GLEANINGS IN BEE CULTURE

JANUARY 1985

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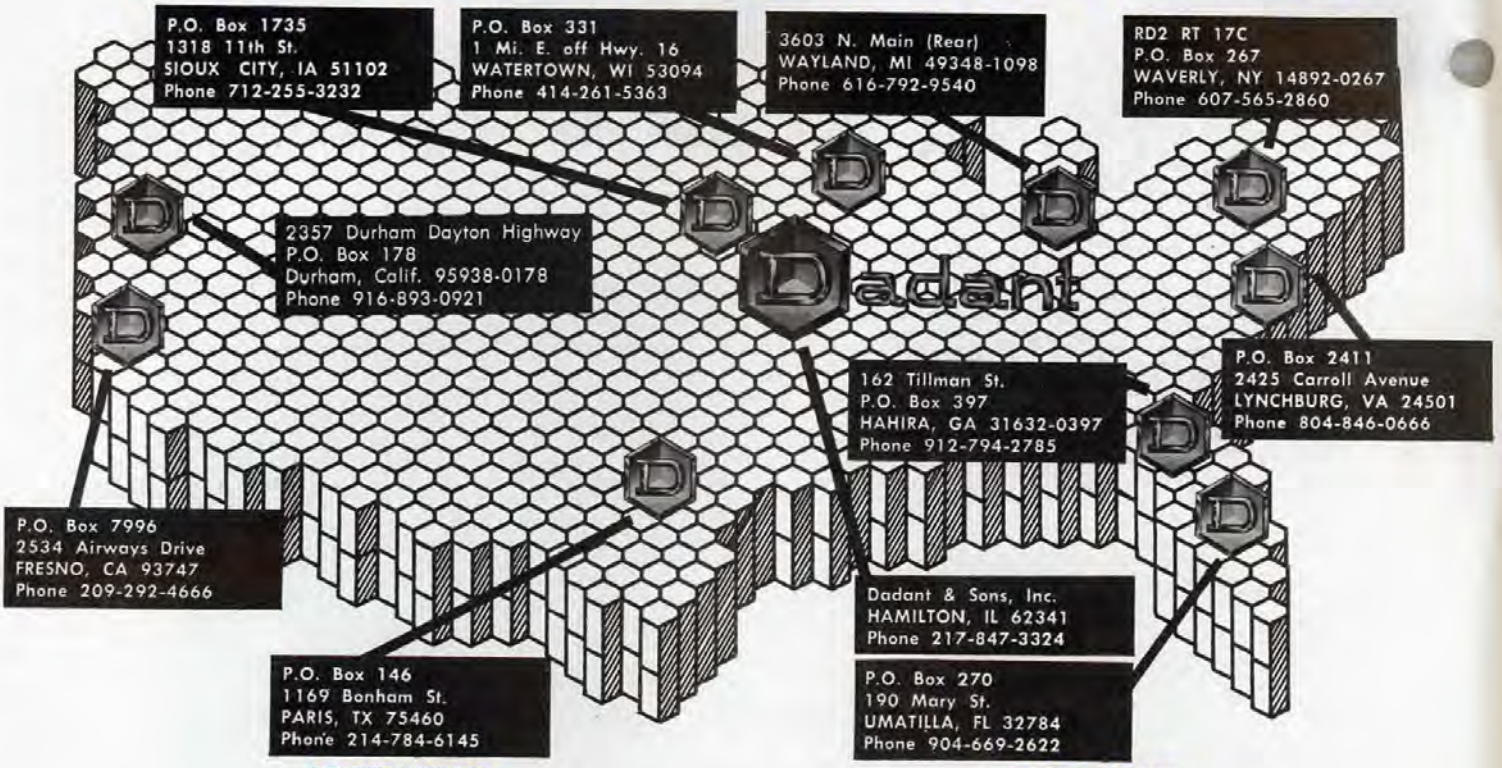

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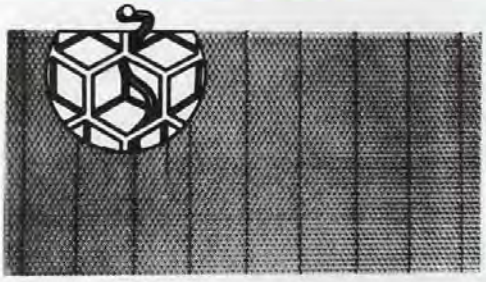

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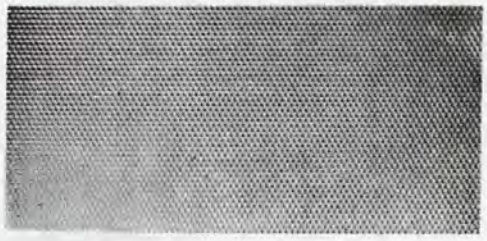

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COVER STORY

NO, IT'S NOT SOMETHING FROM A SCIENCE FICTION THRILLER MOVIE! THIS GREATLY MAGNIFIED OBJECT IS A SINGLE GRAIN OF APPLE POLLEN! Photo provided by A.T.I., Wooster, Ohio.

NOTES FROM THE BEEYARD

by Mark Bruner

NATIONAL HONEY REPORT TO UNDERGO FORMAT CHANGES. YOUR HELP IS IMPORTANT!

GLEANINGS recently attended a meeting, in Washington D.C.; the objective of which was to determine the future of THE NATIONAL HONEY REPORT, a weekly publication prepared by the Agricultural Marketing Service. Because of the quirks in today's domestic honey markets, domestic packers have become increasingly reluctant to share, with the government and public, the details of their transactions. This is due, in part, to their expanded purchasing of imported honey. Their unwillingness to cooperate in that respect may be understandable, but it certainly is unfortunate, and has caused the Agricultural Marketing Service to question whether or not a national honey market report is even feasible. The outcome of the meeting, however, was that such a publication would continue, but would revert to a monthly format, and would include more information of other types than the existing weekly flyer. Market and price information would still be provided, although it may, for the near future, be of a more general nature. Additionally, the report will provide national information relative to weather, floral source situations, pollination and other topics influencing beekeeping and hive product cultivation. There can be no doubt but that the continued existence of such a publication is of great value to the beekeeper. We all know the lack of precise information we often have to bear as a burden in presenting a case for our industry or in making our own business decisions. I suggest that every beekeeper support the NATIONAL HONEY REPORT. There are several ways in which you can do that. Information gathering is the primary requirement of a helpful publication. If you are in a position to assist with market details or specifics related to pollination, general conditions of your area, etc., and would be willing to volunteer your help on our industry's behalf, please contact Betty McBride, USDA Agricultural Marketing Service, Washington, D.C. 20250. Similarily, if you know others who could help, let Betty know. Subscription price will continue at $48 per year and is well worth it. The most costly thing in beekeeping is not knowing what you need to know. Please support this new national honey report!

RANDOM THOUGHTS OF A GRUMBLY NATURE

Why not start out the new year being grumbly?

I've read, with curiousity the recent news releases explaining the use of the term "acaraine mite" in beekeeping literature. The term "acarine mite," our scientists tell us, is inappropriate in reference to *Acarapis woodi.* It is, they declare, redundant. "Acarine" comes from the Latin word "acaraus" meaning mite. Thus, "acarine mite" means "mite mite." Furthermore, use of the term "Acarapis" can be misleading in that there are two other species of Acarapis found on honeybees. It has been proposed that *A. woodi* be referred to as the honeybee tracheal mite. That, I suppose, brings up another buggyboo as to whether the bee that gathers honey is a "honeybee" or a "honey bee." That unresolved matter of great importance still rages, from time to time, between camps of two opinions, both of which are sure the other knows little of proper use of the English language. Of course, we cannot discount the significance, to the scientific community, of concise phraseology. It just strikes me as a bit tedious, though, that we suddenly seem as concerned with what to call the mite as we were with preparing to cope with its migration into this country. I will, ofcourse, try to respect the decencies of what is suggested to us by those to whom the term "acarine mite" causes professional willywoodles. In the meantime, I trust they might see their energies better spent on helping control the mite problem and leave the niceties of language to beekeepers who don't have mites. Moreover, if I happen to slip and call the beast an "acarine mite" (gasp!), I'll bet you'll still know what I mean -- won't you?

Since I'm being decidedly crotchety -- don't you just want to strangle beekeepers who think they have all the answers to everything? If anyone out there seriously thinks he or she has bees figured out completely, drop us a line and we'll announce the miracle. A.I. Root, even as an old, old, old beekeeper, insisted on signing his articles "Novice." It was his contention that we remain novices no matter how much we actually know about bees. That's a healthy attitude, I think. In these times of difficulty, for many beekeepers, let's not lose sight of the fact that, it's no crime to be "unknowing." That can be cured. It is, however, much more dangerous to be completely certain that you know something you really don't know. If a beekeeper doesn't approach beekeeping with a continuing sense of wonderment, that person might just as well be spending the time counting dustballs under the kitchen sink. A friend of mine tells me that after having insured that her garden vegetable plants have a good head start on weeds, she purposely lets nature overtake her garden. Nature, after all, is not necessarily tidy or a discriminate housekeeper. At harvest season it becomes a series of surprises to peek beneath the infringing flora and undergrowth to discover what vegetables wait beneath -- what surprises are there -- what plants exist that one even forgot were planted. That, to my way of thinking, is exactly the type of perpetual discovery and seeking of the unknown that, if part of the character of a beekeeper, greatly contributes to making that person a good beekeeper. No -- before you start writing a letter to the editor: I'm not suggesting a hands-off style of bee management. I am suggesting that only by welcoming the discovery of

the unexpected and unexplained do we as beekeepers, and humans, increase our flexibility, our knowledge and our respectful apprecaition for things so very full of everpresent mystery and surprising delights.

One more grumble and I'll get on to a happier new year. As many of you know, the President has signed into law the Honey Promotion Bill. Public hearings must now be scheduled and, subsequent to that, beekeepers will vote on whether or not to approve the issue. Basically, the program provides for the collection of industry funds through an assessment of one cent per pound (first year) on honey domestically produced. These monies will be applied, by a supervisory board, toward market expansion and, later, toward research. Already, the critics of this program have come out sputtering and muttering that generic commodity promotion won't work and that all it might do is increase domestic consumption of imported honey. This sort of talk rankles me no end. The fact of the matter is that there have been numerous examples of how generic commodity promotion HAS paid off. In instances where it has not (the egg program has been mentioned) the differences between the characteristics of those market areas and that of honey have been significant to the point of making comparisons suspect. What bothers me more than anything else, though, is that we all have heard the crying and gnashing of teeth about how this industry is going to the skunks in a fast way. Well, oddly enough, I've heard little in the way of creative suggestions as to how these problems might be solved. The Honey Promotion Bill is, at least, an energetic and sincere effort to do SOMETHING! Will it work? Well, I guess there's only one way to tell, isn't there? If we think, from the start that it is doomed, then it probably is. Conversely, if we pull together for a change, we might be plesantly surprised. Folks, I think it's time we all accept that PROMOTION is the long term answer to our problem. I just don't buy the assertation that innventive marketing of AMERICAN honey will undercut us by encouraging consumption of imports. Granted, that may be a short term effect, but the greater truth is that situations of the type created by honey imports come and go. The ultimate result of increased consumption will be expanded domestic opportunities and a vastly stengthened U.S. beekeeping and honey industry. Similarily, talk of increased tariffs as a solution are short sighted. Not only might tariffs cause unpleasant repercussions in other respects, but they are symbolic of our willingness to yell at the government to stay away when the going is good, but to come running at our first whimper when the going gets tough. Face it, folks, that type of attitude only keeps us, as an industry, from doing the things we should have been doing, all along, to help ourselves. So -- take a good look at the Honey Promotion Bill when the specifics are provided for your feedback. If you're not going to support it, let me suggest that your reasons be more substantial than those thus far put forth. If you dó intend to support the program, do it with vigor and candor. These are not times for having no opinion.

Mark Bruner
MEDINA, OHIO

Prophetic Bees

by ALBERT G. BELL 2857 Colton Billings, MT 59102

While shoveling the driveway for the fifth time in a week, a newspaper headline, "Beekeeper says 'Winter' is buzz word in hives", came to mind. A bitter east wind was unusual for Billings, Montana, because our prevailing winds come from the northwest. The phenomenon, the chinook, comes from the southwest. A chinook is a warm wind that makes the snow disappear and brings smiles to the native's face smitten with cabin fever. It was the middle of January and such a warming trend had been absent.

The prophetic weather bees were owned by Clem Smth and local news media repeatedly sought Clem to interpret the weather from the buzzing bees. Clem was the congenial greeter, people expediter and quasi quard for the Security Bank Building where my offices were located.

When I first came to Billings, Clem permitted me to keep my three hives on one of his locations so our bee chatter was greater than normally expected between beekeepers. The property where we kept bees was sold so I had to find another location for my bees.

While our bees were together I noticed the absence of winter wrappings, but Clem did winter his bees in two deep supers with a burlap cover over the frames of the top body. Clem worked towards a cutcomb product and would balance his colonies for increased populations for drawing the cutcomb foundation. His honey is sold in local grocery and health food stores under the Midland Bloom label. It is the only chance for many to purchase local comb honey. He had a ready market in the bank building which contains employees from other organizations in addition to bank personnel.

Our bees were originally in an area which contained thistle in addition to the various legumes so there was an extra touch of flavor for a unique comb honey. Clem also had liquid honey and it too sold as fast as extracted.

After Clem retired from his bank position, I visited his home and bee locations to learn his secrets, operations and bee history. Clem lived in Billings as a youngster and his father had a Root bee supply dealership. They lived in a rural area, which is now covered with homes instead of the Smith family's 400 colonies.

At 13 Clem became a beekeeper in his own right. He was fascinated with his father's honey bees and set out one July morning to search for a swarm to capture. A swarm accomodated him by landing at his feet in the sage brush. He enlisted his sister's help and they carried the swarm to a proper home. This began a 53 year romance with honey bees.

Clem's present operation is 30 colonies and he maintains them different from those in the outyard that I first saw. Clem winters his bees in three deep supers under a two queen system and utilizes Caucasians. Because his two queen system produces a large population, Clem uses cutcomb

Clem also raises sheep and here he is with a new lamb. Photo by Al Bell

foundation in one-half depth supers exclusively. Clem wants his bees to draw out new foundation each year. He explains this reduces swarming, provides wax making duties for young bees and brings in large amounts of honey. The frames of honey not suitable for cutcomb packing are extracted and the wax melted. Each year new cutcomb foundation fills the frames of supers.

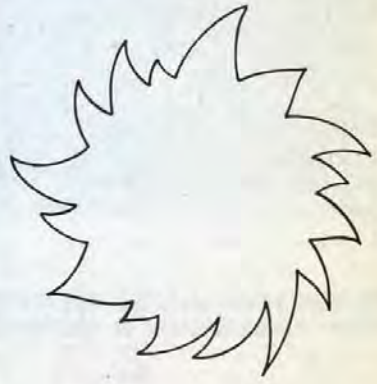
The two queens are separated by two excluders and allowed to roam in the three full depth brood chambers until the major nectar flow begins. After the flow begins the two queens remain in the lower brood chambers, but kept separated. The third full depth brood chamber is placed on top with a queen excluder. The two queen excluders remain between the bottom brood chambers to keep the queens apart.

As the nectar flow progresses the honey supers are placed below the top full depth super. When the bees draw out the foundation and fill the cells with honey they also deposit honey in the top full depth super as the baby bees vacate their birth chambers. When the honey is removed, the full depth super that remained on top during the busy bee season becomes the food chamber for winter. The two queen are united in late summer or early fall depending on availability of late nectar flows and weather.

Clem's winter trap consists of impregnated cardboard boxes which he secures from florists. The boxes originally held cut flowers or plants during shipment. They are the right size for three full depth hive bodies. The top is a telescope cover overlayed with asphalt roofing material. A queen excluder is stored under the covers and a flight hole is provided in one of the hive bodies in addition to the reduced entrance.

Clem was one of the pioneers in marketing cutcomb honey in plastic sandwich boxes. The first boxes were too thin which he discussed with factory representatives. The plastic boxes are now thicker and make a nice package for cutcomb honey.

The bees told Clem the 1982-83 winter would be open, mild without snow. It was! The newspapers keep tabs on Clem's bees and report his weather forecasts. Some forcasters check the stars, the winds aloft or the fur on a wooly caterpiller, but Clem Smith consults the bees.□



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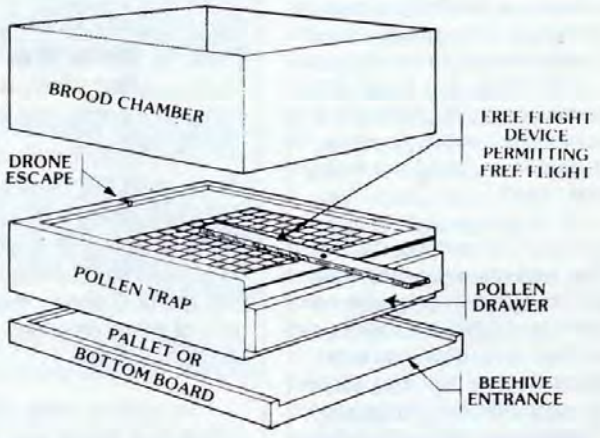

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Bee Talk

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

It's time to talk about the acarine mite. There have been some alarming reports in the beekeeping periodicals, as well as in the daily newspapers. Some of these have even suggested that the mite is a threat to agriculture itself, and in general, a pall has been cast over our craft.

Hardly had the mite been discovered in Texas before it began turning up all over the place, including an apiary not far from mine, right here in New York. I think we can conclude that it is here for good. How big is the problem going to be?

It seemed to me that the best way to find out would be to get in touch with my beekeeping friends in England. They are the ones who should know, so rather than read the speculative opinions of experts in this country who have little first-hand practical knowledge, I wrote to my friends over there. I have learned a lot, most especially from Mr. Harrison Ashforth, one of the most knowledgeable beekeepers to be found anyplace.

The acarine mite spread to southern England from the Isle of Wight in 1909, and within ten years it wiped out about 90% of the colonies in Britain. Some persons, noteably Dr. Bailey at the Rothmstead Experiment Station, have raised doubts whether this collapse of beekeeping was really due to the mite, but most British beekeepers, including Mr. Ashforth and others of outstanding authority, have no doubt that it was. Is anything like that going to happen here?

I don't think so. For one thing, the British black bee that was common then seems to have been particularly susceptible to infestation, whereas Italian bees, so widespread here and now common in England, seem far less so. The climate there, too, is quite different, and so is the strength of their honey flows. And in any case, it is no longer a grave problem even for British beekeepers. Mr. Ashforth, who uses no preventative treatments, has seen no sign of acarine in his 80 colonies in the last 25 years. Of the 45,700 samples of bees submitted for examination to the disease diagnosis centers in England and Wales during a recent ten-year period, only 8.4% were found to contain acarine. We can assume that the samples submitted were already suspected of being diseased, so a random sampling of bees would yield a much smaller percentage.

The mite does not significantly affect the mortality and foraging activity of bees during the warm summer months, and the effect upon honey production is therefore usually not severe. Methods of treating acarine infestation have been developed but, according to the British Ministry of Agriculture, such treatment "is no substitute for sound beekeeping methods aimed at maintaining strong colonies headed by vigorous queens."

