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FEBRUARY 1985

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COVER STORY

THIS UNIDENTIFIED OLDTIME BEEKEEPER FROM MEDICINE LODGE, KANSAS, SITS WITH A SENSE OF PROPRIETY NEXT TO HIS 6 FEET OF HONEY AND BEES. SEE SPECIAL PHOTO OFFER ON PAGE 75.



NOTES FROM THE BEEYARD

by Mark Bruner

BRAVING THE 'BRAVE NEW AGRICULTURE'

It seems almost ludicrous to write an editorial about the problems of global hunger when one's perspective benefits from a full stomach and the opportunity to stay well-fed. Conversely, I suppose, it is equally ludicrous to expect editorials to be written by persons who are starving to death. Those humans are nonverbal, flesh and blood editorials, though, -- and estimates of their numbers stretch from 500 million to more than a billion suffering, worldwide, from malnourishment and threatened by starvation. Such statistics are believable, despite their awesomeness, when one considers that 200,000 Ethiopians have starved to death in the past nine months alone, and 7 million more face that prospect in 1985. There is no way that I, sitting in front of my high-tech typesetting terminal; or you, reading this in the comfort of your home, can actually even begin to sense the extent of this agony -- the sheer hugeness of death in such vast numbers -- the reality that children, being the least able to take care of themselves, are most subject to the slow death of deprivation.

And yet, food production in most parts of the world, excepting the sub-Sahara desert regions, has progressed. The United States, for example, holds in reserve 350 million tons of grain, 10 million tons of dairy products and an emergency grain reserve, created as a buffer to famine, of four million tons. Still, the ranks of starving humans continue to swell. It is easy enough to explain in terms of distribution problems, political circumstances, climate variations, poor farming procedures and overpopulations, but reasoned explanations do not make understanding any easier and they do not, by themselves, keep children alive. In the

early 1960's, John F. Kennedy proposed two goals to the nation: one, to get a man on the moon before the end of the decade and, two, to eliminate hunger "within our lifetime." In a frenzy of technological wizardry we beat the Soviets to the moon. I don't intend to degrade the scientific advances made possible by that success. I just want to point out that, during that decade of space pioneering, a couple million people on earth starved while we took a "giant leap for mankind."

I'm not suggesting that Americans should bear a sense of guilt because of the contrast between our wealth and the poverty characterizing a great deal of the rest of the world. I do believe, however, that far too many Americans believe the world ends at American borders. Not too many years ago, that perspective, in a political and economic sense, could almost be considered a practical truth. All that has changed, though. As every U.S. beekeeper who has honey to sell knows, this country is not an isolated plot of land -- it is part of a global system of interdependent parts. What will affect our future has as much to do with what occurs in Third World countries in Africa, Asia and South America, as what happens in Iowa, California or New York. When we accept that fact, we must also accept the responsibility of knowing that, as a prosperous people, we are brothers and sisters not only with those living next to us, but with those sharing earth a half a planet away. If their need is food our need is to help them eat.

Food is, perhaps, the most vital political element of all. It is a basic fact of human existence that what is needed, in such an essential way, will be

attempted to be obtained by those who need it at almost any cost. The hungry are the changers of politics. Famine, in part, brought down the Ethiopian government of Haile Selassie. Now, ten years later, it threatens the future of the Marxist military regime that replaced the emperor. As many as 20 other African nations could be affected by similar motivations and consequences. In South and Central America, land reform issues, central to agriculture in so many ways, are at the heart of social unrest. The U.S., as one might expect, also plays the power game of food. Despite having made contributions to world hunger relief which, in comparison to aid from other nations is sizeable, U.S. relief is not free from political objectives. In the case of Ethiopia, for example, the type of aid being made available is strictly "humanitarian" relief. That is to say: its objective is simply to put food in the mouths of today's hungry. That is, of course, the most urgent need. The question then becomes: "what about tomorrow?" That is where politics becomes an influence. U.S. relief aid of a "developmental" nature -- that is to say, aid designed to help others help themselves (seed production, warehousing etc.), is bound by policy and regulation inhibiting such long-term relief to nations that have nationalized American property and have not made a "good faith effort" to pay for it. At issue, in this case, is the seizure, by the Ethiopian government of an American owned factory and some private property -- amounting to approximately \$30 million in outstanding claims. Moreover, many Americans are standoffish about the idea of helping feed a communist country. Unfortunately, children are

Continued On Next Page

GLEANINGS IN BEE CULTURE

not political personalities with power over their own destinies -- they are fragile creatures who die far, far too easily.

American technology is, as one would expect, responding to the demand for increased food production. For fiscal 1985 the USDA has asked for almost \$70 million to be applied to bioengineering research. Agribusiness investment in the field of genetic agricultural engineering has, in some cases, tripled in the past three years. Advancements in the understanding of how DNA and the genetic characteristics of life can be manipulated have generated intense business interest in the potential development of medicines, disease and weather resistant crops, hardier livestock and a variety of other biological alterations hitherto thought to be the stuff of wild fantasy and science fiction. Such activity has caused a polarization in both the scientific community and public. Concerns have been expressed as to the potential negative consequences of genetic engineering. For example: bioengineers use enzymes to splice in DNA ribbons (the genetic structures which carry the biological information which makes us all exactly what we are). When such splices are made, other genetic material can be introduced to alter the original genetic arrangement. Although the affects of specific enzymes in the splicing technique can be predicted, it is not fully understood why enzymes work in such a way. That has raised the question of whether or not the technological understanding of genetic manipulation is complete enough to be entirely safe. If it is possible to create a synthetic drug to help in the treatment of disease -- if it is possible to, in effect, create new life forms, is it not equally possible to create something that might have disastrous consequences? A virus, for example, to which no predator or antibody is known. Concerns of this type are, without a doubt, of a significance that cannot be pooh-poohed away. In a practical sense, however, their consideration might be academic. For better or worse, it seems quite unlikely that the momentum of scientific inquiry can be stifled. At present there are simply so many laboratory facilities with the capacity to advance bioengineering, that we must accept that human curiosity about the

biologically unknown is a given. Only the future will reveal whether human intelligence is the mark of superiority or the trigger to our undoing.

Perhaps it makes more sense to discuss bioengineering as it relates directly to the problem of hunger and demands for food production. Certainly, the promise of genetically improved stock and crops offers much. Let's remember, though, that production does not necessarily equate to feeding the hungry. Simply having a commodity does not solve the problems of distribution, promotion and politics. Once again, we American honey producers need only consider our own current circumstances. Additionally, we should be very aware of the supervision under which bioengineering is developing. Here are some of the corporate names: Upjohn, Ciba-Geigy (manufacturers of *Folbex*, treatment for varroa/acarine), Dow, Monsanto, Sohio, Eli Lilly, Stauffer, Arco. Notice something in common? Yes, these are all chemical companies. That fact is not surprising. One might expect chemical companies to have interests of this type. But, let's speculate as to the motivations and the consequences of this as it relates to agriculture. Obviously, the opportunity to make money is astronomical. At present, both Campbell's Soup Co., and the H.J. Heinz Company are sponsoring research to develop a tomato with "compact foliage, a square shape, firm skin and uniform ripening time." Their objective is a tomato that can be mechanically harvested and endure long shipments. Ironically, Heinz president, Anthony J.F. O'Reilly has admitted: "I won't say [taste] is well down the list of priorities, but it is not a primary specification." This is but a small example, but may well be an indication that, to some, if not many, the true glory of bioengineering is not the potential good for humankind, nor even the production of something much more pleasing or healthy to the average consumer, but quite simply -- the amazing amount of MONEY to be made. Consider, as well, the fact that many of the companies conducting bioenvironmental research are chemical companies that also manufacture pesticides and herbicides. A recent issue of *THE NATION* magazine raises the question of what option such companies would chose, given a choice

between developing a crop resistant to insects and disease ("ecologically praiseworthy but not excessively profitable") or a crop resistant to chemicals ("ecologically destructive but highly profitable"). One must suspect that the latter choice, where monetary gain outweighs the longer-term wisdom of environmental health, would likely be most probable. As evidence of exactly this point, Ciba-Geigy is currently supporting research that has isolated a gene enabling plants to endure heavy treatments of atrazine, an herbicide. Atrazine is currently sprayed only on corn, but the objective is to introduce the resistant gene to soybean. Obviously, that would mean greatly enhanced profits and is, from that standpoint, more attractive to the chemical industry than the development of environmentally safe biological resistance to the problems herbicides are now being used to correct.

How does this relate to famine? Quite bluntly, it raises the spectre that our "brave new agriculture" may not always have, as its sole and soul objective the feeding and sustenance of our world's hungry people. We must all be aware that, in the middle of plenty, people can still starve. As always, matters of this complexity gravitate toward the individual conscience with the question of what one person can hope to do to safeguard, to protect, to help those who need it most. The purpose of this editorial is not to dictate a response to global hunger nor to advance a position regarding the ultimate strengths or failings of agricultural genetic engineering. I do seek to suggest that both subjects constitute exceptionally vital dimensions of our future and that it is an individual responsibility to formulate an attitude about them. Apathy, more than anything else, causes the hungry to grow hungrier. Not caring about what is not in your own backyard -- yet -- is an indication of humanity becoming less human. And, as in all cases, the assumption that one individual can do nothing to help make this world better will become a self-fulfilling prophecy if believed. If you become convinced that nothing can change nothing will. To learn about those in this world who need help, to develop personal opinions about them, and to act according to honest convictions, will result in one of two things: the world

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may, in fact, remain unchanged, but in which case you, as an individual, will still have lived up to your responsibility to do what you can; or, every now and again, a pleasant surprise might overtake your life. This is a dynamic, organic, changing existence and, as a consequence of one good thought, one human response and effort, a stomach is sometimes filled, crops will be helped to grow, and the good things of life suddenly emerge. Those things are always with us, but like any delicate thing, they need to be found and nourished. Now and always.

Mark Bruner
Medina, Ohio

ACARINE UPDATE

Since our last report, isolated acarine infestations have been found in Ohio and North Carolina counties due to migratory operations which brought the pest in. Surveying continues on a national scale in both the U.S. and Canada, with extensive results still expected by late February, 1985. In related news, the state of Florida has rescinded intrastate movement of bees which has caused the federal government to regard the entire state as quarantined against interstate shipment of bees. At this time of the year that poses little difficulty and it is hoped that the details, allowing movement of bees into or out of Florida for this next season can be worked out prior to spring. The Canadian Honey Council, in its recent meeting in Victoria, resolved to withhold any recommendation of border closings pending survey completions. The Ontario Beekeeping Association did, however, pass a resolution recommending closing of that particular border to U.S. bees. That, as of yet, is not provincial code.

NATIONAL HONEY REPORT SUBSCRIPTION INFORMATION

Last month we reported that the subscription price for the newly revised monthly National Honey Report would continue at \$48 per year. That is no longer so. It will now be available

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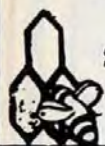
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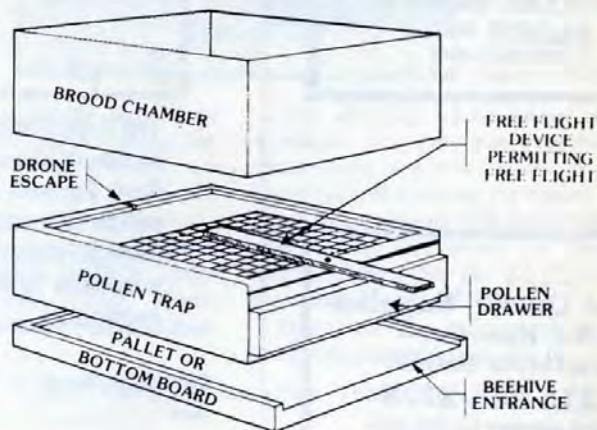
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Bee Pollen: Boom or Bust in the 80's

by Malcom T. Sanford Extension Apiculturist, Florida

It seems that beekeepers are easily seduced by schemes that appear to be fool proof at the outset, but when closely investigated, are fraught with problems. In the 1950s, Professor Frank Robinson, here at the University saw first hand the effects of one of these phenomena. At that time the royal jelly market appeared to explode with possibilities. Profits were perceived as high and many beekeepers in search of quick gain, borrowed money and converted large productions of their operation to jelly production. The result, the jelly market collapsed, putting many beekeepers out of business and forcing others deep into debt.

Now comes the pollen boom of the 1980's, touted as a can't lose proposition by its promoters. After all, they say, not only is the demand for pollen as human food at an all time high, but also trapping pollen from a colony is beneficial to the bees, reducing swarming while at the same time increasing honey production. It all of this too good to be true? That's for the beekeeper to decide, but more and more facts come to the fore each day, and all should be carefully studied before a decision is made to go for broke producing bee collected pollen.

Bee Pollen As Food — The FDA's Position:

"Bee Pollen Great Food — For Bees," is the title of a recent article that appeared in the April edition of the FDA Consumer, information organ of the Food and Drug Administration. The article detailed the Food and Drug Administration's position on bee pollen:

"Under the law, since the pollen has not been shown to be harmful other than to those suffering allergy, bee pollen may be marketed as a food, provided no nutrition or therapeutic claims are made or implied regarding it.

Thus, if the labeling (including pamphlets or advertising associated with the product) does not suggest that it is intended for use other than food, bee pollen marketed as food need only meet the same general labeling requirements as other foods, and be prepared, packed and held in a sanitary manner."

The article goes on to say that those who claim bee pollen cures or alleviates any illness or produces therapeutic benefit are promoting the product as a drug. Recently FDA asked that all shipments of a particular product and its promotional literature, advocating use of pollen in this sense, be recalled by the manufacturer. Other steps may also be taken, including seizure, injunction and criminal prosecution.

With reference to bee pollen's value for humans, the article also sets about debunking some claims made by many promoters: (1) pollen is not a giant germ killer in which bacteria do not exist; it is rapidly attacked by bacteria, yeast and other fungi, (2) pollen cannot be called nature's most perfect food; it isn't even perfect for bees which require supplementary carbohydrates (nectar or honey) to survive, (3) pollen doesn't retard aging by peoples in the Caucasus region of the Soviet Georgia; a study of eating habits there doesn't even mention pollen, (4) pollen is not the richest source of protein known to science; the major constituent of pollen is carbohydrate, not protein, and the amount of the latter varies considerably among pollens from various sources, (5) bee pollen does not relieve allergy, asthma and hay fever; no scientific studies support this, on the contrary, persons eating pollen must be on the look out for potential allergic reactions, (6) pollen improves athletic performance; extensive study at the Louisiana State University reveals no significant improvement in either training or performance.

Pollen Utilization:

Although usefulness of pollen as a human nutrient is still an enigma, a recent study does show that pollen from at least one species of plant is digestible by mice. J.O. Schmidt and Patricia J. Schmidt in "Pollen Digestibility and Its Potential Nutritional Value," *Gleanings In Bee Culture*, Vol. 115 (6), June, 1984, pp. 320-322, show that velvet mesquite (*Prosopis velutina*) pollen is digested and supports mice growth. There is one caveat, however. It appears to take greater consumption of mesquite pollen by mice to equal weight gain provided by comparable milk and egg protein based diets. The authors conclude:

"Pollen can be considered either a potential food or a nutrient supplement. Whatever it is considered, potential consumers should be aware that the levels present in half a dozen tablets, or about 3 g, does (sic) not provide nutrients to equal those present in an otherwise unbalanced diet. This is not to suggest that pollen cannot be of any value, only that if pollen is treated as food, more than 6 tablets may be needed to accrue real benefit. When compared to supplements such as vitamin/mineral tablets, pollen contains much lower levels of these micronutrients than the supplements. This... does not imply that pollen has no potential benefit, only that it should not replace good dietary and health practices. Pollen in addition to a good diet could conceivably be beneficial, but to date there is little evidence to support or refute this."

It should be emphasized, that the above study was done on bee collected pollen from only one species of plant. Most pollen trapped by beekeepers over time will be a mixture

Continued On Next Page

GLEANINGS IN BEE CULTURE

from several plant species. According to Dr. P. Witherell, "Other Products of the Hive," Chapter XVIII, *The Hive and the Honey Bee*, Dadant & Sons, Inc., Hamilton, Illinois, 1975, pollen can vary greatly in its nutritional content from as low as seven percent protein (pine) to over thirty-five percent (date palm). Thus, even for bees, a mixture of pollens is necessary to achieve a well balanced diet.

Something addressed by few is the nutritional loss in stored pollen. Study by Dr. A. Dietz at the University of Georgia has shown that stored pollen (especially dried pollen) loses some of its nutritional value for bees over time. Studies of this sort for bee collected pollen in human nutrition might be extremely revealing, but none have been done so far.

Pollen Contaminants and Standards:

Beyond immediate benefit to humans, there are other questions that have yet to be answered concerning bee collected pollen as food. Among these are potential contamination with heavy metals or pesticides. And, as noted elsewhere, pollen from some plants may be responsible for severe allergic reactions; many pollen products instruct the user to begin with small doses just in case potential for allergic reaction exists.

The lack of standards in processing bee collected pollen could be a time bomb. As mentioned above, of prime importance to the Food and Drug Administration is that pollen, "...be prepared, packed and held in a sanitary manner." Details as to what this means have not been spelled out, but at any moment FDA could institute specific regulations regarding pollen preparation. A recent article by K. Benson of El Toro, California in *The Speedy Bee*, Vol. 13 (5), May 1984, pp. 14, 20 deals with this important question. The author emphatically states:

"...collecting pollen commercially is an expensive and labor intensive enterprise that requires mechanization, special training and constant attention. Frequent collection and processing are needed to produce quality pollen. It must be collected, cleaned and frozen quickly

before it becomes too dry, too wet, or overflows the pollen drawer. There are no vacations during the pollen season."

