package bees go, you have to equalize and get your bees in shape when you need them, but you also can't build them up too fast because then you have other problems. One of the greatest challenges is for someone to come up with a way to harvest bees faster but keep the same quality. I guess I relate it to harvesting wheat or oats with great combines to do it in a hurry, but we don't have a way to combine bees as far as I know.

**PHILLIP ROSSMAN:** Another challenge is that we are in the middle of a large, extensive agricultural area where a lot of row cropping is done, and pesticides, herbicides and insecticides are frequently used. We have learned to change our management techniques to fit that situation. We know what to look for and expect in certain situations. Diminishing bee pasture affects us, too, as it does most everyone else. We have had to feed more. Economics play a big role in this particular operation. We oftentimes have difficulty finding qualified help. Costs of goods continually rise. And, of course, we encounter challenges similar to any other agricultural operation: mechanical breakdowns, supply shortages and so on.

**GLEANINGS:** When you look to the future, what concerns you the most?

**PHILLIP ROSSMAN:** Like everyone else, we are concerned about the honey market. Even though bee and honey producers are not expected to produce honey we are strictly dependent upon the honey market. I feel we need to get an effective honey promotion program in place. Imported honey, of course, plays a big role,

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but to my way of thinking, a good marketing program promoting American honey would make it so imports wouldn't matter all that much. Other concerns I have are about the bee business in general, such as the natural migration of the African bee. Certainly they are more aggressive than the bees we have today, but I think that by not getting in a state of panic and looking at the situation logically we might be able to maintain the bee business. However, their aggressiveness doesn't concern me as much as the fact that there are mites coming with the African bees. I'm also concerned that Canadian beekeepers are now talking of creating self-sufficency so they will not have to depend on Southern U.S. producers for bees and queens. Yet another concern is with flagrant adulteration of honey with corn syrups. A continual policing program must be maintained by the industry itself, not only in this regard but to deal with problems like possible EDB residues in honey. On top of all this I worry about the economics of beekeeping -- that a person will be able to maintain bees with a margin of profit. I know that I, for one, would probably seek other employment if I could not maintain the standard of living I have achieved.

**Colonies being fed in preparation for use in queen rearing operation. The small building in the rear is used for dry grafting larvae into cell cups. These cells are first put into a starter colony which is queenless, and later moved to a finishing colony from which, shortly before the ripe queen cell will naturally hatch, they are again removed and each cell is placed in a mating nuc where the queen will emerge, make her mating flight and begin laying eggs.**

**FRED ROSSMAN:** Undoubtedly, I worry about the mite problem that we might run into with Africanized bees. I do know that we would be cut off from selling packages into Canada and might even be cut off from Northern states if we had a mite problem and they don't. I, too, am concerned about the honey market. We sit back and say, we'll let the government buy it. Really, we are not doing ourselves justice. The beekeeping industry is going to have to pull together a bit more than they are and try to market our honey.

**GLEANINGS:** And what, when you look to the future, do you see as a sign of hopefulness?

**FRED ROSSMAN:** I think that what you will eventully find, maybe, are commercial people who are soley beekeepers and manage their businesses properly and are going to survive no matter what.

**PHILLIP ROSSMAN:** Regarding hope for the future, the most hope I have for the beekeeping industry is that we, as beekeepers, and the general public, won't panic and go off the deep end and forget what we are here to do. I would hope we can maintain our calmness and sanity and our logical thinking enough that we can tackle our problems and use these stumbling blocks as stepping stones rather than reasons to lay down and quit. I feel the honey market will turn around as soon as there is a progressive marketing system in place. I believe there will always be a demand for package bees and queens. Our responsibility as producers is to continually look for the best and improve it, either through careful genetic selections or by learning to adapt our method of working with the goods that we now have to work with. We, as an industry, can accomplish our goals by grouping together to achieve answers rather than independently going off on tangients.

**GLEANINGS:** What management techniques do you, as package bee and queen producers, use that other beekeepers, regardless of their specific activities, can learn from?

**PHILLIP ROSSMAN:** The most common lack of sense is of common sense. When working bees, use common sense. Basic

**From left to right: Bill McFarland, Floyd Porter and Lynn Barton prepare queen cages. In the background are two mating nucs. The beekeepers will inspect these nucs for indication of a good brood pattern. This will indicate that the queen they earlier introduced into the nuc has mated and is viable. That queen will be captured, in some cases marked and or clipped, and caged for inclusion in a package of bees being shipped. Surplus queens are caged and introduced to a nursury colony which will care for them until they are needed.**

beekeeping is all the same. When we get into queen production. We get into a more technical field and we have to pay much closer attention to details of production.

Package bee production is very much like honey production in that we have to build bees to a peak by a certain deadline. What happens after that point is quite different and probably not very relevant to what others in honey or pollination operations would do.

**FRED ROSSMAN:** I'm not sure that I am qualified to state the right way to handle bees. The way I was brought up, of course, is the right way to me, but it's not to another person handling bees. I do feel that you've got to pay attention and be conscious of what you're doing. In handling bees, that way, you can do well even on the worst day. You may get stung every once in awhile, but you know that's part of the work. We encourage people we work with to handle the bees gently and they'll be able to progress a whole lot faster. We are a company where things have been done the same way for years. The way we shake bees, for instance, is not the way many people do. It works good for us and gives us the opportunity to examine our hives a little closer than you would in other forms of gathering bees. You've got to weigh

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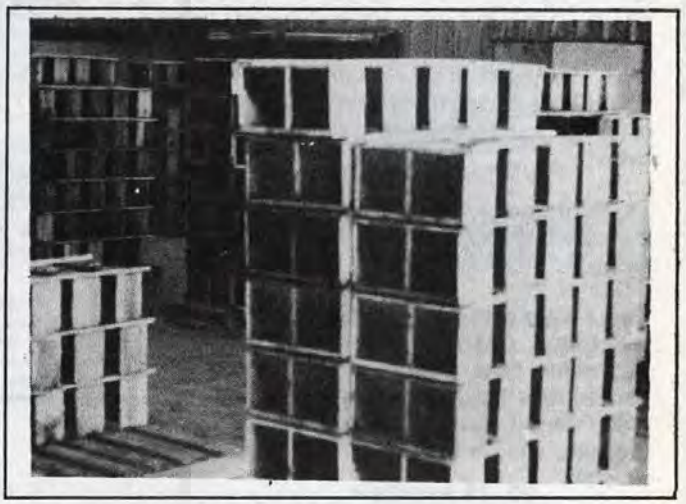
whether you are going out after quantity or quality. Of course, I have no objections to change. We want to try some new things this year. Just recently, we tried something that took us about three years to decide to do. We leased some bees to a beekeeper in the north for the summer. If I hadn't even gotten any money at all, none whatsoever, I would have made money on the deal because I got my bees out of the area where insecticides are. When you talk about change, though, I am pretty conservative. You go out on a limb too far these days and you go under. I don't just come up with an idea and say "hey" we're going to do this for the sake of doing it. For instance, I wanted to put in a computer for years. Finally we got one and we found out they have problems, too. But, I think you have to have those sort of things to stay up with the times. Within the next year I hope I'll have all my bee yards set up on cards for instant recall. To me, this is a part of good management. You can spend a lot of money in a hurry and it's awful hard to find somebody today who is able to keep records -- I mean, for yard management.

Another thing is that anyone getting into the bee business had better realize that it is not easy work. Unfortunately, we have too many people today who aren't willing to put out the manual labor. One of the hardest things is to be able to find qualified help. The beekeeping industry happens to one of those industries where a person could get, I suppose, 400-500 colonies at a reasonable price and go into business for himself. That's what happens to us. We considered running a school for several years because everytime we got someone trained to do what we wanted, they would up and go into business for themselves. Don't get me wrong, I'm all for people getting ahead, it just makes it rough to keep a business going. Still, beekeeping is something I enjoy. I enjoy it because I still get a good feeling whenever it comes time get out in the bee yard. I guess that's the key to telling whether or not you are doing the right thing -- if after a lot of years you still feel that way.

**In the package bee yard, Rufus Pitts makes a final inspection for the queen. Queens are segregated and the heavily populated frames of bees are then shaken into packages.**

**Rufus Pitts and John Lassiter (left) shake frames of bees into a funnel and fill the package below. The packages are then stacked in a specially built trailor and transported to the main building at Rossman Apiaries.**

**Tommy Page fills feeder cans with sugar syrup. These cans are introduced to the packages of bees as a means of giving them adequate food to survive their shipment. Basically at the same time the queen cage is suspended into the caged package of bees.**



**Pallet loads of bees waiting to be shipped from Rossman Apiaries.**

## BEEKEEPING TECHNOLOGY

FROM PAGE 356

1969) is a cookbook for children with adult supervision. The recipes vary in complexity but are always interesting.

I have had two authorities to help me with my preparations for younger audiences. My daughters, Lydia (age 8) and Robyn (age 5), agree that bees usually frighten children and that to children all insects that fly are bees and will sting. Robyn said most kids like bees in an observation hive because they are colorful, small, and move around a lot. Both girls said that bee stings were what all children did not like about bees.

Even though working with children may at times be exasperating, it is important that we educate them early. Several things can easily cause a child to dislike bees for life. That would truly be a shame.□

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## TESTING YOUR BEEKEEPING KNOWLEDGE

CONTINUED FROM PAGE 356

**7. B** **12. A**
**8. E** **13. D**
**9. A** **14. B**
**10. B** **15. A**
**11. C** **16. C**

**17.** Crystallized honey is normally reliquefied by placing the containers in either a hot, dry chamber or in a hot water bath until crystals are dissolved. Small quantities of honey can be reliquefied in a microwave oven.

**18.** Hygroscopic - honey readily absorbs moisture from moist air and loses it to dry air.

**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.**

**20 -18 excellent**
**17-15 good**
**14-12 fair**



# BOOK REVIEW

*Guide To Bees And Honey,* by Ted Hooper. Pub. in England by Blandford Press, dist. in U.S. by Sterling Pub. Co., 2 Park Avenue, New York 10016. Pp. 260, $12.50.

Mr. Hooper's book is beautifully illustrated, with good, clear drawings, excellent photographs and several stunning color plates. It is a general treatise on managing bees for honey production, with chapters on bee behavior, controlling swarms and making increase, queen rearing, diseases, and so on. It breaks no new ground, but the text is clear and well organized. This new and revised edition is aimed at an American audience. Thus the section on all the diverse hives familiar to the British is replaced with a section on the Langstroth hive, a section on package bees has been added, and the chapter on honey plants has been entirely rewritten for American beekeepers. Oddly, the section on Acarine disease has been retained, as well as one on heather honey. Little is said about beeswax, and, regretably, almost nothing about comb honey production, which is not much done in England. This cloth-bound and well-done book is very reasonably priced.