The acarine mite invades the respiratory tubes of adult bees, including queens and drones. The adult mite can attack only **young** adult bees, however, for the respiratory tubes of older bees are effectively protected against mites by a fringe of hairs. In young bees, less than six days old, those hairs are soft and easily penetrated by the mite, but after that the bee is more immune to attack.

The female mite, having entered the respiratory tube of a young adult bee, lays eggs, which hatch into young mites called "nymphs." These feed on the host bee and eventually kill it. Spread of the infestation within a colony therefore depends upon the presence of very young adult bees, which lack the protective fringe of hairs, as well as older bees that were infected earlier, which now carry the adult forms of the mite, capable of spreading to young bees.

The symptom of an acarine-infected colony, though not a completely reliable one, is the presence of debiliated bees clinging to plants near the hive entrance, or crawling about fluttering their wings. The rear pair of wings develops a characteristically abnormal angle.

The acarine mite poses no signifiant threat to a strong and well-managed colony during the summer months, nor is the honey productivity of such a colony seriously affected even when mites are present. At that time of year the colony resembles and acts like a perfectly healthy one. The problem arises with wintering. By fall, the young bees in the hive, upon which the survival of the colony depends, are the ones vulnerable to acarine and, since the bees have become relatively inactive, they are thrown into close contact with infected adults. If, as a result, a third or more of the bees go into winter harboring acarine mites, then the infestation will spread to the new bees that begin to emerge in late winter and early spring, and the colony itself is likely to perish. The hive and combs, however, do not remain contaminated, and can be reused without further precaution, for the parasitic mites cannot survive long apart from the live bees that serve as their hosts.

Two methods of treatment have been developed in England. One of them, called the Frow treatment (after its discoverer) involves releasing highly toxic fumes within the hive in late autumn or early spring. The other involves releasing smoke fumes of a miticide. Neither is approved for use here.

There is no reason to destroy a colony that is found to have acarine, and it would certainly be absurd to burn the combs, given the known biology of the mite.

I think the most promising response to this problem will be the development of resistant strains. This seems also to be the opinion of Steve Taber, in California, who usually knows what he is talking about in such areas as this. If a bee can be developed with a better protective fringe of hairs at the opening of the respiratory tubes, then this might just solve the problem. Authorities in England are in any case agreed that some strains of bees are more resistant than others.

So I am not going to lose a minute's sleep over the acarine mite. I have long been convinced that the secret of honey production and of protection against diseases is the maintenance of strong colonies. Get them into winter with plenty of bees and honey stores, protect them from the stress of dampness, get them off to a good start in the spring, and I believe the bees themselves will pretty well take care of the mite.

[Questions and comments are welcomed. Please enclose a stamped addressed envelope. Readers wanting a copy of the extraordinarily informative and well-written bulletin on acarine pubished by the British Ministry of Agriculture should enclose sixty cents to cover the cost of making copies. Stamps are okay.]

Questions and Answers

Q. Do the cells in the brood chambers get small after many years of use? If so, would it make sense to give the bees two or three frames of foundation every year? Where would it be best to put those new frames? **J.J.W. Gibbens, Clocolan, South Africa**

A. I've never done this, but I probably should. Dr Elbert Jaycox has studied the matter and recommends it. Bees from old combs, he says, can be up to 17% smaller than those from new combs. And larger bees, it has been shown, begin to forage a week or more earlier, after emerging as adults, than smaller bees. He further notes that chalkbrood is less common on newer combs. Regular brood comb replacement is quite common in Europe and the British Isles. Frames of foundation should always be put in the top story of a two-story hive, and near the center. — Richard Taylor

Q. I have seen ads offering queen substance to attract wild swarms. Are these ads authentic, and has this been tested? **George M. Conner, Hutchinson, KS**

A. I have not seen these ads. Queen substance has been synthesized, but I think it would not be useful for attracting stray swarms. Stray swarms are better attracted by placing boxes or empty hives here and there in trees, and putting a few pieces of old, dark comb in them.

— Richard Taylor

Q. How many hives will an acre of alfalfa or sweet clover handle without overdoing it? **Ray Berg, Valmmy, Nevada**

A. There is no definite answer to this question, because honey plants yield differently on different soils. If your bees are in a region where such prime plants as alfalfa and sweet clover bloom, however, then you should certainly be able to have at least twenty-five hives in an apiary without fear of saturation.

— Richard Taylor

Q. I'm going to have to spray about fifty acres of pastures to control the grasshoppers and crickets. Is there a pesticide that would be non-toxic to my bees? Can the bees be confined for a day or two? Is there a particular time of day you would recommend.? **R. Douglass Williams, Moreland, GA**

A. I know of known pesticde that would be specific for grasshoppers and non-toxic to bees. Bees are normally not severely damaged by pesticides, however, unless (a) the pesticides are applied to plants in bloom that the bees are visiting, or (b) the pesticide drifts into the hives. If you can avoid the latter, then apply the spray when pasture plants are not blooming preferably on a cool day when the bees are not flying. If you undertake to confine the bees, which should not be necessary, then do so by removing the covers, screening the tops and closing the entrances, then cover with cloths to exclude sunlight and to protect from drifting spray.

— Richard Taylor

Q. Mold and mildew have formed on some of my stored combs. Can they be used again? How do I clean them up? **Jack Witt, Connersville, IN**

A. Moldy combs, while they are a baneful sight, are seldom a serious problem. Return them to strong colonies when the weather warms up good in the spring. The bees will make them clean as a whistle in a day or two. Meanwhile, store them in a dry place.

— Richard Taylor

Q. Can a hive be moved a short distance, 50 to 200 hundred yards, in winter without disorienting flying workers when they come out in the spring? **Dave Tobin, Weesport, NY**

A. Yes. Wait preferably until February or March, when the flying bees from the previous season will have declined in numbers and before any newly emerged workers will have become oriented to the new location.

— Richard Taylor

Q. Where can we get Vitex seeds and seedlings? **E. Howard Cayton, Wilson, North Carolina**

A. A lot of readers have asked me this lately. Try Pellett Gardens, Atlantic, Iowa, for seedlings, and Box's Better Bees, 410 N. Lide St., Mt. Pleasant, TX 75455, for seeds.

— Richard Taylor

Q. How do you get old super frames cleaned up so that new foundation can be put in them? **Paul E. Yoder, Goshen, IN**

A. Find an old tub, preferably rectangular, big enough to hold six or eight frames at once. Put it over a gas burner, nearly fill it with water, and slowly add a can of lye before heating. Then turn on the burner and, when the lye solution is hot, dip the frames in, several at a time, leave for a few minutes, fish them out with a stick, toss them into a pile out in the yard and, when you are through dipping them, hose them down with fresh water and let them dry. If you have more than 30 or so frames you may have to add a bit more lye as you go along, but with great care. The frames will be darkened by this procedure, but they will be free of wax, honey and propolis, practically as good as new. CAUTION: Lye is dangerous. Don't let it boil up suddenly. And wear goggles, as a precaution. A drop of lye water can destroy an eye.

— Richard Taylor

Q. I have understood for a long time that aluminum is bad for food, but my experience is that for honey and beeswax that is not true. Paint: The tank of my big Superior Honey Company extractor is more than 45 years old with aluminum paint inside with no change.

Pans: Years ago I probably made the biggest and best solar wax extractor ever with two 5' x 18" galvanized pans, side by side, tipped together with sun exposed wax and honey separator, and cooled five gallong honey can. I sent pictures and descriptions to *Gleanings* . Before publication I substituted aluminum pans. When the sun warmed the pans all the honey and wax slid and piled up at the lower end. I stopped the publication with no explanation. To me this performance showed honey and wax don't blend with aluminum. **W.E. Lyman, Greenwhich, NY**

A. A representative of one of the largest paint manufacturing operations in the U.S. indicated that aluminum paint legally could not be used to coat food storage containers. Many of the possible contaminants are found in the pigments. Consequently, clear epoxy is one of the few materials that is acceptable for coating honey equipment.

Reference information cited in *Honey*, 1975, states that aluminum containers are acceptable for honey storage. I did not find a direct reference to the effects of heat on honey when held in aluminum containers. However, the local general concensus was that honey was excessively darkened when heated in aluminum containers.

— Dr. James E. Tew

The Bee and the Boll Weevil

by STEPHEN B. BAMBARA
N.C. State University Dept. of Entomology Box 7626 Raleigh, NC 27695-7626

For many years beekeepers in the Carolinas and other parts of the South have been afraid to keep bees near a field of upland cotton for fear of pesticide kills. But it wasn't always that way and may not be in the future. In the old literature, cotton was recorded among the top honey plants in North Carolina in 1908. Reports from other cottonbelt states claimed yields as high as 100 pounds per colony in 1916 under favorable conditions.

Then a visitor from Mexico changed all this and made a place in history. The visitor was the boll weevil and its presence impacted the entire world. The story began in the late 18th century when America tried to appease the world's desire for fiber but could only produce 3,000 bales.

Mr. Whitney's trip to Georgia in 1792 and the machine he patented brought America's production to 100,000 bales in just seven years! In 1800 a farmer could net $40 per acre which was not small change compared to the $8 per acre he could make on wheat. This price encouraged more family farms to develop. The average farmer was a hardworking, uneducated man and not the rich plantation owner we often imagine.

The following decades made cotton as important to the United States and the world as petroleum is to the Mid-East today. Of the total U.S. exports in 1854 ($248 million) $200 million was from cotton. In 1860, the U.S. Treasury estimated that 2/3 of its funds were derived from cotton. One can understand President Lincoln's fear of what might happen to the United States' economy if the South withdrew from the Union.

Then, around the year 1900, boll weevils were found in fields north of the Rio Grande. The boll weevil continued to spread as far as Virginia. Yields dropped as much as 70% in some areas. More and more farmers abandoned cottom for other crops or moved west.

The pesticide calcium arsenate was the cottom growers most effective defense against the weevil but the use of chemicals also affected the bees. The height of cotton acreage in North Carolina was two million acres in 1927, a figure never to be approached again. The years to follow brought wartime economies, mechanization, other pests and greater use of many newly developed pesticides. Today cotton has the reputation as the most heavily sprayed crop in the world. Though cotton production changed, the beekeeper still could not take advantage of this good nectar plant. The low point for North Carolina came in 1978 when just 42,000 acres were planted in cotton with a spray schedule that kept beekeepers at a distance.

However, that year also marked the initiation of a program to erradicate the boll weevil from parts of the North and South Carolina. The U.S. Department of Agriculture and cooperating agencies undertook this bold project. Weevil populations dropped. Pest management techniques and improved scouting reduced pesticide applications to about five between July and September depending upon when it is planted.

The chances for a bee kill have decreased considerably.

This period coincides with a general nectar shortage in this part of the country.

The cotton plant has several nectaries outside the flower which allow an insect easy access to much nectar. Nectar is produced 2-3 days before the bloom opens and may continue until 2-3 weeks after peak bloom. In fact, bees avoid working the inside of cotton flowers and collect little pollen from the plant. Some people claim that honey bees actually have an aversion to the large sticky pollen grains.

Last year North Carolina had 90,000 acres of cotton and the figure is expected to increase. Although the boll weevil eradication program is not applauded at all, it may have brought back an old nectar plant to some new Carolina beekeepers.□

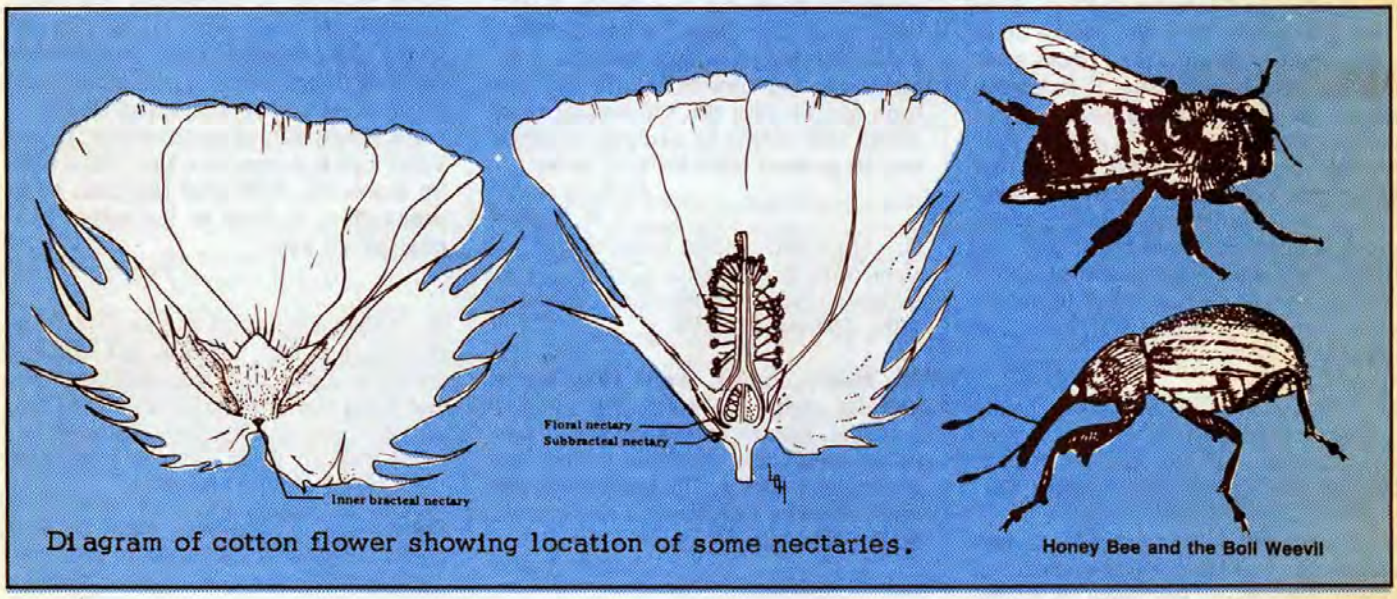
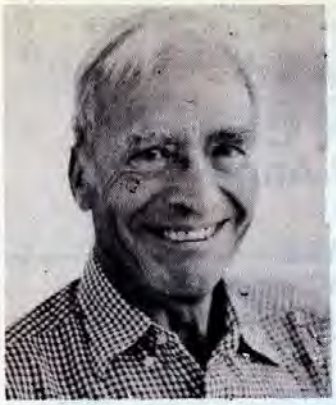


Diagram of cotton flower showing location of some nectaries.

Honey Bee and the Boll Weevil



Siftings

by Charles Mraz
Box 127
Middlebury, VT 05753

Sometime ago after inspecting hives of bees in Mexico in many areas for acarine disease, I was much surprised so little notice of this problem was taken in the U.S. More than two years ago acarine was known to be close to the Texas border, yet no notice was taken of its progress. And now all of a sudden we are finding it all over the U.S. To date it has been found in nine widely scattered states. My guess is it is already in just about every state in the U.S. by now. As John Eckert of the University of California at Davis said many years ago, he believed it hadn't been found in the U.S. long ago because no one looked for it. Dr. Eckert studied the acarine in Germany about 20 years ago.

It is interesting that when Dr. Eckert was looking for the mite in bees in Germany he never informed the authorities when he found it. At first he did report it, and the news was received with great indignation. They told him acarine isn't supposed to be found in the area, therefore it is not there and the case is closed. When he found it after that, he said nothing. Acarine disease must have been in bees on the mainland of Europe since bees existed. The British Brown Bee, isolated on the British Isles for many centuries apparently developed a susceptibility to acarine. When it entered Britain first on the Isle of Wight, it caused great losses at the beginning of this century. When British beekeepers replaced their losses with Italian, Carniolan and Caucasian bees at that time, they apparently were resistant since acarine after that was no longer a problem. Brother Adam grew up with acarine disease since he started beekeeping in 1910 in Devon, England. He has more knowledge and experience with this problem than any beekeeper alive.

My guess is also, with others, that acarine will not become a serious problem, as the susceptible strains of bees are eliminated. Why are some bees resistant and others highly susceptable? That is a complicated question. There are several possibilities such as a fungus that attacks the mite in the bees. Perhaps there is a bacterial or virus disease that can also kill the mite if we can find and propogate it. Another is a physical "resistance".

A beekeeper friend in Korea reported in the Acapulco procedings of Apimondia that my bees in Korea where the Varroa mite is prevalant, were the last of several strains to become infected with Varroa. He seemed to believe it was because my bees seemed to have thicker, stronger cuticle in their bodies. The bright yellow Italian bees have a very thin cuticle, in fact, so thin that light seems to shine right through them. They are almost transparent.

My strain of bees is dark in most cases and not as large as some of the highly in-bred yellow bees and it is easy to see that the body shell or cuticle is much harder and tougher than the yellow in-bred bees. The acarine enters the trachea of young bees soon after they hatch before the protective hairs over the trachea openings harden, making it impossible for them to enter the openings in older bees. Perhaps in "tough hide" bees, mites cannot enter even when they are young. An interesting possibility and worth looking into.

I recently attended the Maryland Beekeepers meeting in Baltimore and had a chance to meet the Maryland State Bee Inspector. What makes it unusual is that the inspector is a lady, and not a very big or rugged lady at that. We always imagine inspectors as being rugged "He Men" that can lift off heavy supers of honey from hives to inspect the brood. I hardly believe Maryanne Tomasko could lift off a deep hivebody full of honey on top of a six-story hive. Maryanne may not be a physically rugged bee inspector, but she is an awful lot smarter. She doesn't have to lift heavy supers off a hive to find American Foul Brood infection. In fact, she doesn't even have to lift off the cover. Not only that, I believe she can inspect a yard of 50 colonies for American Foul Brood in less than ½ an hour with more acurate results than a gang of weight lifters after an all day, hot, sweaty job, inspecting the brood combs.

Maryanne has a dog named Max. Max, on command, goes down the back of each hive and sniffs them at the command of "Search". He doesn't sniff at the front entrances as he does not like to get his sensitive sniffer stung. When he finds a hive with AFB, he will sit by the hive and look at it.

I would not be surprised if he can detect a hive with AFB with just a few cells of disease that would be difficult to detect by usual visual inspection, or even hives that have not visible evidence like sunken cappings.

To demonstrate Max's ability, Maryanne has a piece of diseased comb tied up in a plastic bag. She will put this bag into an empty hive in a row of other hives. Whatever hive that plastic bag is placed in, Max never misses to pick it out. Now that many states have cut down and even cut out inspection for bee diseases, a trained dog like this would be of tremendous value to inspect many colonies in a very short time and minimum of labor. It does indeed seem to be something that should be taken seriously, where there is no bee inspection.

Leonard Will of Elma, New York sent me a copy of an article that was in the Journal of the American Medical Association. It is a letter to the editor from Dr. Robert Bloomfield of Chelsea, London, Dr. Bloomfield writes: "I have been using pure natural honey for the past few months in the accident and emergency department where I work, and I have found that, applied every two or three days under a dry dressing, it promotes healing of ulcers and burns better than any other local applications I've used before.

Dr. Bloomfield continued that, "it can also readily be applied to any other surface wounds, including cuts and abrasions, and I can recommend it to all doctors as a very inexpensive and valuable cleansing and healing agent. It even has a delicious taste".

Honey has been used for this purpose for centuries. It seems that each generation has to learn to use it over again, as there is nothing yet developed in medicine that can come even close to the healing power of natural honey. If honey can indeed heal so well outside of the body, why not the inside of the body, as those that have used it can testify. Messages of this kind do not often get out to the general public, it is up to every beekeeper to use honey himself and to learn by experience of it's wonderful healing powers. Only then can you spread the message to the public. No one else will do this for us, we must do it ourselves. CONTINUED ON PAGE 31

Gleanings Mail Box

Apimondia

Dear Editor:

The International Congress of Beekeeper Organizations, also known as APIMONDIA, is meeting in Nagoya, Japan, October 10-16 (Thursday-Wednesday), 1985.