Of primary concern, the article states, its cleanliness of bee collected pollen. The kinds of debris and foreign matter that can be found in pollen is remarkable. A partial listing includes: (1) lost bee parts; (2) bits of plants like leaves and straw; (3) pollinia or stamens from certain plants that stick to bees and pollen; (4) hair-like threads; (5) various insects invisible to the human eye and (6) mummies and scales from bee diseases. Wax moths also find the pollen drawer a marvelous haven; their droppings, webs and cocoons must be removed. In addition, a few mouse droppings will render the entire pollen batch unusable and spilled pollen should never be run through a cleaning machine. Competent buyers will not touch pollen that has any beekeeper dirt in it. Mr. Benson has developed a pollen cleaning machine (write Mr. "B", Box 1066, El Toro, CA 92630), but suggests that some hand sorting is invariable necessary in producing a quality product. He also cautions that bee collected pollen must be picked up at regular intervals from traps and protected from moisture; if it becomes wet, it is not salvageable.

Stored pollen is a marvelous medium growth of fungi and bacteria. Of major concern in moist environments is the ever present threat of aflatoxin, produced by fungi of the *Aspergillus* genus. Stored products, such as soybeans, peanuts, and corn, in Florida, are carefully monitored for presence of aflatoxin. Bee collected pollen is not usually consumed in as great a quantity as other stored products and is generally quickly dried to below twenty-five percent moisture, optimum for *Aspergillus* growth, so that danger from this is minimized. However, it nevertheless is a quality factor that cannot be ignored at present, and one ripe for bureaucratic regulation in the future.

Pollen Trapping:

Some promoters have suggested pollen trapping to be beneficial to a bee colony. This is debatable at best. Dr. Dietz, at the University of Georgia in his studies of honey bee-marsh interactions, believes that constant trap-

ping of pollen decreases population potential by as much as one-third in some colonies. Stever Taber, retired from the Tucson Bee Laboratory, in "Pollen and Pollen Trapping," *American Bee Journal*, Vol. 124 (7), July 1984, pp. 512-513, says:

"If you put on pollen traps, you should expect certain hive problems that you don't have without them. Don't hurt your bees. Don't force the bees into a pollen deficient diet. . . My suggestion is that after trapping pollen for two weeks, you should remove the traps for a week."

Finally, there is the question of the efficiency of trapping pollen from bees. This varies considerably. A study by Canadians A. Tellier and U. Soehngen, reported in the *Cook-Dupage Beekeepers' Association Newsletter*, Vol. 39 (5), June 1984, evaluates several traps. According to the authors:

"The efficiency of pollen traps varies from approximately 10 percent to 50 percent. Efficiency is influenced by the uniformity of the openings in the trap, differences in body sizes of the foragers (which may be considerable both between and within colonies), and by the sizes of the pollen loads. In addition, the number of openings in a trap influences the degree of crowding within the trap, and consequently, its efficiency in collecting pollen. It is apparent, therefore, that each colony-trap combination is unique and that an accurate determination of the efficiency of the trap design, derived from observations made on one colony-trap combination is impossible."

Pollen Marketing:

Too often marketing is one of the last considerations thought about in the beekeeping business. The lesson of the jelly market collapse of the 1950s should not be lost. Existence of a reliable market is paramount before thinking of diverting resources to pollen production. Last, but certainly not least, the beekeeper must be sure a potential to make a profit exists. If you don't know how much it costs to produce a pound of pollen, how can a profitable price be determined? □

*** Reprinted from *Apicultural Information and Issues*, Vol. No. 8**

Testing Your Beekeeping Knowledge

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

Honey production is highly dependent upon many factors that are related to floral sources, climatic conditions, bee behavior and colony strength. While success in beekeeping is usually measured in terms of honey yields, the beekeeper actually has little control over the factors that directly affect honey production.

Nectar is the basic raw product of honey. The amount or quality of nectar that is available to the bees is highly variable since it is affected by a whole complex of environmental factors. In addition, many of these same factors also affect the bee's behavior in collecting it from the flowers.

It is important for beekeepers to know the primary floral sources of the area, and when they normally bloom. Management efforts toward developing strong productive colonies must coincide with these major honey flows, if the potential for maximum production is going to be realized. Then as conditions allow, the bees can gather as much nectar as possible. How well do you understand the factors that effect honey production? Take a few minutes and answer the following questions to find out how well you understand this important topic.

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

1. _____ Temperature has a marked effect on plant growth and nectar secretion.
2. _____ Nectar is derived from the plants' carbohydrate supply.
3. _____ Relative humidity has a direct effect on nectar secretion.
4. _____ Honeydew is a sweet liquid secreted by extrafloral nectaries.
5. _____ In many plant species, nectar that is not collected by bees and other insects, etc., is reabsorbed by the nectary tissue.

Multiple Choice Questions (1 point each)

6. _____ The environmental factor that has the greatest impact on nectar secretion is: A) temperature; B) wind speed; C) soil moisture; D) relative humidity; E) solar radiation or sunlight
7. _____ When nectar is ripened into honey, the bees cap it when it reaches a moisture content of: A) 30% B) 40% C) 21% D) 18% E) 10%

Listed below are several different types of sugars that have been isolated from nectar. Please indicate the three dominant sugars found in almost all nectars. (Question is worth 3 points).

8. _____

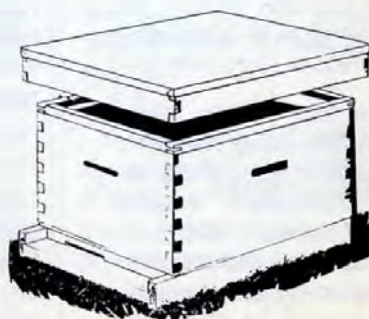
- | | |
|-----------------------|------------------------|
| A) xylose | F) melezitose |
| B) sucrose | G) raffinose |
| C) trehalose | H) fructose (levulose) |
| D) melibiose | I) maltose |
| E) glucose (dextrose) | J) rhamnose |

In any geographical area, beekeepers rely on only a small number of floral sources for the bulk of the honey crop. Listed below are several floral sources that are specific for a particular geographical region

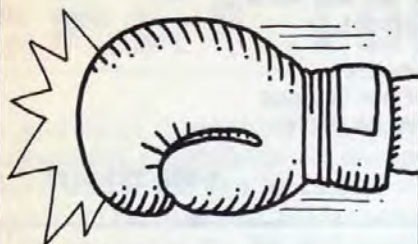
in the United States. Please match the following floral sources with the appropriate geographical region. (Question is worth 10 points).

- | |
|-------------------------|
| A. Northeast |
| B. Plains Regions |
| C. Southwest |
| D. Pacific West |
| E. Southeast |
| F. North Central Region |
| G. Mountainous Region |
-
9. _____ Sage
 10. _____ Buckwheat
 11. _____ Tupelo
 12. _____ Mesquite
 13. _____ Saw Palmetto
 14. _____ Sourwood
 15. _____ Mangrove
 16. _____ Gallberry
 17. _____ Catclaw
 18. _____ Eucalyptus

ANSWERS ON PAGE 111



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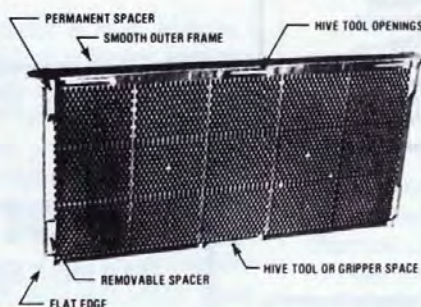
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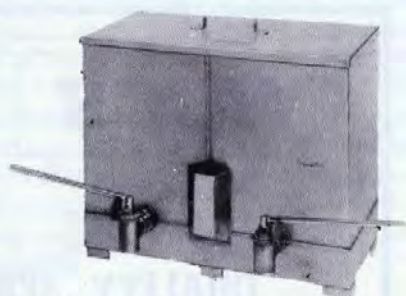
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Bee Talk

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

Whenever I go talk to some beekeepers' association, I always leave time at the end for questions. This is, for the most part, the best part of the evening for me, for I find myself cast in the role of an authority, which is a stimulus for my ego. People who are vain, as I suppose I am, just love to have an audience. But there is one question that always gets asked, and I always dread getting it, because my truthful response always makes me look like a slovenly beekeeper. That question is: How often do you requeen your colonies?

Now of course I could say that I requeen my colonies every spring, in order to reduce swarming and keep the quality of my bees up to the best standard and, further, that whenever, in my periodic inspections of the brood nests, I find irregular brood patterns and queens that are not up to par, then I replace those queens, at whatever time of the year. That is what the bee books say one should do.

I could say that, and everyone would think that I must be a whiz of a beekeeper — but there wouldn't be a word of truth in it. The truth is that I have never, in my nearly fifty years of beekeeping, ever requeened a colony, except, of course, incidentally to other manipulations, such as dividing colonies. Whenever I divide a colony or make up a nuc, then I give a new queen to the queenless part, so in that sense I have requeened a colony. But I have never once removed a queen from a colony, murdered her, and then replaced her with another. Nor have I ever met a single commercial beekeeper who does this. I suspect that most of the authors of those bee books, who say how essential it is to requeen your colonies regularly, do not do it either. Once, many years ago, when I got wondering whether I shouldn't requeen my colonies regularly, I asked a commercial beekeeper friend what his policy was, and for a long time he didn't even understand what I was asking him.

Finally he said, incredulously, "Do you mean, requeen a colony that's already **got** a queen?" He apparently had never heard of anything so absurd.

It still bothers me a little. Maybe I should requeen my colonies regularly. Maybe when I retire from other work and don't have much to do except keep bees, maybe then I'll requeen my colonies regularly, with the best stock, purchased from reliable breeders, and all that. But in truth, until that day comes, I don't even inspect my colonies with any regularity. Most of the brood nests go for maybe three years without my even looking at them, until I figure it's time to make up another split or nuc. And that system works pretty well. The bees seem to appreciate my not fooling around with them too much. They never get foul brood, and, most important of all, they make me nice big crops of comb honey, even though I'm not in the very best beekeeping area.

To be sure, some day I'm going to embark upon a program of requeening all my colonies regularly, improving the stock, reducing the swarming, and being a truly expert beekeeper. But I'm certain of one thing, and that is, that it is not necessary to requeen your colonies. And I'm equally certain that beekeepers of limited experience should not even think about requeening colonies that have already got queens.

There are a lot of reasons for saying that. In the first place, requeening a colony, except by making a split or a nuc, involves murdering a perfectly beautiful insect, the mother of the entire colony, who has done nothing all her life except populate your hive with bees for you. She surely deserves better than that.

Second, a new queen is expensive, around six dollars these days. And you don't know that she is even going to be accepted. If you remove a laying queen from a hive, and try to get her



replaced with another laying queen, which you have purchased for about six hard-earned dollars, then the chances are excellent that the bees will murder this nice new queen you're offering them, and then where are you? You're out six dollars and, worse yet, your colony hasn't got any queen at all. They've now got to set about creating a new queen from scratch and, in the meantime, no eggs are going to be laid for several weeks, the hive population is going to be declining just when it should be increasing for the honey flow, you've wasted a lot of time, and gotten nothing for it except a headache. And I think, in those remarks, you can find four or five more reasons for not requeening.

Getting a queen accepted by a normal colony, suddenly made queenless, is not easy, even for an expert beekeeper. The only surefire way to do it, I think, is to split out a nuc, that is, about three combs of brood and bees, requeen that nuc, which is easy enough, then go back to the original colony, remove (that is, murder) the old queen that is there, and add the nuc back to that parent colony. That works alright. But it is also a lot of extra work.

I think you're apt to be better off devoting all that extra energy to having a few more colonies, maybe an extra apiary, letting the bees take care of their own requeening in their own way, using simple swarm control measures, relaxing, and enjoying your apiaries. Your per-colony average production might (and might not) be less, but your overall crop will probably be just as good or better, you'll have more time to take things easy, and you'll perhaps sleep better at night, without murdered queens on your mind. □



The Monthly Honey Report

January 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



We are currently reorganizing our honey reporting system. Miscellaneous notes will return next month along with more thorough price reports.

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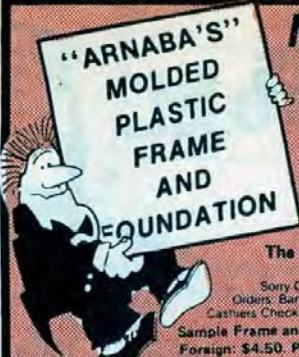
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Questions and Answers

Q. Can granulated honey be reliquefied in a microwave oven without damaging the quality? **Mary Farmer, Plymouth, N.H.**

A. People who have tested the microwave oven or reliquefying honey tell me it is hard to control the temperature, and that the honey might even boil. I definitely would not recommend it.

—Richard Taylor

Q. All my colonies are in two-story hives. All the experienced beekeepers tell me that the bees should all be in the bottom story for wintering. After feeding them all sugar syrup in November I noticed, when I took the feeder containers off, that the bees were in the top of most of the hives. I decided to reverse the stories of these, to get the bees down below, but found that the bottom stories were completely empty! Does this mean I'm going to lose most of my bees this winter? **Robert Miller, Montoursville, PA**

A. No. What is important is not which story the bees occupy, but whether they have ample stores, and the way to judge this is by lifting each hive from behind to get an idea how heavy it is. It is perfectly normal for bees to be in the top story when the weather is warm, even in winter, and even when there are plenty of stores. Bees can usually be brought through the winter in one-story hives, though it is not a good idea. Your experience suggests that some of your colonies may be short of stores, but that doesn't necessarily mean they will starve. If you are worried about starvation, feed them again as soon as the weather warms in the spring, and they'll probably be okay.

—Richard Taylor

Q. Can you put combs of brood and bees from different colonies into the same hive? **Dale Aldrich, Clare, MI**

A. Yes, provided you are sure to include brood with the bees that are taken, on combs, from the various hives and, more important, provided the new colony thus created is set on a new stand in the apiary, and not on a stand from which an already existing colony has been moved. The bees will not fight, and no newspaper method is needed for thus uniting them. The older, flying bees return to the hive you took them from, leaving only younger bees on the combs, to mingle peacefully with each other. A queen can then be introduced in the regular way.

—Richard Taylor

Q. I have been changing over to 6 $\frac{5}{8}$ " depth supers, and have had great difficulty getting the bees to draw out the foundation. I use no queen excluder. How do I get the foundation drawn out? **Ray Berg, Valmy, Nevada**

A. Foundation is not very attractive to bees. They will store honey in drawn combs first, if they have them, even when they have to go through a super of foundation to get to the combs. Given a decent honey flow, however, bees will sooner or later draw out the foundation, and once they begin, they usually draw it out fast. New prime swarms, also, draw foundation very well.

—Richard Taylor

Q. Is it advisable to leave one full shallow super on the hive for winter stores, or is a second shallow super necessary? **Dave Tobin, Weedsport, NY**

A. In upper New York state, one shallow super is sufficient *provided* it is completely full of honey, in which case there will normally be some honey in the hive below as well. This works for me, and my winter loss is zero.

—Richard Taylor

Q. If I put an empty hive in the apiary in the spring, will this prevent any swarms from flying away? That is, will the swarm go into the empty hive? **Marshall Slotterbach, Sellersville, PA**

A. It is very unlikely, but it does sometimes happen. Have old, dark combs in the empty hive, and set it up on top of the other hives, facing the other way, where scout bees will find it easily. I have sometimes had swarms, whether from my hives or elsewhere, take over "bait" hives set up that way.

—Richard Taylor

Q. I began as a beekeeper last March by installing packages in two hives. I fed them sugar syrup for several months, until June, when I noticed lots of activity at both entrances. I assumed it was a nectar flow so I removed the feeding jars from the hive entrances. But come July, there were no bees at all in one hive, and the combs were only partly drawn. The other hive is still okay. What went wrong? **Rick Fredrickson, Huntington Beach, CA**

A. What you thought was a nectar flow was the bees of one hive robbing

the other hive dry. Sugar syrup fed at the entrance over an extended period ("several months," in this case) was a sure-fire invitation to robbing. When installing a package, wait a day or two before starting to feed sugar syrup, then do it slowly, just two or three holes in the feeder jar, and discontinue when the combs are pretty well drawn out.

—Richard Taylor

Q. What can be done with partially filled and uncapped combs in the fall? **A.R. Roberts, Tennessee**

A. In this upper New York area, when extracting after the fall flow — goldenrod and aster, some honey is usually ripe but uncapped if the hive is superseded. If the honey doesn't shake out, it may be extracted if there is enough, to be worthwhile. If left on the hive the bees will usually move to open honey down into the brood area during a warm spell. Frames not worth extracting may be handled as you would extracted frames.

—Richard Taylor

Q. Can Fumidil-B be mixed with Terramycin and fed together? **D.E. Miller, Plain City, Ohio**

A. NO! Fumigillin is fed in a granulated sugar water mixture, strength as per instructions, and used as honey or nectar would be. Terramycin is fed as a powder (confectionary sugar) and used as a pollen substitute by the bees, when TM is mixed with liquid it loses its medical value quickly.

—Richard Taylor

Q. Does using dark brood combs from extracted honey lower the quality of the honey? **James Henry, Trinidad, West Indies**

A. Brood combs will darken a light honey such as locust or clover and may lower the value some, with darker honeys, tulip or many fall flows, color won't be changed noticeably, but several other considerations come into play. The combs will be harder to uncapped. The cappings will be darker and add slumgum to the capping melter system, and darken the capping honey.

The honey from these combs will contain extra pollen that the "organic" or health food buyer will like, but a commercial packer will dislike as he has to filter it out. **Richard Taylor**

Research Review

By DR. ROGER A. MORSE
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Where To Turn For Information On Research On Bees And Beekeeping

More has been written about the honey bee than any other insect and most animals. Despite this it is not always easy to know where to turn for information on research that has been done. Both the bee journals and the scientific magazines that report bee research have indexes but it is time-consuming to use these.