**—Richard Taylor**

**Keeping Bees: A Handbook For The Hobbyist Beekeeper,** by Franklin H. Carrier. Pub. by Carrier's Beekeeping Supplies, 601 South Baywood Ave., San Jose, CA 95128. Pp. 35, $15.95 plus shipping.

The author was a hobby beekeeper for twenty-five years, adding this to a career in the navy and as a systems analyst in the aerospace industry until 1973, when he converted his hobby to a full-time occupation. With his wife Helynn he runs a bee supply business, produces honey, and teaches and writes about bees with immense enthusiasm.

This is the second of a three-volume trilogy, the first, published two years ago, being titled *Begin To Keep Bees.* The third volume will deal with unusual beekeeping situtations and special techniques.

The present volume is aptly described as a "step-by-stp" approach. Indeed, no step of any procedure or manipulation is omitted. On virtually every page the reader is exhorted to begin by dressing properly, then to light the smoker, then open the hive— no detail is omitted. I found that this somewhat disrupted the enjoyment of reading the text, but that is Mr. Carrier's way, carried over from the first volume.

There is a great deal of expert knowledge here, gleaned from the author's keen observations, and fueled by his enthusiasm. The discussion of terramycin as an agent of disease control is the best I have seen. His observations on queens, swarm control, swarm gathering and such matters, which always engross beginners, are good and to the point. Unfortunately, almost nothing is said about producing comb honey.

The book is well illustrated with black and white photos, and attractively bound.

**—Richard Taylor**

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# Research Review

**By DR. ROGER A. MORSE**
**Department of Entomology**
**Comstock Hall**
**Cornell University**
**Ithaca, NY 14853**

## Swarm Prevention

This is still the swarming season in the north. Northern honey flows are underway in some areas and will soon start in others. If a colony of bees swarms, its population is divided. Colonies with fewer bees produce less honey. Preventing swarming is the key to honey production.

If one wants to prevent swarming the rules are no different today from what they were 50 or 100 years ago; colonies should be headed by young queens. Congestion causes swarming. Colonies need room to relieve congestion. Supers should be added long before they are needed. Extra space encourages food storage. Adequate ventilation should be provided.

Whereas the above recommendations may not be new there have been several studies in recent years that support them. These tell us why the management practices worked out by the early commercial beekeepers through the trial and error system are effective.

Queens two years old are more than twice as likely to head colonies that will swarm as do queens one year old. These data obtained by Dr. James Simpson of the Rothamsted Experiment Station in England. Simpson examined records kept by commercial beekeepers plus his own observations. I think that this was something that was agreed upon by many people but Simpson gave us the data.

Congestion causes swarming. That statement was made probably a hundred or more years ago. However, it was again Dr. Simpson who documented that colonies allowed to outgrow small hives had a greater tendency to raise queens and to swarm.

One of my students, Dr. Gerald Combs, showed that some of the bees in colonies preparing to swarm began to engorge as many as ten days before the swarm emerges from the hive. As the time of swarm emergence nears more and more bees engorge. Engored bees are not working. Engorgement is not the only change that takes place when a colony prepares to swarm. In addition the queen loses weight and lays fewer eggs. Scout bees cease to search for food and instead seek a new home. Wax glands develop in worker bees in preparation for building new comb. When a colony prepares to swarm it is not concerned with honey production even when a good honey flow is underway. This is the reason it is important to relieve congestion by giving colonies plenty of room long before it's needed.

Dr. John Free of the Rothamsted Station studied hoarding behavior in honey bees. He found that bees preferred to store food in dark comb; worker comb was preferred over drone comb. More recently these studies have been expanded by Dr. Thomas Rinderer and his associates at the USDA Research Station in Baton Rouge, Louisiana. His laboratory tests showed increasing the comb area would result in bees storing more food. We interpret this information to support the thought that adding supers well in advance of the time they are needed is best. Some beekeepers have thought they should add supers only as they are needed by the bees. This can lead to less production.

The need for ventilation, especially during a honey flow, is not so well documented as some of the above. However, the effects of a lack of ventilation are easier to see. During warm weather crowded colonies will have large numbers of bees "hanging out" at the entrance. I have seen colonies with as many as five to eight pounds of bees in a mass at the colony entrance. I have also given such colonies deeper bottom boards, or have cracked apart storage supers and have seen how rapidly the bees move inside of the colony; they will respond within minutes. Good ventilation not only is important in encouraging foraging but is also needed for proper honey ripening.

In this short space I have mentioned only a few of the researchers and papers that pertain to the subject of swarm prevention. We do not have all of the answers but each year we see a few more papers that give us a better understanding of how a colony of bees function and how we can better control it for our own benefit. There is no shortage of ideas to be pursued by interested researchers. For example, we still do not understand the role sound (such as piping) plays in swarming. We do not know which chemicals inhibit ovary development in worker bees or queen rearing in queenrite colonies.

It is not difficult to make a long list of subjects to investigate.

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Combs, G.E. Jr. The engorgement of swarming worker honeybees. Journal of Apicultural Research 11:212-128. 1972.

## MINER INSTITUTE MEETING

The William H. Miner Agricultural Research Institute in cooperation with the Champlain Valley Beekeeper's Association will be meeting at the Miner Center auditorium in Chazy, NY on Saturday, July 14th, from 1:00-3:00 pm.

Guest speaker will be Charlie Mraz from Champlain Valley Apiaries of Middlebury, VT. He will be discussing Bee Venom Therapy for treatment of rheumatic diseases and queen breeding for hobby beekeepers.

For more information, call Loretta Suprenant at (518) 846-8020.

## A REVIEW OF TWO SLIDE SHOWS FROM *BEEKEEPING EDUCATION SERVICE.*

New, from BES, are two slide series: "Bee Tree: Natural Home of the Honeybee" by Thomas D. Seeley, Ph.D., and "Feeding Honey Bee Colonies" by Clarence H. Collison and Lawrence J. Connor. In both sets, as with other slide series material from BES, the photographic quality is very much above average and the presentations are supplimented with graphs, diagrams and other graphics which greatly support the overall formats.

These two sets received several field tests at local beekeepers' association meetings, and were reviewed favorably by all. In particular, the feeding series was thought to be a helpful collection of information organized in a sequential way and accompanied by a detailed, comprehensive script. Topics include: winter feeding, preparation of emergency candy, spring and fall feeding, syrup recipes, feeder types,protein feeding and preparation of pollen substitutes and suppliments. This 42 slide sequence sells for $39.00.

The 20 slide bee tree set was of interest to viewers partly because bee trees hold a sense of mystery and attraction to many beekeepers, and partly because it imparted considerable information having to do with this natural habitat of bees. Discussions include: tree types, entrances, use of propolis, cavity sizes, comb and bait hives. The set sells for $18.00.

Both sets are available from BEEKEEPING EDUCATION SERVICE: Box 817, Cheshire, CT 06410.

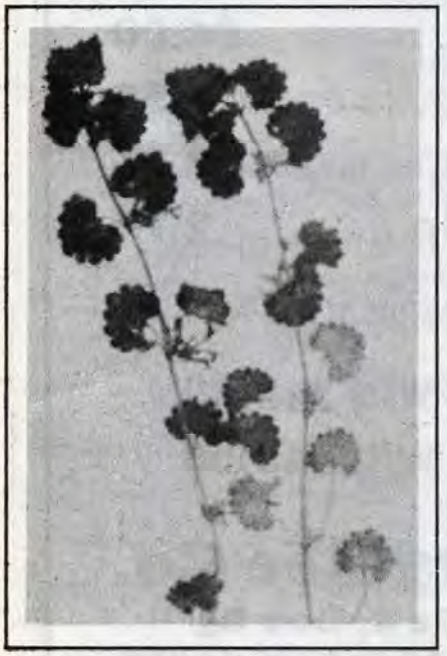
# Honey Plants
## Ground Ivy As A Nectar Source

By FRANCIS O. HOLMES Flanders Road Henniker, New Hampshire 03242

Plants that furnish substantial amounts of nectar in our part of the world may be much less effective sources elsewhere. In the Honey Plants of Iowa (Iowa Geological Survey, Bulletin No. 7, 1930) the ground ivy, a close relative of catnip, is dismissed as furnishing but little nectar to honeybees in Iowa. Yet in New Hampshire honeybees swarm over the attractive but rather inconspicuous blue blossoms for more than a month each year in May and early June.

This ground ivy is sometimes referred to as *Glechoma hederacea L.*, but it may also appear in lists of nectar plants as *Nepeta hederacea* (L.) Trevisan, which emphasizes its close relationship to the famous nectar plant catnip (*Nepeta cataria L.*]

This weed of shady places was originally introduced from Europe. It often invades lawns by extending from adjacent shrubbery and sending down roots from its creeping stems as these lengthen and mature to produce flowers. Mowing of lawns does trim away many of the flowering branches, but the ground ivy is a vigorous perennial and persists year after year in sites that are favorable for its growth.



Ground Ivy

Visual inspection is not very effective for discovering honeybees busy as nectar collecting from ground ivy. It is better to listen at each patch of the creeping vine. Once the characteristic hum of the busy bees is noted, a closer inspection will show the worker bees moving from flower to flower inconspicuously but efficiently.

Honeybees seem never to collect pollen from ground ivy, but the plant certainly is a substantial source of nectar in early summer. Its frequent occurrence in dooryards may often account for the observation in extensive agricultural areas that honeybees located near towns gather more nectar and make more honey than colonies of bees located in areas of intensive farming, especially where grain crops are most important.