Members of the Maryland State Beekeepers Association (MSBA) regularly organize a group to attend these international events, having gone to Brazil (1973), France (1975), Australia (1977), Athens (1979) and Acapulco (1981) while we missed Hungary (1983) for obvious reasons.

MSBA is planning to attend the Japan meeting and would like any interested beekeeper or bee friend to join us (our trip to Mexico had beekeepers and others from D.C., Virginia, North Carolina and Florida in addition to Maryland).

The larger the numbers (we average about 20), the more favorable the rates. Tentative plans call for stretching the event into two weeks with a side trip to inspect Chinese bees and a brief stop in Hawaii, either coming or going: however, final details are left to the majority will.

Anybody seriously interested (we need **firm** numbers in order to be quoted prices) should contact the undersigned NOW, NOW, NOW. Thanks.

John Iannuzzi,
The Nectar Collector
RFD 4, Ellicott City, MD 21043

P.S. The ensemble will actually be led by Arthur G. Strang, Boyds, Maryland, former MSBA president and seasoned group leader.

Packaging & Labeling Honey

Dear Editor:

The enthusiastic response to my presentation "Creative and Interesting Packaging & Labeling of Honey" has prompted me to expand the display of containers and labels. I would appreciate receiving contributions from beekeepers, as well as suggestions, of packaging and labels — particularly individually designed labels.

Your contribution will definitely be displayed at all presentations.

Ann W. Harman
6511 Griffith Road
Laytonsville, MD 20879

The Taylor Method

Dear Editor:

I want to comment on Richard Law's comment about Richard Taylor's storage. Both could be right but I have done exactly as Dr. Taylor has done for 74 years. However, you do not want to have weak hives and I know Dr. Taylor would have active hives with sufficient bees to protect the hive.

However, I stock the super far from the bee colony and never had robbing. I can see no harm by Dr. Taylor's method, in fact, I like it for the small beekeeper.

Basil M. La Vergne
333 N. Ocean Blvd. Tiera E #1504
Deerfield Beach, FL 33441

Praying Mantis Prey On Honey Bees

Dear Editor:

In October I inspected a honey bee colony in Zwolle, Louisiana at the request of my nephew. The colony consisted of one large super with frames and one empty super on top of the inner cover for feeding sugar water.

The bottom of the empty super was covered with one-half inch of residue resembling mouse excrement and I immediately suspected mice inhabitants until I saw about 30 praying mantis in various sizes. There were no egg clusters. It was obvious that the praying mantis had taken up residence and reached into the opening in the inner cover for their meals.

The colony had been collected in June from inside a beech tree which was cut up by a chain saw. Before the portion of the log containing the honey bee nest could be transported to an apiary location the bees absconded and formed a swarm-like cluster on a nearby tree branch. They abandoned their brood and stores. The cluster was removed and placed in a super within a mile from its original wild location.

The colony is weak but free from brood diseases and contains sufficient brood and stores that with feeding is quite likely to survive a mild Louisiana winter.

C.H. Hansen, Master Beekeeper
37 Meadow Lane, Bloomfield, NJ 08003

Needs Beeswax

Dear Editor:

Picture yourself in Haouairia, Tunisia — bright sun reflecting off the blue waters of the Mediteranean, to your right hills covered with eucalyptus trees and under your feet thousands of blossoms on the wild thyme and lemon balm plants. A feast for the honeybee 10 months of the year and honey selling for over $3.50 per pound!

In our little town of 7,000 Arabs, donkeys and camels pull plows in one field while a big modern John Deer tractor labors in another. Bright western clothes mingle with the traditional dark wool cloaks and shroud like sasafris of the women on the streets. Children run happily through the rows of peanuts drying in the sun and the white domed houses sport bright red bonnetts of drying peppers!

My husband Jim and I are beginning our third month of work here as a beekeeping extension agent with the Peace Corps. The Langstroth hive was introduced here just ten years ago and about 40% of the beekeepers are now using this "modern" method. The other 60% use the traditional "djebbah" — a woven straw tube about one meter long and 25 cm. in diameter. These are reinforced with mud and stacked in groups up to four feet high then covered with more mud and straw to protect them from sun and wind. One of our jobs is to encourage use of the removable frame hives and promote better management techniques. This area is home to Apis mellifera intermissa (African Tell Bee) — small, dark and very aggressive. We soon learned that you don't go to work here without a good veil and smoker!

Problems are many — AFB, Varroa mite, wax moth, etc. One of the biggest right now is lack of foundation wax. We would like to ask our stateside friends to send us any wax they might have hanging around in the garage or basement. We are getting a wax press and need a good supply to start until we can educate the beekeepers here to save their wax and protect it from the moths. Don't worry about the condition of the wax, we'll clean it up and put it to good use. Send wax to: **Jim Alner, Peace Corps., c/o Tunisia Desk, 806 Conn. Ave., Washington, D.C. 20526. They'll send it on to us. We'd be happy to answer any questions you may have about our work here and love getting mail. Judith Alner, P.T.T., 8045 El Haouaria, Tunisia, No. Africa.**

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MAINE HONEY WEEK EXHIBIT IN STATE HOUSE CAFETERIA, AUGUSTA: Left to Right: Melody Morse, Maine Honey Queen, 1984; Barbara S. Gottschalk, Associate Commissioner of Agriculture, Maine Department of Agriculture, Food and Rural Resources and Erasmus L. (Bob) Hoch, Maines Honey Ambassador.

Botulism

Dear Editor:

As a beekeeper and pediatrician I applaud Frank Reiser's article "Honey and Infant Botulism" in the October issue. Mr. Reiser has given precise and factual account of the relationship of honey and infant botulism.

Unfortunately in the same issue Mr. Charles Mraz has made the statement for natural milk and honey formula for sick babies. He states his 60 years experience has shown this formula to prevent and even cure botulism poisoning.

The American Academy of pediatrics is composed of 27,000 pediatricians with 500,000 years of infant feeding experience. The Academy of pediatrics and the U.S. Food and Drug Administration has warned physicians and parents not to feed honey to infants under one year of age because of the possibility of developing infantile botulism.

If I were to encourage a mother to feed her infant, and if that infant were to develop infant botulism, I would be sued for malpractice. I would have no defense. I would urge Mr. Mraz and anyone else who encourages mothers to feed honey to infants, to have a very large liability insurance policy. They should also be prepared to defend themselves in a court of law.

Forrest G. Hawkins, M.D.
1202 Faulk Rd.
Wilmington, DE 19803

Rural Crime

Dear Editor:

I am writing a book on rural crime for a midwestern publisher, Charles Thomas. It will be an extensive report of the serious, growing problem of crimes which are occuring in rural America. According to several insurance authorities, rural crime is now estimated to reach a total of $800 millions annually in farm theft losses and related crimes. Thefts of cattle, horse, poultry, hogs, crops, farm equipment, bee hives, farm tools, plus arson are creating great concern among farm and ranch organizations and law enforcement associations. I have written several articles in the past on the subject of rural crime. These have appeared in PARADE Magazine, LAW and ORDER and SECURITY WORLD.

At the present time, I have been receiving data from numerous agribusiness sources ranging from the American Farm Bureau Federation to national and regional farm insurance companies.

Do your readers have any current statistics on the thefts of bee hives on the west coast, Florida or the midwest, taken from orchards? This we have been advised by law enforcement officers in rural areas is a serious problem. Can you shed any light on the problem?

Thank you for your assistance in obtaining this information.

Franz Serdahely
13023 Stevens Rd.
Philadelphia, PA 19116

Changing Wet Supers

Dear Editor:

I am writing to comment on Mr. Richard Low's remarks of Dr. Richard Taylor's answer to a question on recommended ways of having honey bees clean wet supers for storage, page 574-601 of November '84, of *Gleanings*.

I feel Dr. Taylor answered as many questions in one answer as best he could in limited space.

In fact most contaminate colonies aren't strong enough to rob. There is more danger of transmitting AFB in the fall by yellow jackets visiting colony to colony.

What about the vacated bee combs in out buildings and bee trees? Oh, by the way Mr. Low, these bees can't read your California laws! And I'll bet you can't go by all of those California laws.

According to your quote Mr. Low, everything in California is closed up too tight to hive a swarm of bees. **Samuel Martin, 80 Azalea Dr., Eugene, OR 97404.**

British Beekeeping

Dear Editor:

I refer to "A Gleanings Interview" with Karl Showler in your October issue in which he states there is no commercial industry in Great Britain. Mr. Showler should know better. There is a commercial organization here in Britain known as the Bee Farmers Association with a membership of between 400-500 which between them own at least one third of all the stocks in the United Kingdom. This figure can be verified by the applications total made to the EEC when the Community first granted a sugar subsidy. At the time I was Treasurer of the BFA and supplied by the EEC with a complete breakdown of the grant figures. It is also the BFA who sent a representative to Brussels to act as delegate for the National Farmers Union to speak on behalf of British Beekeeping. The NFU's policy is that they will only deal with commercial operators, they do not recognize hobbyists beekeepers or for that matter any other hobbyists, they claim it would be like sending a backyard gardener to Brussels to

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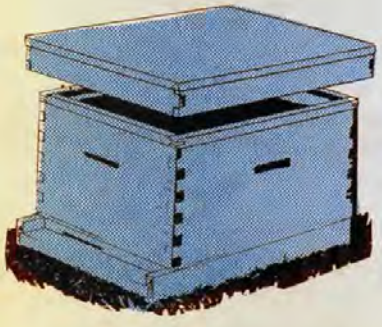
represent the Horticultural Industry. The Bee Farmers Association also runs the National Pollination Service of which I am Secretary. It is our proud claim that we supply through our membership at least 95% of all the hives hired for pollination in the United Kingdom. We obtain a good fee for our members and give a first class service to the Horticultural Industry. In 1984 there was not one grower complaint. In fact, many beekeepers from Europe tell me that our pollination service is 2nd to none and ask for details to try and organize themselves up to our standard. Our own Ministry of Agriculture spokesman told me that the Ministry was not even interested in the small amount of honey produced overall in the United Kingdom, he only received his large budget because of the value the bees were as pollinators and the great assistance they were to so many crops.

Again refering to Mr. Showler, I would point out that the Bee Farmers Association have been a subscribing member to the International Bee Research Association for many years, we have also supplied bees to East Malling Research Station (free) for destruction to assist them with their trials with sprays. It is not true to say people get their experience from overseas. Most of the commercial beekeepers of this country gained their experience in this country. It is true to say that some have then left to work with the peace corps, but very few obtain their initial training abroad. We do in fact have foreign students asking for positions with our commercial men and this does include Americans, but we also have found it beneficial to have students spend a period in your country. There is no doubt in our commercial mens eyes that the large American outfits make our operations look like backyards but it should be born in mind that we are a small Island and annual honey sales are small, but needless to say some of us in Britain do make a living doing the work we love in the beautiful countryside we love. **Mr. W. Flynn, Woorings, Main Rd., Longfield, Dartford, Kent, England DA3/7PW**



The Enjoyment Of Beekeeping

By LARRY GOLTZ Gleanings In Bee Culture Western Editor, 1230 Canby Rd #122 Redding, CA 96003

In writing about beekeeping we seldom mention the enjoyment we receive from the practice of the art. Beekeeping literature seems obsessed with the sometimes tedious, but necessary, tasks of preparing hive equipment, managing bees and that sticky and often onerous process of extracting and bottling honey. To some, the performance of one or the other of these vital tasks is part or all of the romance of beekeeping. Certainly no fault can be found with those who enjoy turning freshly sawed, fine grained pine or aromatic cypress into well fitting new hives: Or, with those fortunate individuals who find bees to be objects worthy of the hours spent tending to the absorbing duties of bee husbandry. Who can say that those who admire the final product, beautifully bottled, are

Puzzle

any less of a romanticist than the mechanic or the apiculturist?

Let us consider another aspect of the enjoyment of beekeeping, though not often thought of as an intergral part of such processes as acquiring equipment, tending to the bees and harvesting the crop. As beekeepers, we tend to focus on the hive and its inhabitants, forgetting that another world is involved, though the bees, if we understand their concerns, demonstrate that they are very much aware of what exists in the outer environment. Everything we do as beekeepers in preparing for the coming season and up until the beginning of the honeyflow, enjoyable or not, is in anticipation of what is necessary to gain a honey crop. What follows is the season climax, the most important part of the season, the interaction of the bee and flower. The harvest, should there be one, is an anti-climax.

The greatest enjoyment to some is observing what happens in the fields and forests; in spring-fresh, flower-filled woods, seeing sweet-scented spreads of clover or alfalfa in bloom or watching bees working industriously among the asters and goldenrods during the warm, hazy days of autumn. Enjoyment. Take it from whatever you can and let it be part of your beekeeping experience!

As a beekeeper of many years I share with the builder the enjoyment of the assembly of well turned out hive parts. It must be even more of an enjoyment to work with the raw stuff of hives, working soft, fine grained pine into bottoms, hive bodies and tops in your own shop. An added enjoyment for many is working an inovation or two into the final form, giving the finished product some individuality. We work with our hands and our mind, creatively, without supervision in a shop where we are in no debt to anyone to explain what we are doing and why. Enjoyable, you bet! Only those who have opened boxes of neatly packed wax can anticipate the aroma and appreciate the symetry of the cell bases on the delicate, lemon-yellow sheets of foundation.

Yes, there is satisfaction, and enjoyment too, in beekeeping, even now, while cold rain mists against our workshop windows; or, snow decends softly, and later, wind driven, clicks ominously against the outer panes.

With the onset of spring, the beekeeper, in the eyes of the less understanding, confronts the supposedly hostile colony. We know only too well from previous encounters that there may be just a little truth in the onlooker's concerns. But no matter, we soon learn to cope, and to enjoy working with our bees. "Sometimes, " we admit to our questioner, "we find working with some colonies less than joyful, and there are days when we should be doing other things, or just watching the bees from a distance, as you now are." On brighter days, when the bees are docile, humming about the hive and engaged in whatever tasks gentle their spirit, we answer differently to the interrogator, for then we truly enjoy working with the bees.

A whole new era begins with the coming of spring. The crisis of winter has passed and what lies ahead is keenly anticipated by the beekeeper and sensed by the bees, a fine example of interdependence in which both bees and the beekeeper benefits. Is there pleasure in beekeeping? If you are in the beeyard on a lovely spring day when nature is awakening, the songbirds have returned from their annual exodus and the spring flowers are brightening the landscape with a myriad of colors, yes, beekeeping is enjoyable.

Lastly, I have found that there is enjoyment beyond what we experience in the workshop and in the beeyard. Our vision should extend to the horizon, for out there

Surprise

we become unburdened of beekeeping paraphanalia, as free as the winged forager seeking the sweet nectar and the many-hued pollen. It is here among the flowers that beekeepers can share equally with the bees in the providence of Nature.

Personally, I often stray from the chores of beekeeping to observe what is afield. In truth, I feel this is one of the most satisfying rewards of my beekeeping, though I must also admit that admiring the clear, amber-tinted product of my apiaries follows closely the pleasure of seeking its sources.

My beekeeping has led to another

Continued on next page

avocation, photographing the wildflowers, including the nectar and honey plants. The wildflowers present an easy target, much more so than the elusive wildlife that must be taken by surprise or painstakingly stalked, often to no avial, even when a clear photo is the only object. Plants, on the other hand, present themselves quite passively and if they are not at the moment at their best you may return another time being reasonably certain that they will be waiting at the same spot, perhaps in a finer array.

Wildflowers, nectar and pollen bearing ones in particular, have been the object of considerable travel by my wife and me, involving visits to many states and the provinces of Canada. A day in spring in the wooded hills of southeastern Ohio was no

Comedy

less exciting than a warm, sunny August day among the verdant meadows high in Colorado Rock Mountains. We have picked our way gingerly among the cacti of the Sonoran and Mojave deserts, trying to identify the plethora of unfamiliar vegetation on which flowers appear as if by a magical wand; flowers as unpredictable as the rainbow arching colorfully across the desert sky following a rare afternoon rainstorm.

In our travels, the unexpected brings the greatest rewards; the uncharacteristic blue of columbine high on a limestone ridge in Rocky Mountain National Park; a wood lily in a swampy field on the Bruce Peninsula of Ontario; the fleeting visit of honeybee seeking pollen among the sky-blue lupines high on the slopes of majestic, snow peaked Mount Shasta in California.

Our searches for the elusive foraging honeybee brings surprises and disappointments, questions and provides answers to others. We have witnessed tragedy and comedy.

Danger

Why would honey bees probe in the bright red poppy in my sister-in-law's garden when we are told there is no nectar and little pollen? We come unexpectantly upon a lone bee among literally thousands of common blue violets blooming at creekside on a sunny spring day in May; and another one, also quite unexpectedly, on the flower of the yellow trout lily. Why a solitary bee here, when other flowers elsewhere, likely yielded nectar and pollen in abundance? I have searched in vain for a single forager among the acres of soybeans surrounding my apiaries in north central Ohio, a mystery perhaps only the bees could answer, had they been able to speak.

I watched a bee enter the particularly suspended blossom of the orange jewelweed. Carefully avoiding the vegetation, still damp from the heavy morning dew, she disappeared head-first into the pendent flower, only to emerge in a moment, not head-first, as she had entered, but backing out in the most dignified manner possible, her wings folded tight against her body and her head, thorax and abdomen dusted heavily with loose pollen.

Tragedy seems to stalk each bee as she seeks nectar from the common milkweed. Observe the sometimes unsuccesful attempts to extricate herself from the entangling pollinia. Dead bees, their bodies drained of fluid by preying spiders, bear witness to failed efforts to free their legs of the crippling encumberances.

There is indeed enjoyment in beekeeping unless it has become a burdensome business. There is also much to be learned and many things to be witnessed, some pleasant, and others touching our hearts when we fail to keep our commitment to our bees.

Most importantly of all, being a beekeeper helps us to meet and keep in contact with the thousands of other wonderful people who enjoy the same interest as ourselves.□

ASSISTANCE REQUESTED

The author is presently updating literature on the nectar and pollen plants of North America. He solicits your help in this very important endeavor. It is our suggestion that readers send Mr. Goltz any information pertaining to the most important forage plants in your area. List the common names and as much about these plants and their relationship to your beekeeping as possible; particularly its yield potential, distribution and density, habitat, honey characteristics (if distinguishable) and anything else that may be of value or interest to other beekeepers. Photos (if available), would be welcome. Your contribution, if used, will be acknowledged by the author in the publication. Mail the information to the author at the following address. Your cooperation would be very much appreciated.

Larry Goltz Editor
3020 Harlan Drive
Redding, CA 96003

OBITUARY

Dennis Boyd Smoot, 48, a Montana beekeeper for 18 years, died at his home Friday, October 26, 1984. He had a medical history of cancer.

He was born in Whittier, California, raised and educated in California. He was raised in a beekeeping family with his father being a full time beekeeper.

Dennis taught high school classes in Vocational Agriculture in Buena Park, California for six years and then in 1966 moved with his family to Power, Montana where he joined a family-run business in beekeeping. He had been active in state and national beekeeping organizations since moving to Montana. He held the office of President of the Montana Beekeepers Association for two years and had served as a Montana Delegate to the American Beekeeping Federation a number of times.