The best sources of information on research papers on honey bees, honey, beeswax, etc., for the past 65 years are three items published and distributed by the International Bee Research Association (IBRA). The IBRA is headquartered in England but several people in the U.S. are members and many college and university libraries have the publications below.

The first of these three is a book prepared by D.J. Campbell and G.P. Henderson and published by the IBRA in 1962. Its title is *The Bee World, Index to Volumes 1-30, 1919-1949*. During those 30 years the magazine *Bee World* carried both original articles and reviews of research on honey bees taking place around earth. The 119 page index, which has an additional 20 page introduction, is a combination author subject index. It was thoroughly and carefully done and is a great asset.

The second reference work is in two parts. It was prepared by Dr. Eva Crane, long-time Director of IBRA, and Professor Gordon F. Townsend, who

recently retired from Guelph University. The title is *Index to Apicultural Abstracts 1950-1972*. During that 22 year period the *Journal of Apicultural Abstracts* abstracted 9986 papers from around the world. An additional 4438 were listed only. Volume 1, which is 708 pages, is the author index and the 1113 page Volume 2 is the subject index. It too is a carefully prepared document with over 63,000 entries with all authors of multiple author papers and several subject entries for many of the papers listed.

The third item is *The Microfiche Index to Volumes 24-34 (1973-1983) of Apicultural Abstracts*. Its special value is that it is updated and new cards issued each year. The most recent cards just became available. In this 11-year period 14,102 publications were reported in *Apicultural Abstracts*. No editors are listed for the microfiche but it too was prepared by IBRA. The price for the microfiche is \$58 as a new subscriber or \$40 for those who have last year's index and buy new indexes as they appear each year. Further information about the above three items, as well as other IBRA publications and membership, may be obtained by writing: IBRA, Hill House, Gerrards Cross, Bucks SL9 0NR, U.K.

Detecting Early Granulation In Honey

Detecting early granulation in honey is not an easy task. In 1951 Dr. Jonathan W. White, Jr., and Jeanne Maher, then working at the U.S.D.A. Eastern Regional Research Laboratory in Philadelphia, made an important discovery. They found that if

a jar of honey was placed between two pieces of Polaroid "J" film that one could easily see the beginning crystals; these are crystals that would otherwise not be visible. Contaminants such as wax, pollen grains and lint are also seen distinctly. The White gadget has never been given a formal name, though some call it a polaroscope, a name that is really not appropriate or accurate. A more appropriate name might be "polari-scope". It is widely used at honey shows and allows judges to make a detailed examination of a honey sample. It is helpful to place a lamp behind the sheets of film. One design for White's device is given in his paper that is cited below.

Timothy J. Swett of Alexandria, Virginia, pointed out to me recently that the name of the film has been changed. The Polaroid Company now sells what is listed as "linear polarizers". Their catalog number is: HN38 Neutral. A sheet is 19 by 50 inches and sells for \$80; however, they have a minimum order of \$200. One needs only two pieces each about six inches square to make a White machine. The Edmunds Scientific Company sells a sheet of the film 14 by 24 inches for \$26.75. Thus, in buying film it would be well to work with a friend.

References

- White, J.W. and J. Maher.
Detection of incipient granulation in extracted honey. *American Bee Journal* 91:376-7. 1951.

A Specialized Honeybee

The observations that people have made on honeybees tell us that most bees go through life graduating, so to speak, from one task to another. Usually each job is more complicated and dangerous than the one before. In the paper reported below the researchers were following the flight activities of a number of worker bees that had colored, numbered discs glued to the top of their thorax. They noted that one of these bees took only very short flights that averaged 3.5 minutes during her short fourteen day field life. Suspecting that she might be a water-collecting bee they checked the local streambed and found the place where she landed to collect water.

This water-collecting bee lived only 31 days. Her activities were not followed

Continued On Next Page
GLEANINGS IN BEE CULTURE

while she was a house bee so it is not known what she did during this time. However, as soon as bees in her group appeared at the colony entrance they were followed closely. How or where she died was not determined but she was not seen again after the 14th day of field activity.

There have been a few other accounts of bees that were unusually persistent and foraged in small areas or undertook specific tasks for long periods of time. Such specificity is obviously not the rule; however, it is interesting to note that bees, like people, don't always follow rules or strict guidelines. □

References

Robinson, G.E., B.E. Underwood and C.E. Henderson

A highly specialized water-collecting honey bee. *Apidologie* 15: 355-358. 1984.

OBITUARY

Mr. Earl Robinson, prominent Oelwein, Iowa beekeeper died November 15, 1984 at the home of his daughter Mary Ann Cameron of Plymouth, Minnesota.

Earl began his beekeeping at an early age by attending short courses conducted by Prof. F.B. Paddock of Iowa State College.

The Robinsons made their home in Oelwein where he owned and operated his beekeeping business. Earl was always available and willing to assist other beekeepers in their beekeeping endeavors. For many years he was an area bee supply dealer.

Robinson was membership chairman for the American Beekeeping Federation. He was also appointed as an executive committeeman and membership chairman for the American Honey Producers Association. He served as president of the Iowa Honey Producers Association five different times.

Even though he had retired from beekeeping activities some years ago, he will long be remembered for the goodwill he had for beekeepers and the industry.

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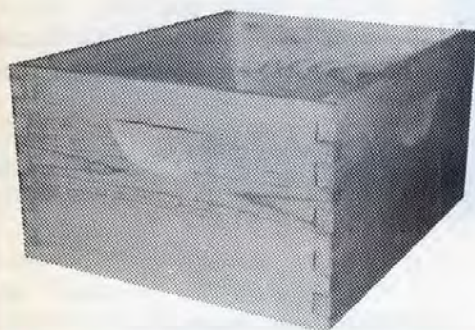
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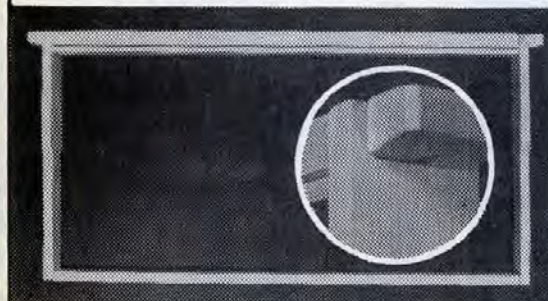
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Privets and *Amorpha Fruticosa* As Nectar Sources

by FRANCIS O. HOLMES Flanders Road Henniker, N.H. 03242

Privet plants in this country are typically inhabitants of cities and towns. On this account our beekeepers have tended to overlook them as nectar and pollen sources for honeybees, but honeybees seem never to overlook the privets when they come upon them in bloom. Perhaps privet species and varieties belong on the long list of plants that sometimes permit honeybee colonies located near towns to outdo those that are surrounded on all sides by extensive field crops, such as corn or wheat.

When privet plants are maintained as neatly trimmed hedges honeybees are unable to utilize their flowers, because the flowering shoots are carefully trimmed away before blossoming begins. But when hedges are neglected, or when privet plants are arranged informally and not cut back at all, the flowers seem always to attract honeybees if bee colonies are located within flight range.

Some kinds of privet, such as the so-called California privet, *Ligustrum ovalifolium* Hassk., are not fully winter hardy in the northern United States, but other species are capable of persisting for years without perceptible injury from cold winters.

Ligustrum sinense Lour., originally from China and Korea, is uninjured by winter conditions here in southern New Hampshire. It regularly blossoms and attracts honeybees each year in late June and early July.

Common privet (*Ligustrum vulgare* L.) has probably the longest association with the honeybee for it was originally a native of northern Africa, eastern Europe, and western Asia, where our honeybees were also native. It blossoms at about the same time as the Chinese species, just before and just after the first of July here.

Seeds of common privet can be collected from its persistent fruits in winter and will grow after two or three months of storage at 40°F., but germination is inclined to be low and it is sometimes easier to propagate the plants by rooting cuttings.



Ligustrum vulgare



Amorpha fruticosa

The quality of honey derived from common privet has been variously reported. In the *Honey Plant Manual* by Lovell (1966) this honey is said to have a slightly bitter aftertaste. More refers to it as "indeed a foul-tasting honey" (*Gleanings In Bee Culture* 108(4):211). Others seem to have found the honey satisfactory in flavor. Whether these differences are dependent on the quality of soil in which the plant is growing has not yet been determined.

The genus *Ligustrum* is a large one, of some 50 species, and all observed kinds seem to have attracted honeybees. Japanese privet, *Ligustrum lbota* Sieb., has been reported as furnishing nectar and pollen in Iowa (**Honey Plants of Iowa**, Bulletin No. 7 of the Iowa Geological survey, 1930, pages 499-500). *Ligustrum compactum* was reported as a nectar source in India (*Indian Bee Journal* 16:195, 1954). *Ligustrum japonicum* Thunb. was mentioned as a nectar plant by Pellett (*American Honey Plants*, 1930, page 298).

Doubtless additional species and varieties of *Ligustrum* will be reported later as useful to honeybees. Careful observations on the quality of their nectars, and of the honey produced from these, will be valuable additions to our knowledge of this group of ornamental plants.

Some consideration may well be given also to the possibility of utilizing the common privet as a windbreak as well as a nectar source. This shrub grows to a height of 15 feet, resembling in this its close relative lilac, but the lilacs as a group have far less tendency to provide nectar and pollen as an incidental benefit when they are planted to windward of overwintering beehives.

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Amorpha fruticosa. As A Roadside Nectar Source

A nectar plant to be grown along roadsides should ideally have the following characteristics: (1) sufficient height to dominate grassy competition but not enough to interfere with highway visibility, (2) long life to ensure against the need for frequent reseeding, (3) attractiveness to honeybees for a substantial period each year, and (4) inconspicuous flowers to avoid needless publicity that might lead to removal of plants for their blossoms before the bees could use them as a nectar source.

Amorpha fruticosa L., sometimes called Bastard or False Indigo, is a leguminous perennial that has all of these good characteristics. It is a native in the United States from southern Pennsylvania to Florida, and westward to Saskatchewan and Mexico. Elsewhere it occurs occasionally as an escape from gardens.

Its generic name, *Amorpha* (meaning deformed), was given to it because four of the five usual leguminous petals are missing in its flowers and the remaining one, the standard, is wrapped around the ten stamens and the pistil. The individual flowers are small and purplish. They are unlikely to attract the attention of passers-by other than honeybees. Honeybees are attracted to collect nectar and pollen from mid-June to early July, usually over a period of two weeks or more here in southern New Hampshire.

A single well-grown plant may produce fully a half pint of "seeds" annually. These "seeds" are not really seeds in the strict sense, but stout, brown, 1/4-inch long, legume-type **seed pods**, each containing a tiny bean-like seed, or two. These pods may be scattered, as though they were true seeds, to establish new stands of the plants on sandy roadsides or waste lands. If the pods are allowed to remain on the parent plant until they are fully brown and dry, the seeds will germinate in a few weeks if planted on or near the surface of soil in a warm environment. □

Beekeeping Folk Arts

by Amos Arbee

This past beekeeping season brought me into contact with a gentleman who through his thinking brought a question to my mind. Namely, how many people like himself there are who actually have no concept of how fascinating the honeybee is in its natural habitat. At any rate, on one particular occasion he suggested I should go and acquire some of those wild bees from a tree if I wanted to secure better production. Upon inquiring further as to why he felt this way the reply came that after he and a friend had cut several trees containing bees his research was concluded. These bees simply stored far more honey than he had ever seen produced in standard bee equipment. He also felt strongly that these bees somehow possessed very unusual qualities which in turn, if crossed with our domestic bees, would indeed prove very worthwhile. Of course, I could have proven him to be wrong but instead came away myself asking two questions;

1. Is there any remote possibility that these wild bees he spoke so highly of have anything to offer insofar as our current problem with the acarine mite, and 2.) whether or not we should have more public information show & tell programs to better educate the uninitiated as to how the honeybee really goes about her work. Lastly, I would hope that each of us as a beekeeper would make it our personal responsibility to always find a few moments to spend with these type persons thereby creating a better situation for both parties.

Dutch Apple Honey Cake

2 cups flour
2 tps. baking powder
1/2 tsp. salt

3 tbsps. shortening
1 egg, beaten
1/2 cup milk
3 cups apples, pared, sliced thin
1/4 cup mild flavored honey
1 tsp. cinnamon
1/2 tsp. nutmeg

Sift together dry ingredients, cut in shortening, combine and add egg & milk, mixing until just moist, then honey.

Spread batter in greased 8x8x2" pan. Top with apples overlapping in rows with thinnest edge of apples pressed lightly into the batter. Mix spices and sprinkle over batter and apples. Bake in moderate oven at 375 degrees for about 30 minutes. Serve warm with whipped topping or vanilla ice cream.

Book Review

Beeswax, by William L. Coggshall and Roger A. Morse. Ithaca, N.Y., Wicwas Press, 1984. 192 pp., \$14.95 cloth, \$9.95 softcover.

This is an astonishing book in terms of the detail and comprehensiveness of its contents. I had not supposed that so much was even known about beeswax. It is, in any case, hard to believe that there can be much of anything known on the subject that is not included here.

Dr. Coggshall, whose family name is legendary in beekeeping, earned his doctorate in 1949 for his research and dissertation on beeswax. Much of this book is the fruit of that research and grew directly from the dissertation. Dr. Morse has contributed extensive discussions on grading beeswax, its use in art and industry, showing beeswax, and using it in home products. The collaboration between these two men has been totally successful in producing a book that is crammed with technical knowledge and at the same time of practical interest to serious beekeepers.

Continued On Next Page

GLEANINGS IN BEE CULTURE

On the technical side, we learn that a block of beeswax contains more than three hundred distinct components, at least forty-eight of which contribute to its unique aroma. In spite of this complexity, it is entirely made up of only three elements, the most common in creation — carbon, hydrogen and oxygen. The discussion of its elaboration in the wax glands of the worker bee is detailed to the point of noting, for instance, that it takes about 800,000 wax scales to add up to a pound. Dr. Cogshall estimates that it would take about 100,000 bees, all secreting beeswax, to produce one pound overnight. The construction of the honey comb, so frightfully difficult to describe, even with the help of diagrams, is set forth in great detail, together with the interesting fact that twenty-two pounds of honey, a singularly heavy substance, are supported by only a pound of delicate wax in the form of honey comb.

Many questions of practical interest to beekeepers are addressed. For instance, is the size of the worker bees affected by the size of the cells in which they develop? The authors think it may be, but that this had little effect upon honey production. The effect of extracting honey from combs darkened by brood rearing is discussed, with the conclusion that, while light honey is thus measurably darkened, it is not serious. (My own experience has been that the darkening is sometimes considerable and can be serious — but that is a large subject). Beekeepers preparing beeswax at home, for whatever purpose, are told here that it is badly discolored by being melted in contact with iron, brass, zinc, and copper. The metals that affect it least are aluminum, tin and stainless steel. One can thus infer that a properly tinned and topless sixty-pound can, which is the most common vessel used by beekeepers, is acceptable.

There is detailed history of the development and manufacture of foundation but the most informative sections, for many readers, will be those devoted to candles. We tend to think of a candle as no more than a stick of wax with a cord down the center. It is much more complex. The authors give a lengthy and fascinating history of candles and candle-making,

a description of the chemical and physical processes involved in a candle's burning, how it emits light, the characteristics of a good candle, wick requirements, and so on.

It is an informative book, sometimes overwhelming in depth and detail, and a most significant addition to the literature of apiculture.

—Richard Taylor

Overreactions To Diseases of Bees

by DR. ELBERT R. JAYCOX 5775 Jornada Rd. Las Cruces, NM 88008

An old problem that keeps recurring in beekeeping is the exaggerated concern for the danger of spreading bee diseases, particularly American foulbrood (AFB), our most serious brood disease. The problem shows itself in two ways: 1) Attacks on bee inspectors, who are accused of not being careful enough in handling diseased colonies and 2) Suggestions to beekeepers that they must sterilize themselves and the environment around them after any contact with an AFB-infected colony of bees. Let's consider some of the unrealistic proposals we hear from people who create the problem, and then look at a few reasons why a careful, but moderate, approach to handling bee diseases is adequate to keep them from spreading them.

Not long ago I read an article in which the author listed all the things you must do after having any contact with a colony infected with American foulbrood. There were so many precautions I don't remember them all, but I was impressed by the recommendation that you give the bellows of your smoker several coats of varnish. Also, if you leaned a comb, against your pant leg, you must treat your clothes with a strong bleach such as Clorox.

Complaints against inspectors are based on similar thinking. Some beekeepers believe that the inspector should change clothing, take a lye or alcohol bath, and perform other rituals, after encountering a colony with AFB while inspecting. Anything less is sure to spread disease, according to those experts.

If American foulbrood were as infectious and contagious as some people would have you believe, it would take our bees as the plague took people in the old days in Europe. Fortunately, there are natural constraints on the

spread of AFB and, without human interference, the disease does not spread easily in a population of honey bee colonies. Perhaps the greatest constraint is the need for disease spores to reach the food of young, susceptible larvae, not just the hive or just any bee in the hive, to cause infection. Good housecleaning by infected colonies, and other mechanisms of resistance in individual adult and larval bees, further reduce the spread of AFB.

Scientists doing research with bee diseases have found that colonies do not become readily infected with American foulbrood, even when they have been given sugar syrup containing large numbers of disease spores. They also have reported that routine examination of diseased and healthy colonies in the same apiary did not spread the infection.

Disease is spread most commonly by lack of inspection by individual beekeepers and their failure to recognize the disease or its presence. These errors and omissions lead beekeepers to transfer combs containing disease, to divide diseased colonies, and to extract honey from diseased colonies. These are the primary means of spreading infection, not the smoker, clothing, gloves, etc., of the beekeeper or inspector.

Beekeepers and inspectors should always take a few simple precautions after handling a colony infected with American foulbrood: 1) Scour and flame the hive tool, 2) Wash your hands, 3) Wash or change gloves if you are wearing them, 4) Scrape and rinse off the bellows of the smoker, and 5) Make sure that any spilled honey is cleaned up or well covered with soil.

