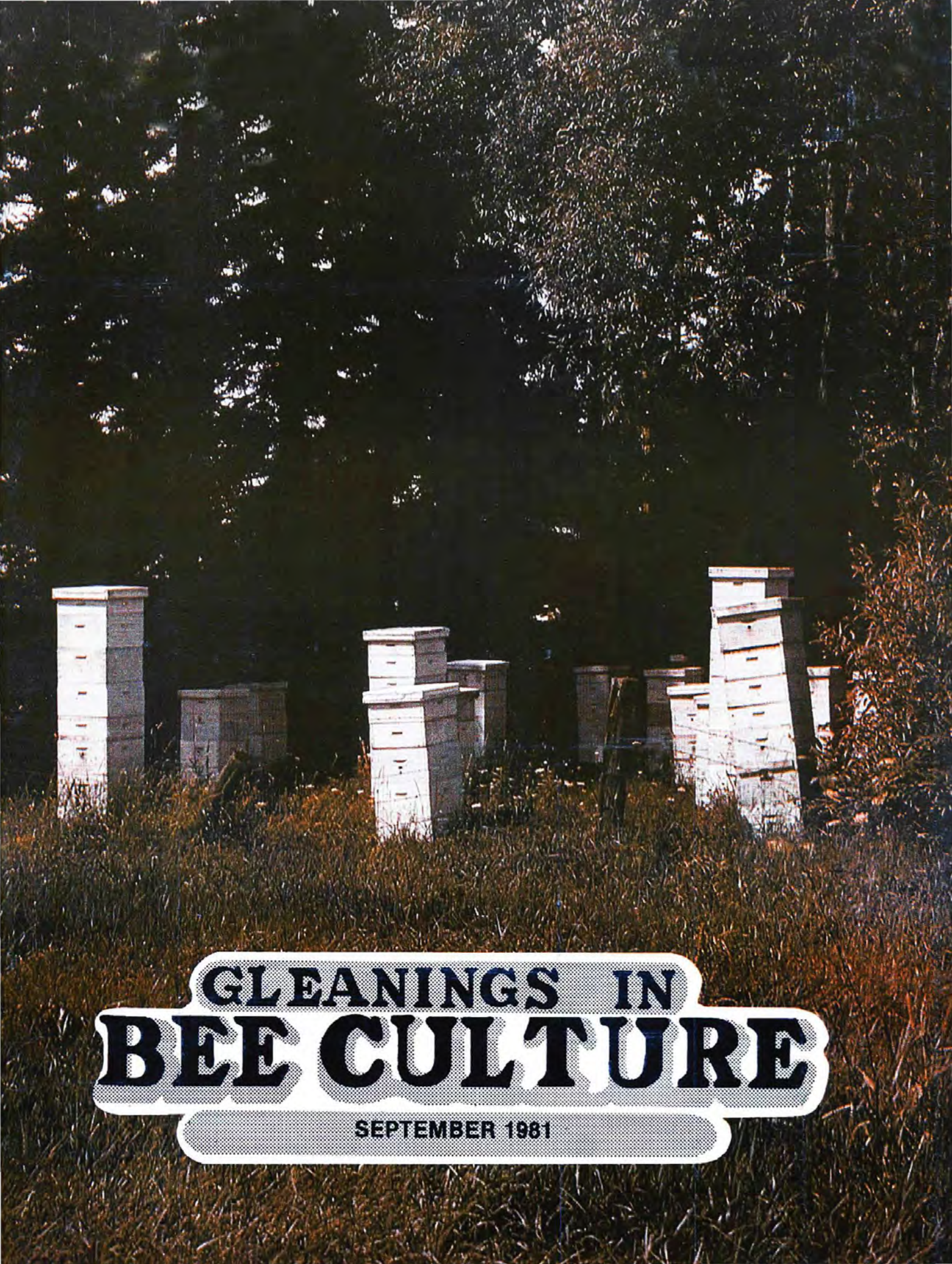

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SEPTEMBER 1981

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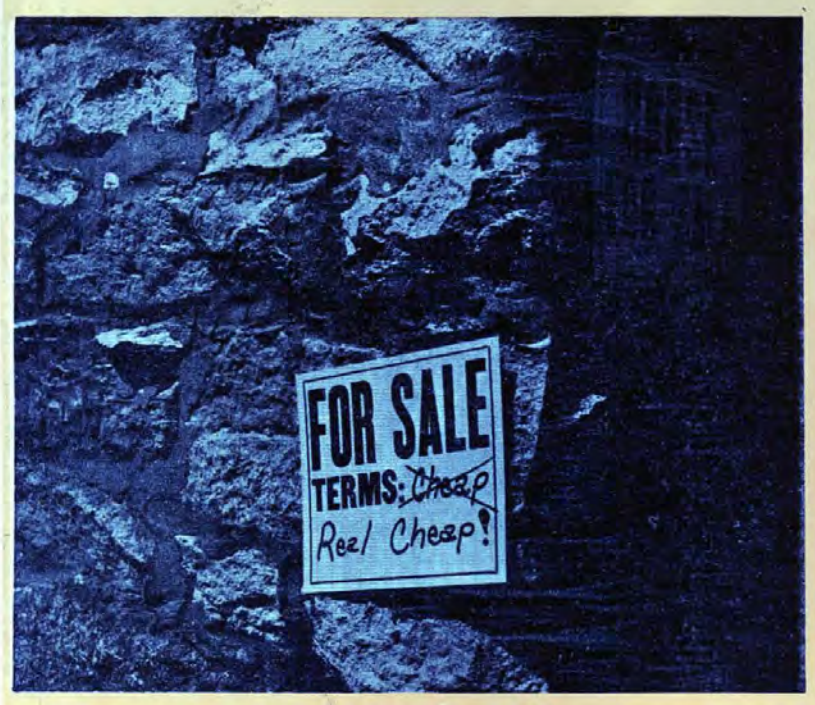

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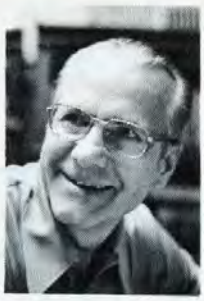

Lawrence Goltz

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COVER STORY

Comb honey supers are stacked high on the hives in this apiary in Northern Wisconsin. The apiary is located along the south shore of Lake Superior near Port Wing.

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Spray Feeding

"In the author's experience with using

have perished and to stimulate

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

HONEYBEES ARE FED sugar or corn syrup for two main reasons: sustenance and stimulation. In sustenance feeding bees are fed to keep them alive (due to inadequate honey stores), whereas in stimulative feeding, sugar or corn syrup can be looked upon as honeybee "fertilizer". It seems that at one time or another most honeybee colonies need sustenance feeding, and some beekeepers argue that all colonies can use stimulative feeding.