He served on the Power School Board 1976-1984, was on the Power Volunteer Fire Department for 18 years and with the Power-Teton County Water and Sewer District for 15 years.

Survivors include his wife Bonnie; his parents, Boyd and Peggy Smoot, Hemet, California; sons David, Plentywood, Montana and Scott, Power, Montana; a daughter, Susan, Power, Montana; a brother Don, Power, Montana; and a sister, Penny, Rehm, Reno, Nevada.

The Monthly Honey Report

December 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	45.00	30.00	45.00	40.00	38.00	38.40	33.00	35.25	40.80
60 lbs. (per can) Amber	45.00	25.10	44.00	38.00	35.00	35.00	30.00	34.60	39.00
55 gal. drum (per lb.) White	.52	.50	.54	.57	.62		.55	.56	58
55 gal. drum (per lb.) Amber		.42	.45		.58	.50	.50	.55	.54
Case lots — Wholesale									
1 lb. jar (case of 24)	30.50	24.90	24.00	25.92	33.20	24.00	23.76	25.00	25.20
2 lb. jar (case of 12)	27.50	23.30	23.25	23.76	29.50	22.50	23.04	24.75	
5 lb. jar (case of 6)	32.00	27.80	26.25	23.04	28.50	26.00	24.00	24.50	24.60
Retail Honey Prices									
½ lb.	.90		.75	.85	.85	.90	.85	95	.90
12 oz. Squeeze Bottle	1.50	1.19	1.30	1.19	1.40	1.35	1.21	1.59	1.25
1 lb.	1.65	1.39	1.35	1.42	1.60	1.55	1.35	1.69	1.45
2 lb.	1.50	2.59	2.00	2.62	2.50	2.60	2.25	2.89	
2½ lb.	3.45					3.25		3.29	
3 lb.	4.00			3.39	4.00	3.85	4.00	3.59	3.50
4 lb.	5.00	4.95		4.99	5.10	4.90	4.70	4.79	
5 lb.	6.50		5.25	5.39	6.80	5.60	5.40	5.79	5.00
1 lb. Creamed			1.45				1.50	1.79	1.55
1 lb. Comb	2.25		2.25		1.85	1.85		1.69	2.25
Round Plastic Comb	1.75	1.95	1.75				1.75	1.70	1.50
Beeswax (Light)	1.35	1.20	1.40	1.40	1.25	1.25	1.10	1.15	1.40
Beeswax (Dark)	1.25	.1.10	1.25	1.25	1.12	1.00	1.00	1.10	1.20
Pollination Fee (Ave. Per Colony)	20.00		27.50	20.00	20.00		30.00	18.00	25.00

MISCELLANEOUS COMMENTS

REGION ONE

Vermont sales of honey down from previous years. Bad publicity about honey hurting sales. Moisture fair. Weather cold. Bees should be in good winter condition. Mite testing going on in Connecticut. If mite free, plans will be underway to raise more native queens which would be ready for sale or use about May 10. Pollination prices may go up because of beekeepers being reluctant to move bees due to acarine. Good winter conditions. Slow honey sales.

REGION TWO

Pennsylvania production approx. 46 pounds per colony -- one of the poorest years ever. Bees in good winter condition, though. Some feeding necessary. Honey sales off 30 percent from a year ago. No upturn for holidays. Market prices still dropping. West Virginia honey prices up slightly. Bees in good shape.

REGION THREE

Hardly any Illiniois fall flow. Feeding necessary. Concern expressed over buying packages and queens from the south due to acarine. Indiana reports white honey scarce. Those with 3-4 barrels putting honey on loan. Worry about the impact of acarine on package bees and queens. Mite testing begun in Indiana. Wisconsin reports that retail prices will be falling at major chain stores by the time this comment is published -- this being due to lower wholesale. Wisconsin crop very spotty.

REGION FOUR

Missouri has had a difficult year with a wet spring followed by extended heat and absence of moisture. Sales are slow with slight price drops. Mild weather in Minnesota during November should make for good wintering. Honey sales still slow. With the mite problem in mind, this advice from the Minnesota reporter: "Always expect the worst and you'll never be disappointed!" North Dakota is under emergency action order because of the detection of acarine there. Many beekeepers experiencing difficulty moving hives interstate. Almond growers nervous -- pollination prices going up. Beekeepers are naturally reluctant to move into dense colony areas. A mite find in a large almond area poses a direct threat

CONTINUED ON PAGE 54

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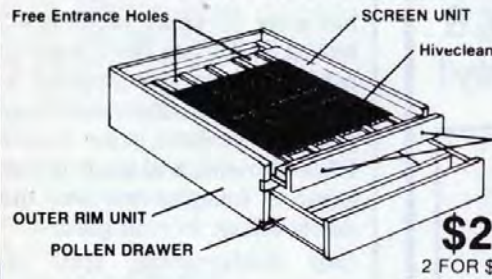

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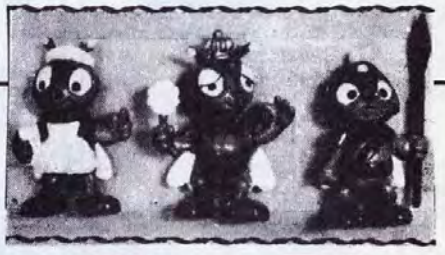

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A Hive For All Seasons: The Combination Queen Rearing Nucleus and Comb Honey Hive

by MICHAEL JOHNSTON 29354 Westmore Rd. Shingletown, California 96088

The Combination Queen Rearing Nucleus and Comb Honey Hive uses similar principles as are employed in the Two Colony Hive. In the Combination Hive, though, smaller frames and more complicated divider boards are used. As is implied in the name, this hive serves two functions. Normally, in the spring it is a single story hive with six compartments and is used for queen rearing. In the summer, it becomes a four compartment hive; more hive bodies are stacked upon the first, and it is used for comb honey production. In this manner, maximum production of queens is produced at one time of the year, while maximum comb honey production is achieved at another.

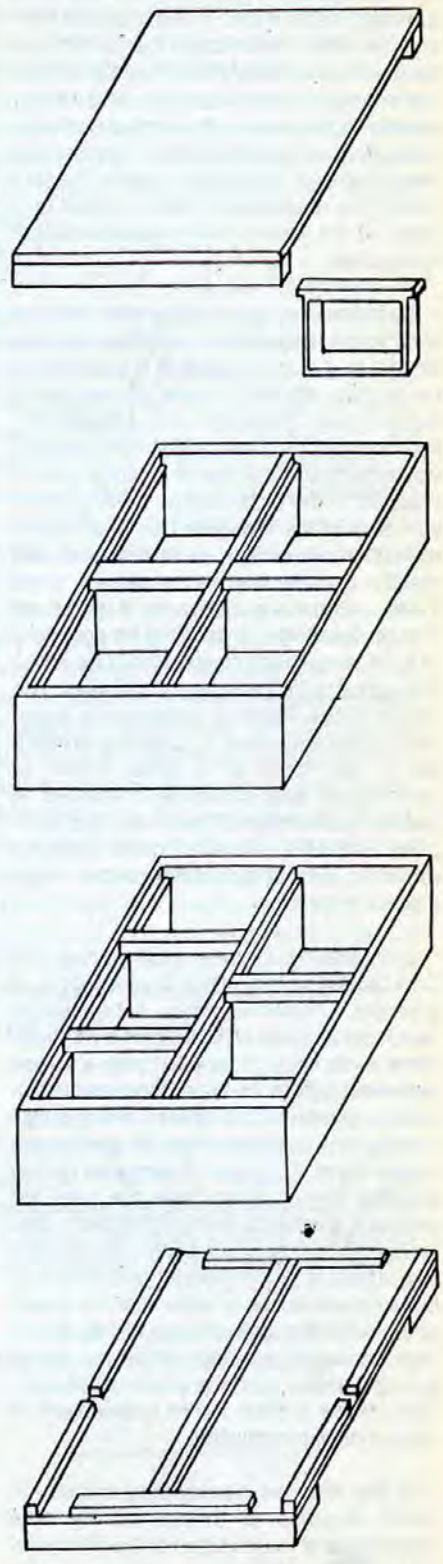
Though I am actually a native of New York State, this hive has been developed while I have been living and working in the Sacramento Valley of California. Generally, queen rearing nucs are of two types in this area. Either a small "baby nuc" with a single cluster of bees is employed or divided hive body with two or four clusters is used. During the off season, the combs can either be stored in a warehouse or "stacked-up" in a single queen hive; in some cases, a queen excluder is placed above the divided hive body type, and the different clusters work together in the same honey super. The Combination Hive departs from the other divided hive body types of nucs by continuing the divisions into more hive bodies stacked upon the first and by using the hive for comb honey production. Attention is also paid to the optimum configuration for the frame being used.

The design of the Combination Hive has been influenced by other types of nucs, but it actually was influenced more by a small special purpose hive which was not a queen rearing nuc. During my first three years in California, I worked the spring package and queen season at Wenner Honey Farm in Glenn, California. At that time Clarence Wenner was experimenting with a hive that contained a dozen small, almost square frames and which was used for the production of grafting larvae. Because of the small size of the comb, the queen would fill the comb with eggs which would vary in age by only a few hours. Three days later, when the larvae are grafted, the person grafting would no longer have to pick and choose grafting larvae; this sped up the process and avoided any accidents caused by grafting a larvae of the wrong age. Clarence has single gone to a different system which still uses the same size comb but through the use of removable ears, special frames, and queen excluders; they fit in a standard hive body.

I was quite impressed with Clarence's original grafting larvae hive and felt that with a few changes, it could be used for a queen rearing nuc. While at Wenner's I built a three compartment nuc which was half the width of standard equipment. It was built in this manner so that in the off-season two of these boxes could be pushed together, covered with a queen excluder, and the different clusters would work in the same honey super. This hive was the precursor of the Combination Queen Rearing Nucleus and Comb Honey Hive. A lot of the changes which have since occurred are basically due to the knowledge I have gained from the development of the Two Colony Hive.

Currently the Combination Hive uses a shallow depth hive body which is 18¼ inches wide. This particular hive body is wider than standard and can be used as a comb honey super on the two colony hive. The frames which are used are almost square. They feature an endbar which is not as wide as in a normal frame so that it is possible to fit more frames in a given space; this is a trick which is used in Homer Park's four-way nucs. When the Combination Hive is used as a queen rearing nuc there are six compartments with four frames in each. In its comb honey mode, there are four compartments each containing six frames per compartment per hive body. At that time the brood chamber is expanded to two hive bodies and are covered with a queen excluder. Comb honey supers are placed above the brood chamber and all of the divisions are continued.

As in the Two Colony Hive, it is important to consider what is the optimum configuration for the particular frame which is used. In the Combination Hive a frame is used which is shorter in length than frames used in standard equipment. It is my belief that the length of the frame does not affect what is the optimum number across for a frame but that depth is the determining factor. For two frames of different length but the same depth, the distribution of brood,



CONTINUED ON NEXT PAGE

honey, and pollen as well as the ratio between field bees, nurse bees and brood basically remains the same. Though the cluster in a hive with short frames is smaller, the proportion between its size and the space it occupies in a hive body is the same as for longer frames. At this time, the Combination Hive uses shallow frames arranged six across for comb honey production. Whereas the optimum number for a standard depth frame is five, the optimum for a shallow frame could be as high as seven. It is my belief that I may be able to achieve higher production by using a three quarter depth frame in the brood chamber of this hive while continuing to use shallow depth frames in the honey supers. The only means for determining this is by trial and error; at this time further experimentation is required.

As of now, my experience with this hive is far more limited than with the Two Colony Hive. It is my hope that it turns out to be a more efficient means of producing comb honey. Presently, it is relatively difficult to produce comb honey with standard equipment and the risk of swarming is increased. In the Combination Hive, production should be increased by the use of more than one cluster, and the bees should readily occupy the honey supers since these combs are similar to their brood combs. Swarming should not be any more of a risk since each cluster would be about the right size for the space it occupies. The comb honey which is produced is larger than today's squares, it could be produced in the form of a small frame or removeable ears could be employed. A decided advantage of this hive is that completed squares of comb honey could be removed without disturbing pieces which are not finished.

In its use as a queen rearing nuc, the Combination Hive offers a great deal of promise. Oftentimes when a beekeeper discovers that one of his hives is queenless, there is not enough time to order a queen delivered before the hive is lost completely. As a queen nuc, it offers a ready supply of queens available when the beekeeper needs them. If a queen is removed during a honey flow, in most cases the bees will produce another queen on their own. Better queens are produced with cells and the use of cells is recommended with this hive, but a natural queen is better than no queen at all. Another point in favor of this hive is that it provides a means of overwintering young queens from the previous season. This will be a great aid to beekeepers in more northerly latitudes.

At this time the beekeeping industry in North America is threatened by new diseases and the invasion of the Africanized bee. Though beekeepers can do a lot to avoid having their bees contaminated with parasitic mites, it doesn't seem as if our beekeepers in the South have much defense against the Africanized bee. For this reason it may become difficult to obtain good queens from the South during the 1990's. The Combination Queen Rearing Nuc and Comb Honey Hive offers the Northern beekeeper an efficient means of raising his own queens and gives him a harvest of comb honey during the honey flow. With the use of this hive and the Verticial Partition Two Colony Hive (see last month's *GLEANINGS*) we may be able to at least put up a good fight against the problems threatening the bee industry and possibly even increase population.□

On Patents, Royalties, and the Future of these Hives

As of January, 1984 I applied for patents on both the Combination Queen Nuc and Comb Honey Hive as well as the Vertical Partition Two Colony Hive. Though I don't know whether I will receive these patents I will continue to work in that direction. In the meantime, I am powerless to stop others from building and using these hives, but as they say, "Imitation is the sincerest form of flattery!" If others do build similar hives, I would be interested in seeing if their results are the same as mine and particularly how these hives perform in a real honeyflow.

Eventually, if I do receive the patents on these hives, they will not be used to prevent others from building these hives. Any royalties will be used toward starting a company which builds and sells this type of equipment and not towards enriching myself personally. The Patent System was originally started to help small companies compete successfully against larger companies and it works best if it is used in this manner. Until then, I will continue to work with these hives and improve them if possible.

Book Review

By Roger A. Morse
Department of Entomology
Cornell University
Ithaca, NY 14853

New Zealand is one of the world's six most important honey exporting countries. Still, the first bees were introduced into New Zealand from England only in 1839. By the 1860's it was reported that wild colonies were common in the bush in some provinces. In 1982 over 6,000 beekeepers owned a more than 250,000 colonies. Average production per colony is said to be 31 kilograms (68 pounds) per colony. About ¼ of the honey is exported.

As in the case of many of the world's major honey producing areas, nectar is gathered both from cultivated and wild plants. White clover (*Trifolium repens*) is New Zealand's principle source of honey. The honey is said to be white and delicately flavored. New Zealand honey has always had an excellent reputation on the international market.

Practical Beekeeping In New Zealand is a new bulletin designed to replace the old *Beekeeping In New Zealand* Bulletin 267, published by the Ministry of Agriculture and Fisheries. The book is designed as an aide to New Zealand beekeepers, but also to give information about beekeeping in the country to those abroad. The 185-page, 21-chapter book, covers a wide range of subjects including chapters on managing bees under the special conditions found in New Zealand. The first chapter describes the history, growth, and present status of the industry in New Zealand. Chapter 20 is concerned with laws affecting the beekeepers of New Zealand, who have obviously designed legislation to fit their special circumstances. Also included is a useful chapter on further sources of information.

The author is a native New Zealand beekeeper who has been keeping bees since he was a student. In addition to holding B.S. and M.S. degrees, he has a National Diploma in Apiculture from the Royal New Zealand Institute of Horticulture. He has served abroad as a consultant to the Food and Agriculture Organization of the United Nations. The text will be useful to New Zealand beekepers and gives those abroad an insight into the industry.

Practical Beekeeping in New Zealand is available from the New Zealand Government Printing Office, Private Bag, Wellington 1, New Zealand for $17.95 (New Zealand currency).□

Beekeeping Technology

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

An Old Bee Tree Memory

I have spent quite some time trying to understand why I am able to remember some useless bit of trivia that happened years ago while important tasks are whimsically forgotten almost immediately. The following bit of useless recollection is offered in an effort to demonstrate the danger of not being fully informed on a particular subject.

My *Weekly Reader* ran a feature story on insects when I was in the fifth grade (some 25 short years ago). All the important facts were there. Insects have four wings, six legs and three body parts. What article about insects can be offered without some mention of wasps, hornets, or honeybees? The article gave considerable detail on the function of insect eyes. The point was clearly made that generally bees see movement very well. I immediately commited the fact to memory and determined that I would field test this fact as soon as possible. My opportunity arose hardly one week later. Judy H., her brother Eugene H. and a friend Yvonne S., came visiting. Life seemed slower on a small farm in the South 25 years ago. Challenges and excitement were difficult to come by at best.

I suddenly found myself with three friends on a hot summer day with very little to do. Like a flash of lightening, It occured to me that this would be a perfect time to test the *Weekly Reader Movement Theory*. We gathered stones and climbed to the hay loft in our barn. My plan was to lie perfectly still and toss stones at the large wasp nests that were hanging from the barn rafters. If my *Weekly Report* sources were correct, the wasps should buzz around totally unable to find us simply because we weren't moving. (Except for the movement required to launch a stone toward an unsuspecting nest). The technique worked brilliantly. Our markmanship was good. The wasps came searching and found nothing. The excitement of having angry wasps all around while we were required to lie completely still is a vivid memory even now. Needless to say, my friends were impressed with my entomological education at that early age. I felt that the test was totally successful and felt that from that day on, wasps would have a great deal to fear from me.

Fade to scene II. Like most kids I had a partner in crime — Tommy H. We experienced all our adventures together. We went through a period when sardines and cola were our favorite snacks. But for the snacks to be enjoyed to the fullest, they had to be consumed while we were perched in our favorite tree. I'm well aware that this whole ritual makes no sense, but it did then. On a hot day in South Alabama, school out of session and two boys with a long afternoon on their hands, eating sardines in a tree made a lot of sense to us.

There was a small stream in our woods. Tommy H. and I packed our feast and dressed in our usual attire of shorts, sneakers and a dark summer tan. We set out to find a sardine tree beside that stream. After hiking for a short distance through thick undergrowth along the stream bank, we found our tree. We could scarcely believe our good luck. Following a heavy rain, a large magnolia tree had recently leaned precariously over the stream. Large limbs offered the perfect place to sit, balanced approximately 15 feet over the flowing water. There we could sit, eating our salty smelly little fish and contemplate life at the age of 11. We climbed through the tangled mass of roots and quickly scampered to our selected spot on the tree. It was everything we had hoped for. I recall enjoying ourselves immensely. However all things must end and the time came for us to leave. To our horror, we discovered that as we had passed through the up-turned root system of the tree, we had disrupted a honey bee nest. Bees were flying everywhere. We reviewed our situation. We were clad in light clothes and were 15 feet off the ground over a shallow stream. Folks, the only way down was to go through that Magnolia root system again.

Now bear in mind that I had vast experience in managing stinging insects. I explained to Tommy H. that our chances for getting through this thing untouched were not good. It was obvious that we would have to employ all our defenses to get through this. With thick under brush on all sides, running seemed impossible. I remember telling Tommy H. that our plan would be to move as quickly as possible through the nest and then employ a surprise tactic — drop flat on our faces and not move. Tommy H. having no other choice agreed and went first while I followed immediately behind. We boldy passed through the angry bees, through the roots and vines and assumed the surprise position. It was one of life's longest moments. They ate us up. We were covered in bees. We didn't stay in the surprise position longer than three seconds. The undergrowth that here-to-fore could not be penetrated suddenly had paths open up. Paths large enough for one to ride a bike. There were obviously two paths. One for each of us.