Very few nectar plants can boast of attracting honeybees to collect nectar over a period in excess of a month each year. Here in southern New Hampshire, the ground ivy attracts honeybees from about May 8th to June 10th. It makes a substantial contribution to the "wildflower honey" of this area, where "unifloral" honey is seldom if ever harvested.□

## A BEE MANSION?

**From John Kezaminas, Rockford, Illinois, comes this photo of an elaborate bee habitat. The only thing we can see that might be missing from this beautiful hive is a two car garage and whirlpool bath in the back!**

***

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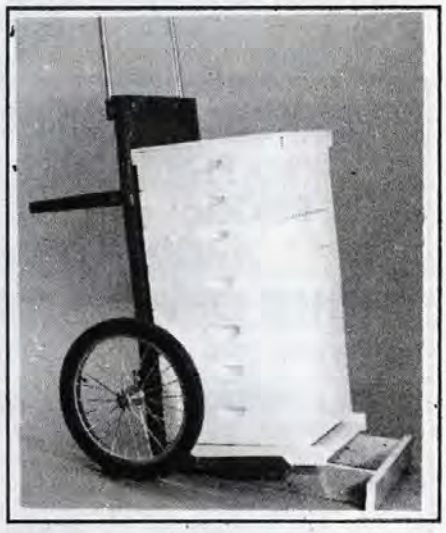

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***

*Beekeeping Folk Arts*

By AMOS ARBEE

As the beekeeper slept, he dreamed somewhat like a boy with sugarplums bouncing to and fro through his mind. Now beekeeping had become self-satisfying at last. The dread diseases of AFB and EFB, along with all other threatening diseases known to the beekeeper were virtually eliminated becoming a worry of the past. No more real concern about the Black Bear as we had also found a successful means to curb his untold and expensive destruction. The dream was going on and on with almost nothing but the most elated thoughts possible insofar as beekeeping could be concerned even to the point of imagining that he had produced volumes upon volumes of beautiful light mild flavored honey. He was trucking his huge load of honey to the processor who normally purchased his crop each season. As he was descending a grade in the road he passed his beekeeping friend and stopped momentarily to chat a little. His friend seeing the large load of honey exclaimed, "My son, where might ya be goin' with that load of honey, where have ya been, no honey is needed here, its all being imported nowadays." Dreams are dreams, but with honey for cooking and baking there only sweet reality.

## Citrus Salad Dressing

Put bowl & beater in refrigerator to chill thoroughly.

Mix together:

**3 tbsps. orange honey**

**3 tsps. orange juice**

Using chilled bowl & beater, whip ½ cup chilled whipping cream. Beat honey mixture into whipped cream with final few strokes.

Goes great with chilled orange slices or grapefruit sections.

## "Honey Nut Torte"

**3 eggs**
**1 cup mild flavored honey**
**3 tbsp. water**
**2 tbsp. bread crumbs**
**2 tsp. baking powder**
**1 cup chopped nuts**
**½ pt. whipping cream**

In a large bowl, beat eggs well until they are light yellow and thickened. In a small bowl, mix honey and water. Add to eggs in small amounts, beating well after each addition. Combine bread crumbs, baking powder and nuts. Add to egg mixture gradually, beating well after each addition. Line two 8" cake pans with waxed paper (round pans). Place about half of the mixture into each pan. Bake at 350°F. for about 20 to 25 mintues.

Remove from oven when cool. Whip half of the whipping cream. Spread one layer of cake with half the cream. Cover with the other layer and refrigerate.

Just before serving, whip other half of whipping cream and spread on top. A delicacy to behold!

# Why Blend Honey For Market?

**By FREDERICK H. THOMPSON**
**3598 Stony Point Road**
**Grand Island, NY 14072**

Most people put honey into two categories — mild and strong. They consider dark honey to have a strong taste and light honey to be mild flavored. This statement is generally true since most people are exposed to very few types of honey.

For this reason honey producers blend to produce a fairly mild, uniform-colored product since the average consumer doesn't expect variations in color or flavor. However, when it comes down to the small beekeeper it may be advantageous to market various types of product.

Every flower produces a nectar with a distinct flavor and color. In the Northeast, for instance, honey with strong and mild taste is produced at various times during the honey season. Significant amounts of honey have been produced from fruit trees, clover, alfalfa, buckwheat, purple loosestrife, goldenrod and aster, just to name a few.

For the small producer or hobbyist a number of problems may arise in connection with blending:

1. How to mix honeys available in the proper proportions to produce a uniform blend.
2. Additional mixing equipment required for blending.
3. Determination if the final product will match previous blends in color and taste.

Why go through all the problems of blending when there are possibilities of marketing honeys with their unique characteristics? With a little advertising, outlets can be found for both strong and mild-tasting honey. Dark honey can be used in making "granola" or substituted for sugar in cereals. Light honey is good in tea and can be used in baking or preserving where the overpowering taste of dark honey is not desired.

Those of us living close to large populated areas will find people who will have preferences in honey. What must be realized is that not all of us have similar tastes. Your likes may be different from mine. This may be due to the type of food you have been accustomed to eating or your ethnic background. For example, I have found Koreans prefer stronger honey than Europeans. Also, people who smoke generally require more seasoning on their foods since their taste buds are not as sensitive as those who don't. They may prefer the darker honey.

It makes sense (cents, too) to give the customer a choice. Let him or her choose the type of honey desired — whether it be for processing or just for a delicious buttered muffin. You'll find that your honey can be preferred over a blended product.□

# Beekeeper Education At Fairview College

An air of excitement surrounds the beekeeping program at Fairview College.

The college, already recognized as an important center of education and training by the Canadian and international beekeeping industry, is in the midst of a major program and facility expansion.

To accomodate increased demand, the Beekeeper Technician program has been extended to eleven months. This extension has allowed beekeeping students to receive more in-depth instruction in apiculture theory, the principles of honey production, and the management aspects of commercial beekeeping.

An extended field trip has also been incorporated. For the third consecutive year, Beekeeper Technician students visited the queen-rearing and package-bee production area of California where they billeted with local beekeepers.

A 300-colony apiary has been developed on the Fairview campus and construction of a new building exclusively for the beekeeping program begins this spring. The facility will house a complete honey processing unit, woodworking shop, an apiculture laboratory, classrooms, and an indoor overwintering area.

With the addition of the apiary and beekeeper training building, Fairview College will be entering into a variety of research projects. Beekeeping staff will be working with Dr. Tibor Szabo of Agriculture Canada's Beaverlodge Research station on the development of The Alberta Bee. "The Alberta Bee" is a new strain of honeybee developed to better withstand northern climatic conditions.

Queen-rearing and overwintering research projects will also be conducted.

Denis McKenna, Coordinator of the Beekeeper Technician program, is understandably enthusiastic.

"We're really starting to see the results of several years hard work. We're going to be able to serve the beekeeping industry in a way we hardly thought possible when we started six years ago", he said.

**Fairview College Beekeeping Staff members. Left to Right: Elmer Zumwalt—Apiculture Technician; Dr. Jerry Awram—Beekeeping Instructor; Kevin Ward—Apiculture Technician; Denis McKenna—Beekeeping Coordinator; David Kains—Apiculture Technician.**

During those six years Fairview College has graduated 100 Beekeeper Technicians. Many of these graduates are working as commercial beekeepers and as extension officers both with Canadian provincial and federal governments, and abroad.

The Beekeeper Technician program has received extensive international recognition. Every year students from outside Canada have enrolled. The 1983/84 class includes students from Austria, Switzerland, Denmark and England. Previous students have come from South Africa, Ireland, Scotland, Wales and Trinidad.

Fairview College is also engaged in a beekeeping development project with the government of Tanzania. Ten Tanzanians, all with previous experience as beekeeping extension officers, are currently in Fairview taking a special year-long Beekeeper Technician course.

"This is an excellent development project", said McKenna. "We will be helping Tanzania develop the skills required to satisfy its growing demand for honey products".

Preliminary discussions aimed at setting up similar projects are underway with other countries.

To manage these expanded operations, the college has hired three new employees, raising the Beekeeping Department staff complement to five.

**More information on the Fairview College beekeeping program can be obtained by contacting either Denis McKenna or the Registrar at Box 3000, Fairview, Alberta, Canada, TOH 1LO or by phone at (403) 835-2213.**

# Bees On Wheels

By SYD L. McGRAW 2504 Livenshire Drive Garland, Texas

I have read with great interest various reports of unsatisfactory attempts at using trailers with fixed hives on them. I am surprised that several accounts indicate that it is an unsatisfactory method. I have found it to be very good for me.

As a hobby beekeeper, I learned early that moving bees was a must, due to lack of prolonged nectar sources in one place. I also found that one person has a difficult time moving hives by himself. Since I did not have a beekeeper friend nearby to swap out work with, I humped many hives by my lonesome, as well as subjecting my good wife to some heavy lifting. I tried many of the make-it-yourself hive lifters, which were a big help, but they still took two people.

I decided a trailer with the hives attached was the answer to my mobility problem. I found an old, single-axle, farm trailer that I got for almost nothing. I "poor-boyed" this thing into a 12 foot unit that I could put up to 10 hives on, five facing each side and spaced for working room. To the front and sides, I welded on inch pipe rails to the angle iron frame. These rails are the tie points for securing the hives during moves. I made locks cut out of 1 x 4's to fit the front and rear of the bottom boards. These are secured to the trailer floor, and a large wood screw was placed through the bottom board entries into the trailer floor. This made a very stable position for the hives. The bottom board, hive bodies, and supers were secured to each other with hive staples when moving to a new location.

I have made many one-man moves with no pain, no strain. All it takes is a few preplanned actions. Since I move bees at night, I always drive into the new location during daylight. I accomplish two things with this trip. First, I drive the route to the site, precluding nightime surprises like stumps, ditches, water seeps, and sand beds. Secondly, I can get a good view of the area and select the best location and orientation of the trailer. Caution—There are bee thieves! After having three of my hives stolen, I always try to get my trailer in a fenced field with a locked gate and hopefully near a house. I also use a trailer coupler-lock to prevent it from being hooked up and hauled off.

When it's time to move the bees, I gather my spare tire, trailer jack, hand light, ropes, and entry screens. I try to arrive at the bee yard about one hour before dark. First, I secure all the hive parts with staples. Next,

I tied down the hives using good ropes. I use a hay-hauler's knot to get as much pressure as possible across two hives. With the hives tied across, I run a rope lengthwise over the cross ropes. This makes a very secure load. I then hook up to the truck and check for signal and clearance light operation. When it is dark enough for the bees to be home, I use screens to close the entries. Now all is ready to roll on to the new field of nectar.

This two-bit trailer proved to me that I could double, even triple, my production from my few hives, and the moves were labor free and something I could do when I wanted to, not when a fried would be available to help. So I began looking for a more substantial trailer that my resources could afford. I found this to be a 16 foot, dual-axle travel trailer frame with 2 x 8 floor. This type trailer handles easier with a light truck and will easily accomodate 12 hives with plenty of room to work the hives. The locks, which are placed in front of the bottom boards, are painted different colors to aid in drift prevention. I have been able to maintain stable hive populations in the side-by-side hives. When I position the trailer, I usually park it so the hives are facing east and west.

This has proven to be very successful for me and has added an additional dimension of pleasure to my beekeeping hobby. As for the question of productivity, the one year that all elements were favorable for beekeeping I averaged 163 pounds of honey per hive on the trailer. Other years have varied but never less than an average of 100 pounds of honey per hive. Bees on wheels will deliver results; try it, using a good trailer, planning well, and adding a large portion of good common sense while traveling with a trailer loaded with bees. □

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# Animals In The Beeyard

By DR. GRANT D. MORSE
121 Ulster Ave. Saugerties, N.Y.