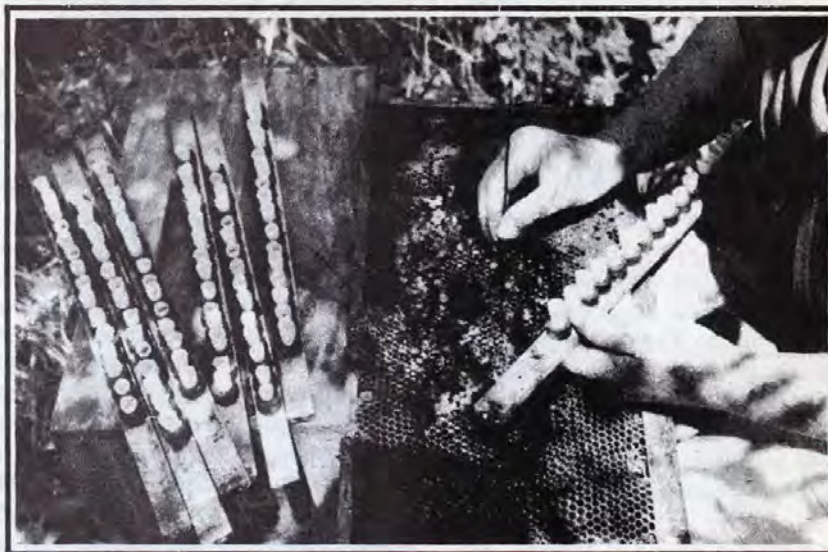
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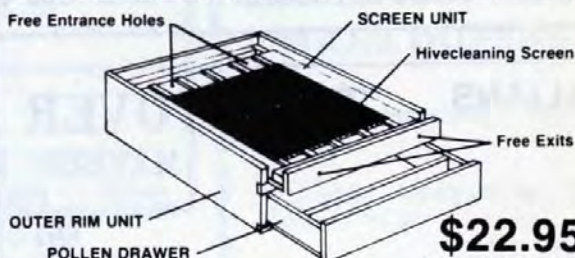
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Summary from the USDA Honey Background for 1985 Farm Legislation

Agricultural Information Bulletin #465 Washington, D.C. 20250

This report has elicited varying opinions, some of which will be published in subsequent issues of GBC.

The Agricultural Act of 1949 legislated a price-support program to provide market stability to honey producers and to encourage maintenance of bee populations which are vital for pollination of many agricultural crops. Since 1952, the price of honey has been supported at not less than 60 percent and not more than 90 percent of parity through a loan and/or purchase program.

Since 1981, honey support prices have been above average domestic market price. The domestic price has not been bid up because domestic producers and packers have found it profitable to import lower priced honey for domestic use and sell the domestically produced honey to the CCC at the support price. The CCC acquired about 115 million pounds, or over half of the 1983 honey crop, at an estimated cost of \$71.5 million. The result of recent CCC purchases and loan forfeitures has been a massive buildup in honey stocks in the United States to over 165 million pounds in 1983, which represents half the world stocks of honey. Several important issues will likely receive much debate as the new farm legislation is being developed. Major policy issues include:

- 1.) Should the United States maintain a profitable honey industry, particularly when world honey prices are low?
- 2.) Would there be a significant reduction in honey production and in the number of honeybee colonies available to provide needed pollination service if honey price supports are lowered significantly or eliminated?
- 3.) Should import quotas be used to restrict the quantity of honey entering the domestic market even though they conflict with the objective of free trade? What level of farm program cost is acceptable to ensure a domestic supply of honey and honeybees?

Several important developments and trends in the beekeeping industry must be considered in finding ap-

propriate honey policy:

An estimated 90 to 95 percent of the beekeepers in the United States are hobbyists who own less than 25 colonies of honeybees. In 1975, the International Trade Commission (ITC) estimated there were about 200,000 hobbyists who primarily produced honey for home use. Few hobbyists are thought to use the honey price support program. Commercial beekeepers, those with 300 or more colonies, represented less than 1 percent of the beekeepers in 1975, but accounted for half the honeybee colonies and produced about 60 percent of the honey extracted. The commercial beekeepers are larger part-time beekeepers (those with 25-299 colonies) are considered the primary user of the honey program.

Since 1970, the number of honeybee colonies in the United States (excluding wild honeybees) has stabilized between 4.1 and 4.3 million. With honey yields of 45 to 50 pounds per colony, the honey industry has the capacity to produce 190-210 million pounds of honey annually. Consumption of honey has averaged about 250 million pounds since 1980.

Honey imports increased 125 percent from 1980 through 1983. During the same period, domestic stocks of honey increased over 200 percent and now represent almost 60 percent of annual domestic use.

The honey price support program has likely contributed to the stabilization of colony number in the United States in recent years. The support price at no less than 60 percent of parity has been substantially higher than the average price of honey in the world market. If the honey price-support program is terminated or support prices are reduced substantially below the legislated minimum of 60 percent of parity, the reduced return from the sale would likely force many beekeepers — especially commercial beekeepers — from the industry. The result could be

a substantial decline in the number of honeybee colonies and honey production.

The majority of plants grown in the United States are pollinated at no cost by wild bees and honeybees managed by local beekeepers. However, many fruit and vegetable, legume, and oilseed crops require pollination by a large concentration of honeybees for a commercial crop. The impact of any significant reduction in colony numbers from changes in the honey price-support program on pollination of these crops will depend on whether the beekeepers that provide honeybees for pollination can obtain a higher fee for their services. Since pollination costs are a very small part of the total cost of producing crops requiring pollination services, it is likely that rental fees could be increased to reduce or offset the economical effects of lower domestic honey prices for those beekeepers actively engaged in providing pollination services for a fee. However, it is unknown just how many of the domestic beekeepers that utilize the honey price-support program provide pollination services for a fee.

Additional Readings

- Anderson, Earl D. *An Appraisal of the Beekeeping Industry*, ARS 42-150, U.S. Dept. Agr., Res. Ser., 1969. 38 pp.
- Anderson, L.D., E.L. Atkins, Jr., H. Nakahihara, and others. *Toxicity of Pesticides and Other Agricultural Chemicals to Honey Bees*, AXT-251, Univ. Calif., Coop. Ext. Ser., 1971. 8 pp.
- Bauer, Frederick W. *Honey Marketing*, Bull. 776, Univ. Calif., Agr. Expt. Sta., 1960. 71 pp.
- Cantwell, G.E., T. Lehnert, and J. Fowler. "Are Biological Insecticides Harmful to the Honey Bee?" *American Bee Journal*, 112: 1972, pp. 25-58, 294-96.
- Caron, D. M. *Beekeeping in Maryland*, Ext. Bull. 223, Univ. Md., Coop. Ext. Ser., 1975. 42 pp.
- Garoyan, Leon. *Economic Trends in the U.S. Honey Industry*, Leaflet 21219, Univ. Calif., Div. Agr. Sci., 1980. 33pp.
- Happ, Gregory, W. "Honeybees, Pesticides and the Law," reprint from *Gleanings in Bee Culture*.
- Hoff, Frederic L. "Report on the Beekeeper Indemnity Payment Program," U.S. Dept. Agr., Econ. Res. Ser., CED Working Paper, 1976. 116 pp.

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APPLICATION OF INSULATING PANELS ON THE FRONT AND THE REAR OF THE HIVE FOR WINTERING A COLONY

I. Fryc

41½ George St.,

St. Catharines, Ontario L2R 5N7

In *GLEANINGS IN BEE CULTURE*, September, 1984, I described internal insulating frames for wintering bees. These gave instructions only for the left and right side of the hive.

To insulate the top of the hive I apply a top feeder filled with styrofoam (after feeding is completed). This feeder is described in *GLEANINGS*, March, 1983.

To complete insulation, I designed a front and rear outside panel made from 1-1½ inch thick styrofoam with attached upper and lower hangers. See dwg. A81-F and A82-F. Assembly of these panels on the hive is on dwg. A83-F.

HOW TO ASSEMBLE PANELS

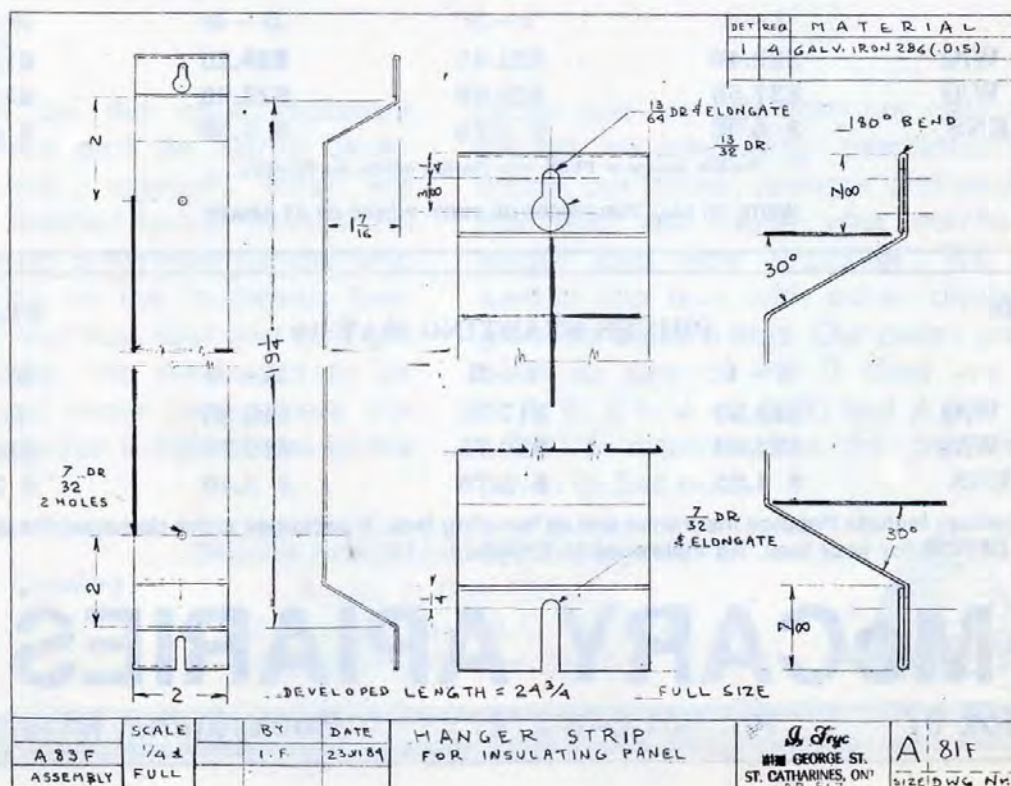
Align panel as shown on dwg. A83-F and, holding with one hand, mark the holes for screws for the upper part of hangers only. Remove the panel, drill the holes the proper size for wood screws, then screw into these holes round head screws for hanging panel.

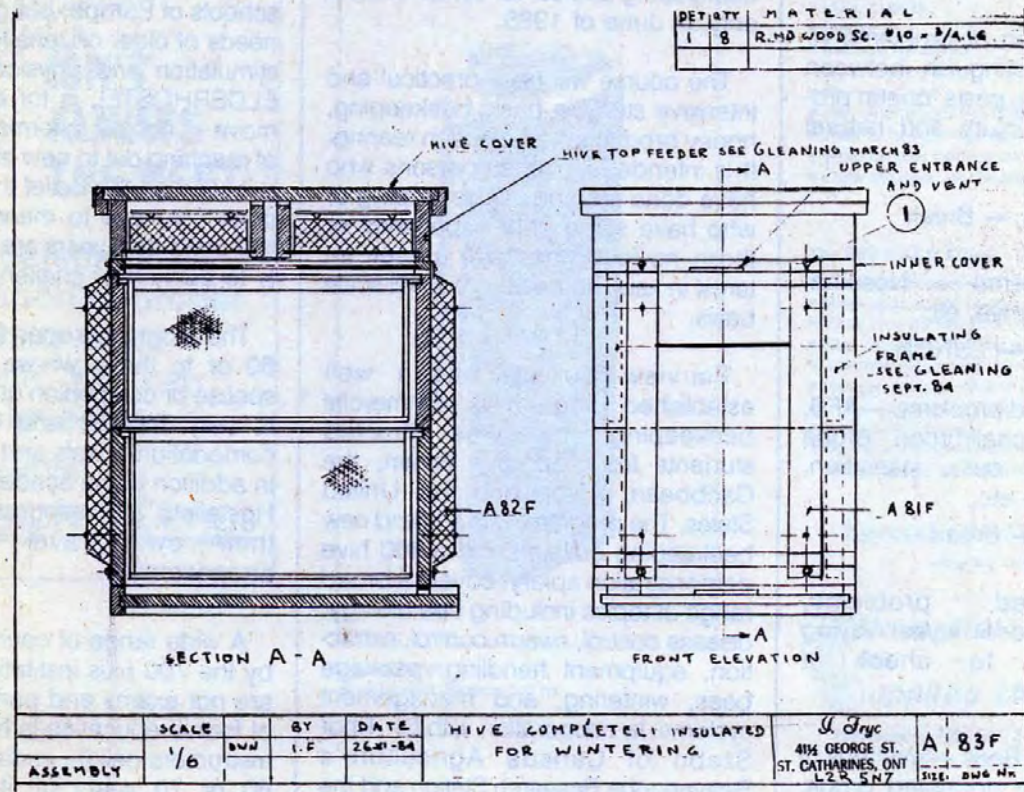
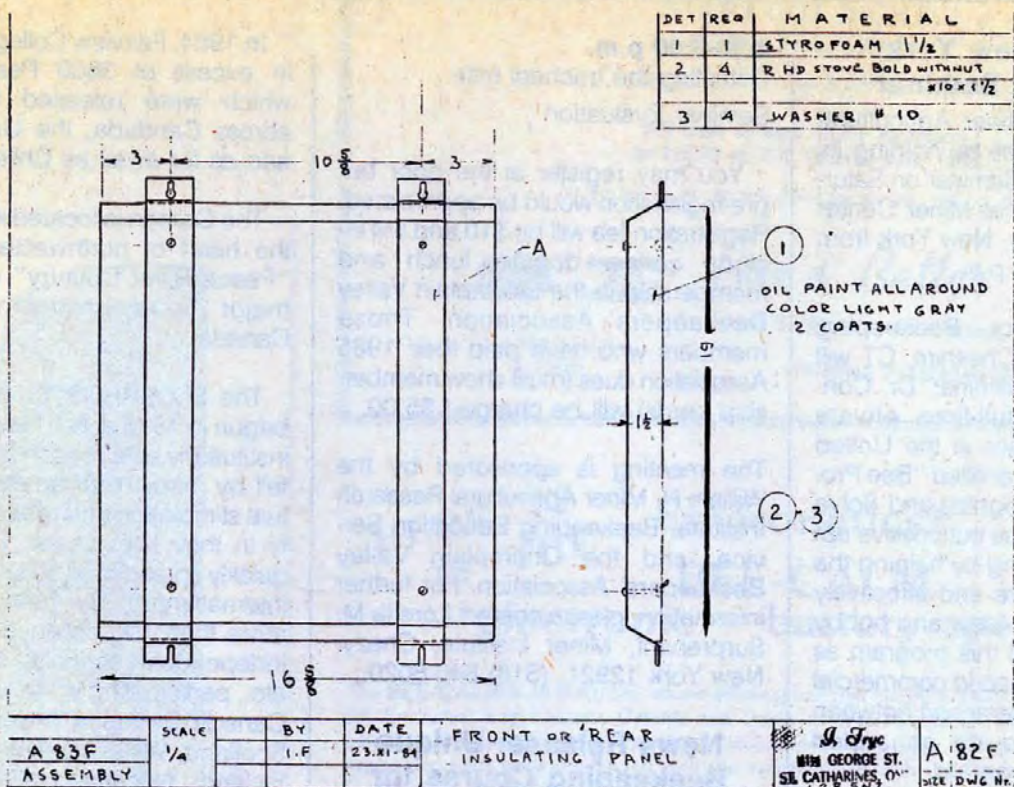
Hang the panel and drill the holes for the lower part of the hanger (using lower part of hanger as a guide), screw the screws first lightly then tighten upper and lower screws.

Proceed the same for second panel.

In spring, for inspection of the hive, to disassemble panels loosen upper and lower screws then lift panel up approximately ¼ of an inch and remove it.

By applying these panels the insulation of the bee hive is complete.





NEWS and EVENTS

Northern New York Beekeeping Seminar

The William H. Miner Agricultural Research Institute will be holding its annual Beekeeping Seminar on Saturday, April 27, 1985 at Miner Center Auditorium in Chazy, New York from 8:00 a.m. until 5:00 p.m.

Dr. Larry Connor, Beekeeping Education Service, Cheshire, CT will be conducting the seminar. Dr. Connor is the only full-time private Apicultural Consultant in the United States. The seminar, entitled "Bee Problems: How to Recognize and Solve Them" takes a serious but positive approach to beekeeping by helping the beekeeper recognize and effectively deal with problems. New and hobby beekeepers will find this program as useful as will experienced commercial beekeepers. The interaction between participants will provide an added dimension to the program.

8:00 a.m. — Registration

8:30-9:15 a.m.

How much do you already know? Pretest of your current knowledge.

9:15-10:00 a.m.

General recognition of problems — Being able to distinguish between diseases, parasites, pests, queen problems, pesticide injury and natural problems.

10:00-10:15 a.m. — Break

10:15-12:00

Adult Bee Problems — Nosema, viruses, Tracheal mite, etc.

12:00-1:00 p.m. — LUNCH

1:00-3:00 p.m.

Larval diseases and problems — AFB, EFB, Sacbrood, chalkbrood, drone brood in worker cells, starvation, poisonous nectar, etc.

3:00-3:15 p.m. — Break

3:15-3:45 p.m.