Years later as I reviewed this occurance, I realized that my *Weekly Reporter* was right as far as it went. Bees do see and respond to movement. However, they also have a good sense of smell as well as color vision. Two boys smelling of perspiration and sardines were an easy target.

If only I had had a little more information on the subject all those years ago— . . . □

The Fever Rises — Chapter 2
Confessions Of A Hobby Beekeeper

By BOLIVAR EDWIN SHAGNASTI

During the entire afternoon, I found myself possessed by those blasted bees! After Nanny Doogs departed to finish her bee work, I spend the balance of the afternoon walking from the house to the location in the back yard where Nanny had set the bees.

The garden remained neglected. The pigweed grew larger. The squash and melon plants sat potbound in the window greenhouse.

And I remained bound to the comings and goings of the bees, having planted myself upon a stump set near the bees. Nanny left me her spare bee veil, and I left it on for the remainder of the afternoon.

Suddenly I realized the time. It was almost 5, the time Nanny said she would return to move the bees into another box — whatever that involved. I panicked.

Not knowing much about Nannifred Doogs, I then proceeded to overprepare for her return visit.

Outside I set out extra concrete blocks and some scrap lumber, in case she needed to change the setting for the new box. I pulled a few weeds from the general area, but only from the back of the swarm catcher.

I pulled two chairs together under the shade of the house, and found a wooden box to set between them.

Inside I prepared a platter of lunch meat, left over fried chicken from the Colonel's competition in town, and a couple of blocks of cheese. In a basket I put every kind of bread I could find in the house, and covered it with a towel. I checked the supply of ice tea and beer, and dug out a bottle of brandy just in case. I had no idea what I was preparing for, but I was ready.

I figured if the bees nailed my eyes shut, the food would be out for others to find.

Six o'clock came and went, but not Nanny Doogs. I finally deposited myself in a chair in the front lawn, veil in one hand and ice tea in the other. I was talking to myself.

At 6:18 p.m. I heard the low rumble of Nanny's truck, and then I saw it come down the road. She pulled in and jumped out of the truck.

Nanny Doogs was at least 20 years younger than I expected, although I had no idea what age that might be. She was dressed neatly in clean jeans and shirt. Her hair was wet.

"Well, good evening Shaggy," she said. I stared back to her greeting.

"Don't panic — I just dumped a few buckets of water over my head to clean up from working with the bes. It sure is interesting to see how a little soap keeps the crowds from breaking up around you after you work bees."

Immediately she took a veil, smoker and a box off the back of the truck. She handed the box to me and steered me toward the back yard. About 15 feet from the hives she directed me to set the box down, and handed me the smoker.

"Light it up Shaggy" she sad. "It;s about time you learned the most difficult thing to do in beekeeping. Always upsets me to see them University types fumble over a smoker trying to get it lit."

"What?" I said. It was my first word.

"Lesson Number One in Beekeeping, by Nanny Doogs", she said, "Is to learn to light a bee smoker and to keep a-going. You will find that the smoker is your best friend in the bee yard, and you NEVER open a colony without smoke." She sounded very serious. Lesson One was sinking in so far.

She took the smoker back from me, and opened it with a metal pry bar she identified as a Hive Tool. She pulled out several wads of rolled-up binder twine and some crumpled up paper in the bottom.

"I get this-here paper from a bakery that buys my honey, and I always use it to start a smoker." She pushed the paper and a box of matches into my hand.

"Light the paper and drop it into the bottom of the fire pot of the smoker. Let it flame good and stick in one of these rolls of twine. Don't stuff it all the way in, but work the bellows of the smoker and get the flames jumping out," Nanny explained.

I did as told. Or so I thought. First the paper almost exploded in flame in my hand, and I dropped it on the ground. Quicker than quick, Nanny had the paper in the firepot.

"Now put in one of these and puff the bellows," she said. Quickly a cloud of smoke arose from the smoker.

"Keep pumping — if you stop now it will go out" Nanny explained.

I pumped and pumped. I could neither see or breathe from the smoke.

"Now put in the rest of the twine and pump some more, and then pull some grass up and place on top. Then you will be ready to close the smoke pot lid."

The sweat was rolling off my nose at this point. I had no idea that lighting a fire could be so much work. I pulled up the grass and closed the lid down. Nanny had to show me how.

"You gotta remember that the fire is on the bottom of a smoker, and you always build the fire so it will keep burning. Too many people try to make the smoker burn from the top down. Won't work. It always goes out as soon as you open the hive," Nanny said.

"Well, move them bees over," she said. Looking at my veil, Nanny chekced my veil to see if it was on correctly. She insisted I retie the string. We walked over to the bees and Nanny gently puffed smoke in the entrance of the swarm catcher.

"Remember, you only want the bees to think a fire is in the neighborhood, not that their tails are on fire! Use the smoke gently and with control. You want a cool white smoke — the grass helps keep the smoke cool. If I ever catch you puffn' flame out of a smoker I'll bop you one between the eyes," she said.

The next few minutes were like magic. Nanny motioned for me to bring the hive box over to the site where the bees were, and to open it up. Inside I saw several wood and wax items which Nanny identified as frames. The wood was old, but the wax was new. Nanny said that it was always best to start swarms out on wax foundation — the sheets of wax — rather

CONTINUED ON NEXT PAGE

than drawn comb. "Less chance of gettin' foulbrood", she said.

She opened the swarm catcher and gently puffed the bees. I was amazed to see the bees duck from the smoke as if they were diving for cover. She then lifted the swarm catcher off the cement blocks and set the new hive on top of the blocks. Dissatisfied, she put another block into position and set the box down.

"Now we move the bees," she said, and with that took the hive tool and gently pulled out the outside frame in the swarm catcher — which held five frames — and made a quick inspection.

"Nothing there" she said.

On the second frame she stopped, and with a flick of her wrist shook the bees off the frame. Amazingly, the bees fell to the new hive, and didn't attack.

Suddenly I had a frame in front of my face. "Look at the new comb they added since we put them in earlier today. If you look closely you can see some nectar and a few cells of yellow pollen. You got yourself a bunch of busy bees here Shaggy", Nanny said.

I looked. The wax sheet which from the swarm catcher was chewed along the edges, and the bees had pulled out or added more wax to the foundation. A few drops of liquid nectar reflected inside.

And I saw the bright yellow pollen. It was the same pollen I had watched the bees bring in all afternoon. Nanny quickly took the frame and gave me a second. I startled slightly because there were bees on it.

"There's your queen, the one with the long tail" Nanny said. And she pointed to one bee which was longer than the rest. I was in as much shock over the fact that I was holding the frame with bees on it as I was seeing the queen bee.

I watched the queen walk over the comb. She seemed to be trying to get away from me.

"Howdy-Do, will you look at this!" Nanny shrieked. With that, Nanny picked up a dead bee at the entrance of the swarm catcher. "That queen may look real purty, but she is also a murderess. Look at this other queen she kilt."

I asked why one queen would kill another. Nanny said that "Bees is one bunch you gotta have only one woman in charge. If you get more than two women, your 'agonna have trouble. So good ol' Mother Nature just lets one kill the other off. Real simple like, and it keeps the colony structure right."

By then, Nanny had already moved all the frames into the new hive, added extra frames of foundation and had taken the frame I was holding and placed it carefully into the box "Soz not to damage the new queen".

The job was done that quickly. Nanny carefully put the inner cover and then cover onto the bees, and shook the remaining bees in the swarm catcher in front of the new hive. We picked up our materials and walked back to the chairs which I set out earlier.

I asked Nanny if she would be able to stay for a bite to eat.

"Well 'han't you the sweet one! How did you know that all I got home to eat for supper is eggs or peanut butter and honey, and I already had peanut butter and honey twice today?"

I finally got a chance to seem more than a emptyheaded loon. I had Nanny take a seat, and went into the kitchen where I pulled out the cold cuts and bread. Using a large wicker tray, I loaded these items along with plates, knives, and a few jars of pickles and carried them out. Nanny started eating as soon as I set the food down.

"Would you like some ice tea. . . or beer?" I asked.

"If you will keep up with me on the beer, bring 'em out" Nanny said, and I returned with two cans.

We sat and ate. Nanny talked about bees. I listened. She explained how the bees run their family, as she called it, and how the queen keeps everybody in line. She explained that swarms only come from strong hives, and that my swarm, while large, was probably not the first swarm to leave the colony since there were two queens inside. Nanny said they were probably sister queens, but they didn't fight until they got to the new home.

As the light faded we carried the remaining food inside and sat on the porch. Nanny continued to tell about her bees, where they were, and about previous 'converts' as she called me.

It had been dark for some time when the phone rang. When I answered a strange man's voice asked "You got a woman there named Nannifred Doogs?"

I said that Nanny Doogs was here.

The voice said "You ask Nanny if she is through playing Saint Nanny of Beekeeping tonight, and thinking of coming home anytime soon." I relayed the message.

Nanny replied, "Just tell that lazy bago' bones to quit his belly-aching and to come on over, if you don't mind, and have something to eat and drink," Nanny instructed.

"But who is it" I asked.

"Oh, that's just my dear husband Celtus. He just got off from work and found my note. He's used to me running around at all hours getting people started with bees, but he gets a bit ornery when I don't feed him. He's old fashioned that way."

It had been a full day, but I wasn't tired, so I invited Mr. Celtus Doogs to drop by for a bit of food and drink. I looked at my hall clock. It was 11:45 p.m., and my first beekeeping days was far from over.□

SIFTINGS

CONTINUED FROM PAGE 13

The past several years I have attended a number of beekeeper meetings where coffee is often served. The meeting will have speakers weeping about the big honey surplus and lack of a honey market, yet when you go to get a cup of coffee and want to sweeten it with honey, as all coffee should be sweetened, THERE IS NO HONEY!!!! There is sugar, lots of it, but no honey at most beekeepers meetings. If your meeting does not serve honey then don't complain about honey surplus or the poor market. There is no one to blame but yourself.□

Research Review

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

The Effect of Season on Instrumental Insemination

Observations of over three thousand instrumental inseminations conducted over an 11 year period in West Germany shows that those done early in the season were more successful than those done later. Both the number of queens lost after emergence and insemination increased as the season progressed. Interestingly, the number of drone laying queens, which was low following insemination, showed no seasonal effect. It was also observed that queens would start to lay sooner after insemination in the spring than in the fall.

No explanation for the information reported is given. Since all the data are reported from a single laboratory we presume the methods were standard from one year to another. The authors suggest that for the greatest success that inseminations be undertaken early in the season, however, they also discuss the fact that growing drones early may be difficult.

References

Seasonal effects on artificial insemination of honeybee queens (*Apis mellifera* L.) Apidologie 15:223-231. 1984.

Beekeeping Review

In April, 1984, the Food and Agriculture Organization of the United Nations hosted a meeting on beekeeping with the European honeybee in tropical and subtropical Asia. The sessions were held in Bangkok and Chiang Mai, Thailand. The latter is the site of an extensive beekeeping industry that has developed within the past decade; it is estimated that there are over 30,000 colonies of European honeybees kept in the area.

Experts from 14 Asian countries, as well as Poland, United Kingdom, Canada and the United States attended. Twenty-two papers were presented. Many of these reviewed what was taking place in beekeeping countries in Asia. The numbers of colonies of European honeybees found in each country was reported as follows:

Afghanistan	*20,000*
Bangladesh	*0*
Burma	*2,000*
China	*4,000,000*
India	*3,000*
Indonesia	*1,000*
Japan	*320,000*
Malaysia	*0*
Nepal	*0*
Republic of Korea	*280,000*
Pakistan	*1,000*
Philippines	*2,000*
Sri Lanka	*4*
Thailand	*30,000*
Vietnam	*16,000*

At the end of the meetings the group acted on several resolutions. The chief item was a recommendation that a regional center be established to study honey bee mites. Both *Varroa* and *Tropilaelas* mites are serious pests throughout Asia. Other resolutions suggested that care be exercised in importing bees into the area so as to not bring in diseases that are not present; American foulbrood is already a problem in several Asian countries where it was carelessly introduced. It was also suggested that pesticide problems be investigated and that the potential for using European honeybees in the area be pursued. Copies of the Proceedings are available from the Food and Agriculture Organization in Rome.

Proceedings of the Expert Consultation on Beekeeping with *Apis mellifera* in Tropical and Sub-tropical Asia. Food and Agriculture Organization of the United Nations, Rome. 238(17) pages. 1984.

Kin Recognition in Honeybees

One of the hot subjects in biology today is that of kin recognition. The question is whether or not animals can recognize their relatives and if they can do they show prejudice toward them. The paper cited below asks if honeybees are able to distinguish among larvae when they are rearing queens and if so do they show a preference toward the most closely related to them.

It is now widely accepted that honeybee queens mate with up to 18 drones; this number is higher than one usually finds mentioned in the literature. This means that each colony of honeybees is a collection of subfamilies in which all have the same mother but each group has a different father.

To study the question of kin recognition the researchers below used instrumentally inseminated queens and standard queen rearing techniques. Colonies were made that had a queen that had been inseminated only once so that all of the worker bees were full sisters. These colonies were presented with pairs of dry-grafted sister and non-sister larvae that were next to each other.

The colonies were given more larvae than they could rear thus forcing them to make a choice. The developing cells were inspected after 3, 18, 48 hours and at six days. Statistical analysis of the data show that bees are able to determine which are their own sisters and that they do show preference. The authors conclude, "It is likely that, under our experimental conditions, larvae provide recognition cues and workers selectively accept them."

These data are not as strange as one might first suspect. We already know that bees can distinguish between worker and drone larvae and that they will remove those that are found in cells not designed for them. Further, we are aware that drone and worker larvae that are not normal are removed from their cells.

An immediate question that one might raise is, if the above is true how is it possible for queen breeders to rear queens with such ease? The fact is that queen rearing is not easy and we know that it is most successful if done during a good pollen and nectar flow. Other researchers who have studied queen recognition have shown that when one feeds a colony a strongly scented sugar syrup that the recognition is not so exact. Apparently scent is an important part of the recognition process in honeybees. The research reviewed here raises a host of questions that bear on practical beekeeping especially as regards queen rearing and requeening both of which are difficult problems. Hopefully these studies will lead to some positive recommendations in management practices.□

References

Selective rearing of queens by worker honey bees kin or nestmate recognition. Annals of the Entomological Society of America 77:578-580. 1984.

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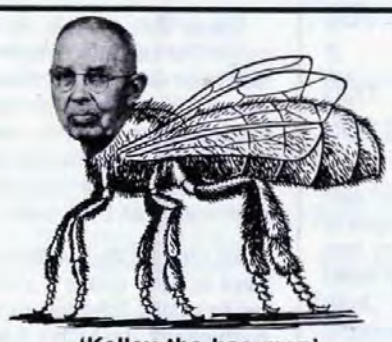

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THE MITES: What are they? Where are they? Why the concern?

By ROGER A. MORSE Dept. of Entomology Cornell University Ithaca, NY 14853

Mites are not insects, but they are clearly closely related to them. Adults insects have three pairs of legs, while most adult mites have four. Like insects, there are many mite species on earth. Most are small and many are microscopic. Although mites usually do little harm, some of the plant and animal feeding species that are well-known to gardeners and farmers cause great damage to the plants and animals we grow.

Many mite species can be found in bee hives. Most are mites that normally live in flowers and feed on pollen and/or nectar. They purposefully or accidentally attach themselves to honeybees so that they may be transported from one flower to another to feed. In the process many mites end up in hives where they feed on pollen but cause little damage.

Until the recent introduction of acarine (*Acarapis woodi*) mites into Texas, there were no harmful honeybee mites in the United States. Although the mites were found in July 1984, they had clearly been in Texas for two to four years or even longer. Beekeepers in other countries have experienced bee-mite problems, but until recently the isolation of our continent has given us good protection. Increased intercontinental air traffic is causing great problems for American agriculture. We are accidentally carrying plant and animal pests everywhere, and the acarine mite is just one more example of what is taking place.

Table 1. lists the honeybee mites that are of concern to us. There may be other unknown species in Asia; very few people have studied Asian honeybees and their diseases. Methods of controlling the mites have been devised in Asia but all are labor intensive and unsatisfactory from the point of view of beekeepers in this country. Chemical treatments have also been devised, but those that reduce the mite population are either toxic to honeybees or leave an unacceptable residue in the hive. No chemical treatment that will completely eliminate mites from a hive has been found.

One of our chief concerns today is the varroa mite in South America. We do not know the northern limits of its distribution, although we suspect that at least half the South American continent is infested. We expect the mites to migrate to the Mexican -United States border within five years, but it may take a bit longer.

Life Histories

Acarine Mites

Acarine mites spend their entire lives in honeybee breathing tubes or tracheae, primarily in the largest, which is near the front of the thorax. This is the primary trachea that supplies the flight muscles with oxygen. The mites may also live in air sacs in the head and the other tracheae. They puncture the tracheal wall with their mouthparts and feed on the hemolymph (blood) of the bee. The mite's feeding habits and its blocking of the breathing tubes causes difficulty for the bees, shortening their lives. The damage may be especially severe in the early spring when bees are already dying at a rate exceeding that at which they are being replaced. The puncture wounds in the tracheae allow bacteria to enter and infect the bees' blood. A serious bacterial infection may also shorten a bee's life. Colonies severely infested with acarine mite may die, but according to the information we have this occurs rarely.

Mature mites move out of the tracheae and crawl over the bodies of their hosts. They attach themselves to other bees, which in turn become infested. Mites usually spread from colony to colony through the drifting of adult bees.

There is much argument in Europe over the best way to treat acarine disease; many beekeepers and researchers feel the problem is not too serious. A fumigant that kills the mites but not the bees is widely advertised and has been used with varying success. The best defense against acarine seems to be maintenance of strong colonies.

Varroa Mites

Varroa mites infest both adult male bees and pupae. The adult female mites burrow between the abdominal segments on either side of the wax glands and feed on the adult bee's blood. We do not know how long the mites remain in place or whether a blood meal is necessary for egg development. When the mites are ready to lay eggs, they move into brood cells that are about to be capped. They prefer to lay eggs in cells with drone brood over cells with worker brood. Eggs are laid slowly over a period of several days. The young, developing mites feed on the developing bee pupae. If a large number of mites are present, the bee pupae may be killed; if there are fewer mites, the bees may live but will be deformed and have shortened life spans. The male varroa mites apparently do not feed. Mating takes place in the cells and the males dies soon after mating. The great deal of inbreeding in varroa mites may be one reason why populations are slow to increase.

Varroa disease appears to be worse in cooler climates. Colonies have been reported killed in Europe and more recently in Argentina. Cornell University has an ongoing varroa mite project in Brazil financed by the National Science Foundation and the U.S. Department of Agriculture, and in cooperation with the University of Sao Paulo and the Brazilian government.

Other Mites

We know too little about the remaining Asian mites to outline their life histories, though we know both infest brood. In Asia **Tropilaelaps** is more serious than varroa mites. It is possible that since both **Tropilaelaps** and **Euvarroa** mites are found in association with honeybees that are restricted to the tropics they may be able to survive only in warm climates.