If your beeyard is located within even a short distance from a dwelling, it is likely to be visited by a number of animals other than bees. I have observed several such visits.

One day in February this year I received a phone call from the owner of the land on which my beeyard is located. He told me that two of my colonies had been disrupted by some agent. I went promptly to investigate.

I found the black paper packing torn from the upper portions of two hives that had been set close together last fall. The heavy stones that had been placed on the covers above the packing had been removed, the crumpled paper packing on the inner covers had been taken away. Only the inner covers remained to cover the hives.

At first I assumed that some young lad had been meddling, either out of curiosity, or in an attempt to secure some honey—or maybe just for the "dickens of it." But the more I surveyed the situation, the more I concluded that the intruder had been an animal.

Last October when I had packed the two hives I had placed a liberal quantity of mice poison on the inner covers of both hives. The remains of two mouse nests showed that the quantity had not been enough, however. Evidently the poison had been consumed by mice, then others had built nests there. I have found from previous experience, however, that some pregnant mice either are immune to a limited quantity of poison or else refuse to eat it.

Two species of wild animal, the fox and the wildcat, frequently visit my beeyard location since it is situated in a small clearing some 200 feet within a rather large stretch of woodland. Both foxes and wildcats like to eat mice. Neither would have any difficulty in detecting the presence of mouse nests in the tops of beehives, particularly when they contain young. Mice like to build nests at the tops of bee hives because they secure free heat. It's an even better location for them than the interiors of hives.

The land owner had told me over the phone that he detected "round tracks" in the vicinity of the hives. I didn't pay much attention to that part of his message at the time. I concluded that if a human had molested the hives, it is likely that he would have thrown the stone weights and the covers some little distance from the hives.

However, the stones and the covers were located close to the hives suggesting that they had been pushed off rather than removed by human hands. The paper wrappings were torn somewhat at the sides of the hive. Each colony consisted of four hivebodies.

A fox might want to secure mice from such a location but would probably lack the strength and aggressiveness to tear apart the packing and to remove the stones and covers. A wildcat, on the other hand, is both strong enough and aggressive enough to perform such a feat. I am inclined to assume that a wildcat was the culprit that disturbed my hives. I'd be interested to learn if other beekeepers have had a similar experience.

## A Bear In The Beeyard

My bee yards over the years have twice been visited by bears. The first time was several years ago. There had been two or three visits before I discovered their work. Bears vary in their destructiveness. That particular bear was very aggressive. But he evidently did not like to be stung; he carried some of the supers as far as 200 feet from their locations.

The last visitation was to my present yard some three years ago. That bear was a more careful one. He(she) disturbed only two colonies but left the others untouched. The bear cuffed aside the supers containing extracting combs and gave attention only to combs containing brood, twenty in all. This bear may have been accompanied by a half grown cub. He(she) was careful to eat the combs at the rear of the hives where the bees would be less active.

Many ways have been suggested to help prevent bear damage, but the more effective, such as fencing, can be of a cost prohibition to many beekeepers.

## Deer As Beeyard Visitors

Over the years, deer have often traveled through my yards. When I set up my present yard several years ago I set the hives down within a foot of an active deer trail which the deer traveled nightly to feed in the nearby meadow. Immediately, the deer changed their routing and established a trail about thirty feet farther from the hives. I have seen deer near that yard in the daytime. On no occasion over the years have I ever experienced any disturbance of a colony by a deer.

## Cattle In the Beeyard

Cows are not known for a high level of intelligence. They seem not to know what a beehive is all about. The grass near a hive is often lush so they are attracted to it without any seeming knowledge of the danger they are in. Often they will permit themselves to be stung several times before taking off, sometimes with a kick that upsets the hive. Horses are not too much more intelligent and on occasion they get stung rather severely. There are records of horses being stung to death as a consequence of their not understanding a threat from the bees. I have found it best, if possible, to fence in all hives which cattle might come near.

## Skunks In The Beeyard

Most beekeepers find skunks destructive of weak colonies, particularly in the fall when the skunks are putting on fat. I have found it helpful in avoiding skunk intrusion by destroying the woodchucks that den in the ground nearby, and then filling their entrance holes with stones. However, this procedure is not a cure-all because skunks will travel, particularly at night, for distances of a mile or more from their own dens.

CONTINUED ON PAGE 397

# Nectar Collecting Part I

by J. IANNUZZI RFD 4, Ellicott City, MD 21043

*The adventures of one apiculturist over 67 months—including four extended trips and many letters—in snaring 250 containers of honey weighing 244.66 pounds, coming from all 50 United States and 33 nations and comprising 67 different floral sources and naming the kind souls who participated while concluding with a challenging claim.*

## Honey-tasting by the Dozens

How many different honeys have brushed your palate? My unusual hobby, begun in August 1978, has put me in the tasting business. My first actually was the omnipresent Sioux Bee store-bought clover when it was selling for 39 cents per pound many moons ago and my last was Nebraska smartweed on February 14, 1984. In between, my taste buds have been pleasingly (usually) tickled by the following:

**acacia**
**alfalfa**
**apple blossom**
**avocado**
**basswood**
**blackberry**
**black locust**
**bluebell**
**blueberry**
**blue vine**
**buckwheat**
**cactus**
**cranberry**
**coffee**
**dandelion**
**eucalyptus**
**fireweed**
**gallberry**
**geranium**
**goldenrod**
**holly**
**huckleberry**
**knapweed**
**Key lime**
**"killer bee"**
**lavender**
**leatherwood**
**lespedeza**
**lehua**
**lima bean**
**lime blossom**
**linden**
**ling leather**
**logwood**
**lychee**
**melaleuca**
**mesquite**
**mimosa**
**mixed blossom**
**"mystery"**
**orange blossom**
**palmetto**
**peppermint**
**poinsettia**
**raspberry**
**rosemary**
**safflower**
**sage**
**sourwood**
**Spanish needles**
**strawberry**
**sumac**
**sunflower**
**Chinese tallow**
**tamarisk**
**thistle**
**thyme (wild)**
**tree of heaven**
**tulip poplar**
**tupelo**
**vetch/poplar**
**Virginia copperleaf**
**watercress**
**wild cherry**
**willow**
**wildflower**

Count them: Some 67 in all.

## Nectar Source

All of these sweet viscid fluids were stolen by *Apis mellifera, indica, dorsata*—the Italian and giant Asian respectively—and *Trigona minima,* the stingless bee that belongs to the family *Meliponidae* and not *Apidae* which consists of only one genus (*Apis*) and only four species (*mellifera* or *indica* or *cerana, dorsata* or *florea*).

It is interesting to note that the 'giant' bee honey comes from a single comb, built on a tree limb and not in a hive, and is harvested by nectar hunters while *Apis indica/cerana* mels are procured from hives just like the Italian bee, *Apis mellifera.*

Also note that the litany of sweet stuff above contains some duplications and confusion. For example, "killer bee' and "mystery" might very well be covered already while the astute apiarist will be quick to point out that linden/lime/basswood are all the same tree (also dubbed "beetree" or "linn" — *(tilia americana L.)* and that lespedeza is a clover; however, my "clover" above also includes "dutch white" and "yellow sweet," a distinction I have failed to make. (And there are other duplications. Can you find them?)

## The Goals of this Report

Before continuing, perhaps I should give the reader a preview of my aims, listing the parameters:

1. My Maryland mels, by type and contributor.
2. My old Kentucky holdings and their sources.
3. Nectars from New Jersey and their label identities.
4. Honeys with well-known names, such as Jaycox, Mraz, Root and Stoller including 'the best honey money can buy.'
5. The Steed connection: his contributions and provocations.
6. The secrets of collecting, distilled into six apian principles.
7. The specifics of my horde: container composition, packaging, labels evaluated and prices.
8. The funny honeys from China and Hungary; ginseng and oil nectars.
9. The packaging for mailing: apiarists are difficult to crush.
10. The best and worst sticky substances: lychee and Trigona; apple blossom, basswood, black locust and fireweed.
11. The sourwoods: queen of honeys?
12. The spontaneous contributors from across the continent.
13. The surprise Steed letter in the three national bee publications.
14. The costs of collecting: over $600 for 250 containers.
15. A challenging claim: the largest and most extensive around?
16. The complete listing, by state and country, showing product from each.

## My Maryland Mels

No account of my endeavors at amassing nature's first sweet would be complete without recording the 26 pounds collected from my immediate surroundings: America in Miniature, the Free State, the Old Line State—my adopted state.

Apart from my own black locust (*Robinia pseudocacia*) and tulip poplar (*Liriodendron tulipfera* — also called tuliptree, whitewood, white-poplar, tulipwood, hickory-poplar and poplar), my first Free State nectars were purchased from ARTHUR GODON STRANG, Boyds, the 28th president of the Maryland State Beekeepers Association (1970-1971), who cut his apian eye teeth in a short course taught by GEORGE JENVEY ABRAMS, the GIANT of Maryland apiculturists, in 1951 at the University of Maryland, College Park. They were blackberry and alfalfa (also picked up some California sage from him later on). (And later I was to join this same fine gentleman on international bee trips to Apimondia in Athens and Acapulco.)

The next was a gift of exquisite basswood from the apiary of bearded and enthusiastic John Herder, Glenwood, when he used to live in the Ellicott City area.

Triangle Apiaries, Jessup (now redesignated Columbia), owned and operated by my good friend Donald Pierpont Kolpack, provided tulip poplar—the standard honey here in Central Maryland—and wildflower. (Known as the Beebeard King of Maryland, he has appeared on national television and assisted James H. Johnson, Terra Alta, West Virginia in breaking the record for the world's largest beebeard.)

CONTINUED ON NEXT PAGE

From an apple stand near Hancock in Western Maryland, I bought some buckwheat and clover with the label of W.D. Drumm, a state trooper living in Emmitsburg.

Additional purchases were made from Glenn Musser, Calverton (lima bean; J. Bees Apiary, Joel Sasser, Huntington (wildflower); Bedlam Rock Apiary, Don/Dot Moore, Colton's Point (wildflower?); Bonnie Bee Apiary, John L. Bonifant, Mt. Airy (Blackberry/black locust); Roy Abel, Glen Arm (orange), the only commercial and migratory (Florida) beekeeper in the state who peddles his honey up and down the Eastern seaboard and whose nectars I saw for sale at a roadside market in the Granite State in 1980 on my way to the Eastern Apicultural Society (EAS) annual get-together in Vermont. Fern E. Wilson, Oldtown, also supplied me with thistle and basswood in exchange for $2.00.