Queen related problems, Supersedure, drone layes, laying workers, how to check a spermatheca, etc.

3:45-4:30 p.m.

Chemotherapy for Bees — methods of treating bees with approved drugs; other treatments.

4:30-5:00 p.m.

Detecting the tracheal mite.

Seminar Evaluation

You may register at the door but pre-registration would be appreciated. Registration fee will be \$10 and will include coffee, donuts, lunch and membership in the Champlain Valley Beekeepers Association. Those members who have paid their 1985 Association dues (must show membership cards) will be charged \$5.00.

The meeting is sponsored by the William H. Miner Agricultural Research Institute, Beekeeping Education Service, and the Champlain Valley Beekeepers' Association. For further information, please contact Loretta M. Surprenant, Miner Institute, Chazy, New York 12921, (518) 846-8020.

News Release: Unique Beekeeping Course for Senior Citizens

Under the auspices of the ELDERHOSTEL international network, Fairview College will offer a two-week beekeeping course, for senior citizens only, in June of 1985.

The course will be a practical and intensive study in basic beekeeping, honey production and queen rearing. It is intended for those persons who have done reading in beekeeping or who have some prior experience or those novices who have a keen interest in keeping bees on a small-scale basis.

Fairview College has a well established program in commercial beekeeping which has attracted students from Europe, Britain, the Caribbean, Africa and the United States. The program, with a brand new beekeeping building and a 300 hive demonstration apiary, covers a broad range of topics including bee biology, disease control, swarm control, extraction, equipment handling, package bees, wintering, and management systems. In cooperation with Dr. Tibor Szabo of Canada Agriculture's Beaverlodge Research Station and the Alberta Government, the College is involved in propagation of the Alberta Bee — a specialized honey bee which has been selectively bred to meet the unique climatic conditions of the prairie and the Peace Country.

In 1984, Fairview College produced in excess of 3600 Peace queens which were released to apiarists across Canada, the United States and as far away as Chile.

The College is located in Fairview in the heart of northwestern Alberta's "Peace River Country" which is the major honey-producing area in Canada.

The ELDERHOSTEL network was begun in 1975 at five New Hampshire institutions as a response to the need felt by many older adults for intellectual stimulation and meaningful activity in their later years. The program quickly spread to all 50 U.S. states and internationally. By 1984, there were more than 700 colleges, universities, independent schools, folk schools, etc., participating in the United States, Canada, Bermuda, Mexico, England, Scotland, Wales, Denmark, Sweden, Finland, Norway, Holland, France, West Germany, Italy and Israel.

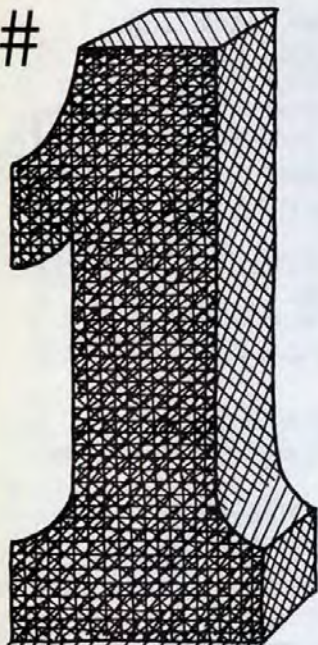
ELDERHOSTEL combines the best traditions of education and hostelling. Inspired by the youth hostels and folk schools of Europe, but guided by the needs of older citizens for intellectual stimulation and physical adventure, ELDERHOSTEL is for elders on the move — not just in terms of travel, but of reaching out to new experiences. It is based on the belief that retirement does not have to mean withdrawal, that one's later years are an opportunity to enjoy new challenges.

The program is open to people over 60 or to those whose participating spouse or companion qualifies. Tuition is very modest and includes accommodation, meals and social events in addition to the academic program. Hostellers are responsible for all of their own travel costs and arrangements.

A wide range of courses is offered by the 700 plus institutions but there are not exams and participants' lack of formal education is NOT a barrier. Instructors delight in discovering that 60 or 70 years of life experience creates open, understanding teachable people. Whether they finished grade school or earned a PhD, if they have an adventuresome spirit, they are perfect for ELDERHOSTEL.

Continued On Page 105

#



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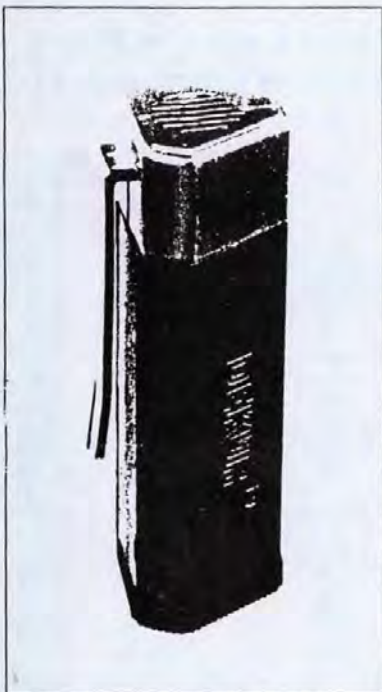
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BEE-CALM

— electronic — battery operated —

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Actual Height 3"
Weight with Battery 1.4 oz.

The BEE-CALM Does Not:

- Have to be lit
- Smoke
- Produce hot smoke
- Burn your bees
- Burn your eyes
- Burn your investment down
- Have to be relit when you need it the most
- Smell up your clothing and equipment
- Draw the bees into the hive and start them feeding

The BEE-CALM Does:

- Keep your bees calm
- Work approx. 500 hours without battery change
- Work on a standard 1.5 volt AA battery
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11-39	6.85	7.40	7.40	7.40
40-99	6.40	6.95	6.95	6.95
100-499	6.00	6.55	6.55	6.55
500-up	5.85	6.40	6.40	6.40

For clipping and/or marking add 50¢ per queen. All queens shipped priority mail. Ask about our May queen sales.

Package Bees	With Caucasian Queens		With Midnite, Starline or Double Hybrid Queens	
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1-10	\$23.25	\$29.25	\$24.00	\$30.00
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40-99	21.00	27.00	21.55	27.55
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5-lb. pkg. w/q	\$39.50	\$38.50	\$37.50	\$36.50
Queens	\$ 6.75	\$ 6.40	\$ 6.20	\$ 6.00

STARLINE OR MIDNITE

	1-3	4-24	25-99	100 up
2-lb. pkg. w/q	\$21.35	\$20.60	\$19.85	\$19.35
3-lb. pkg. w/q	\$26.85	\$25.85	\$25.10	\$24.60
5-lb. pkg. w/q	\$40.10	\$39.10	\$38.10	\$37.10
Queens	\$ 7.35	\$ 7.00	\$ 6.80	\$ 6.60

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Shipments start first of April depending upon spring weather conditions.

April 1985						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

May 1985						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

June 1985						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

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Making Splits and Raising Queens Ralph Moore's Way

by Ralph Moore

1204 East Emma

Tampa, Florida 33603

So many people who start beekeeping soon want to split the hive, they want to expand, they want to make another hive from the single hive they have and they always ask the question of "How are we going to do this?" I've worked out simple methods of raising queens, splitting hives, and so forth, as you'll see from these photos and this article. I have a hive sitting on a pallet to keep it off the ground, to keep good ventilation under it, a full hive of bees, and I've placed a double screen on top.

A double screen will be our tool for the first experiment of the first hive split. I think this is about the simplest way anybody could split a hive and be successful at it. Almost 100%. I say almost because once in a while it will backfire. There are some drawbacks to this system. First you must take a full hive of bees. I wouldn't suggest doing this with a weak hive at all. It should be a hive with a full brood chamber, wall to wall comb, you should have a certain amount of pollen, honey for food, and at least four good frames of brood rearing inside. Plus, I think you should have favorable weather such as we have today. It is November 25th, and

I'm standing in the yard with this hive, the temperature now is 78 degrees, it is one o'clock in the day. It's a beautiful day. This would be an ideal time to work a thing like this, but not in November. It should be done in the spring when the bloom is beginning to form. First you would remove the top of the hive by smoking it. I think a person should examine the hive first, and determine that you have a hive that is in condition to divide.

After we've determined that this hive is in condition to divide for two hives, then we'll take the top off, smoke it gently, and place the double screen on top after we've removed three or four frames. The brood on one has to have fresh eggs and a lot of bees, no queen, and we should have one frame containing an ample amount of pollen which is necessary to raise new bees with, and one frame has to have quite a bit of honey still within it. Now we'll place three frames, possibly four if you want to split that many into another hive body, and set it aside. Then replace these frames in the bottom with frames to the side and not in the center of the remaining brood chamber. Place these to the side, place the frames that you have removed in a separate hive body and then your double screen will go on, then your hive body will go on with the brood on top. When your double screen is installed on the hive, the opening must be to the rear for the bees to go and come from the upper section, opposite from the lower section. Leave this enclosed. You can if you want to put a feed jar with a Boardman feeder inside with sugar water onto the side of it, up in the upper section. If there is not ample food, you can do this, you can also put a cake of the Beltsville Bee diet in the upper section, and enclose it, and leave it alone. I would suggest for at least seven days. At the end of 7 days, lift the lid gently, smoke it, and examine for queen cells. If you do not have queens cells at this time, you should

join the hive back together as it was originally. Just take the double screen out and place those frames of brood back to the bottom, and try it again after about a week. Do the same procedure again, taking those frames to the top and giving it another try. Most of the time you will have queen cells in a weeks time. And if you do, if you just want to split this, I would put the lid back on it, give it about two more weeks, and when you open it up then, you should have a queen that hatched and she should be laying at this time. If she's not laying but she's hatched, leave her alone, put the lid back on, and I would suggest that you give them time before you remove that super to allow for the queen to mate and lay her first eggs. Then after this period of time you can have another hive bottom ready. Lift that top section off, place it on a bottom board, and a top and place the frames in it and complete it out to a 10 frame hive. Set it aside or anywhere you want to, and when this new queen lays, in that section, you should be alright. This would be what I would consider to be the simplest way, the easiest way to split a hive. If it fails, all you have to do is remove that double screen, place the hive back together, and you won't have any fighting among the bees that are there. It's a very workable thing. It's easy to do, easy to construct, and very simple for the beginner to do.

That's about as far as we can go on the double screen system. I'm furnishing a picture of one with frames and tops and the Boardman feeder placed inside with it. Now you must remember one thing, when you split with a double screen, the bees that are going to be in the top are ones that you've put there and hatched there. Now this is one of the drawbacks. You're going to have to do this leaving the queen in the bottom and placing these frames, the three or four frames that you remove, with as many

Continued On Next Page



Double screened colony on pallet.



Boardman feeder in place.

bees as you can keep on them, and place them in the top. Now part of your old bees are going to go out that entrance in the rear, come around to the front and go home. A lot of them are going to be bees that were never out of that hive before and when they go out that back entrance they'll come back in. And also you'll have bees hatch there if you have your brooders cap up in there, which you should have. This is important, because when these bees hatch, they'll hatch before your queen is ready to mate and it will leave cells open for that queen to lay right away when she's mated and ready to lay. But remember this, that all the bees you start off with are just what you have, no more bees are going to come up from the bottom.

Now our second step is going to be completely different. I'm going to use a different board, and I'm going to show you how to keep bees coming up from the bottom continuously and this other system will replace your double screen and make it doubly better. Now that we're through with the double screen method we'll go on to the next step which I think will be more successful than the double screen. Conical bee escapes have recently been made available. Advertising for that product says "the latest thing in bee escapes, one way valve with no moving parts, bees enter the large



Conical bee escape board.

exit through the small opening into the super below., with a rim of two or more inches high for quick emptying of the super." This conical board is very successful. If you want to empty bees out of a super so that you can take it home and extract it, place this under the super, the super on top that you want to extract, give it a day and it will probably be empty of bees, or almost empty of bees and they will go down into the rest of the hive. They will exit through these red cones and apparently they don't know how to get back up, so you'll have an empty super. Now this works fine. It makes the bees go down, and not come up. Now think about it. If you want the bees to go up and not come down, you have the ideal situation for raising queens. This is a simple easy way. All you do is invest \$12.80 in one of these boards. It would be the simple thing to do. And go to a good strong hive, the same as you would with a double screen. You would go through the same thing. You would take the frames from the brood chamber which you want to raise a queen on, preferably one good solid frame with alot of honey in it, one frame with quite a bit of pollen in it, at least two frames with fresh eggs, and hatching brood, sealed brood and so forth. Now, this is going to work a little bit different than the double screen. With the double screen you are going to take part of the bees from the bottom and remove them and put them in the top. In this method we are going to sweep all the bees off these frames, and we are going to

leave all of them in the bottom and you are going to place the cone board on top of this hive and this hive body with frames in top. Place the lid back on, the bees will come up and within a couple of hours time you will be well supplied with bees from the lower section. Now alot of people are going to wonder, what happens now if my queen should happen to go through that cone and come up to the top and she won't know how to get to the bottom. This is a simple method too. In photo #4, you'll see the hive, with a queen excluder placed on top, and then the cone board on top of that. this will help to ensure the fact that the queen will not go to the top. Workers



Conical bee escape board with excluder.

immediately take over in the brood, and they will find that they can't go back down, and join the queen in the lower section, then they will start queen cells the same as they would with a double screen. After the queen cells formed, you can leave that right there until the queen is hatched and laying and you have a second hive. Lay one on top of the other. Remove it at your own will when you're ready. I would suggest leaving it there if you're new at this, just leave it there until the queen is laying and the hive is pretty well settled down again and you have two hives, one on top of the other. The bees will work back and forth through there continuously and they will not fight because they are used to the odors from both queens. And this is an easy way to make another hive.

Continued On Next Page

Now that we've placed our conical board on the hive, cones turned up, there is one thing you must remember when you use this method, you must have an opening at the rear of the hive the same as you did with the double screen so that the bees can go and enter and leave from the back of the hive, opposite from the natural opening in the front of the hive. Now, it's ready to put the hive body on the top, with whatever frames you want as long as you do it just like you did the double screen. You should have, like I said, ample brood, pollen, fresh eggs, hatching brood that's capped, some larvae. You can sweep all the bees off these frames place them on top, place the lid on, and you're all set. You can put a feeder in the top of this



Hive with escape cone board turned down.

if you would. It won't hurt a thing if you did. It may not help, but it certainly won't hurt. All these things should be done in the spring or summertime, they're no good in the winter. This will not work when the weather is cold.

Your bees are going to come through that opening, through those little cones, up to the top, they won't realize how to get back down so they'll start immediately making their own queen at the top. After your queen is hatched and laying, everything set, lift it off and you will have two hives. You can disassemble it at that point or you can put another hive body on and start

a second group. This is easy to make a single hive split. It looks to me like about the only expense you would have would be for the cone board and for the extra equipment it takes to split and make two hives with. But this is a simple thing. This is something a beginner can do. Anybody who has enough experience to lift the hive apart, know what he's looking at and can sweep all the bees off, can do this and almost every time it's successful. I've tried it all summer and it worked fine.

Now that we've used the cone board the way it comes from the factory, we'll go a step further. In my summer experimental work with this thing, I've found that sometimes the bees draw the queen cells on one frame and therefore you'll have only enough to make one hive. You can pull these out, after the queen cells are formed if there's only one or more frames and go ahead and place them into mating boxes and allow them to hatch and make more than one hive with a single cone board the way it comes from the factory. But to insure that you will get queen cells on more than one frame, I constructed a cone board using the frame, and the pegboard bottom and so forth, of my own.

I made a new center channel, and I spaced the cones different from the factory. As you'll see in this picture, the channel has six openings on each side. The original had five on each side, which left a



Revised conical escape board. cone in the middle. Therefore, it was

difficult to divide it the way this is going to be done. Now that we've made a new center channel, and prepared it to make two hives instead of one, I want you to see the next picture, how the top goes on and we'll have two separate hives divided in the center, and we'll have to have openings out of the hive body itself. I didn't drill the frame of the cone board in this one. I just went on and drilled the hive bodies instead of one at the same time with this display.

Now that we've set up our divided cone board on top of the hive and below it a queen excluder to insure that the queen won't come through,



Compartmentalized hive body.

we are ready to put a hive body which will also be separated with a divider down the center, a hole in each end of it, in the hive body itself for an escape for the bees on which will also be separated with a divider down the center, a hole in each end of it, in the hive body itself for an escape for the bees on each compartment in the top. The same will hold true if each one of these would hold four good frames if you wish to put that many in. If you have other hives, I would suggest that you get some of your brood from them. And maybe all of it if you would rather. Then you won't disturb the hive below. The more bees you have

Continued On Next Page

below, the more success you'll have in raising queens above. So if you have other hives, go to them and take the brood from them, replace them with combs of foundation wax or if other combs you have put them in. But, each one of these two compartments should have a frame of honey, a frame containing quite a bit of pollen, and at least one frame of eggs, larvae, and hatching bees. But be sure there's fresh eggs there. Sweep all the bees off all the frames, place them in the top, put the lids on.