Survey and Identification

One of our greatest concerns about mites pests is the difficulty of determining their presence in a colony. Not only does their small size hide them from view, but they also hide themselves during most of their life cycle.

In the case of the acarine mite infestation along the Mexican-U.S. border, the initial survey method involved sampling flying bees from 10 percent of the colonies. Older, flying bees are more likely to be infested than are young bees. A total of 200 bees was taken per apiary, and 40 of these were cut apart and examined for mites. For example, in a 40 colony apiary with 40,000

CONTINUED ON NEXT PAGE

Table 1. Known mite pests of honeybees.

Species	Native Host	Original Distribution	Present Distribution
Acarapis woodi (Acarine mite)	*Apis mellifera* (The European honeybee)	England, 1921	Most of continental Europe India, 1957 Belgian Congo, 1959 Argentina, 1968 Columbia, 1980 Mexico, 1980 Texas, U.S.A., 1984
Varroa jacobsoni (Varroa mite)	*Apis cerana* (The Indian honeybee)	Sumatra, 1904 (probably everywhere *Apis cerana* is found)	Philippines, 1963 Russia, reported in 1965, but infestation in European Russia probably dates to about 1948 Bulgaria, 1967 Rumania, 1975 Tunisia, 1975 Libya, 1976 West Germany, 1971 (most of Europe now infested) Paraguay, 1971, now found in Brazil, Paraguay, Uruguay, and Bolivia. Northern limit in South America unknown
Tropilaelaps clareae (no common name)	*Apis dorsata* (The giant honeybee)	Philippines, 1961 (probably everywhere *Apis dorsata* is found	No change known
Euvarroa sinhai (no common name)	*Apis florea* (The little honeybee)	India, 1975 (probably everywhere *Apis florea* is found)	No change known

Table 1.

Bees per colony (low figures for commercial operation)), only 40 out of 1.6 million bees would examined for mites. Citing these figures is not intended to criticize the survey method, but merely to point to the extreme difficulty in trying to locate the mites. Larger samples are taken when time and examiners are available. Examining one tenth of one percent of the bees would involve cutting open 4,000 bees in the above apiary.

Surveying for varroa mites is easier, since capped drone brood is first examined. Still, to determine if mites are present, each cell must be opened and the pupae carefully removed and examined for mites. Since the mites do not attach permanently to the pupae they may be crawling around free inside of the cell being examined. Searching for adult varroa mites on adult bees is as difficult as searching for acarine mites since the mites are so well concealed.

I predict that increased knowledge about bee diseases will be more and more important in future beekeeping in order to determine what steps to take when the diseases appear. No clear disease symptoms will show if only a few mites are present in a colony; one should always be suspicious of colonies that are weak for no apparent reason.□

Testing Your Beekeeping Knowledge

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

Two different types of individuals make up the reproductive castes of the honeybee colony. Since the success of a colony is ultimately dependent upon the queen, little concern is given to drones. In fact, many beekeepers take steps to restrict drone production in their colonies. However, the presence of a few drones is believed to improve the general morale of the colony during the honey flow. While the overall importance of the drone to the colony remains a mystery, observations have shown that both the queen and drones are fully integrated into the social life of the colony.

How well do you understand the biology and behavior of the queen and drones? Take a few minutes to answer the following questions to find our how well you understand this important topic.

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

1.____ The queen honey bee loses her sting in the act of killing a rival queen.

2.____ Drone flight from a honey bee colony normally occurs during the morning.

3.____ Drones die after mating with the queen.

4.____ Egg development takes place in the queen's ovarioles.

5.____ Sexually mature drones have definite congregation or mating areas away from the hive that are used year after year.

6.____ Drone honey bees produce no pheromones.

7.____ Drones are not capable of feeding themselves.

8.____ Within the hive, young drones are normally found in the central brood nest and older drones are found on the peripheral combs.

Multiple Choice Questions (1 point each)

9.____ Drone honey bees normally become sexually mature at the age of:

A.) 6 days B) 12 days C) 3 days D) 15 days E) 9 days

10.____ If a virgin queen is prevented from going on her mating flight, she will lose the urge to mate in approximately:

A) 3 weeks B) 5 weeks C) 2 weeks E) 1 week

11.____ Average life span of the drone during the summer is:

A) 10 wks. B) 5 wks. C) 2 wks. D) 1 wk.

12.____ Drones are produced in cells that measure approximately _____ cells per linear inch.

A) 6 B) 2 C)3 D)4 E) 5

13.____ During mating, drones are attracted to the queen after she enters the mating altitude which is over _____ feet above the ground.

A) 8 B) 12 C) 20 D) 15 E 5

14. Listed below are four phenomena associated with the queen. Please describe what is meant by each phrase. (Each response is worth 1 point).

A. Queen piping

B. Mating sign

C. Drone layer

D. Balling the queen

15. What is the primary function of drones in the honey bee colony? (Question is worth 1 point).

16. Queen honey bees have two major functions in the honey bee colony; please list them. (Question is worth 2 points).

ANSWERS ARE ON PAGE 41

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9-10: Equipment exhibits.
10: Introductions and welcome.
10:15: Acarine update.
11:00 Honey Promotio.
11:20: Concurrent session: Getting Started With Bees/Liability In surance and the Beekeeper.
12:00: Lunch.
100: Questions.
1:15: State Bee Laws.
1:30: Honey loan procedures.
1:45: Annual Business Meeting.

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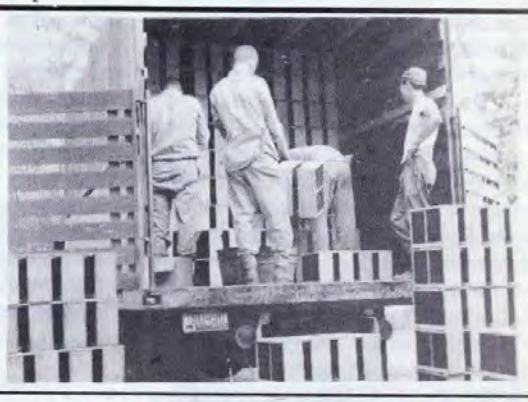
1984 WAS Conference, Gleanings In Bee Culture Scenic Award. Photo by Gerry Hicks



THE MILLER
THE WAX WORM, THE WAX MOTH

by MICHAEL ROLING Karl Hall, Southwest Missouri State University Springfield, MO 65804-0094

Today we talk, write and worry a great deal of the impending problems posed by the loss of popular chemical controls for the wax moth. However, while examining an old agricultural newspaper, the *Valley Farmer,* (which would later be called *Colman's Rural World*), it was interesting to see a similar concern regarding this insect voiced by beekeepers 115 to 134 years ago. This St. Louis publication was one of the dollar newspapers of the day and covered a variety of agricultural topics of local interest. One of these topics included the apiary column. So settle back in that recliner, transform it into a harmless time machine and view what must have been a frustrating challenge to our ancestral beekeepers.

Keep in mind that up until the 1860's there were very few Langstroth moveable frame hives in operation in this part of the country. Even after the 1860's, this new concept was in the minority. The first references to the wax moth are found in advertisements for patented beehives. During this 20 year period, there were predominant ads for four different patented hives. Three designs claimed independence from the moth if their device was used. One hive in particular, Dugdale's Patent Moth Proof Bee Hive, provided sketchy descriptions of an elaborate Rube Goldberg contraption to trap these little rascals, ". . . . .the Hive is opened and closed by a novel process, simply connecting a poultry-house with a Bee House, by which the fowls going to roost in another apartment close up the Hive, while by a large screen wire door the bees are thoroughly ventilated and the moths caught in a secret chamber into which they can get access." Of course these attempts by patent men often met with limited success and frequently receive the famous accolade, "Humbug!"

Besides these miracles of modern design, there were numerous devices, concepts and schemes that were free for the reading. That hasn't changed much over the years. The only problem still remains: choosing the proper solution. One of the first devices developed was described in an article in 1853. This was a real hot item since it was originally published in the *Scientific American* and later picked up by a correspondent for the *Mobile Tribune.* Finally the *Valley Farmer* lifted it from the *Mobile Tribune.* This remedy would be reprinted numerous times over the years in the *Valley Farmer,* ". . . . split joints of cane through the centre and arrange them on the four sides of the hive, with the split side resting on the platform. The moth instead of depositing its egg under the edge of the hive will lay them under the split cane. From these depositories they may be removed and destroyed as often as necessary with little trouble." This technique must have represented a cheap means of control to the apiarist. In addition, it must have provied immediate gratification to the owner of the hive to see the enemy fully exposed helplessly awaiting its forceful destruction. Americans are known for their ingenuity and if an improvement can be made, so be it. In 1856 the *Valley Farmer* quoted from an article in the *Genesee Farmer* by a Mr. G. Garnsey, "Raise the hive an inch from the bench by placing small blocks under its corner, and carefully fill every crevice in the bench, thus depriving them of their favorite locations, altogether. Then take a little board, say three by six inches, and one-half inch in thickness, and with a knife or some other sharp instrument, cut it full of grooves on one side; let the grooves extend through half the thickness of the board. Thus prepared, slide it under the hive, the grooved side down. This furnishes the moth with exactly such a place as they desire, and all you have to do it to remove your trap from one to three times a week, and destroy what you find in it." Ah, the industrial revolution—mass destruction of the enemy.

By this time the creative juices ought to be flowing. Mr. E. Link of Greenville, Tennessee, in 1857 devised a new hive. I will spare you most of the details except those pertaining to the wax moth, "Let the hives be made with bottoms sloping from front to back, rather over than under forty-five degrees. . . . .Nail cleats on the sides of the hives, about, or a little above the middle, by which to suspend them in a frame, instead of setting them on that most tolerable nuisance, a 'bee-bench,' between which and the hives the miller finds a most desirable deposit for her eggs, and from which the worms actually ascend and reascend after being thrown down by the bees, instead of being rolled out on the ground. I have seen them roll many out that they could not have got rid of on a level surface." At this time, Moses Quinby, a well-known author on beekeeping, was a regular contributor to the *Valley Farmer,* and he offered a reply to the above suggestion, "The 'sloping bottom board' is recommended as better for rolling out the worms, etc. Will these advantages pay for the extra fixtures? Worms seldom leave the combs till they have their growth, and nearly all will have a thread of silk attached above, and can re-ascend if they choose." Link replied in a no-nonsense fashion by saying, ". . . .they are rolled off to be destroyed by fowls." There, now that ought to settle it! But no, I think the editors of the dollar newspaper had other ideas. At the end of Mr. Link's rebuttal, they inserted a filler that read, "Look For The Bee Moth—Those having bees wishing to keep them and have 'luck' must almost daily visit their hives, (early morning is the best time,) and tip them up on one side and destroy the worms which secrete themselves under the edges of the hive."

Other contributions flowed to the editor's desk. Two ideas were quite similar: lure the moths to a tub or saucer containing a mixture of molasses and vinegar or old combs immersed in water. Better yet, take a pan of oil or grease and insert a wick, light the wick and set it near your hives. The moths would be attracted to it, become blind by the light and drop helplessly into the oil or grease. No more moths! This latter item appeared next to a plan for catching frogs with red flannel and fish hooks which may indicate the timeless nature of this suggestion. Another moth trap was devised. The trap was nothing more than a simple box with holes, frames to hold old comb and a moveable top. "The theory is that the moth will not attempt to enter the hive while it can find a better place in the box." Finally, J. Barr of Peevely Springs, Missouri, decided to announce to the world a new concept, "Next year I intend to try a plan of my own, that is to suspend the hives about one inch from the stand, so that no part of the mouth of the hive rests on it, by which means the moth can get no cover to lay eggs. Should it be proven successful I intend to let you know of it." We never heard from J. Barr. We can only guess at his success!

Despite all of the "Star War's Technology," there were a number of authors who observed, ". . . . . bees that

CONTINUED ON NEXT PAGE

are strong enough to hang outside of the hive do not need examination, they will take care of the moth without any aid from you." Or this observation, "The moth, herself, is extremely averse to coming in contact with a honey bee, and will dart quickly away on the approach of one; therefore, it is not probable that she ever enters a hive that is well guarded by bees. Let strong colonies, then, be our protection against this pest. . . ." Finally, at the first state meeting of the Missouri State Bee-Keepers' Association in 1869, a summary of some topics included the wax moth, "The general feeling was, that strong colonies was the best method of preventing the ravages of the moth!"

When I clap my hands you will reduce speed, stop your time machine, return to 1985, and devise some new scheme; some new device that will solve our anticipated problems with the wax moth. You will be the historical hero that they will write about in another 100 years as your idea becomes obsolete and they search for their new answers. CLAP. (Well at least wake up!)■

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Crabapples As A Nectar Source

by FRANCIS O. HOLMES Flanders Rd., R.D. 2, Henniker, N.H. 03242

As we approach the shortest days of the year it is a little difficult to realize that in a handful of months we shall be having days of maximum daylight and honeybees will be taking nectar and pollen from apple and crabapple trees.

Overwintering honeybees are probably dreaming about the delights of mid-May apple bloom at present, and it behooves beekeepers to use the coming months to ensure future harvests of apple and nectar and pollen.

Many years ago the pioneering "Johnny Appleseed" looked forward to his future, and to the future of North American agriculture, and did something about it to the best of his ability.

During the 1980's the beekeepers of the present have an opportunity to make our roadsides more beautiful, and more productive of nectar, by pretending to be modern Johnny Appleseeds. Many crabapple trees are still displaying thousands upon thousands of tiny apple fruits not yet devoured by seed-eating birds. Just how to start new flowering crabapple trees from the seeds in the overwintering fruits is a puzzle, but I plan to scatter the little fruits on this winter's snows in the hope that the snow plows will scrape the seeds far enough from the roadway to find growing space for seed germination and seedling growth.

In his own day, Johnny Appleseed laid the foundations for a prosperous American apple-growing industry by carrying westward the newly introduced European apple, *Pyrus malus* L., without which the early settlers had no materials from which to make apple pies, for which they eventually became famous.

In our day, beekeepers have good reason to establish roadside nectar sources for their honeybees, which were also, like the apple, introduced into North America from Europe. These introduced bees were not locally adapted by long evolution. They met here in America vast forests of spruce and pine and an agriculture based on wind-pollinated grain crops, such as Indian corn, or maize.

Apples, and many of their close relatives throughout the rose family, are notable sources of nectar for honeybees. Seedling apples and crabapples vary in their individual attractiveness to the bees, but pretty much all roadside and orchard apple trees supply some nectar, as well as pollen, to all their honeybee visitors. Actually, stray roadside trees and abandoned trees in old orchards are more useful to beekeepers than carefully tended and regularly sprayed trees in modern orchards. They are less likely to present a danger of poisoning by residues of insecticides used to protect the commercial apple trees from insect enemies.

Ornamental crabapple varieties are so widely cultivated in the dooryards of town and city dwellings that the "Johnny Appleseed" of today need not go to the residues from cider production to obtain reserves of apple seeds to plant along roadsides or in waste places. He has only to beat the seed-eating birds to the ripening crabapple fruits on the ornamental trees of dooryard plantings.

Then, like his predecessor of long ago, he must learn to place the little fruits where their seeds can eventually lose their dormancy and germinate. When the seedlings grow to maturity and blossom, they will be capable of supplying nectar and pollen to our modern honeybees and their keepers.□

ANSWERS TO TESTING YOUR BEEKEEPING KNOWLEDGE

Continued from previous page 36

1. False — The stinger of the queen is curved and longer than that of the worker, but it has fewer and shorter barbs. As a result the queen is capable of stinging a rival queen without losing it.

2. False — Under normal conditions, drones start flying about noon and continue until 4:30-5:00 p.m. Several studies have shown that real flight normally occurs between 2:00 and 4:00 p.m., however, drone flight is affected by temperature, cloud cover, shade, race and direction the colony entrance faces.

3. True — During mating, drones are paralyzed at the onset of genital eversion into the queen's sting chamber. As the drone falls backwards, the mating act is terminated by an audible snap and the drone falls to the ground and subsequently dies.

4. True — The ovaries of the queen bee are two huge, pear-shaped masses of slender, closely packed tubules, call ovarioles. Individual eggs start developing in the tips of the ovarioles and continue development as they pass down the tubules. They reach the oviduct in 2 to 3 days, at which time they are ready to be laid.

5. True — Drone congregation areas are visited by drones from almost every apiary in the neighborhood throughout the season and remain virtually unchanged from year to year. As drones leave the colony, they seem to fly toward depressions in the horizon. These congregation areas vary greatly in size, shape, and surface conditions. However, they are similar in that their boundaries are marked by some form of vertical relief.

6. True — The controlling forces in a honey bee colony are pheromones secreted from glands in the bodies of workers and queens. To date, no pheromones have been isolated from drones.

7. False — While drones normally rely on workers for food, they can feed themselves within the hive after they are four days old. As they mature they are fed by workers less often and finally feed only on honey that they remove directly from honey cells.

8. True — Many factors are believed to be involved in determining the spatial distribution of drones within the hive. Young drones are normally found in the central brood nest, since they rely on nurse bees for food and the higher brood nest temperatures accelerates the maturation of spermatozoa. Older drones are found on peripheral combs, since they feed themselves and prefer cooler temperatures.

9. B

10. A

11. E

12. D

13. C

14. **Queen piping** — A series of shrill sounds made by the queen, frequently before she emerges from her cell. Piping is considered to be a challenge between rival queens.

Mating sign — When a queen returns to the hive from her mating flight, sometimes she still retains a portion of the male genitalia and coagulated mucus from the last drone. Workers that assist the queen in removing the mating sign.

Drone layer — An unmated laying queen or one without the ability to lay fertilized eggs (sperm supply has been depleted).

Balling the queen — Worker bees occasionally kill their queen. More frequently, they will kill a newly introduced or virgin queen. To do this 15 or 20 workers collect about her in a tight ball until she starves or is killed.

15. To mate with virgin queens.

16. Egg laying and pheromone production.

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

No one realized how much the Rev. Langstroth resembled North Carolina's John Ambrose until the good Reverend showed up at this year's Southern States Beekeeping Federation meeting in Williamsburg, VA. He spoke about his lifetime and the curious changes in the world that he has noted.

Bees & Winter

by STANLEY L. LOYER RFD #2, Box 5690 Winthrop, Maine 04364

Beekeeping has been in existence 8,000 years. many drawings in caves of France, Spain and the pyramids of Egypt prove this.[1]

In the hot and tropical climates where bees don't cluster during what we refer to as the winter months, bees are kept in horizontal cylinders made of clay, wicker woven reeds and ceramic cylinders. As many as 400 are stacked on one another. Honey is harvested by moving a plug in the rear of the hive.[1]

In contrast to the hot climates, the bees kept in Ireland, Scotland, England and all of Northern Europe in the past and in many places today are kept in cylinders wooven from reeds, grass, hollowed logs. The big

Packed with styrofoam on three sides. Box of fiberglass insulation on three sides and one inch holes below hand holds.

difference is that these so called hives or skeps are always vertical because the bees of northern Europe cluster for the winter and move upward as the winter progresses. Moveable frame hives are also used as they are here.[1]

Hundreds of years ago land owners who controlled thousands of serfs, had a castle, and also had beekeepers who roamed the forests and burned where every hollow tree was located. they cut the back out of the hollow and after the honey flow, climbed the tree; removed the plug and harvested the honey for the landlord. Honey being the only sweet in those days, was a luxury. Hundreds of barrels of mead were also made.[1]

In the 19th century beekeeping made tremendous advances due to Langstroth, Dadants, A.I. Root, Dr. Miller, Doolittle, A.J. Cook and many more who today would be classed as large commercial beekeepers. The Reverend Langstroth invented the moveable frame. He did much research on wintering and was the first to write of the importance of upward ventilation and he wrote the first *"The Hive and the Honey Bee"*. Dr. Miller was trained to be a medical doctor but took up beekeeping in 1861. We owe the slatted rack bottom board to him. Michigan State Agricultural College was the first college to offer a course in apiculture. In 1866 A.J. Cook was the Entomology and Zoology Professor at Michigan State. A.I Root was active in all phases of beekeeping. He invented the double walled chaff hive with which he claimed success in wintering. He placed a hill device over the frames. This appears to be a part of the barrel hoops secured together. A burlap piece covered the hill device and shaving or chaff covered the burlap. It acted like insulation in the ceiling of a house. Four or five frames of bees and 25 pounds of honey did the job at Medina, Ohio. A.I. Root also was a large manufacturer of bee supplies and wrote a very popular book called *"The ABC's of Bee Culture.* Charles Dadant and his son Camille were French and imigrated to the U.S. in 1863. By the turn of the century they were the largest manufacturer of comb foundation and were revising Langstroths book *"The Hive and the Honey Bee"*.