Actual trades were made with Sunflower Apiaries, Stephen McDaniel, Baltimore (wildflower), the former knowledgeable prexy of the Central Maryland Beekeepers Association (CMBA), the largest such grouping in the state, sporting a very interesting and worthwhile newsletter; with Ernest Conrey, the orchardman from Marriottsville (wildflower); with John Romanik, Ellicott City, the devoted state association secretary (wildflower); with Franklin Stottlemyer, Silver Spring (tulip poplar) whose sweet stuff I replaced, with a jar of my own, while I vacationed at his vacant house in Ft. Myers, Florida (now he knows); and with Townsend Apiaries, Halethorpe, operated by Jim Townsend (wildflower).

Outright donations were gratefully accepted from Tom Sisler, the 60-hive beekeeper from Oldtown (buckwheat) and the 23rd MSBA chieftain John Vincent Lindner, Cumberland (basswood) who, with his father John Howard, used to operate the only other commercial venture in Maryland during the days of Lloyd Billingsley Shearman Sr., Glen Arm, who was among the first to practice migratory beekeeping to the Sunshine State. Another gift came from James Weston, Waldorf (holly) while Honey Bee Honey (lima bean), packed by CMBA was my freebee for having helped judge the fall 1983 MSBA honey show at historic Lexington Market, Baltimore.

(Although not a Maryland nectar, I cannot neglect to mention the gift from the Old Line Apiary, formerly located in Maryland but now at Nokomis, Florida (palmetto-orange), from James MacDonald Marsh, the golden anniversary MSBA leader (1957-1959) and former bosom buddy of Abrams.

These 26 Free State bottles are followed closely in number by those from the Blue Grass State.


**The author's fall 1980 display of domestic and foreign *mieles* at the Maryland Timonium State Fair before hitting 50 states and 33 countries.**

**Contributor Joel Sasser, Huntington, from whose stand the author purchased his wildflower as well as that of Don/Dot Moore, Colton's Point, at the MD State Beekeepers 75th Jubilee, 1983.**

## My Old Kentucky Holdings

Nine of my precious collection of the world's first natural sweet come from the Blue Grass State, all of them supplied gratuitously and spontaneously by that foremost collector of honeypots from Richmond. They carry names recognized by any *au-courant* bee farmer tapping hives down there as well as anybody who was lucky enough to attend American Bee Federation annual meetings this year and last, because they stand out for their blue-ribbon captures: the label of G.D. Hieronymus, Somerset, appears on my wild cherry and tulip poplar; C.W. Martin, Stanford, on wildflower; Roy/Ruby Tincher, McKee (blackberry); Glen White, Winchester (wild cherry); Mike/Diane Kwoka, Mt. Washington (wildflower); Charles E. Barton, Lexington (dandelion); Rich Sutton, Lancaster (tulip poplar)—all in 16 ounce glass queenlines.

After I had been favored with all of these, I had to make a special request from the benefactor for one of his very own and was lucky to receive eight ounces of clover from James M. Steed himself—a man whose heart must be larger than Mammoth Cave itself!

## Nectars from New Jersey

If one were to ask the ex-chairman of the EAS board, the present major domo in the

CONTINUED ON NEXT PAGE

state apiary inspection service, who the foremost beekeeper in the Garden State was, I am sure that the instant reply of Jacob ("Jake") C. Matthenius, Jr., Phillipsburg, would be "Bob Harvey." Young Mr. Harvey was the same man who offered the jumbo live bee exhibit and the attractive hexagonal display and the massive array of sticky sweet liquids for sale at EAS, Rutgers, New Jersey in 1981. It was the same sould who excells at bee-beard barbering to which Mr. Matthenius will attest.

It was from Mr. Harvey that I had obtained, through purchases and gifts, apple blossom and Spanish needles in addition to melaleuca and willow from Florida where he also kept migratory bees. Some man!

He manufactures all his own equipment from scratch, operates his own labeling machine, does custom extracting in his bee-proof (really!) twenty-foot plus trailer, tends other people's angels of agriculture, and does migratory work! (And my guess is that he has not yet shivered through 35 winters.)

If ever one is journeying through southern New Jersey and spies on a roadside stand this orange label with black print:

**Pure Natural**
**[No Additives]**
**Shenandoah Mountain**
**HONEY**
**Net Wt. 1 lb. (16 oz.)**
**100% PURE Packed by**
**HARVEY'S HONEY**
**Box 304, Elmer, N.J. 08318**

he will be in Bob Harvey country.

**[Next month — Famous name honeys, the Steed connection and the secrets of collecting.]**

# Shot-Kits & Allergies

By JOANN MANES OLSTROM 3164 Maple Court, Reedsport, OR 97467

Beekeepers are probably aware that there are two types of shot kits available. One has some pills to take and a hypo—it is the do-it-yourself model, if you can't get a do-er for you. The second type "does it" by itself. Just press "the pen" against your leg; the needle is spring-loaded and "does it" for you. Guess it is for the cowardly person—you don't have to look at any needle! Would be nice to use if a child needed a shot—no obvious needle.

Our old kit has directions on the cover—"Read instructions carefully BEFORE emergency arises. Seek medical aid immediately." And inside (I later read our directions at home) it says, "Remove stinger before proceeding."

When I used it, I put the whole inch of needle, only half of it, into the man's arm but the druggist later—and the directions say you really should. This is to be sure the medication gets down the skin layers. You have to be sure not to hit a bone or a vein or an artery. The directions say to pull back the plunger a tad to see if any blood comes into the needle and medication (it is clear) after the needle is stuck into the arm. If blood does come in, you have to start over with "Jab #2, OUCH!" since the RX should not enter the blood stream directly.

A local nurse told me, "Never mind rubbing the spot, pinching up the skin, etc. In an emergency just get the medication in!"

No drug store in our community sells Epipens, the spring-loaded model, but one could be ordered for $21.70. The Anakit, with a needle sticking out, costs $10.40 and is generally substituted, with Doc's permission. (Price? availability? or because the "pen" isn't on hand?) If I needed one for me—Heaven forbid—I'd sure want the Epi-pen though—I think!

I am not suggesting we all carry shot kits with our beekeeping paraphenalia. Few of us are licensed to practice medicine. Legally paramedics in some states can now give such a shot, without a doctor's permission. But how any of us are paramedics?

Less than 1% of the population may be allergic to honey bees—a comfort to beekeepers but not to the 1%, so we are not apt to run into an emergency situation. However, if asked by an allergic person to give him or her a shot with the victim's own shot kit, it would probably be quite legal to do it, to say nothing of saving a person's life. Perhaps the best course of action is to recognize the danger signals and be prepared to take a person to a doctor or emergency room or perhaps call the paramedics. Reactors don't always know they are allergic until that first sting. If we have allergic family members, all older children and adults should be trained on "how to"—and where is the kit! Time is often short for the severe-reactor.

A list of allergic symptoms includes some or all of the following: 1. Excessive swelling; 2. Hives, individually or in blotches; 3. Sensation of choking; 4. Shock-like symptoms—pale and weak, clammyu skin, may have beads of perspiration on forehead and upper lip; 5. Difficult breathing; 6. Asthma with; 7. Vomiting, and; 8. Loss of consciousness perhaps

**The do-it-yourself model with pills, swab, tournaquit, and hypo and the does-it-for-you pen are displayed in a drug store.**

following rapidly. Some or all of these symptoms may occur within minutes, but there may be a 24-hour delay according to my edition of *The ABC And XYZ Of Beekeeping*. Dr. Michael Burgett at OSU (Oregon) told beekeepers that, "If you are going to die, you will probably do it within the first 20 or 30 minutes."

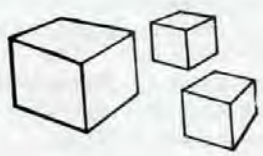
Severe allergic reactions mentioned in the Anakit may include "apprehension, faintness, flushing, followed by paleness, tachycardia [excessively rapid heart action], thready pulse, fall in blood pressure, unobtainable pulse and blood pressure, visual changes. Occasionally unconsciousness, convulsions, abdominal cramps and involuntary voiding or defecation may occur. . . . See a physician as soon as possible."

Ice packs can be applied to sting area, the patient kept warm and inactive. At any time, if breathing and/or pulse ceases, the victim would require external cardiac massage and mouth-to-mouth breathing. During severe allergic reactions changes occur in all body organs; the tissue of the throat may swell nearly shut and make even mouth-to-mouth difficult.

Paramedics hopefully would have been summoned, or a trip to the emergency room started before the situation progressed this far. Cardio-pulmonary resuscitation—CPR—classes are often offered in many communities; it may behoove us all to enroll in these. The knowledge would also come in handy in situations other than bee-sting emergencies.

I have just learned that in Oregon lay persons can enroll in a class taught by "EMT's"—Emergency Medical Technicians—to learn the who-what-when-where-why-and-how of the bee sting allergy-emergency shot treatment program. The class lasts about three hours, involves learning symptoms, the practicing of giving shots (on each other, yeowch!—which leaves me OUT!—wonder if I could bring an orange?) and a certificate of completion which will be signed by the sponsoring physician.

Be prepared for trouble, but hope that you never have to be a Forence Nightengale!□



# NEWS & EVENTS


**Pictured center above is Lee Russell, Root Company Branch Manager, and to her right, Mark Russell, and Branch Manager.**

## A.I. Root Company Southern Branch Expanding

Mid-March this year, as farmers of the south were breaking soil, the A.I. Root Company officially held its ground-breaking ceremony for the new building they will occupy soon.

The Southern Branch of The A.I. Root Company was opened in May 1981, and has been expanding rapidly. The new building will be located less than a block away from the present location on U.S. Highway 441 North of Athens, Georgia. In addition to a warehouse double its present size, the branch will operate more efficiently with the use of a truck loading dock to facilitate the loading and unloading of truck shipments.

The branch states it owes rapid expansion to the increased interest of dealers to handle the quality line of merchandise.

## Michigan

The Michigan Beekeepers Association will hold its summer meeting July 27 and 28, 1984 at the Hillsdale County Fairground, Hillsdale, Michigan. This will be simultaneous with the Purple Loosestrife Festival. Beekeepers will meet in the Womens Congress Building.

The morning program of July 27 will feature a honey house tour or a seminar on queen raising by Dr. Larry Connor. Cost of the seminar will be $10.00. Send reservations for the seminar to Dr. Connor so that materials can be made available to those who wish to attend. P.O. box 817, Cheshire, CT 06410.