And there again you'll have to make two separate lids. These plain little plywood lids have an opening in the top for ventilation. Put that opposite from the opening where they



Separate lids with ventilation.

come and go. After we've placed these two plywood tops over each compartment containing the bees where we're going to raise these queens, we'll put two strips of $\frac{3}{4}$ inch wood on top, and a telescoping top on top of that. These strips will be necessary unders to maintain ventilation through these holes which are covered with 8 inch mesh hardware cloth. If you use this method and wait until the queen hatches, you'll have two brand new nuc hives with no problems. After the queen begins to lay, lift them out into hives or full hives. Taken them on to wherever you wish. You can work this over and over a



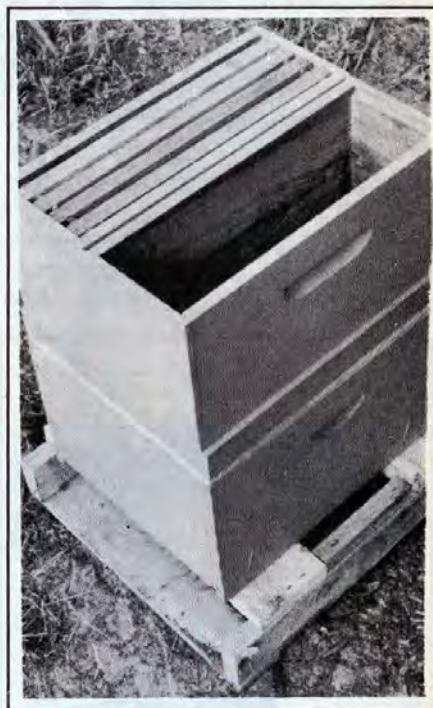
Lids with $\frac{3}{4}$ inch wood strips.

number of times. I kept this double box going all summer. I raised numerous queens this way. I didn't wait on these queens to hatch. As soon as they formed queen cells, I lifted them out and placed them into other hives which were some divided and some not divided, and let them hatch their queen there, and go ahead and mate and start new ones immediately. This was a very successful method. I think anybody who has a little bit of ingenuity to build the equipment can do this very well.

In the step that we're going through now, we're going to make it real easy to make nuc hives. What we are going to do is use the same conical board, divide it in the center, so that we can make two hives instead of one at the same time. Now, instead of a single box divided in the middle where you would have to remove the frames after the queen cells are formed or after the queens are hatched, what we're going to do is place on top two four frame nuc hives and use them instead of a single box. Each of these four frame nuc hives will have four frames in it. It will have a frame of honey, a frame with a quite a bit of pollen, two frames containing eggs, hatching brood, and larvae, but no bees. Sweep all the bees off to start with. What I haven't shown on the photo that you see is the fact that we'll



Nuc and division with conical escape.



Divided Nuc.

bore a hole either in the nuc hives, in the ends or in the conical board. This I haven't done for this single experiment. This is just for the picture. But if you'll bore a hole in each one of the sides of the conical board, place it in the position like you see it in this picture, place the same two lids back on, the two plywood lids with ventilated openings, two strips on top ($\frac{3}{4}$ inch),

Continued On Next Page



Ventilated Covers.

place on top of that your top (you would use a telescoping top on the top). If you wish you can give these bees possibly a ten day period if they're queen cells there, and plenty of bees in there. You can remove this, go ahead set it on bottom boards take them off at that time if you wish. Or if you want to wait until each queen is hatched and is laying, that's perfectly alright too. You'll have two



Separated Nucs.

full-frame nuc hives ready to go. Lift them off on bottom boards, take them away, and start another set. You can continue this all summer, as I did here. I raised queens that I didn't know what to do with, I had so many of them. This is so simple to do. And this is the simplest way yet. As soon as you lift it up, determine that you have a laying queen, with these nuc hives you lift them off of the bottom board, carry them off and you don't even disturb the bees. Now, this does require more equipment than the first method I showed you, but these are methods which a person who is beginning in beekeeping, without too much knowledge of queen rearing, can do. A person who reads up, begins beekeeping, and begins to read up, can recognize brood, can recognize eggs, and can understand what you have to do to it. The only drawback

I've ever said about ordering queens is a fact that the queen that you order has been laying in a hive, she has been removed from that hive, she's placed into a mailing cage, it breaks up her laying cycle, for a period of anywhere from three to seven days or more before you get her. Therefore, she has stopped laying. Then you introduce here into a hive, it may be several days before she begins to lay again. And this may cause a lot of problems. You could have bees decide to not take this queen if they've been queenless too long, and it's quite a problem to introduce a new queen sometimes through this method. But what we're doing here, we're making them raise their own queen, where the bees are going to be with them. And the system works. It really works, and I'll guarantee it! □

A SPECIAL OFFER FROM GLEANINGS

By May 15th, 1985, school is winding down in most places. We'd like to offer a little something to encourage folks to get out into school rooms before then. Here's how it goes:

1. You must be a member of a national, state or local beekeeping association. If you're not, please join one or start one in your area. The cost of belonging to an association is trivial compared with what is to be gained by joining together to learn, grow and help each other.
2. After May 15th, but by June 1, 1985, send us a list including your name/the association you belong to/the schools you visited between now and then (elementary, junior, or high school), identified by name, location plus the number of groups you worked with and their grade levels. This is all on the honor system, folks -- nobody's going to confirm these sessions, but we know if you say it's so, it is! REMEMBER: COUNT BY CLASSROOM OR GROUP, NOT JUST BY ENTIRE SCHOOL. Send to:

GLEANINGS IN BEE CULTURE SCHOOLROOM PROGRAM
Box 706
Medina, Ohio 44258

To the beekeeper who has visited the most number of classrooms, we will donate one observation hive plus package of bees, suitable for installation at your favorite school. For the beekeeper with the second highest number of visits to schools, we'll forward 25 copies of our book *STARTING RIGHT WITH BEES* which can be given to school libraries or special young beekeepers. To the third most frequent school visitor, five wall charts depicting the life cycles of the honey bee. Additionally, all three top beekeeping teachers will receive a write up in *Gleanings*. We hope many of you, as individuals and associations, will join in to help the beekeeping educational process. We'll be talking about this in the future issues and look forward to seeing what comes of everyone's efforts.

3300 Beehives Riddled with Plastic Frames

by Charlie Warren 334 Walton Pl. R.R. #3 Victoria, B.C. Canada

RIDDLED? The only riddle is why a few beekeepers with a few plastic frames can downgrade such a marvelous product. Now, my experience is strictly with Pierco plastic frames pre-coated with beeswax, but they are scattered throughout my 3300 colonies, and they are going to stay there, and many more thousands added to them.

I was very disturbed by the articles that appeared in *Gleanings* last year. Since that time I have been too busy harvesting a great big crop to even speculate as to what caused those problems they wrote about.

As for the problems in extracting: I have a Cowen uncapper and extractors, and there is absolutely no problem. There is little or no damage in the uncapping. If they get twisted they spring back, whereas wooden frames often get mangled. In the extractors, there are no blowouts, which is very common with wax and our heavy (14%) honey.



They've all been through the extractor then dried by the bees. We have thousands just as good.

If one puts a super of beeswax foundation on a hive when there is a poor or non-existent honeyflow, one can expect to have the walls of the cells eaten down and the wax chewed away from the wires. Under the same conditions they also chew the wax off the plastic but the plastic foundation is still intact. The next season they will draw this out but with more problems than fresh plastic foundation. But wax foundation handled that way is a total waste. I suggest that this is where the other negative comments came from.

What prompted me to write at this time? This week we had a field day here for the beekeepers attending the annual Canadian Honey Council Convention. They came from all provinces of Canada, and in most cases they represented large commercial outfits. They were amazed at the thousands of perfect combs drawn on both sides of Pierco waxed plastic frames, especially since they had heard the negative rumors circulating.

I must emphasize that we taken no special care in placing these for drawing out. When we make divisions, most often we put three or four alongside of the brood and they get drawn out and laid immediately. They can be intermingled with beeswax foundation, or a whole super of plastics just thrown on top if the flow is good. There is no problem as long as the feed is on, or there is a honey flow.

Plastic frames are just too good for the industry, to have to suffer undue criticism!

My findings as reported in my article in *Bee World*, Vol. 63, No. 3., 1982, have been reinforced by my experience since that time. I intend to add more than 10,000 more plastic frames this coming season. □



BEEKEEPING GADGET

by Guy Beard
418 SW Canyon Loop Rd.
Winlock, WA 98596

7D nail with 6 inches more or less of a 1/16th brazing rod soldered onto it can be used to rake attendant bees out of queen cages prior to banking and or introducing your queen. Remove cork, rake out all but queen, put cork back in and, if you watch what you're doing keep a finger tip handy to make sure the queen won't get out.



A random sampling of perfect combs. In finding these we found no plastic combs that had too much drone comb or other blemishes.

Gleanings Mail Box



Mississippi Mite Update

Dear Editor:

NO ACARINE MITES DETECTED IN MISSISSIPPI TO DATE — ALL COMMERCIAL BEE YARDS BEING CHECKED BY MISSISSIPPI DEPARTMENT OF AGRICULTURE:

Samples have been collected from each apiary belonging to Mississippi Queen and package producers. These samples will be completed by January 1 so that they may be certified for the next shipping season. Thus far, all samples have been negative (No Mites) At that time, a list of all certified mite-free producers will be distributed for publication.

Also, all migratory apiaries will be checked by April 1985, for movement out of Mississippi.

Harry Fulton, State Apiarist

E.T.O. Sterilization

Dear Editor:

It is really little wonder Dr. James Tew had a "little tug" somewhere inside in destroying his friends two colonies of bees in "Beekeeping Technology" Dec. 1984, *Gleanings* "Burning Bee Hives Disagreeable Work". Had Dr. Tew been reading updated material (get rid of the books written in 1916-1920) he could have had a fruitful outlook. While these books have had good points, one has to add present day methods. In several states, diseased colonies, honey is extracted, bees shook on new foundation, and fed terramycin as outlined by Dr. Richard Taylor on page 640 of December 1984, "Questions & Answers". The combs are then rendered for wax salvage, or fumigated in E.T.O. chamber.

In correspondence from New Jersey's State Apiarist. He stated he hasn't burned but very few colonies since the use of E.T.O.

The late P.F. Roy Thurber wrote in

December 1980 and January 1981 "Speedy Bee", "Medication and Comb Rotation for AFB". Mr. Thurber explains the procedure used to clean up colonies of AFB. It can be a cure-all, and won't break down in seven days while you're on vacation.

In Dr. Richard Taylors' "Bee Talk" March 1975 he says "Another problem I have finally decided we no longer have, provided we use our God given intelligence, is American Foul Brood". I do not mean that this was never a problem, but rather, that the solution to it exists. At least, every large and successful commercial beekeeper I talk with tells me this, and I have been making it a practice to talk with a lot of them. At first this came as a surprise to me, for I was brought up on the pre-World War II psychology of such dread as this disease that I completely went along with the radical control measures that were then developed and which having become embodied in law, still persist in many states.

My own awakening began a little over two years ago when I heard an outstandingly successful commercial beekeeper give a talk on the problems of large scale honey production. Afterwards I asked him why he had not mentioned disease control. He casually assured me that this was no longer any problem, that the routine use of small quantities of sulfa and terramycin spring and fall had long since eliminated disease from his yards and he no longer gave it much thought. This so totally astonished me that I have since put the question to every commercial beekeeper I meet, and without exception I have gotten the same answer".

To get a complete picture on the use of terramycin, as I was told by inspectors for years "DO NOT FEED DRUGS", I corresponded with Dr. William T. Wilson.

Dr. Wilson says if a state has a strict

burning program and allows no drugs then many beekeepers apparently hid the AFB colonies in hospital yards then treated with drugs. The inspector never finds the AFB because the beekeeper has already done the inspecting. In such case the inspector reports no AFB, and gives the credit to his burning program. The report looks good, not that the amount of AFB has changed but the way the beekeeper operates has changed. A good inspection program can be had by:

1. No registration fee. See May 1984 *Speedy Bee* "Why I Oppose Apiary Inspection Fee's," by James C. Haddon, Chief inspector, Florida.

Florida knows the benefit from pollination and has no charges. The inspection program is paid 100% from tax funds.

2. Educational material to proper use of USDA approved drugs and methods, including honey and wax salvage, state operated E.T.O. and indemnity payment for colonies burned.

3. Notification of intention of inspection for the purpose of verification and education.

Kenneth Moore, 24461 Clairborne Road, Marysville, Oh.

Encaustic Painting

I read Bryan I. Lorber's comments (December, 1984) on encaustic painting with considerable interest. I learned of the technique in 1957 when I purchased T.W. Cowan's *Wax Craft* (1908). When I searched the literature, I found more than a dozen American artists were using wax; one of them taught a class down the hall from my office at Queens College.

Ralph Mayer's *The Artist's Handbook* (1965) contains instructions, sources of materials, and bibliography; I attended the author's demonstration of the technique. *Encaustic materials and methods* by Francis Pratt and Becca Fize [Fizell], the book that Mr. Lorber hoped for, was published in 1949. Reed Kay's *The painter's*

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GLEANINGS IN BEE CULTURE

companion (1961) is dedicated to Karl Zerbe whose work inspired other artists to use encaustic, and includes a chapter on the technique.

Additional information can be found in *Gleanings*: (1958) 86(6): 338-339; (1965) 93(6): 34.

Toge S.K. Johansson
R.D. 1, Box 256A
East Berne, NY 12059

Help Needed For Honey Promotion

Dear Editor:

Increased honey consumption means increased sales for the beekeepers. As part of a honey promotion program, I am asking for your help. Please send recipes using honey and/or pollen-propolis-beeswax that have won prizes, ribbons, or recognition for you. Your favorite family recipe is also welcome.

Large quantity honey-using recipes suitable for school lunches, senior citizen kitchen programs, etc., are also being requested. Recipes for hand lotions, furniture polish, Grandpa's sore throat remedy, etc., may also be included.

Please list ingredients, preparation procedures, serving (or use) suggestions and any honors the recipe has won for you. Comments like "Grandma brought this recipe from—" are also welcome and would add interest.

Indicate whether or not your recipe may be used in printed pamphlets, journal articles, or book publications and whether the recipe is an original or from some other source and to whom credit should be given.

Thank you for your assistance. I am looking forward to receiving your recipes!

Joann Manes Olstrom
3176 Maple Court
Reedsport, Oregon 97467

Terramycin Administration

Dear Editor:

I read the answer to the question on administering Terramycin 25. There seems to be some disagreement as to mixtures and as to the method of administering this. The method of administration you recommend is contrary to what we use in Quebec and Manitoba (I may generalize and say Canada as a whole).

Below is a copy of instructions on the methods of administering various drugs to treat various bee diseases.

I regularly treat my colonies with Fumidil-B and after a disastrous experience with AFB, treat these same colonies with Terra 25.

When treating a colony do not put the oxytetracycline/icing sugar mixture over the centre of the hives as it may fall down between the frames and kill unsealed brood. Place the mixture across the frames at the front or back of the hive.

Mike Cohen
5501 Adalbert 902
Montreal, Quebec
Canada HAW 2B1

Never Too Young

Dear Editor:

It's never too early to teach kids about the bees as we found out on a nice day in July.



Dennie & Shana "Best of Show" honey.

Our four-year-old daughter wanted to enter honey in the fair so she got all dressed up (long sleeved shirt, jeans, boots, hat & veil) to work "her" beehive. Just as she and her dad were ready to go out her 2½-year-old brother wanted to go too. So, Dad stuck a hat and veil on him and tucked the loose strings of the veil into his



training pants, which was his only article of clothing. Luckily the honey came off without any bee stings.

The honey was entered in the fair and was awarded a "First Place," as well as "Best of Show," in all individual entries. Her ribbons still adorn her bedroom wall.

Oren & Roselyn Best
14688 S. Kimmel Rd.
Sunfield, MI 48890

A Bee In The Rose Garden

Dear Editor:

I am enclosing a newspaper clipping that appeared in the December 9, 1984, Youngstown Vindicator. I am disturbed that ABC-TV is planning to film a movie that contains a scene where the president of the United States is killed by a bee in the rose garden. I am writing to protest this. If other beekeepers would like to do the same, the complete address is: American Broadcasting Corporation, 1330 Avenue of the Americas, New York, NY 10019

Q: Now that the Democrats have broken ground by running Geraldine Ferraro for vice president, when is Hollywood going to get on the bandwagon and do a movie with that kind of theme? — Mrs. Rose F., Harrisburg, PA.

A: Funny you should ask. An upcoming ABC-TV movie is one step ahead of you. Not only is a woman vice president in the pilot of "Hail to the Chief," but she becomes president when the chief executive is killed by a bee in the Rose Garden. Patti Duke Austin stars.

Dennis Skokut, Berlin Center, OH

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NEWS & EVENTS

Continued From Page 94

Almost all ELDERHOSTEL institutions offer three subjects within a week. Fairview College, however, is helping pioneer intensive programming as a response to a substantial number of hosteller requests for programs which explore a subject in greater depth than is possible in the regular format.

Persons interested in this specific program or in ELDERHOSTEL generally should write and ask to be put on the mailing list for future catalogues (no charge).

In Canada:

ELDERHOSTEL CANADA
P.O. Box 4400
Fredericton, New Brunswick
E3B 5A3

In the United States:

ELDERHOSTEL
100 Boylston Street
Boston, MA 02116

Texas

An 18-hour basic beekeeping course will be offered by Paris Junior College's community services division in Paris, Texas. Classes will be held from 6:30-9:30 p.m. Tuesdays and Thursdays for three weeks in the Alford Center on the PJC campus beginning Tuesday, February 19, 1985.

Fee for the 18 hours of instruction is \$45, to be paid in advance by mailing a check payable to Paris Junior College to the Community Services office or going by the office in the Alford Center.

Instructor will be A.G. Bolton, who will use slides, lecture and observation in the class. He will discuss beekeeping hive component parts, construction and purposes, seasonal management, honey production, extraction equipment, honey bee life cycles and activities, disease recognition, prevention and control, and handling bees. He has taught in the past for Paris Junior College and for the Gordon Cooper Area Vocational Technical School in Shawnee, Oklahoma.

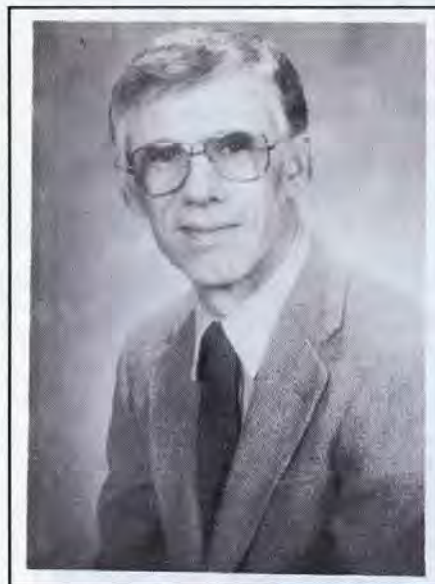
The course will be valuable for persons interested in establishing a

beekeeping business and selling honey and/or pollen, the instructor said. More information may be obtained by calling the PJC community services office, (214) 785-7661, extension 445.