In the nineteenth century bees were wintered in repositories and on their summer stands. Some winters both methods were successful but often the repository bees acquired what was called spring dwindling and dysentary and most or all died. This was probably nosema.[2].

In the twentieth century the trend became to winter larger colonies with more winter stores and A.I. Root recommended a food chamber above the brood chamber. In 1920-1930 Michigan State Agricultural College sent entomologists around the state to advise beekeepers associations. They gave demonstrations of the best way to winter bees. They advised two brood chambers ($9^5/_8$") with at least 60 pounds of stores. A length of tarred building paper was cut a couple feet longer than the perimeter of the hive stand and a lathe nailed through the paper to the hive stand on all four sides. By reaching down to the hive stands the paper was belled out. This allowed about six inches of shavings to rest between the building paper and the sides of two hive bodies. About a foot of shavings was put above the inner cover. A three foot length of paper was placed on the top and tied to the hive stand with binder twine. The bees always made it through the winter but there were often some wet and moldy frames. The entrance was reduced in size and mouse proofed. Looking back I can see that some provisions should have been made for upward ventilation as Langstroth discovered 100 years before. In the 1920's American

Wrapped in building paper with box of fiberglass above brood chamber.

Foulbrood became an epidemic. Michigan State College appointed hundreds of inspectors and quarrantined every county. The inspectors were ruthless. If you had AFB the bees were killed and everything burned. While picking cherries 25 miles south of Holland, I bought a two story hive and one of my yellow jackets further transported it to Holland. In a few days the inspector for Ottawa County showed up. He must have had a bad day as he cursed me and was going to have me arrested for bringing bees across the county line. My mother was a very religious woman and she was going to have the inspector arrested for the use of profanity in front of

CONTINUED ON NEXT PAGE

a minor and a women. They cooled off and my mother's 15 year old wasn't arrested.

In the 1930's and 1940's the trend turned to less packing and finally to no packing at all. In 1941 Dr. Haseman & Childers discovered sulfa drugs could prevent and cure American Foulbrood. Sodium sulfathrole was the drug of choice until about 1979 when it was outlawed in the U.S. but not in Canada. Neither the Federal Food & Drugs Administration or the manufacturing will spend the necessary money to test its use after 35 years of successful use. In 1915 Dr. White discovered that American foulbrood and European foulbrood were not the same disease. The Greeks recognized foul brood 1500 years ago but they never knew the difference.

Introducing queens with a push-in cage in February. Styrofoam on three sides and solar panel (storm windows) on south side.

From 1930 until about 1968 the late Dr. Clayton Farrar did more research, discovered more new ideas in beekeeping and did more to explain his theories on wintering bees. After spending about a year teaching entomology at a college in Boston he left and spent over 30 years in research at the University of Madison Wisconsin. Before his demise he was placed in charge of all federal bee research. Dr. Farrar recommended wintering in three full depth brood chambers with a young queen, 500 square inches of pollen, 100 pounds of stores, upward ventilation by drilling one inch holes below the handholds on the south side of the hive, protection from the wind, 20 frames of disease free bees, and an entrance small enough to keep the mice out. By placing over 100 thermocouples in the hive, he discovered that in a prolonged sub-zero cold spell the temperature within the hive but beside or below the cluster was about as cold as it

The winter examination

was outside the hive. He cut the sides and ends out of a hive and replaced it with window screen. Except in windy locations these hives reared brood in the winter and were successfully wintered. Nosema was found to an extremely devastating disease. His research showed that insulation saved between five and ten pounds of honey during the winter. The army wind chill table shows that a 30 mile per hour wind during 30 degrees below zero is equal to 94 degrees below zero. The northern states bordering Canada have winds and temperatures exceeding the above 30 mile and 30°F figures. Since the colony cannot move even an inch to the side or below, those colonies which have no honey, within the cluster perish unless a winter examination is made in February. This examination can safely be made any time the temperature is 10°F or above, no wind is blowing and the sun is visible. Frames of honey can be moved from below or the side and placed within the cluster or a super of honey before moving it up, bees will immediately move up and cover frames of honey[3]. A frame of brood honey and bees contains much latent heat and many times brood in all stages has been photographed in 20°F without loss.[4]

Here in Maine at 44° N latitude none of my bees have ever perished during the winter or spring in the last 30 years.

It has been found that removing the inner cover and replacing it with a box or shallow super filled with fiberglass insulation, stapling window screen above and beneath the fiberglass, then nailing ½ inch strips over the screen around the perimeter of the box or super is very beneficial. Nails, screws or ¾" blocks of wood should separate the super or box from the underside of the cover. This allows excellent upward ventilation for every ten pounds of honey consumed the wintering bees give off a gallon of water through respiration. If this moisture does not leave the hive it freezes and all of us who have examined colonies have found ice on the inner cover beside or below the cluster. When the weather warms ice water drips on the cluster and can harm the insulating bees. With a box of fiberglass above the cluster the moisture passes into the fiberglass, freezes and passes into the atmosphere by sublimation[3]

All hives should face a southerly direction and have an entrance which is mouse proof.

As the cost of transporting bees south for the winter has escalated and the price of pollination and honey has plummeted, some commercial beekeepers are again wintering in repositories because of the ability to remove moisture, ventilate and control the temperature. Ellis apaires have been wintering nucleus for several years and the winter losses are almost down to 5%. My colonies consume 40 to 70 pounds from October to April 1st, where Ellis winters on 25-30 pounds. My bees have consumed 100 pounds by July 1st when the weather is windy, rainy, and cold in April, May and June.

One hundred pounds of stores is none too much and those lacking this amount the last of September should be fed cane, beet sugar or high fructose corn syrup.

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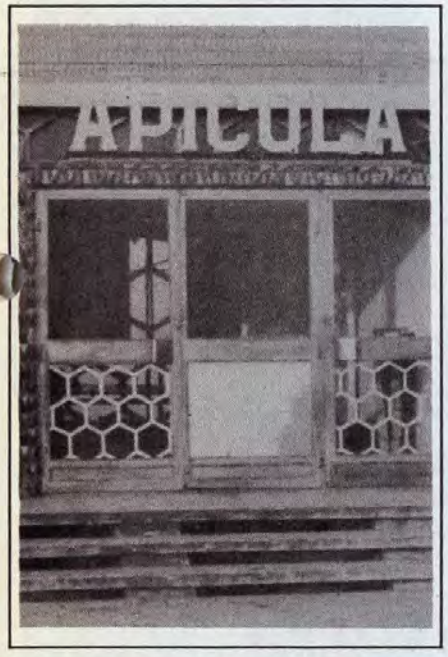
Romanian Beekeeping

by ARNOLD & CONNIE KROCHMAL 119 Bell Rd. Asheville, N.C. 28805

The Romanian beekeeping industry, which we have studied twice during work in that lovely Balkan country is an example of devotion, skilled organized and government concern.

There are more than 75,000 beekeepers in the country, of whom about 65,000 or more belong to the Association. The individual colonies are estimated to yield about 25 pounds per year.

Each year, 1,200,000 colonies are transported, by truck and barge, to serve as crop pollinators.



One of the regional distribution centers from the bee co-op.

The Beekeepers Association is a giant efficiently run co-op, divided up into 39 districts. Each district has one or more headquarters, called APICOL. These units are unbelievably efficient. They provide all of the supplies and equipment needed, buy the honey, and in larger cities sell a range of bee products to the public.

Beekeepers who do not want to join the co-op can sell their honey, pollen and beeswax in the public market.

At the Apicol headquarters in Bucharest, the capital, the Association has a staff of research veterinarians studying improved health of the bees, ranging from bacterial, viral and fungal diseases to improved feeding techniques.

There is a wonderful museum of the history of beekeeping and current products. During Roman times more than 2,000 years ago, the Romans took honey and wine for shipment to Rome, in clay jugs. Those which were used for honey had figures of bees on them.

In the National Museum we saw a marvelous ancient sculpture, showing the original inhabitants, Dacians, defeating the Roman troops by throwing bee hives on them from the wall of a fort.

At Apicol, University home economics students work in the labs preparing a variety of bee products for use in medicine.

The "Free" market provides beekeepers with an opportunity to sell honey and other bee products at whatever price they can get. These free markets are free from government control.

The Research Institute of Apitherapy is staffed by M.D.'s, and D.D.S.'s and pharmacists. Healing and treatment here is classical medicine, plus bee products.

The co-op breeds queens and bees, and sells them. Honey, at least two dozen kinds, is packed with distinctive labels. Cosmetics, honey wine, honey vinegar, a soft drink based on honey, pollen, royal jelly products — are all packed carefully.

Frames, supers, boxes, foundation are all manufactured by the co-op for sale. Extracting equipment, clothes and ceramic honey bowls are also produced. And finally, a range of publications, films, posters and periodicals are published.

We have talked only of the high-lights. There is a great deal more, but this may give some idea of a highly advanced bee-keeping set-up in a small country.□

NEWS and EVENTS

Popular Beekeeping Calendar Again Available

Since 1980 the N.C. State Beekeepers Association has been producing an annual beekeeping calendar, and this year is no exception. The calendar is primarily produced for the members of the NCSBA but the publication's popularity has resulted in a limited number being produced for general sale.

The N.C. Beekeeping Calendar serves several purposes. First and foremost it is a very attractive and professional wall calendar which measures 11" x 17" when opened. The calendar pages have ample room for writing notes, recording appointments and the other day-to-day activities that need recording. But in addition, it serves the special needs of the beekeeper and anyone interested in honey bees. Each page of the calendar contains a wealth of information of special interest to beekeepers throughout the United States with special emphasis on the mideastern states around North Carolina.

Non-members of the N.C. State Beekeepers Association who are interested in obtaining one of the 1985 Beekeeping Calendars may purchase a calendar through one of the following methods:

1. Direct Calendar Purchase — Individual copies of the calendar sell for $3.00 per copy with the price dropping to $2.00 per copy for purchases of 10 or more calendars. Checks should be made out to NCSBA and mailed to the N.C. State Beekeepers Association; 1403 Varsity Drive; Raleigh, NC 27606. The calendar price includes postage and handling.

2. Calendar Purchase through NCSBA Membership — Individuals who submit 1985 annual dues of $8.00 will receive a free 1985 Beekeeping Calendar plus a free 1985 Beekeeping Calendar when they are published. NCSBA dues also include additional benefits such as quarterly newsletters and other NCSBA publications. Checks should be made out to th NCSBA and marked as 1985 dues. Mail checks to the N.C. State Beekeepers Association, 1403 Varsity Drive; Raleigh, NC 27606.

British Columbia

Malaspina College in Nanaimo, British Columbia, Canada, is offering a six-week Apiculture Training Program from February 11th to March 22, 1985.

The program will cover all aspects of commercial apiculture with emphasis on practical skills, carried out in the college beeyard.

Registration fee is $500.

For course registration information, please contact the Community Education office at Malaspina College, 900 Fifth Street, Nanaimo, B.C. V9R 5S5.

Western Apicultural Conference

The Seventh Annual Conference of the Western Apicultural Society was held August 21-24, 1984 at the University of California-Davis, the site of its founding at an organizational meeting in 1977 and first conference in 1978. The Davis campus, a center for beekeeping research for 65 years, is ideally suited for such a conference as its ten acre bee biology facility and active entomology staff are assets not normally available to confernece organizers. President, Eric Mussen, and Program Chairman, Norm Gary, drew upon these resources to put together an outstanding program, packed with expert presentations from bee scientists and practical beekeepers.

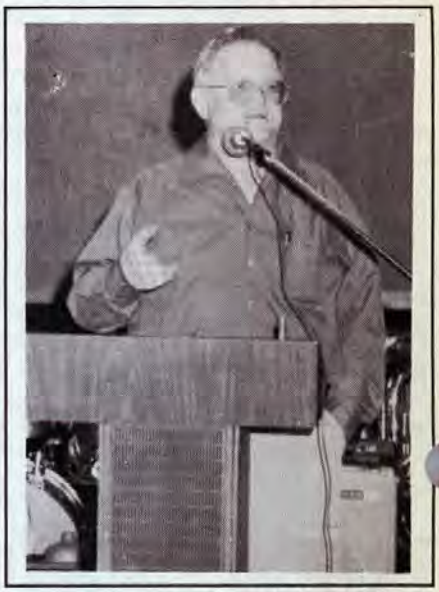
1985 W.A.S. President, Dr. Michael Burgett "sharing" his bee beard with Irene Isgur. Photo by Bill Nye

First day speakers included Dr. Mussen, Dr. Mike Burgett of O.S.U., Howard Veatch, *American Bee Journal,* Mark Bruner, *Gleanings In Bee Culture,* Burt Spangler, *W.A.S. Jounrnal,* and Miss Pamala Shaw, 1984 California State Honey Queen, Hans van de Kerkhof, Yvonne Donner and Dr. Gary.

Time was available to see the exhibits and to attend an outdoor buffet as a closeout of the initial day's activities.

The fast paced program continued on Thursday and Friday with presentations from Darrell Wenner of Wenner Honey Farms, Sue Cobey and Tim Lawrence of Vaca Valley Apiaries, Dr. Elbert Jaycox, Dr. Christine Peng and Dr. Robin Thorp.

Both Thursday and Friday afternoons were devoted to demonstrations at the Bee Biology facility. This unique facility supports the campus role as center of research, teaching, graduate training and extension



Dr. Carl Johansen, recipient of 1984 W.A.S. "Outstanding Contributions to Beekeeping" award. photo by Bill Nye

activities in the field of apiculture and bee biology for the whole nine campus University of California system. Dr. Norm Gary as head of this facility drew heavily upon its resources and graduate student staff to present a series of unexcelled demonstrations covering many phases of apicultural activities. Demonstrations included observation hives, dead bee traps, pollen trapping, queen cell preparation and grafting, exotic bee hives, loading and transportation equipment, leaf cutter bee management, honey handling, bee diseases, queen finding and last but not the least exciting, bee beards for all volunteers, of which there were many.

Ample time was provided throughout the conference program for social events and "bee buzz" sessions. The exhibit rooms, competitive event displays and special purpose exhibits such as the Marple Apicultural Graphics Archives and th U.C.-Davis bee library attracted much attention. Concluding the conference was the traditional dinner-dance featuring awards to ribbon winners, a raffle, auction and the

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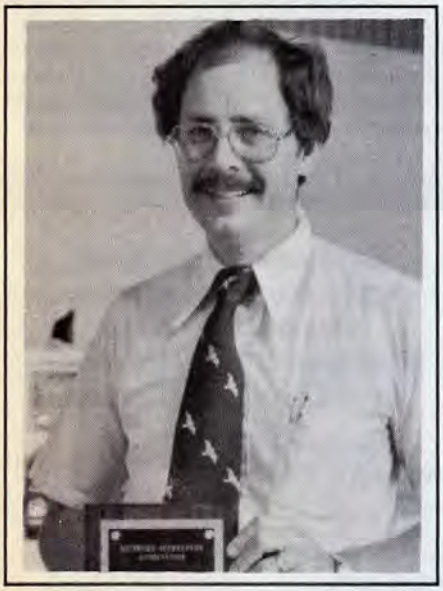
award of the Western Apicultural Society Outstanding Service to Beekeeping Award for 1984 to Dr. Carl Johnasen of the Washington State University.

Dr. Mike Burgett will serve as W.A.S. president for the coming year and will host the 985 conference at Oregon State University at Corvallis, Oregon.

1984 Governors Award and the 1984 Virginia State Fair



"At the 1984 Virginia State Fair, the Governor's Award was presented to Paul B. Davis, Jr. The award is presented by Governor Charles Robb of Virginia and is given to the most outstanding beekeeping in the Richmond Beekeepers Association."

"The Beekeepers of Virginia honey booth was very successful. About 1½ tons of honey was sold along with much pollen, honey candy and beeswax. Paul Camp, who was in charge of the honey competition said, "That about $700 was awarded in prize money. Six local associations participated."

Beekeeping Class

The San Francisco Community College District will sponsor a series of six lecture-demonstrations in practical beekeeping for city hobbyists. It will begin on Tuesday, February 12th at 7:00 p.m. at the Marina Middle School, 3500 Fillmore St., San Francisco.

Opportunity to observe correct methods of handling bees will be provided for those who have participated in the series and are prepared.

There will be no course fee, but participants will be expected to subscribe to one of the bee journals and to purchase a reference book from those which will be on display at the first meeting.

Instructors will be Leonore Bravo and Louis Dubay. For information call 415-861-5636.

San Francisco Honeybee Program

The Josephine Randall Jr. Museum and the San Francisco Hobby Beekeepers Association will sponsor a cultural and practical honeybee program on Saturday, February 16th, from 10:00 a.m. till 4 p.m. The Museum is located at 199 Museum Way, just off Roosevelt Way in San Francisco, and is served by the #37 bus at 14th and Church streets.

Speakers will include Jim Meyer of the Santa Cruz Beekeepers Guild, a protege of Ormond Aebi, speaking on the beekeeping methods of the Aebis. Those methods described in *The Art and Adventure of Beekeeping* and *Mastering the Art of Beekeeping* by Ormond and his father, Harry, are particularly suitable to hobby beekeeping in coastal California.

Steve Taber, well known researcher and writer on bee behavior will make a presentation on how to rear your own queen. A panel of city beekeepers will tell the methods which have suceeded in warding off the inevitable attempts to pass negative bee laws which occur each swarm season or when some "bee negative" event rouses the public.

Weather permitting there will be a live demonstration of hive manipulation for swarm control led by Dr. Stanley Williams of the S.F. group. There will also be demonstrated a cage prepared by Chuck Sharp of the Sonoma County Beekeepers, within which they were able to show the public how bees were handled, at their Harvest Fair.

Entomologist Kenneth Preusss of the University of Nebraska, a topical stamp collector, who has written on collecting bee

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stamps, will privide a slide show of stamps from his collection.

Beekeepers attending are asked to bring their gadgets to show and samples of honey for tasting and possible trading. Although honey from mixed floral sources will be interesting, what is sought are California honeys with enough nectar from the following plants to be recognizeable: Toyon, Poison Oak, Coffee Berry, Ceanothus, Manzanita, Madrone, Blackberry, Star Thistle, Fennel, and any other such native or naturalized plants. Please label with your name, area, and suspected floral source.