Speakers will include Dr. Larry Connor, Dr. Roger Hoopingarner and a variety of other speakers covering such topics as the use of ETO chambers, need for letter writing to your congressman, and honey house sanitary regulations. Angie the AFB-K9 dog who detects American Foulbrood without actual open hive inspection will be present. A number of other activities are planned such as a smoker lighting contest, frame nailing contest, candle making, and auction for benefit of the Michigan Honey Queen program. Several area honey houses will be available for tour.

A banquet will be held at 7:00 p.m. on July 27th in the nearby American Legion Clubhouse. The cost is $10.00 per person. Reservations must in by July 14th. Reservations after the 14th will be subject to a $2.00 surcharge. Send reservations to Mrs. Beulah Sharlow, 1289 Clarendon Rd., Homer, MI 49245, or call 517-542-3739.

Camper parking is available at the Fairground. Lodging reservations should be made early as accomodations are limited in this area.

## California

Representing the Los Angeles County Beekeepers, Heather Wade (left) the 1983 Los Angeles Honey Queen presents one dozen honey colored roses to Caroline Comport at Caroline's coronation as the 1984 Los Angeles Honey Queen. A student at California State University Northridge, Caroline is the 18 year old daughter of Penny and Dick Harker of Sylmar. Caroline represented the Los Angeles County Beekeepers at the 1984 National Date Festival in Indio where her sage honey won the blue ribbon. She also did a presentation at the Victorian Fair in Los Angeles along with giving honey tasting programs at various Club meetings and schools. She was a featured participant at the annual Beekeepers' Demonstration at the Hillside home of Mr. & Mrs. Bill Vick. However, her biggest challenges are anticipated to be during the Olympics and the Los Angeles County Fair.

## Western Connecticut Beekeepers Association

On July 22, this summer a Gala Event will occur at The Extension Center in Bethel, Connecticut. (Danbury Area)

The Event: A grand "Trade Show" which we all call our BEE BONANZA.

The Time: A summer afternoon, July 22 from 1:00 P.M. until closing.

Parking is available for 500 cars and we expect it will be used. Attendance will be high as all Beekeeping Organizations in New York, New Jersey, Rhode Island and Connecticut are invited.

CONTINUED ON NEXT PAGE

This is an opportunity for the Beekeeping Industry to display, exhibit and sell their wares. All new and innovative ideas will be eagerly sought by the attendees. This Exposition will be the first of a series to be held annually. Exhibit space is available at very reasonable fees — ($35.00 for dealer space — please let us know what your requirements are. We reserve the right to limit space if necessary.)

This will be a wonderful opportuntiy to reach many beekeepers, person to person. We sincerely hope you will participate. Please respond early so we can reserve your space. A deadline date of July 1 has been set so that we can finalize our plans for the day.

## Florida Food Service Conference

**By DIANE CORNWELL**

The annual Florida Food Service Conference held for Supervisors and Dieticians of Florida schools brought a new addition to the many promotional items displayed in booths at the four-day conference held in Orlando, Florida on April 12, 13, 14, and 15, 1984.

The new promotional item was a fifteen page packet given away free to all interested attendants. The packet contained numerous and varied recipes on the use of bulk honey in cooking. The Florida Honey Queen, Crystal Jones, and the American Honey Queen, Carol Tscida, were among others who handed out the packets at the honey display booth.

Promotion of this magnitude can reach literally thousands of people who otherwise would not know how to use honey or even know what honey tastes like. For the thousands of school-aged children who will be affected by the use of these honey recipes, honey will certainly be a boost to their diet and good health.

Promoting honey necessitates cooperation of those involved with the Queen Committee, both on the state and the local level. Getting the word out to the people, especially through the school lunch program, is an excellent way to show what the United States has to offer when it comes to an excellent cooking product. Parades are fine, but getting among the people, talking with them, and giving away **free** information is the best way, and Florida is doing its share.

## EAS Conference Wrap-Up Story

The smallest state in the union will demonstrate how large it is in hospitality when it hosts the 30th Eastern Apicultural Society (EAS) Conference August 8-11 at the Univeristy of Rhode Island, Kingston. This year's Conference is hosted by the University and the Rhode Island Beekeepers Association.

Highlights of the Conference will include programs by noted researchers and authors in apiculture, a moonlight cruise on one of the state's finest natural resources, Narragansett Bay' a tour of The Breakers, one of Newport's famed summer mansions; ladies luncheon at an exclusive private club, a series of workshops, chicken barbeque, presentations of awards and banquet at the Sheraton Islander overlooking Newport Harbor.

The regular Conference will be preceded by the three-day short course, with Dr. Larry Connor, as program director. This year's short course has been expanded to include two optional one-day seminars.

This year's Conference will also feature the first EAS photography contest, open to amateur photographers.

Speakers addressing the Conference and their topics include: Dr. James Tew, apiculture professor at The Agricultural Technical Institute, Ohio University, a profile of the uniqueness of hobby beekeepers; Dr. Richard Taylor, philosophy professor at the University of Rochester, roadside marketing; Dr. Basil Furgala, director of the National Extension Apiculture Program, update on the African bee; Pete Hayden, Norfolk County Beekeepers Association, bees in art; Dr. Roger A. Morse, apiculture professor at Cornell University, insight in the judging of honey.

Also, Dr. James Belliveau, associate professor of chemistry at Boston University, worldwide overview of apiotherapy today; Dr. Dewey Caron, entomology professor at the University of Delaware, bee swarms and how to use them profitably; Dr. H. Shimanuki, chief of the USDA Bio-environmental Bee Laboratory, parastitic bee mites; Dr. Howard Meyeres, Federal Drug Administration, drugs used in the prevention of bee diseases; Ann Harman, master beekeeper from Maryland, packaging bee products, and Robert Cole, master beekeeper from North Carolina, honey from hive to table.

The master beekeepers certification program will be held under the direction of Dr. Clarence Collison. The examination will be administered Wednesday August 8th at 1 P.M.

Workshops will be held on Thursday and Friday afternoons, with Dr. Robert Berthold in charge. Topics covered include: observation hive and solar extractor building, mechanics in judging honey, nosema disease, different ways of removing bees from supers, practical examination of bee diseases and beeswax, which will consist of five simultaneous demonstrations.

The bee beard contest will be held Thursday at 5 P.M., followed by the chicken barbeque at the university quadrangle. A German band has also been scheduled for entertainment from 7 to 9 p.m.

Child care has been arranged for children 3 to 12-years-old. They will be picked up Thursday and Friday at 9:15 a.m., taken to a summer camp and return at 3 p.m.

A program is also being developed for youngsters 13 to 18-years-old, which will include a trip to one of the state's ocean beaches and a visit to Mystic Aquarium.

The moonlight cruise will be held Wednesday evening aboard the Bay Queen. A buffet dinner will be served, and music will be provided for dancing beneath the stars. Reservations are limited, and will be taken on a first come, first served basis.

The conference will formally open Thursday morning, with Gov. J. Joseph Garrahy and Dr. Edward Eddy, URI president, welcoming participants.

Buses for the ladies luncheon will depart at noon. It will be held at the Dunes Club, an exclusive private club on the shores of Narragansett Bay.

The tour of The Breakers will be held Friday afternoon, followed by the banquet at the Sheraton Islander. The banquet's keynote speaker will by Tony DiBiasio, Rhode Islands own (eye in the sky) radio personality.

On Saturday, the student award and Hambleton Award winners will address the conference. Programs on diverting bees from pesticide contaminated fields by Dr. Roger Hoopingarner and a pesticide update by Dr. Connor will also be offered.

Steve Forrest will wrap up the conference before it is adjourned to Pennsylvania in 1985.

The registration desk will open Wednesday at 8 a.m. and remain open until midnight to accomodate late arrivals.

The RIBA cordially invites all beekeepers to the 1984 EAS Conference and see why Rhode Islanders describe their state as "The Biggest Little State in The Union."

Registration forms may be requested from: EAS 1984 Committee, 107 Chatworth Rd., N. Kingstown, RI 02852.

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## Instrumental Insemination Seminar

**Where:** University Apiary, University of Maryland

**When:** July 9-12, 1984

**Program:**

**Monday, July 9th**

Introduction to Bee Breeding, The insemination device, Hands-on sessions with syringe use

**Tuesday, July 10th**

Methods of selecting honey bees, Producing drones for insemination, Collecting semen from drones

**Wednesday, July 11, 1984**

Banking Queens for Instrumental Insemination, Testing Queens in nuclei, Problems related to Instrumental Insemination, Insemination drill

**Thursday, July 12th**

Insemination drill, Discussion of technical problems

**Course Fee:** $195 in advance, $235 after deadline. Registrations must be received by June 29th. Refunds will be made, except for a $10 handling fee, until July 6th.

**What the fee includes:** Drones, virgin queens, use of insemination equipment, the text "Instrumental Insemination of Honey Bee Queens" by Harry Laidlaw, and cost of instruction. Lodging and meals will be available at reasonable rates through the University dormatories.

**Instructor:** Larry Connor PhD, Consulting Entomologist. Dr. Connor was President of Genetic Systems, Inc. of Labelle, Florida, which mass produced queens from 1977 to 1980. Dr. Connor will be assisted by Melanie Odlum, Extension Apiculturist, University of Maryland.

## Ohio

The Ohio State Beekeepers' Association will hold its two-day summer meeting on the campus of Baldwin-Wallace College in Berea (Greater Cleveland area) on July 13 and 14. Among the speakers will be Steve Taber of Taber Apiaries, Vacaville, California.

The trustees' meeting will begin at 7:30 in the evening on July 12. For further information contact James Thompson, 216/669-3352.

## N.C. State Beekeepers Association Summer Meeting

If you would like to learn more about many of the important issues facing beekeepers today as well a learn more about beekeeping in general, then plan to attend the Summer Meeting of the N.C. State Beekeepers Association in beautiful Asheville, N.C. on July 19-21, 1984.

Among the major issues facing beekeeping today are the important questions of the honey price support program and the level of U.S. quotas and tarriffs on imported honey. The chairman of the U.S. Senate Agricultural Committee is Jesse Helms and we will have an opportunity to hear his views on this complicated matter. In addition, Dr. Claude Frazier, one of the U.S. experts on reactions to insect stings will address the session as will a North Carolina beekeeper who had a near-fatal reaction to a bee sting last year. Other speakers include John Root of the A.I. Root Company, Doris Pharris of the Walter T. Kelley Company, and Charles Mraz on bee venom therapy and more.

Other highlights of the meeting are an advanced level short course as a part of the North Carolina Master Beekeeper program and workshops on numerous topics such as bee venom therapy, your beekeeping business and the IRS, constructing a solar wax melter, cooking with honey and queen rearing. In addition, there will also be a tour of the historic Biltmore Estate and other local area tours. For more information contact Dr. John T. Ambrose, NCSBA, 1403 Varsity Drive, Raleigh, NC 27606. Phone 919-737-3183.