California State Beekeepers Association, Inc.

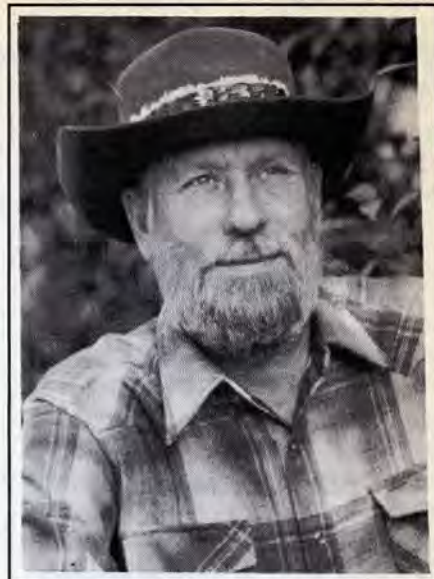
Ron Penner was recently elected President of the California State Beekeepers Association at the 95th Annual Convention held in South Lake Tahoe.

Ron is a member of the Apiary Advisory Board for the California Farm Bureau and the former resolution chairman and vice-president for the C.A.B.A. Ron is a commercial beekeeper and owner of Ron Penner Apiaries, Inc., of Red Bluff, which produces package and queen bees. He and wife, June, a Red Bluff teacher, have four daughters.



Ron Penner

Darrel Wenner of Ord Bend, California was honored as the "1985 California Beekeeper of the Year" at the 95th Annual Convention of the California State Beekeepers Assoc. Mr. Wenner is an Executive Board Member for the American Beekeepers Federation a board member and past president of the California Bee Breeders Inc., and is active in state and local beekeeping industry activities. Darrel and wife, Virginia are owners of Wenner Honey Farms which produces package and queen bees in the northern Sacramento Valley.



Darrel Wenner

George Biggers of Ojai was awarded "The 1985 Honorary Member" by California State Beekeepers Association. Mr. Biggers began his beekeeping career in 1915 at the young age of ten. He has been a member of the Ventura County Beekeepers Club since 1922.

Practical Beekeeping Course

This will be the ninth year that Harold Killins B.S.A. will teach a course in beekeeping at Hanshawe College, London, Ontario, Canada. To date 346 beekeepers and prospective beekeepers have taken these interesting and informative courses. There will be four evening classroom sessions starting March 7th, followed by six sessions in the apiary on Saturday afternoons from May 4th to Oct. 24th.

There will be first rate slide presentations and a very informative film.

Instructions will be given in all phases of practical beekeeping from spring management to wintering. Disease control, swarm prevention and pollination of fruit and forage crops are subjects that will receive special emphasis.

Application should be made early to Mr. Dan Link, Hanshawe College, Continuing Education (519) 452-4425; 520 First St., Bay 20, London, Ontario, Canada. Registration is limited.

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GLEANINGS IN BEE CULTURE

BEEKEEPER'S CALENDAR



Steenbock's Miller Collection Promoted in Beekeepers Calendar

With its release in mid-November, the 1985 Beekeeper's Calendar received a friendly reception in local newspapers. The calendar is a joint project of Steenbock Library and Silver Buckle Press of the University of Wisconsin General Library System. The idea was originally proposed as a means of demonstrating the fine printing capability of Silver Buckle Press, promoting public awareness of one of the university's unusual special collections, and soliciting private supports for the preservation of the rare beekeeping books.

Illustrations for the calendar originally appeared in beekeeping books printed between 1502 and 1834. In the letterpress edition of 175 copies, the woodcuts and engraving are reproduced in their original size. It is printed on Mahawk Superfine paper in handset Baskerville type. In addition, a reduced size offset edition of 1000 copies has been printed with the support of a friend of Steenbock Library. Full notes on the sources for the artwork are included in the calendar.

The Miller Memorial Collection at Steenbock Library is known to beekeepers and collectors of beekeeping books (and practically nobody else) as one of the finest historical collections of bee-culture literature in the world. Some of the books are considered truly rare with only a few copies known to exist.

The offset edition is being sold for \$7.00 per copy with .50 for postage and handling. The letterpress edition will not be available until December 20th. It is priced at \$25.00 plus \$1.00 for postage. Early indications are that it will sell out! Both editions of the calendar are being distributed in cooperation with the Wisconsin Honey Producers Association. Send inquiries to Jo Anne Weber, Route #2, Clayton, Wisconsin 54004.

Apiary Inspector Works Like A Dog

The Maryland Department of Agriculture's (MDA) newest apiary inspector truly has a nose for trouble. He answers to the name of Max and recently qualified for his position with the Department by graduating from the Baltimore County Police K-9 Training Center. Yes, Max is a real dog. To be exact he is a handsome Labrador retriever who weighs in at about 80 pounds. His enrollment at the training center was for the purpose of learning to "sniff out" American foulbrood in bee hives. And, according to his handler, Maryann Tomasko, he graduated with honors.

American foulbrood is a bacterial disease which annually causes economic loss to Maryland's beekeeping industry. The present system of inspecting for

American foulbrood is time consuming since MDA inspectors must dismantle the bee hive to examine the cells containing immature bees. Furthermore, inspections have been restricted to the warm months since hives opened during cold weather may kill the bees.



Max's technique is faster, more thorough than human inspections and can be used during winter months since he only sniffs the outside of the hive. When Max comes to a diseased hive he alerts his handler by sitting down. Normally MDA discourages its inspectors from sitting down on the job, but in Max's case, it has made an exception.

According to Ms. Tomasko, "by using Max and his marvelous nose, we will be able to inspect more colonies more often." More frequent inspections will result in the early detection of American foulbrood and thus help reduce the incidence of this disease in Maryland apiaries.

Max is only the second dog known to have been trained for this unusual job. The MDA is proud to be the first state agency in the nation to own a bee inspecting dog, thanks to the Baltimore County Police K-9 Training Center.

Bee-utiful Excuse by ROLLIN MOSELEY

A driver who claimed he was driving too fast because he was trying to kill a bee has won an award for his arresting officer for providing the most

Continued On Next Page

creative excuse for going too fast in the state of Indiana.

The Police League of Indiana awarded the prize to Marion County Sheriff's Lt. Lee Hyland, who told of stopping the speeder.

Hyland said the driver claimed he was allergic to bees and was afraid of stinging insects. The lieutenant said the driver even offered a dead bee as evidence — but Hyland noticed it had dust on its wings.

China Tour 1985

Are you planning to attend the 30th Apimondia (International Beekeeping Federation's) Congress in Nagoya, Japan in October of 1985? IF YOU ARE, consider in addition a unique opportunity to visit with beekeepers and beekeeping experts on the Chinese mainland.

I am pleased to announce that the Western Apicultural Society (WAS) will be the official sponsor of the tour for beekeepers and apicultural experts preceding the Apimondia conference. The tour in China will take place between September 25th and October 9th, 1985. We will visit apicultural research facilities, government apiaries, commercial apiaries, factories producing by-products of bee activity such as honey, beeswax, royal jelly, cosmetics, soap and perfumes, and get to meet individual Chinese beekeepers on a one-to-one basis. We will visit some of the greatest of China's incredible cities, including Bei jing (China's capital), Xian (site of the world-famous Qin dynasty tomb with its army of ceramic soldiers), Shanghai (probably best known to Westerners), and Hangzhou (acclaimed by many Chinese as their most beautiful city).

We will see the Chinese countryside up close, using each of the cities mentioned as a base from which to visit bee-related activities in the surrounding area. Spending a few days in each city and its environs will give the tour a climate of leisurely travel not often achieved in the short space of 15 days. And your weeklong stopover in Japan to attend the Congress meetings between October 10th and 16th will be the crown jewel in your investigation of beekeeping in the Orient! (You will be responsible for making your own arrangements for attendance and lodging at the Apimondia Congress.)

As a founding director of WAS, a bee researcher, and a beekeeper who has attended three previous Congresses in 1975, 1979, and 1981 (and speaks fluent Japanese!), I believe that I have the background and expertise to make this tour a memorable experience for us all. Please join me for this exciting beekeeping adventure!!!!

Travel Arrangements are being made by **Travel With Us, P.O. Box 7, Tualatin, Oregon 97062; Telex 277336**. For further information, telephone FREE 1-800-541-3620.

Tri-State Beekeepers Association

**West Virginia Beekeepers Association Spring Meeting March 23, 1985
Wilson Lodge, Oglebay Park, Wheeling, West Virginia**

The Tri-State Beekeepers Association representing northeastern Ohio, southeastern Pennsylvania and northern West Virginia invite you to attend the West Virginia Beekeepers Association annual Spring Meeting.

PROGRAM

- 8:00** Registration
- 9:00** President's Welcome and Invocation
- 9:10** West Virginia Honey Princess, Carley Kisner
- 9:15** State Apiarist's report, Bardwell Montgomery
- 9:30** Edgar Hooper, West Virginia Extension Service
- 9:45** Ann Harman — "Creative Ideas in Packaging & Labeling Honey"
- 10:15** Sheldon Ferrell — "Thoughts from the Beeyard"
- 10:30** Refreshment break
- 10:45** Dr. S. Art Rybeck — "China, the Awakening Giant"
- 11:45** Luncheon
- 1:00** John A. Root — "A Close Look at the Honeybee"
- 1:45** Dr. James E. Tew — "Hobby Beekeepers — A Profile of Their Uniqueness"
- 2:15** Howard Cunningham — "Spring Management"
- 2:45** Drawings, awards, prizes, presentations and closing
- 3:30** Executive meeting

Please mark your calendar and plan to attend. Pre-registration is requested. Send \$9.75 per person (includes luncheon and refreshments) to: Tri-State Beekeepers Assoc. C/O Ellie Conlon, HCR 26160, Box 156, New Martinsville, W.Va. 26155. Telephone 304-455-1729 for more information.

ATTENTION ALL BEEKEEPERS! Open Print Display — Bring your favorite beekeeping print, 3" x 5" or larger. NO formal judging. Just ADMIRATION and a chance for all photo participants to win a gift!

Directions: Take Interstate 70 to Oglebay Park exit. Route 40 east & 88 north to 2nd traffic light, turn left on Rt. 88 north for 2 miles to Oglebay Park. Follow signs to Wilson Lodge.

Adequate motels are available in the area. In addition local beekeepers are offering to share their homes.

For additional information contact Ellie Conlon (address above) or Louise "Boots" Campbell, 705 Hillcrest Lane, Glen Dale, W.V. 26038.

Ventura County California

"Keeping bees is an enjoyable, relaxing and potentially profitable pastime. The novice can learn the basics of beekeeping in this course, including equipment use and care, year-round bee colony maintenance, prevention and recognition of bee diseases, pollen harvesting, pollination, queen rearing and honey production. A Saturday field trip will be arranged in addition to the classroom sessions."

Instructor: Mary Pat Eisman. Seven Thursdays, 7-9:30 p.m., One Saturday morning.

Starting Feb. 7, 1985 at Balboa Middle School, Ventura. Fee \$40.

Register with Ventura College Community Services, 4667 Telegraph Rd., Ventura CA 93003 in person or by mail including self-addressed stamped envelope. For further information or registration with VISA or MASTERCARD, call (805) 656-5163.

BUY & SELL

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

MAGAZINES

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

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

The **INTERNATIONAL BEE RESEARCH ASSOCIATION** urgently needs your membership and support to continue its work of publishing information 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 I.R.A., Hill House, Gerrards Cross, Bucks SL9 0NR, 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 Apicultural 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 0NR, England. TF

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

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

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

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

INDIAN BEE JOURNAL Official organ of the All India Beekeepers' Association, 817, Sadashiv Peth, Poona 411030. The only bee journal of India Published in English, issued quarterly. Fur-

nishes information on Indian bees and articles of interest to beekeepers and bee scientists.

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

WANTED

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

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

Wanted — Experienced Beekeeper until May 15th; Top wages; Will consider permanent. Richard Winesett, 1574 Passaic, Fort Myers, Florida. (813) 332-2205; (813) 332-2205. 3/85

HELP WANTED

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

Wanted: Man interested in working bees, for the 1985 season. Willing to learn our system. Small commercial outfit. Paul A. Ballard, Roxbury, New York 12474. 2/85

FOR SALE

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

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

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

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

FOR SALE — 100 single story hives of bees, for pick up at Corning, Calif. \$45.00 per hive. Will deliver. Three frame nucs in your boxes \$25.00. Call 509-448-0329. Joe Stephens — S. 4808 Helena, Spokane, Wash. 99203. 2/85

100— Two story hives of bees, right out of the Almonds. You decide. \$65.00 each. Call (509) 924-8316. Ansel Goolsbey, E. 9207 Broadway, Spokane, Wash. 99206-3803. 2/85

For Sale: 35 Two and three story inspected colonies, on site in the upper Trabuco Canyon area of the Cleveland National Forest, Orange County CA. Write: N.J. KOBZEV, Box 271, Trabuco Canyon, CA 92678. 2/85

For Sale — 300 Colonies, plus honey supers with frames. Esther Baltes, 12324 Greenville — St. Mary's Rd., Versailles, Ohio 45380. Ph: 419-336-6053 2/85

For Sale — 25 Strong hives \$50 each. Move or stay. Also extra equipment and supers. Barney Miller, 6522 Wetmore, Everett, WA 98203. Ph: (206) 355-5777. 3/85

BLACK LOCUST for bees 7" each. **HYBRID POPLAR** for firewood 13" each. 616/464-5809. CSF 3/85

For Sale — Unusual honey pots for sale, write J. Steed, P.O. Box 115, Richmond, KY 40475. TF

For Sale: Bee Business in Central Montana. 2500 palletized 10-frame colonies registered state protected locations. Complete facilities — honey houses and equipment, forklift and trucks. Call 406-632-4654. LB 5/85

75 Colonies for sale. All or part. Two brood bodies each with two year old equipment and queens. Call 505-524-4047 evenings for info. JK 2/85

For Sale: 1,000 colonies. 10 frame and 8 frame equipment, two and three stories high with additional supers available. Jelinek Apiaries, 130 E. Filion Rd., Filion, Mich. 48432. (517) 874-4355 or (313) 987-6593. 3/85

For Sale — top quality Italian bees and queens since 1940; also 3 frame nuclei and single story colonies. Bring your cages and save. **WALKER APIARIES**, Rt. 1, Box 34-B, Rogers, TX 76569. Ph: 817-983-2891 or 773-9086. 6/85

For Sale — 2 stands Italian bees, 6 hives, 30 shallow supers, 4 Frame Elec. Extractor on wheels, capping melter, Elec. knife, 5 gal. galvanized bucket with drain and other accessories. All for only nine hundred fifty dollars (\$950). H. Rogers, Rt. 3, Box 237, Ridgeway, Va. 24149. 703-956-3395. 4/85

FOR SALE

Complete 700 hive operation in south western Manitoba including buildings, house, trucks and all related equipment. Write to:

Gleanings In Bee Culture
P.O. Box 97
Medina, OH 44256

For Sale: 300 two story colonies, Queen rearing outfit, 69 two ton truck, Kelly loader, good honey outlets. Best offer. Andrew Hutchison, P.O. Box 6993, Boise, ID 83707 TF

BEEES

Pollinations — Services — Honey — Queens
Peter Schmidl, P.O. Box 1621, Yuba City, CA (916) 673-4502. 5/85

BEES & QUEENS FOR SALE

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

ROYAL ITALIAN QUEENS. Strong, healthy and productive. Bruce Otte, Route 2, Box 99AG, Karnes City, Texas 78118, (512) 780-3521

5/85

MARYLAND BEEKEEPERS AND ADJACENT STATES: Package bees for pick-up April 13-14 near Frederick, Maryland (queens and packages fed Fumidil). 3 Lb. Pkg. \$28.50 — \$4.00 per package books order.

Ernie's Apiaries
9933 Kelly Rd.
Walkersville, Maryland 21793
Ph: 301-898-9746

Package Bees delivered to Wisconsin near Green Bay. Eau Claire and my home. Ronald Hazard, RT 2, Poynette, Wis. 53955 Phone: 414-992-3217

4/85

ITALIAN QUEENS, 3-Frame NUC and hives. Dixie Honey Co., Rt. 5, Box 38, Shallotte, N.C. 28459. Phone 919-579-6036.

TF

Nucs 4-frame Golden Italian stock \$35.00 each or 3 for \$100. Queens \$5.00 each. All postpaid. Small orders only. Johnny J. Pennington, 194 Cooper-Hurst Rd., Pearl, MS 39208. Ph: (601) 939-5994. 5/85
ROYAL ITALIAN QUEENS. Strong, healthy and productive. Bruce Otte, Route 2, Box 99AG, Karnes City, Texas 78118, (512) 780-3521.

5/85

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

TF

BEE SUPPLIES FOR SALE

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

TF

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

TF

250 NUCS — Strong Italian nucs produced in or transferred into your equipment. Bruce Otte, Route 2, Box 99AG, Karnes City, Texas 78118, (512) 780-3521.

4/84

QUEEN CELLS — South Central Texas pick-up. Bruce Otte, Route 2, Box 99AG, Karnes City, Texas 78118, (512) 780-3521.

4/85

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

1/86

5 Frame Nucs, Italian or Starline. Will have limited number of nucs from bees wintered in Wisconsin, also 1 story hives. WOLF BEE SUPPLY, P.O. Box 707, Baldwin, WI 54002. Ph: 715-684-2095.