There are as many ways to feed bees as there are beekeepers. Techniques vary from open barrels in the bee yard to automatic feeders that fit inside the hive. Whatever technique is used the end result is basically the same. The point is to get feed into the starving bee's belly and allow the rest to be stored in the comb. It is for this reason, combined with efficiency, that spray feeding of bees is a superior technique.

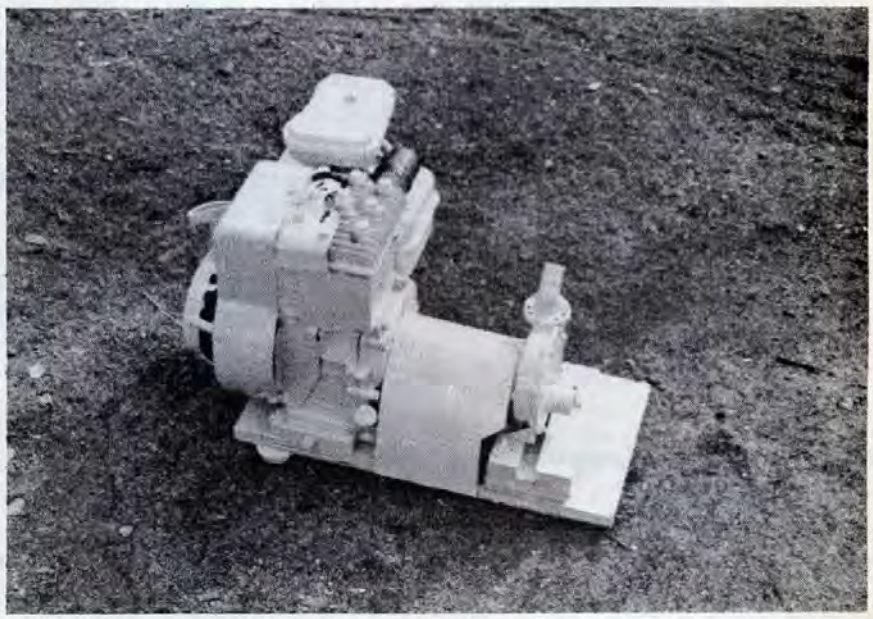
Basic Equipment

The basic apparatus necessary for spray feeding is a pump and a storage vessel. These requirements can be satisfied with something as simple as a plant mister or an inexpensive garden sprayer. For the beekeeper with 50 or more hives a small gasoline powered pump combined with a barrel allows the most versatile use of this technique. The pump intake should be connected to the barrel by a hose, and the output outlet of the pump should be adapted to fit a garden hose. Thus the pump and barrel stay in the rear of a truck and the beekeeper's range is limited only by the length of the garden hose. A pistol type nozzle works best on this arrangement.