## World's Most Expensive Observation Hive

**By Ann S. Gregory**
**13130 N.W. 1st Ave.**
**Miami, FL 33168**

Veils, white suits and the smell of smoking pine needles, along with two neat white nuc boxes, cool whistling breezes, bending the tops of the tall brown and green pines, and finally, the clumps of wild vegetation randomly scattered about the seemingly quiet clearing; this could easily describe one of those peaceful mornings beekeepers enjoy on a routine check of colonies. The scene was however, deceptive both in its naturalness and in its seemingly quiet state. This particular clearing was nestled within the heart of the NASA grounds as the Kennedy Space Center and required going through three national security checkpoints to reach. Even the observation hive about to be loaded had taken two years of research and $40,000 to develop! The intermingling of the age old art of beekeeping, as evidenced by the traditional garb of the personnel and the smoker being readied to quiet the bees, along with the distinctive air of science that engulfs all projects associated with NASA, gave this setting an undeniable flavor of excitement. Bees were not the only ones buzzing at the site— crews of photographers soon were arriving from NASA and various other news media sources to record the loading of the observation module.

The experiment was the proposal of Dan

**Dan Poskevich and the B.E.M.**

Poskevich, a 19 year-old student at Tennessee Technological Institute in Crooksville, Tennessee. Dan was one of 20 winners in the second student experiment competition co-sponsored by the National Aeronautics and Space Adminstration (NASA) and the National Science Teachers Association. The project was sponsored by the Honeywell Space and Strategic Avionics Division. It is the second student project that Honeywell has sponsored on board NASA Space Shuttles. Dr. Bob Peterson and Al Goodson of Honeywell added their professional engineering experiences to the construction of the BEM (Bee Environmental Module) for the experiment. Poskevich's experiment compared the honeycomb structures built by the honeybees under normal circumstances on the ground and in the zero gravity environment aboard the shuttle. The bees themselves had to be specially prepared to assure that both the experiment and the control contained bees of a standard age. The bees were prepared by separating combs full of newly laid eggs (obtained by confining the queen to specific frames for one day). These were timed to yield bees of the age of 14 days on the original flight date of (April 4th). While being transported to NASA the bees were fed 50% sugar water solutions and each was provided with a strong healthy queen. Four such nucs were actually prepared. Two, first up bees, were prepared by Dr. Mel Coplin, an engineer with NASA and third generation beekeeper. The backup bees were prepared by us in Miami, Florida from our own colonies at Ambrose Farms, Inc. It is through this participation in providing backup bees that we were able to follow this exciting project with "front row seats". John arranged for each of our three children, Diann Maria age 12, Gene John age 10

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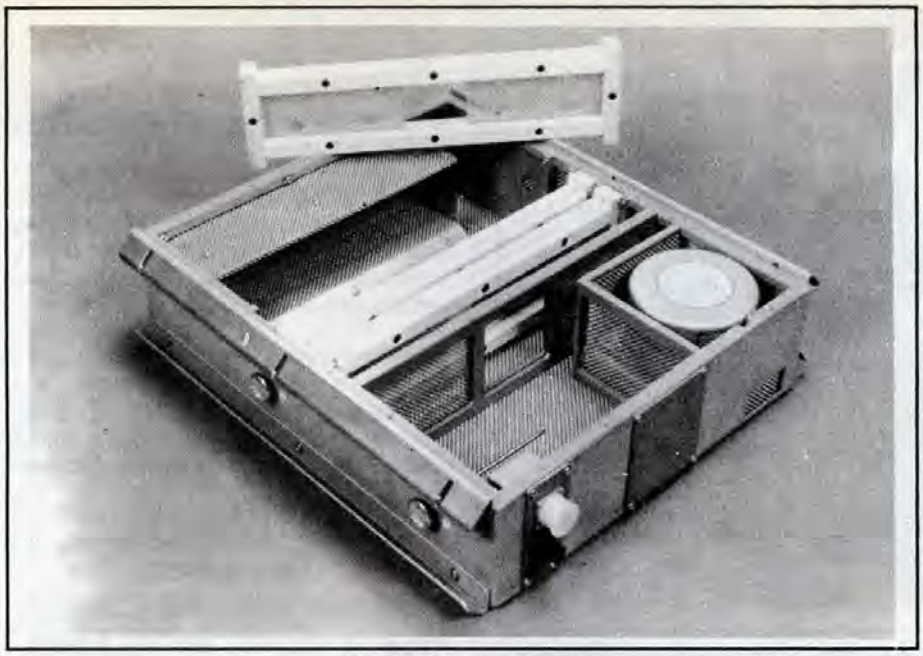

**The Bee Enclosure Module.**

and Josephine Alexina age 8, to participate in preparing the colonies for packing. They were rewarded with a congressional invitation to watch the launch from the VIP site!

The day before the flight three nucs arrived at the Kennedy Space Center. The first up nuc was allowed free flight for 24 hours before flight time. (The controls were being given free flight time in Texas). The experiment bees were loaded into their BEM the afternoon before flight day, while the controls were also being loaded in Texas.

The BEM itself was a unique observation hive. The glass covering one side was of a special antishatter consistency. The bees found it quite agreeable and in several places to chose to build up comb from it. The BEM also contained a special charcoal filter to absorb moisture and odors. (On the previous flight which contained honey bees, the bees died early in the flight producing a strong odor.) The container to provide water was filled with a jello like substance called agar-agar. This provided an easy source for the bees to draw fluids from without the problems that could be incurred with a liquid substance in zero gravity. The bees were fed the Beltsville Maryland diet. They were provided with one small section of drawn honeycomb and two other sections of flat, smooth beeswax from which to design their own comb sections. During the flight Astronauts George Nelson and James Van Hoften made periodic observations of their progress. The bees were also filmed throughout the flight.

The shuttle, called the Challenger, began its flight from Florida's Kennedy Space Center on Friday April 6 at 8:59 a.m. EST. The crew consisted of Robert L. Crippen, Commander, Francis R. Scobee, Pilot, George D. Nelson, Mission Specialist. The primary objectives of the shuttle were to launch the Long Duration Exposure Facility containing 57 separate scientific experiments, contributed by nearly 200 scientists in nine countries; to retrieve, repair and redeploy the Solar Maximum Mission satellite and to perform the functions of the IMAX and Cinema 360 cameras. All objectives were successfully met. The shuttle, Challenger, returned to earth on April 13 at Edwards AFB, California. The bees were unloaded and sent (with the Astronauts) to the Johnson Space Center, Texas that same day. The following day, Saturday April 14th at 8 a.m. they were inspected. There was a total of 30.5 square inches of comb built in the experiment BEM. Seventy percent of this comb was normal. The other 30% showed signs of disorientation. The queen was able to lay eggs both in the provided comb section and in the newly constructed comb. Final evaluation of the films is still being reviewed.

Comb building being dreamed a success, other questions which may be answered in studying the films may reveal information as to what influence the weight lessness had on the highly structured social order of the bees and their dance communication systems? The survival rate of the bees was very good, with only 100-125 dead from the approximate one pound package. (For those of you beekeepers who were wondering if the count the media was given of 3300 bees was really correct—no one actually counted!)

## Our New AHPA Committee

A recent letter from AHPA President Glenn Gibson contained the following sentence:

*"Our discussions during the past 18 months with members of the Congress and officials in the Administration have convinced me that most of our difficult problems can be favorably resolved if the Government in Washington fully understood the pollination story."*

This comment triggered long discussions about how to launch an effective educational program for members of Congress, the Administration and the general public.

Our first order of business after deciding that the project merited further attention was to create a committee. An appropriate name that would identify the objective of the committee seemed important. Simply calling it a pollination committee seemed a bit trite so we dubbed it— COMMITTEE ON POLLINATION ECOSYSTEMS. This means that the group will study all benefits of honey bee pollination to home gardens and orchards, wildlife and cultivated crops.

Members of the committee—

Berna Johnson, Chairman

Glen Stanley

Roger Morse

Joe Moffett

Other members will be added as we progress.

Our preliminary work and created a great deal of interest and favorable comment. For example — our inquiries about bees and wildlife brought the following type of response—

*"The value of honey bees to wildlife appears to be substantial in view of the relationship between bees and plants most valuable to wildlife."*

*Dr. Joe Moffett, Oklahoma State U.*

*Dr. John Barclay, Oklahoma State U.*

*"It is readily recognized in South Dakota that adequate populations of honey bees provide continuing insurance that the needs of our valuable pheasant crop will be provided."*

*Dr. Robert Walstrom, S. Dakota State U.*

*"Honey bees are a vital component of the ecosystem in North Carolina."*

*Dr. John Ambrose, N.C. State U.*

*Committe member Dr. Joe Moffet sent more than 400 letters asking for information on bees and wildlife in the states. He is expecting a good response.*

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**New Mexican beekeepers, John Clayshulte, left and Berna Johnson, right discuss the honey industry's problems with their Senator Pete Domenici during a visit in the Senator's Washington office.**

Our most encouraging comment came from the congressional offices. In no uncertain terms our friends in the Congress have told us these last 18 months that we need to fully advise all members about our problems and why they should give us support. Most commercial beekeepers feel that the pollination value of the honey bee is justification enough for the government to support our industry to the tune of millions each year, but the pollination story is not understood in bureaucratic Washington. So, we must make haste with an educational program. Especially so with urban congressmen. The gist of the congressional response was—

Make haste. You are on the right track.

Dr. Bruce Cone, Deputy Assistant Secretary of Agriculture, Science and Education, USDA urged us to sponsor a nation wide study of the pollination story. He told President Gibson recently—

*". . . . You have good reason for being concerned about the hazy story of honey bee pollination. I agree that it is important to you and the country for this to be cleared up. The information you need is available. The main problem is getting it together. You should outline a project and make a request for funding."*

We feel that Dr. Cone's suggestion is good. We have already commenced the preliminary work on the national wide study.

### BEEKEEPERS PLEASE ASSIST

You can assist with this important project by writing or calling the Department of Entomology at your land grant college and offer to assist them in answering Dr. Moffet's request for information. Remember this is a new subject and information might not be readily available. The wildlife groups in your state may be able to assist. It is very important for us to have a list of the honey bee pollinated plants and the animals that feed on them. Also, don't overlook the value of honey bee pollinated plants that prevent soil erosion and beautify the environment. If available, please include the value of bees to home gardens.

Beekeepers, please don't quit working after you have learned the value of bees to the environment in your state. Seek out a reporter in your baliwick and get some favorable publicity. It will certainly help you and the industry nation wide.