6/85

FOR SALE— 150 candy boards, 1.50 ea., 200 9/16 bodies with comb, \$10.00 ea., 1500 6/16 supers with comb in good condition, \$9.50 ea., covers with inners, bottom and 4 way pallets. WOLF BEE SUPPLY, Baldwin, WI. Ph: 715-684-2095.

6/85

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

1/86

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

TF

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

TF

QUALITY CYPRESS BEEKEEPING SUPPLIES — dovetailed hives and hive parts, beginner's kits, complete supplies. Write: BEE-JAY FARM, Dacula, GA. 30211.

TF

RADIAL HONEY EXTRACTORS-5 and 10 frames, Patented, factory made of stainless steel. GAMBLES HONEY EXTRACTOR CO., P.O. Box 7997, Greensboro, NC 27407. Phone: (919) 299-3973, Day or Night.

TF

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

TF

SWEET HARVEST BEE SUPPLY

Serving upper midwest with Strauser quality wooden wear. Call or write for price sheet.

P.O. Box 4100
Rapid City, S.D. 57709
OR CALL

(605) 348-7960

5/85

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

12/85

Manufacturing Telescoping Covers and Inner Covers. Send \$12.00 pp. for sample. Complete Standard Bee hive w/o Foundation \$35.00 pp. U.S. Only Hive Tops 25115 CR 54 R1 Nappanee, Ind. 46500.

6/85

REVOLUTIONARY NEW IDEA: METAL SINGLE FRAME EXTRACTORS. 49.95 PLUS POSTAGE. MULLIGAN'S APIARIES, DEPT. G, 18 RICHARD AVE., N.Y. 11566.

12/85

"Free Discount 1985 Beekeeping Supply Catalog. We quote on commercial orders and prices including freight delivered, with freight discount, to your door. Glorybee, 1015 Arrowsmith, Eugene, Oregon 97402."

2/85

PINE BEE SUPPLIES

9-5/8" hives dovetailed \$4.00 each
6-5/8" supers dovetailed \$2.75 each
5-3/4" supers dovetailed \$2.50 each
Select grade heavy duty frames, all sizes
\$31.00 per 100 \$280.00 per 1000
Hoffman 9-1/8, 6 1/4, or 5-3/8 specify style
Powers super frames 6 1/4, 6 and 5 1/2
Wooden lids and bottoms (migratory)
\$2.25 each or \$4.50 per set

Bee Pallets Cut To Order \$6.50 & Up
Foundation available — plain or wired
Sale Price \$3.00 lb. in 25 lb. box only
Wax rendering — combs, slum or cappings
Allow manufacturing time on all orders

MARVIN SMITH APIARIES

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

MISCELLANEOUS

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

TF

Dealership Territories available in some areas. Please contact The A. I. Root Co., P.O. Box 706, Medina, OH 44258

TF

Michigan Beekeepers — I will be hauling package bees from Georgia again this spring. For prices, dates and information call: Don Reimer at 517-695-9031.

4/85

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

TF

POLLEN

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

TF

"Pollen, Imported, highest edible quality, inspected by the Food and Drug Administration. \$2.50 lb. in 150 kilo drums (330 lbs.) Freight paid in the U.S. Export orders F.O.B. Miami, Florida, 25 lbs. \$3.00 lb. plus \$7.00 freight-repacking. United Apiarist, 2132 N.W. Avenue, Miami, Florida 33127."

SPANISH BEE POLLEN. Excellent taste and quality. 3 lbs. \$22.00, 6 lbs. \$39.00, 10 lbs. \$54.00, 20 lbs. \$100.00. Free UPS shipping. BLOSSOMTIME, P.O. Box 1015, Tempe, Arizona 85281.

TF

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

TF

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

TF

BEE HEALTHY & ENJOY Canada's Best Bee Pollen. Air dried at 110 degrees F., from the pure north of British Columbia. Excellent flavor, superior quality, and guaranteed pesticide free. 3 lbs. \$25.00, 6 lbs. \$46.00, 10 lbs. \$65.00, 20 lbs. \$120.00. Free UPS shipping. BLOSSOMTIME, P.O. Box 1015, Tempe, Arizona 85281.

TF

ROYAL JELLY

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

TF

POLLINATION

ALMOND POLLINATION NEEDS YOUR BEES — If you can provide strong colonies.

Pollination Contracting now arranging contracts of-fering reliable service in central California. Hicken 209-823-5141 OR Carroll 209-823-1386.

2/85

BEESWAX

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

TF

PROPOLIS

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

TF

"Propolis Wanted: \$5 to \$8/lb. Good Quality Only. Cold water wash to float off wax. Send 1 lb. sample. We reimburse shipping. Small lots accepted. Wild Hive Apiaries, Box 187, Clinton Corners, NY 12514.

2/85

BOOKS

Dr. Richard Taylor's Books. Send for list. LINDEN BOOKS, Interlaken, NY 14847.

"Poems Of The Honeybee, 63 pages. Unique, informative, delightful. \$4.00 pp. Walt Crawford, 3569 Amherst, Massillon, Ohio 44646. 4/85

HONEY WANTED

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

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

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

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

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

WANTED: Comb and all grades of extracted in 60's or drums. Send sample and price to MOORLAND APIARIES, INC., 5 Airport Drive, Hopedale, MA 01747. TF

WANTED — All grades of extracted honey. Send sample and price to MacDonald Honey Co., Sauquoit, New York 13456. Area Code 313, 315-737-5662. TF

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

HONEY FOR SALE

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

HONEY IN 60's FOR SALE. Bedford Food Products Co., 209 Hewes St., Brooklyn, New York 11211. Phone: 212-EV4-5165. TF

HONEY FOR SALE — No. 1 White Honey in drums. Richard Gane, Box 248, Nipawin, Sask. SOE 1EO or phone 306-862-3011. 2/85

CLOVER, ORANGE, U.S. and Yucatan Wildflower, in sixties. Other flavors and bakery grade available. MOORLAND APIARIES. 5 Airport Drive, Hopedale, MA 01747 TF

SEEDS & PLANTS

HONEY PLANTS AND BEE-BEE TREES OUR SPECIALTY. SEND STAMPED ENVELOPE FOR CATALOG. ARLETH'S APIARY GARDENS. 395 CAROLINA ST., LINDENHURST, NY 11757. TF

Bee plants catalog — FREE

COASTAL GARDENS

Rte. 3, Box 40

Myrtle Beach, S.C. 29577

4/85

Mixed sweet clover seed, 50% Yellow 50% White, 10# \$8.25. White Dutch clover \$2.00/lb. Birdfoot Trefoil \$2.75/lb. Inoculant \$2.00. Plus U.P.S. charges. Visa or Mastercard. Higgins Apiary, 3801 U.S. 50 Hillsboro, Ohio 45133. Telephone: (513) 364-2331. 4/85

TRADE

TRADE: Oliver 2050 Farm tractor, diesel, 120 HP, 1600 hrs., like new, valued \$10,000, trade for like value of bees, equipment or boom truck or trailer. (513) 845-0077, Ted Flora, New Carlisle, Ohio. 3/85

Continued From Page 66 ANSWERS TO TESTING YOUR BEEKEEPING KNOWLEDGE

1. True Temperature effects nectar secretion directly in that most plants exhibit a threshold temperature below which little or no nectar is secreted. Indirect temperature effects are associated with plant growth and rate of metabolic processes. Many researchers have shown a direct association between honey crops and temperatures. The combination of low night and high day temperatures has been thought to promote good nectar flows.

2. True The quality of the nectar secreted by the plant is essentially a function of the carbohydrate (sugar) supply to the nectary and indirectly related to photosynthesis (process by which green plants produce their own food). Most of the sugar of nectar probably comes from leaves fairly close to the flower. In herbaceous plants, the nectar sugar is likely to be of recent origin, whereas in trees and shrubs, it may also be derived from stored carbohydrates.

3. False Atmospheric humidity does not affect nectar secretion directly, but has a pronounced inverse effect on nectar sugar concentration. As nectar is secreted, it undergoes a regulation of concentration until its vapor pressure comes to equilibrium with that of the atmosphere. Unless the humidity of the atmosphere is very high, the change will be a loss of water molecules to the air and an increase in nectar sugar concentration.

4. False Honeydew is a sweet liquid excreted by certain insects, such as aphids or plant lice, scale insects, gall insects and leafhoppers. It is collected by bees, especially in the absence of a good source of nectar.

5. True All living processes that occur in plants, i.e., growth, respiration, flowering, reproduction, etc., depend on the sugars produced through photosynthesis for energy. Uncollected nectar is usually reabsorbed by the nectary tissue and distributed primarily to growing parts of the plant, such as leaves, flowers, pollen, roots, or flowers that develop at a later time.

6. E
7. D
8. B, E, H
9. D
10. A or e
11. E
12. C or D
13. E
14. E
15. E
16. E
17. C
18. C or D

There was a possible 20 point 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.

Number of Points Correct		
20-18 Excellent	17-15 Good	14-12 Fair

SWEET CLOVER SEED

Sweet clover is the most productive honey plant from Florida into Canada. Yellow blooms the first year and a bit earlier than white and white blooms the second year. 65% white 35% yellow mixture, seed should be inoculated and land should be heavily limed, seed should be sown in September or on wet snow in February or frozen ground, or rolled ground in March 10-15 lbs. per acre.

Mixed Sweet Clover Seed

- Cat. No. 66
10 lbs. Mixed Sweet Clover Seed, Ship Wt. 12 lbs. \$9.00
- Cat. No. 66
50 lbs. Mixed Sweet Clover Seed, Ship Wt. 52 lbs. \$40.00
- Cat. No. 56
6 oz. pkg. Inoculant for Clover Seed, Ship Wt. 8 oz. \$1.80
- A-B Inoculation — 6 oz.
(enough for 50 lbs.) Ship Wt. 8 oz. \$1.80

WRITE FOR 1985 CATALOG

Hubam Sweet Clover Seed

Plant in February or later as above. Blooms late summer until frost the first year and will not crowd out the white sweet clover. Seed is scarce

- Cat. No. 75 — 5 lbs., Ship Wt. 7 # \$9.25
- Cat. No. 75 — 10 lbs., Ship Wt. 12# \$17.50
(Use the same Inoculate as listed with Sweet Clover)

THE WALTER T. KELLEY CO.
Clarkson, Kentucky 42726

POLLEN SUBSTITUTE

Feed your bees pollen substitute early in the spring to stimulate brood rearing so as to divide them later on. Much cheaper than buying package bees, — however, be sure that they have plenty of honey or they may starve before a honey flow comes on. Especially valuable for early package bees received before natural pollen is available. This one item replaces the previous mixture containing EXPELLAR PROCESS SOY FLOUR which is no longer available. This is a HI-NUTRIENT, HEAT TREATED, SOY FLOUR, HIGH PROTEIN, LOW IN FAT, MOISTURE AND FIBER WITH AMPLE ASH, CARBOHYDRATES AND NITROGEN SOLUBILITY.

This is a fluffy flour and can be easily blown by a light wind so it is far better to mix it with sugar syrup into a patty form which should be placed on treated paper, or thin sheets of plastic, directly over the cluster on the top bars. This POLLEN SUBSTITUTE will greatly stimulate brood rearing but care should be taken that the colonies do not run out of stores and starve before the honey flow.

Cat. No. 72

5 Lbs. Pollen Substitute, Ship Wt. 7 lbs. ... \$2.50

Cat. No. 73

25 Lbs. Pollen Substitute, Ship Wt. 27 lbs. . \$8.50

Cat. No. 74

50 Lbs. Pollen Substitute, Ship Wt. 52 lbs. \$12.00

THE WALTER T. KELLEY CO.
CLARKSON, KENTUCKY 42726

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BABCOCK BEES DO ONE THING WELL THEY MAKE HONEY

THE VERY BEST IN PACKAGES, BEES AND QUEENS

BABCOCK GOLDEN ITALIANS are large yellow bees that are easy to handle and produce very large colonies. They are extremely good honey producers developed from my top producing hives. They are "THE MOST BEAUTIFUL BEES IN THE WORLD".

BABCOCK IMPROVED SILVER GREY CARNIOLANS have been developed from hardy, tough strains from the far North and can be wintered very successfully outdoors in extremely cold temperatures. These large silver grey bees work equally well in hot or cool climates and are excellent honey producers. I believe my strain of Carniolans are the most Winter Hardy race in existence. These bees are extremely gentle and can be worked in good weather without smoker or veil.

BABCOCK RACIAL HYBRIDS are a true cross of my Silver Grey Carniolans and my Golden Yellow Italians. To obtain this cross bred hybrid, Carniolan queens are mated to Italian drones. This hybrid cross is a very prolific, hard working bee developed for rigorous commercial honey production. This cross-bred bee is a very Winter Hardy and does well even under adverse conditions.

QUEENS — All of my queens are double grafted and are guaranteed mated and laying. My large 4-standard brood frame mating nucs allow me to carefully check the egg laying pattern of each selected queen before she is caged fresh and shipped to you via air-mail same day. Fumidil-B is fed as a nosema preventative to all package colonies and queen mating nuclei. A government certificate of health inspection certifying our bees are free of all brood diseases as well as ACARINE mites accompanies all shipments. The state of South Carolina has never had a known case of honey bee tracheal mites (Acarine Mite Disease).

Indicate your choice of race. Mixed orders will carry the quantity discounts.

1985 PRICES

Quantity	2-LB. W/Q	3-LB. W/Q	Extra Queens
1 — 9	\$23.00	\$27.00	\$10.00
10 — 25	22.00	26.00	9.00
26 — 99	21.00	25.00	8.00
100 — up--	20.00	24.00	7.50

Add for shipping packages via parcel post:

1 — 2 Lb.	\$4.60	3 — 2 Lb.	\$7.90	2 — 3 Lb.	\$7.70
2 — 2 Lb.	\$6.80	1 — 3 Lb.	\$5.50	3 — 3 Lb.	\$8.80

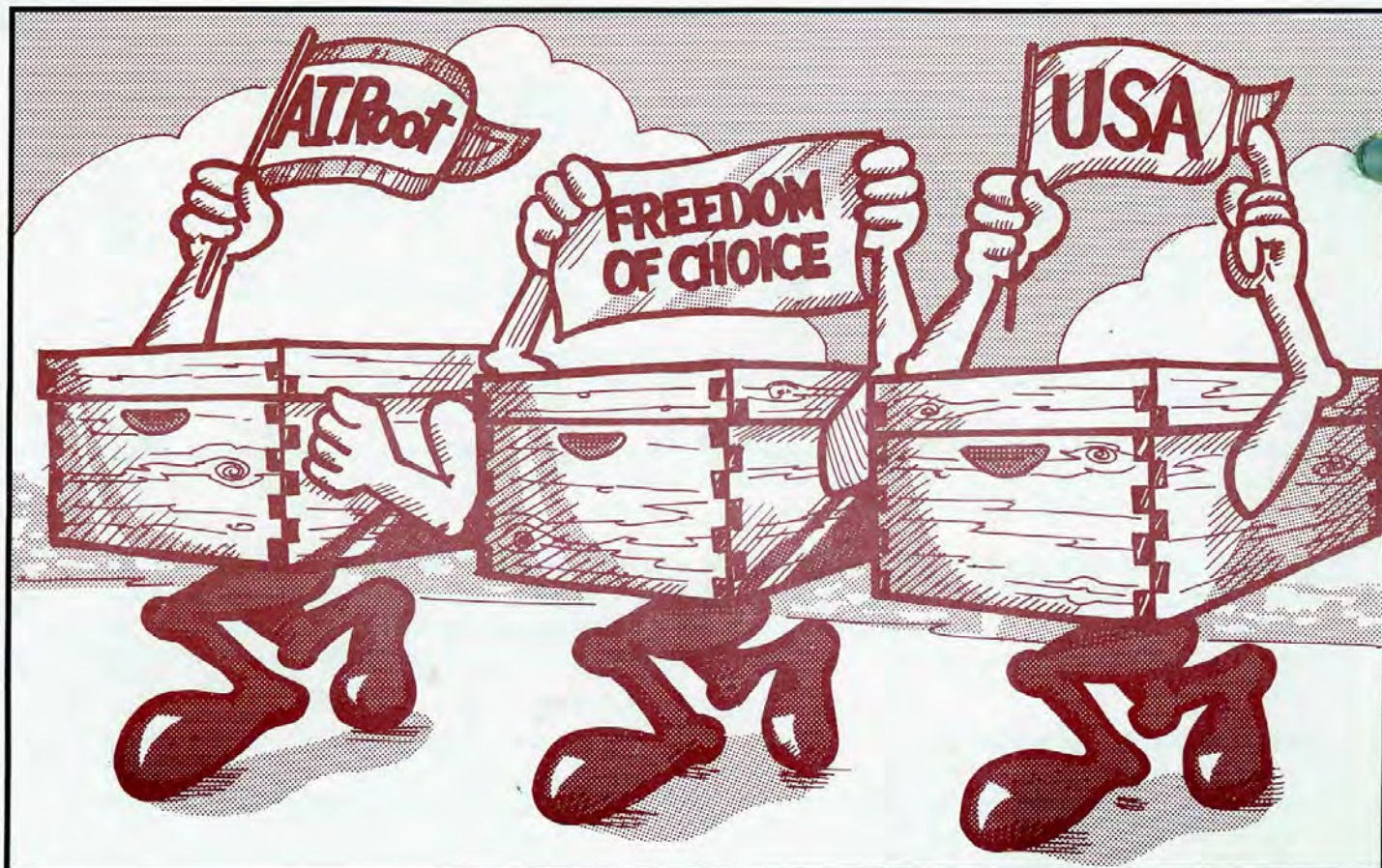
Add Shipping prices to packages if ordering by mail. Shipping charges include postage, insurance, special handling fees, and handling charges. Insurance coverage is for full value of bees only. Insurance does NOT cover shipping charges. Personal checks, money order or cashier's check accepted in U.S. currency only. Queens are postpaid and shipped air mail. Shipments begin April 1st. Please indicate desired shipping date.

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