Among these gadgets will be some excellent swarm captura boxes. In addition, there will be an exhibit of bee supplies by the Cajun Bee Supply Company of San Mateo, recently established by a hobbyist beekeeper to serve the immediate needs of local hobbyists. There will also be bee books and art on exhibit.

Participants are asked to bring four sandwiches, salad for eight, or dessert for eight for the noon time pot-luck. Drinks and service will be provided by the S.F. Beekeepers. There will be no charge for the program, but participants will be asked to donate $2.00 to help defray expenses. For further information call 415-861-5636.

Study Aimed at Reducing Pesticide Damage to Bees:

MADISON, Wis. — Producers of honey, seed corn, sweet corn and snap beans in north central states can expect to benefit from a new five-year research project. The half-million-dollar study is aimed at improving the quality of their commodities and cutting costly pesticide use and associated damage to bees.

U.S. Department of Agriculture, University of Wisconsin and Iowa State University scientists will conduct the study involving pilot tests of new pest control strategies for controlling European corn borers and corn earworms.

Entomologist Eric H. Erickson of the department's Agricultural Research Service, here, says the research could help reduce Midwestern beekeepers' annual losses by three to five million dollars, snap bean growers' losses by a half-million dollars and sweet corn growers' losses by a million dollars. Alternative insect control measures to reduce insecticide use could also reduce hazards to man and the environment.

If the tests, scientists will monitor insect populations with pheromone-baited traps near and within fields and in trap crops. They will evaluate bee colony management practices near fields treated various ways to control pest insects. At a university of Wisconsin field site near Hancock, they will evaluate a center pivot irrigation/insecticide delivery system.

Along with information gained in biological studies, the researchers will study the economic feasibility of alternative approaches to controlling insect pests, taking into account the quality of the agricultural products and appropriate market information.

In addition to Erickson, principal researchers in the pilot study include entomologist William B. Showers of the USDA Corn Insects Research Laboratory, Ankeny, Iowa; entomologist Jeff A. Wyman of the University of Wisconsin, Madison; and the agricultural economist Peter H. Calkins of Iowa State University, Ames.

Field sites near Madison, Wisconsin and Grimes, Iowa are provided by the Wisconsin Canners and Freezers Association and Pioneer International, Inc., respectively.

Special Assistance Given To Help Ethiopian Victims

The American Friends Service Committee announced today that is has sent $10,000 in special assistance money to Ethiopia for the transport of relief food to remote areas. The AFSC hopes to give more as part of its ongoing Africa Hunger Fund, which includes help to several countries on the continent.

The Quaker organization's special donation went to the Christian Relief and Development Association (CRDA), in Ethiopia, a nongovernmental coordinating association of which the AFSC is a member and with which the AFSC has worked in the past. An AFSC community development project in southern Ethiopia was turned over to the government in May this year.

The AFSC help is going for trucks to fuel to transport food to those starving in drought-stricken areas of the country.

"More assistance will be given as money is available." said Patricia Hunt, coordinator of the AFSC Africa Desk at the organization's world headquarters in Philadelphia.

"We also need funds for seeds for gardens and small family farms in Mozabique, Mali and Guinea Bissau, and for dams, dikes and wells to improve the supply of water and increase food production in Somalia, Zimbabwe and Mali."

Hundreds of thousands of people have died from hunger in Africa in the last year, with a million more expected to perish before the end of 1984.

Patricia Hunt added that "While our Hunger Fund is designed to provide immediate, effective aid to help sustain drought victims, AFSC's long range focus is on supporting people in rural communities as they work to develop more lasting answers to the problems of hunger and drought."

The AFSC has programs of peace, justice, development and understanding in 18 countries, including the United States. The organization express a tenderness for the dignity and promise of every individual.

American Friends Service Committee: 1501 Cherry St., Phila, PA 19102. (215) 241-7060.

Beekeeping Program Agriculture and Natural Resources Week Michigan State University East Lansing, Michigan

March 19-20, 1985

TUESDAY, March 19

10:30 a.m.

Wintering: Status Report.

10:45 a.m.

Apiary Inspection Report, John Dreves, Mich. Dept. Agriculture, Plant Industry Div. Lansing.

11:15 a.m.

Dynamics of Honey Bee Populations, Dr. Gloria DeGrandi-Hoffman, Dept. of Entomology, MSU, E. Lansing.

12:00 noon

Michigan Beekeepers Assoc. Luncheon. Kellogg Center

2:00 p.m.

Comb Honey Production, E.E. Killion, Illinois Dept. Agr. & Univ. of Ill., Paris, IL.

2:45 p.m.

Diversionary Plantings for Reduction of Pesticide Poisoning: An update, Dr. George Ayers, Dept. of Entomology, MSU

3:45 p.m.

Honey Promotion Report & Introduction of Honey Queen Contestants, Joyce Guthrie, Utica.

4:15 p.m.

Questions & Answers, Expert Panel.

Evening Program

Kellogg Center Auditorium

7:30 p.m.

— Honey Queen Pagent

— Beekeeping Gadgets, Dr. George Ayers, Moderator, Dept. of Entomology, MSU

— Beekeeper-of-the-Year Award, by Richard Hubbard, Hubbard Apiaries, Onsted, Michigan.

CONTINUED ON NEXT PAGE

WEDNESDAY, March 20
Kellogg Center Auditorium

10:30 a.m.
Selection of Birdsfoot Trefoil for High Nectar Production, Nancy Campbell, Dept. of Entomology, MSU.
11:00 a.m.
Beekeeping in Taiwan, Dr. James K. An, Head Department of Zoology, Taiwan Museum, Taipei, Taiwan, ROC.
1:30 p.m.
Exhibiting and Judging Honey, E.E. Killion, Dept. of Agriculture & University of Illinois, Paris, Illinois.
2:15 p.m.
Honey Plants, Anise hyssop: One Year Later. 1983 Seed Recipients, Dr. George Ayers, Department of Entomology, Moderator.
3:00 p.m.
Beeswax: Production, Processing and Products, John Root, The A.I. Root Company, Medina, Ohio
3:45 p.m.
Questions & Answers, Expert Panel.

Canagrex

by ALAN HARMAN

The new Canadian government has scrapped Canagrex, the federal export promotion agency established by the former Liberal Government less than a year ago.

Canagrex will close next March as a part of the new Progressive Conservative government's attempt to cut spending and thus reduce the federal deficit. The closure will result in the saving of C$6.6 million.

The agency had been intended to promote and facilitate the export of agricultural products and services — including honey.

The new government said the activities carried out by Canagrex will be assigned to trade officies and consulates.

When it was established in 1983, then Liberal agriculture minister Eugene Whelan said it would make C$500 million in new sales during its first year.

At the time of the announcement of its closure all it had done was extend a C$15-million line of credit to Cuba and a C$7.7-million soybean meal sale to Mexico.

The closure was not a surprise. PC Agriculture Minister John Wise had said in September that he felt the agency had stalled . . . nothing's happening."

Canagrex has a staff of 30 and a board of directors headed by chairman Glenn Flaten and president Ed Story.

Reg Wilbanks, left, of Claxton, Georgia, was named Georgia's Beekeeper of the Year as the Georgia Beekeepers Association met September 21-22. The award is sponsored by Hubbard Apiaries; making the presentation was Tom Hubbard, manager of Hubbard's Belleview, Florida, plant. Mr. Wilbanks follows his father and grandfather as recipients of the award. He is a former president of the association and currently president of the American Bee Breeders Association.

Ericka Zipfel New Jersey Honey Queen

Ericka Zipfel, 18, of Flemington, New Jersey, recently was crowned New Jersey Honey Queen. She was selected from regional honey queens representing various geographic areas of the state.

Ericka, who is a clerk typist for the Fisher Scientific Company, in Flemington, New Jersey, received the crown during coronation ceremonies from her predecessor, Suzanne Nordman of Hackettstown, N.J.

Keeping honeybees is a family affair with the Zipfels. Ericka's father, Erich, learned beekeeping from a friend many years ago. He now operates 11 hives. Ericka's oldest sister, Heidi, was New Jersey honey queen in 1978. Ericka's mother, Gertrude, and another elder sister, Luise, also help with gathering and packaging the honey.

Ericka is a 1984 graduate of Immaculata High School in Somerville, N.J., where she was a member of the ski club. She is past president of the Home Makers 4-H Club of Hunterdon County, where she specialized in sewing. She has made her own dresses and skirts.

As state honey queen, Ericka will participate in various events throughout the state, including county fairs, addressing the Legislature, and presenting honey to the Governor.

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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

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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.

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A Beekeeping Education

By DEWEY M. CARON University of Delaware Newark, DE 19717-1303

I have been teaching beekeeping for several years. I realize most of the University students and many of the short course enrollees never start with bees and of those that do only a few become productive beekeepers. Teachers remember the good students however, as they help make it all worthwhile. Recently I had an interesting individual challenge in my teaching abilities. His name was Bolivar Aparacio, a University student in Panama who is using income from his bees to put himself through college.

Bolivar had as tough a start in beekeeping as one could imagine. When he was 10 or 11, he and a cousin captured a nest of the wasp *Brachygastra* that stores honey. They fashioned veils from paper shopping bags with a transparent plastic window taped at eye level. He remembers many stings capturing the nest (the wasps are known for their stings) but they successfully moved the nest to a tree near his parents house. Although the honey harvest was less than 3-4 ounces later that season, Bolivar said he enjoyed the harvest of that nest and remembers it still.

Through a friend, Bolivar obtained a stingless bee nest the next season. Culture of these bees is an ancient art in Central America. Stingless bees are relatives of honey bees that lack a sting; some species are extremely aggressive. Bolivar recalls one wild nest in the countryside that he robbed. The bees bit him extensively and the next day there were dark marks at each bite site. The marks persisted for several years and faint indications are still evident of those bites some several years hence. Bolivar maintained a different species, one that does not defend their nest so fiercely. Like honey bees, stingless bees are kept for their honey. The honey from stingless bees is much higher in water content than honey from honey bees but it doesn't ferment. It is common among rural people in many parts of Panama and elsewhere in Central America.

Bolivar received his first colony of honey bees when he was 14 years old from an uncle who was a beekeeper in an interior province of Panama. His uncle had up to 30 colonies at one time but is now old and no longer keeps bees. Since there were relatively few bees in Panama, individuals like Bolivar wishing to start beekeeping had to obtain a colony from a beekeeper to begin. In the western Province of Chiriqui, where the University of Panama College of Agriculture is located and where Bolivar lives, beekeeping was not widely practiced. Beekeeping was more common in cities and towns around the capitol, Panama City, and in the interior where a two year agricultural school at Divisa offered a course in Apiculture. The western Province has since become the major beekeeping area of the country.

Bolivar learned beekeeping through a correspondence course from a school in Venezula (Esculla Nacional Agrotechnia de Venezula), from reading books (including a Spanish edition of *ABC & XYZ of Beekeeping*) and from neighbor beekeepers. Like other beekeepers,

Bolivar Aparacio

Bolivar obtained a beekeeping development loan a couple of years ago from a National bank for farmers, BDA, and he has expanded to where he has a modern operation of 63 colonies in five apiaries.

Now Bolivar must contend with the African bee. He came to a seminar I gave at the College of Agriculture on my trip to Panama in March 1984 and we made arrangements to work together during my longer stay in May and June of this year. Bolivar was interested in the sale of other bee products, particularly pollen and royal jelly, as well as techniques to manage the aggressive African bee. I gathered material to help contribute to his education taking an extra set for the library at the University. Interest in diversifying and producing other products from honey bees is extremely high now in Panama as they have heard from Colombian and Venezulan beekeepers that one must diversify to remain a beekeeper because of the aggressiveness of the bee. Honey is often used as a medicine in Panama and sale of royal jelly, pollen, etc., to the same consumers makes sense.

Bolivar has studied English for nine months. My Spanish is improving so we had a challenge in communication. In the bee yard and discussion of technical aspects of trapping pollen or raising queen bees, conversation was easiest. Beekeeping is really a universal language. The IBRA has a dictionary of beekeeping terms in severa languages. Many U.S. beekeepers have travelled to foreign lands and these persons know they can see and learn from beekeepers in other countries even though they are not proficient in their language. So Bolivar and I discussed bees, honey, pollen, and the problems in production and sale of each in English, Spanish and much gesturing.

Bolivar and the other beekeepers of Panama have a tough time ahead with the African bee. It is extremely aggressive and unpredictable. Apiary sites must be isolated making harvest products like pollen and royal jelly more difficult and expensive. Markets must be developed including the basic one for honey since it is not a traditional ingredient in the diet expect as a medicine. It is also expensive for the average citizen at 97¢/½ oz. container. Containers are difficullt to obtain and costly.

Bee swarms are now everywhere but Bolivar and other beekeepers don't bother trying to capture them. They are too aggressive and frequently won't stay in the hive provided by the beekeeper. Swarms are removed each evening by specially trained firemen who attempt to reduce stinging "accidents" by killing the wild ones. Honey sales don't seem to be adversely affected by the bad publicity the African bees receive.

Bolivar is greatly concerned about his bees providing adequate income for his college expenses. He intended to go into beekeeping full-time upon graduation but now he isn't so sure. He, like many beekeepers, are trying to hold on to see what happens with the African bee which

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MONTHLY HONEY REPORT

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and may compound the decision of many beekeepers not to go to California for 1985 pollination.

REGION FIVE

Florida reports very little honey reaching a market other than the government. Time has proven that a big percent of Florida citrus is dead or will not bloom for some time. Other flora too dry. North Carolina sales slow, but supermarket sales might pick up now that fairs are over. Sugar still high in stores and may help honey sales.

REGION SIX

Kentucky weather cool and very wet. Feeding is taking place. Robbing has been a problem since summer. Sales are slower. Acarine surveying being done. Mild weather in Tennessee and colonies still have brood. Feeding will be necessary. Sales still very low.

REGION SEVEN

Extended heavy rains during October in Texas broke drougth conditions in many areas. Bees brooding heavily then and used much honey. Fall flows short and feeding necessary in some parts. Most migratory operators not returning to the Rio Grande Valley because of mite infestations. Retail honey sales very good. Sources of local honey scarce because of government loan activity. Argentine honey available for 46 cents per pound delivered. Canadian clover/rape for 50 cents. Supply sales fair.

REGION EIGHT

Some commercial operators send over 50 percent of colonies from Montana to California, the rest are wrapped or destroyed. Fall meetings related to acarine situation. Colorado early winter weather has tapered off to temps in the 60's. Moisture above 50 percent. Bees in good shape. Retail sales picking up. Retail sales good in Utah, too. Weather there warmer than usual. Fair weather in November in Arizona. Colonies active with adequate stores.

REGION NINE

Washington sales steady. Foot of snow on Nov. 1st. Bees mostly in good winter shape. California reports some 60 pound lots of honey sold to institition customers ate .64 cents/lb. Beekeepers disappointed at prices but glad to reduce inventory. Feeding starting in costal California.

A Beekeeping Education

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has been in their country only since 1982. Already beekeepers realize they can't survive in honey production alone since the African bee is not very productive and its aggressiveness makes management so difficult. Beekeepers limit colony numbers to reduce "accidents" and because fewer sites are available to them. Bolivar hopes pollen and royal jelly will fill the void since the market is there for increased sales.

The future remains unclear and few beekeepers are optimistic. Direct one on one teaching in a foreign language of technical aspects of beekeeping like pollen collection, royal jelly production, raising of queens and other topics was quite a challenge. Beekeepers like Bolivar Apiarico have no where else to go for such instruction. Hopefuly the African bee won't put them out of business and Bolivar will become a leader among the beekeepers of his area as they change and adapt to the African bee.□

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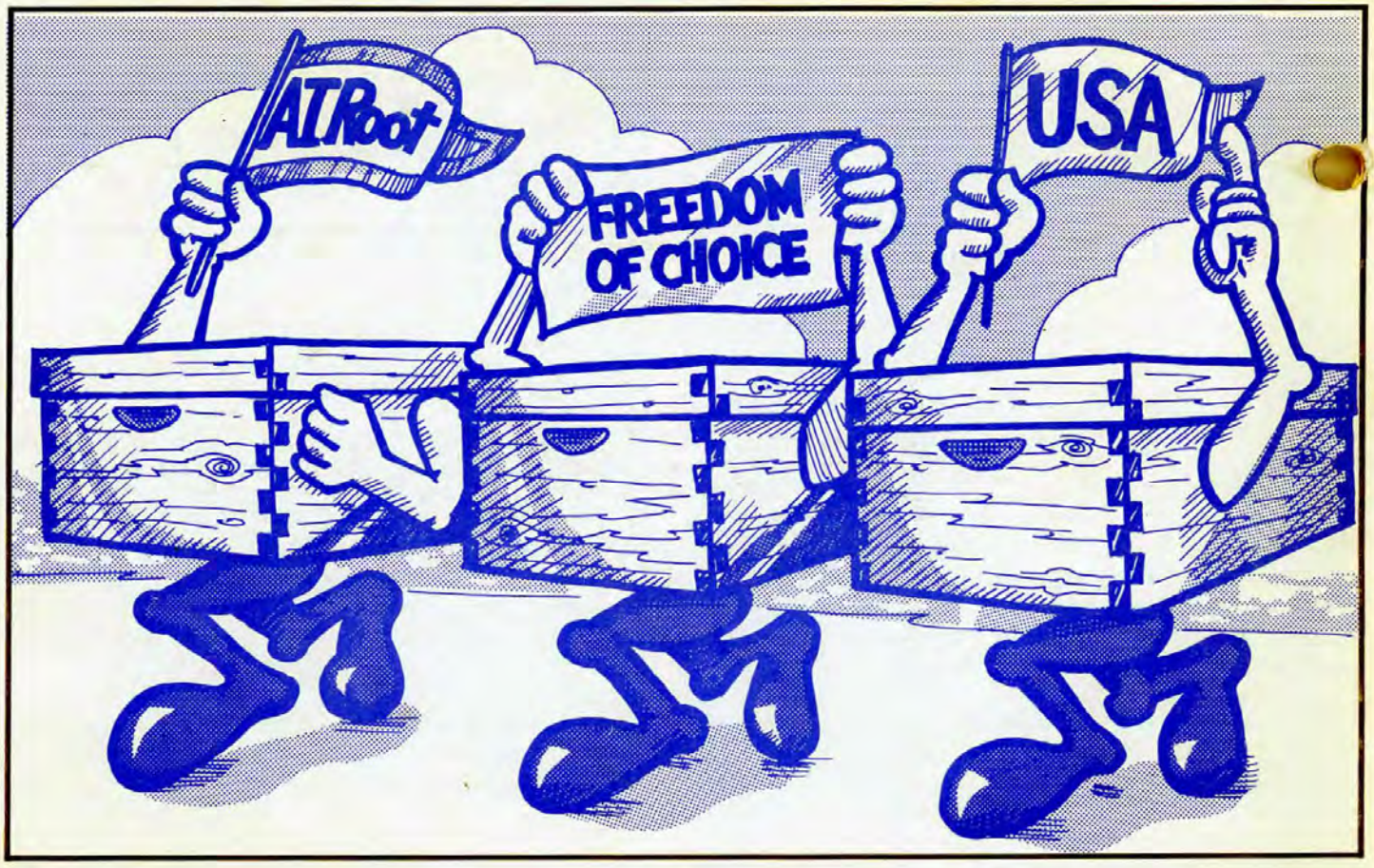

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