### SUMMATION

This report has dealt with mainly bees and wildlife. This doesn't mean that we will forget about pollination of domestic crops. On the contrary we will place heavy stress on all benefits of honey bee pollination. Since domestic crop pollination data is readily available, most of our efforts will be directed to wildlife. Full understanding of the honey bee's role in the environment should convince the government that our small industry needs saving. Also, we are firmly convinced that all beekeepers will support this educational program. May we count on you?

## Alabama

The Madison County Beekeepers will host the Alabama State Convention July 27-28th ath the Skycenter in Hunstville.

Some of the speakers will be Royden Brown of Phoenix, Arizona one of the largest pollen marketers in the United States and the world, who will speak on the benefits of bee products.

Joe M. Parkhill of Arkansas, who is referred to as a honeyologist, will conduct a seminar on uses of bee products. Charles Mraz of Vermont, who uses bee venom to treat arthritis patients, will also address the association.

# Obituaries

## Woodrow Miller, President of Miller's Honey for 47 Years Dies of Heart Attack

Woodrow Miller, President of Miller's Honey Company of Colton, California for 47 years, passed away on April 7th, 1984 of a heart condition.

From the time he became President of Miller's Honey Company, in 1936, he built the company from a small processor to one of the largest honey producers and packers of the world. He developed migratory beekeeping, moving bees from Utah to California to Hawaii and back to increase mass production of pure honey.

Miller retired from the Presidency of Miller's Honey Company in December 1983, selling his interest to son-in-law George Murdock, formerly Chairman of the Board of Murdock International, manufacturers of Nature's Way Herbal products of Provo, Utah.

Woodrow Miller is survived by his former wife Rita Miller, their three children, Mark, Melanie, and Marilyn, 10 grandchildren, as well as his widow Alice Walsh Miller and daughter Tina.

## W.C. Winkler

W.C. Winkler, 76, of Moody, Texas passed away on February 23, 1984. He is survived by his wife, Lydia; son, William; daughter, Virginia; all of Moody, Texas. Mr. Winkler was a master beekeeper for more than 60 years. He grew up helping his father tend bees and ended up with several hundred colonies of his own. His honey and pecan store was well known for its friendly atmosphere and good prices. He was a charter member of the Central Texas Beekeepers Association, good friend and neighbor to all and will be sorely missed.

# Catching Swarms Made Easier

By MARTIN E. HORN 292 Canyon Dr. Columbus, OH 43214

The need of a swarming queen to rest while waiting the reports of returning scouts has resulted in unusual swarm locations. [A contest to determine the most unique swarm's location and the means of its trapping would make useful as well as interesting reading] These varied and unusual locations, ranging from baseball dug-outs to parking meters and from clothes line poles to moving vans, tax the ingenuity of the enterprising beekeeper and require a wide variety in his arsenal of swarm-catching paraphernalia. The convenient cardboard box just won't be adequate for all conditions.

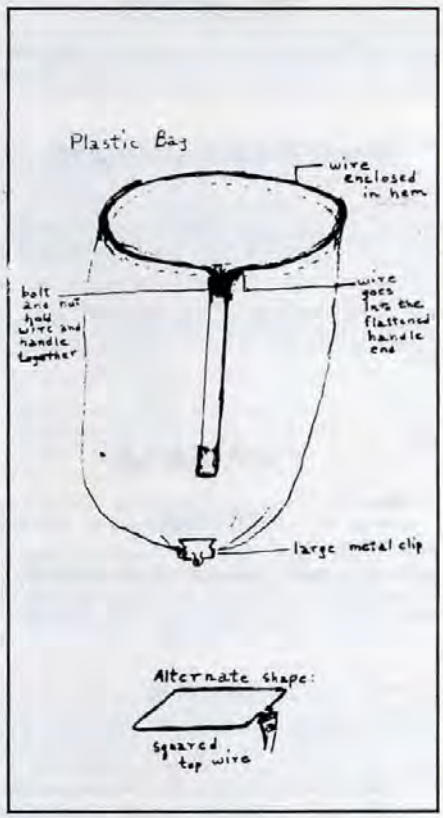
The location of the swarm will, of course, determine the device required. A swarm on the limb of a tree will require a different aparatus than one on the tree's trunk. The height and the availability of ladders is information as essential as directions to the swarm's location and must be known before the trip is made and the device selected.

The devices which have been most convenient and most frequently used by me are two plastic bags. One is attached to a wire loop (approximately 28" in diameter), the other to a 10" x 24" rectangular wire frame. Since their conception and adaptation were made possible from suggestions appearing in various issues of *Gleanings*, I, in turn, offer them for the reader's use and/or adaption.

The loop is used to get swarms from limbs of trees and the rectangle is necessary when the swarm is attached to a flat surface as the siding of a house. Their efficiency will be determined by their rigidity, area, and the length and diameter of the plastic bags. All of these are variables and can be adjusted to the material and needs of the swarm seeker.

I have found a 28" loop and a 10" x 24" rectangle made of 1/18" wire sufficiently practical. The last three inches of the frame are bent at right angles to the plane of the frame and inserted into a pipe (½" gal) which is then pounded flat. A ¼" bolt inserted through a hole drilled through the flatened end of the pipe holds the ends in place. The handle's length, again, can be determined by convenience and material available. I have found it practical, however, to thread and screw a coupling onto the end. You now have an adjustable swarm trap whose handle length can be adjusted as necessity and length of extension pipe dictate.

The top of the plastic bag (I found a very large white one) is attached to the frame by folding a hem. Reinforcing the hem with masking tape will reduce the chance of tearing when it is sewed onto the frame. The bag's bottom seams are opened, thereby making a large plastic tube. At the seams site I gather the sides together at the bottom and hold them together with a large spring clip. A word of caution! This clamp securing the bottom folds must be strong (mine is approximately 2" x 4") and all folds must be carefully included in the jaws of the clamp. Once I was careless in this step and the combining factor of the




swarm's weight caused the plastic sides to slip through the clamp's jaws and the ball of bees slipped right through and onto the grass! Fortunately the area was small enough to be covered with the super and I managed to offset the oversight and carelessness. Circumstances will vary the means employed to get the swarm into the bag, but once it falls into the bottom—what a pleasant sensation that weight gives!—I quickly turn the handle 180° so that the handle is now above the bagged swarm thereby enclosing it and so reducing the escape area. Carrying the swarm over to a deep super, which has been attached to a bottom board, I release the clamp and the swarm slide unobstructed into the super. Tacking on an inner cover, I sit and enjoy watching the flying stragglers march into the super to join the others. Gently smoking will hasten them to make up their minds. Sealing the super's opening with 1/8" wire mesh, I'm now ready to take my prize home.

To remove a swarm which has settled on a rounded surface as the trunk of a tree, I have another bag also opened at both ends. With the bottom again held together with a steel spring clip, I staple as much of the top as necessary around the trunk and as close as possible to the bottom of the swarm and brush it into the bag held open by the other hand. The process of hiving them is, of course, the same as under any other conditions.□

## ANIMALS IN THE BEEYARD

CONTINUED FROM PAGE 387

### Boys In The Beeyard

Over the years I have been unusually fortunate in being free of visits from vandalizing youths. This has probably been because my yards have been located in yards remote from congested areas. If one house nearby is inhabited by a friendly family, they will usually serve to prevent vandalism.

Some of my fellow beekeepers have not been so fortunate. I know of one, in particular, that has had to move a yard because of repeated attacks. When colonies are molested by anyone, it is usually advisable to notify the sheriff. He usually knows, even in advance, who is the culprit.

### Mice In The Beeyard

A beehive provides protection from the weather, heat, and some food for any mouse that is able to gain entrance to a hive, or to get under the packing of a colony. Entrance closers that are small enough to prevent admission at entrances are essential. The use of poison inside packing is the only way I know to keep them from becoming a nuisance. Some beekeepers distribute the poison in areas nearby but outside of the hive as well as within the packing.

Beeyards have many animal visitors of which I have listed very few. Fortunately, most such visitors cause no trouble.□

# 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

WANTED — Old Beekeeping Books and Bee Journals. James Johnson, 107 State Ave., Terra Alta, W.V. 26764 TF

Wanted: Hardworking Full-time professional queen breeder. Must have many years experience in all phases of queen production as well as other general apiary work. South Atlantic state location. Salary negotiable. Contact: Huck Babcock, P.O. Box 2685, West Columbia, SC 29171. Phone: 803-256-2046.TF

## FOR SALE

Protective Clothing for Beekeepers. Write now for brochure. B. J. Sherriff, Dept. GBC P.O. Box 416, Nacoochee, GA 30571 TF

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

10-Frame radial heavy duty extractor and 20 two story hives for sale. John Csaba, 5853 Los Nietos St., Buena Park, Ca. 90620. Tel. 714-995-7652 nights. 7/84

For Sale: 800—6⅝" supers, 50 frame stainless steel extractor, 1½" pump, 12 Gal. sump, 40— 4-frame single nuc boxes. Darwin Sip, Ph: 218-281-6412.7/84

For Sale — 300 front mounting pollen traps $14.00 each. Harold Driscoll, 4561 66th, Holland, Mich. (616) 335-9407. 7/84

1965 Ford C600 with Kelley bee lift and 20 ft. metal bed. Has rebuilt engine and transmission. New batterys, good tires and new paint. Real sharp. $7000. Call after 6:00 p.m. (206) 863-3509, 1122 136th Ave., E. Sumner, Wa. 98390. 7/84 RJB

For Sale: 325 mediums, 100 deeps 0-3 years old. 10-20 frame extractor, blower, 150 tops & bottoms, air staple gun, winterpacks, miscellaneous. Mpls. Steve Bengston, 612-331-4558. 7/84

For Sale — 30 very strong colonies, reasonable prices or make offer. Jamestown, NY. 716-665-6411 or 716-483-0704. Welker 7/84

MUST SELL — 4000 6⅝ supers and 900 9⅝supers. $8.00 or Best Offer. Gerry 608-356-7038 7/84

For Sale: Frame Spacing Tools, fast and easy to use. A pair works faster. Eliminate costly nail in spacers. ½" aluminum alloy. When ordering — specify 8 or 9 frame. 1-$9.65 ea., 2-$9.45 ea., add $1.80 shipping. Wolf World Products, Box 707, Baldwin, WI 54002. 7/84

FOR SALE — Honey pots — my duplicates, write for price list. J. Steed, P.O. Box 115, Richmond, KY 40475. 7/84

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 ITOTF

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

BUCKWHEAT, light and light amber honey. Bedford Food Products, Inc. 209 Hewes St., Brooklyn, N.Y. TF

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