Spring Feeding

For beekeepers who must feed emergency stores to their bees in the spring, or for those beekeepers who wish to stimulate, or "fertilize" their bees in the spring, this technique is probably superior to any other. The major problem in spring feeding lies in getting the feed to the bees. Many weak hives simply will not take food from feeders and even strong hives may not be able to because of cold weather. This is because almost all feeding techniques rely on the bees to place the food in the proper location (the combs). The beekeeper simply makes it available to the bees. Thus, in cool weather, if the cluster does not move to the food source, the

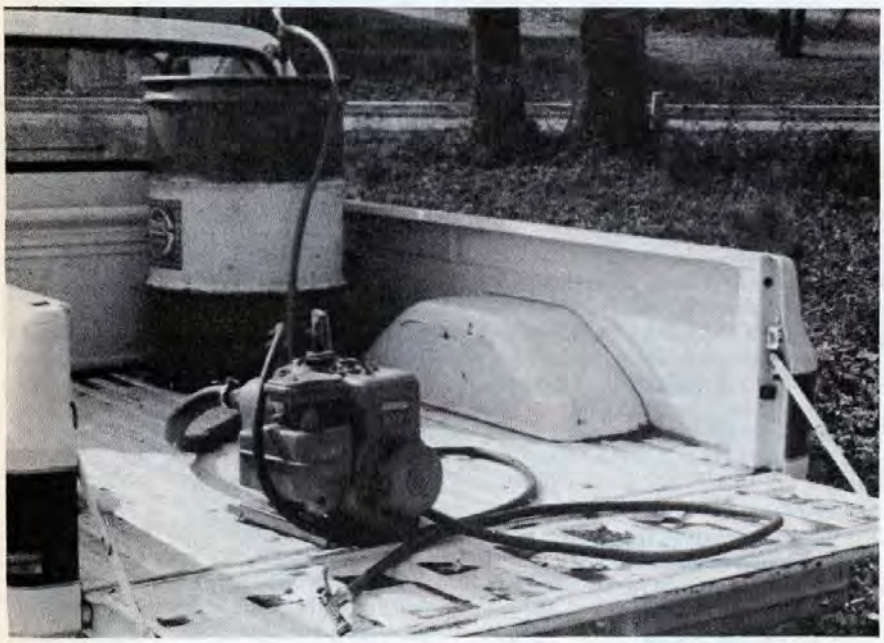
A plant mister and garden sprayer. Good for smaller beekeepers.



An example of a small (3 hp) gasoline engine and centrifugal pump.

this technique, it is possible to sustain weak colonies that would otherwise moderate to strong colonies as no other feeding technique can."

bees remain in one part of the hive and the food in another. In spray feeding, a wash tub or similar container is needed in addition to the sprayer, sugar water is mixed, and feeding begins. The feeding is accomplished by removing empty combs from the colony in need of food, spraying the combs full of sugar water (over the wash tub) and returning the full comb to the hive. A well sprayed comb holds almost as much syrup as a division board feeder, and the slight upward slant of the cells in the comb keeps the syrup in the comb. Thus the bee transportation component is removed from the standard feeding sequence, and the food is placed just where the bees need it. There are no dripping jars or buckets to place over already cold, damp clusters in the spring, and no division board feeders full of drowned bees and soured syrup to dump later. A further consideration is efficiency. Sugar syrup is not wasted (a vital consideration considering the current price of sugar) and the bees do little or no work.



Sump and barrel.

Spraying combs with sugar water.

Spray feeding can be messy, because there is some "spray drift" and splashing. A second obvious consideration is that it should only be attempted in the spring. The author need not describe the robbing that would occur if sugar syrup were sprayed in the open in mid summer. The operation goes much faster with two people, one spraying and one placing sprayed combs in needy hives. It also expedites matters to have several supers of empty combs on hand so that 20 to 30 combs can be sprayed at one time. At one time, the Walter T. Kelley Co. sold a gasoline pump and a spraying device that was designed to spray syrup into combs. A major secondary benefit of this operation is that it is an excellent time to cull combs from hives as the empty combs are removed and replaced with full ones.

In the author's experience with using this technique, it is possible to sustain weak colonies that would otherwise have perished, and to stimulate moderate to strong colonies as no other feeding technique can. When sprayed combs are placed directly over a moderate to strong cluster in the spring it is not uncommon to find those same combs full of brood upon reinspection 2 to 3 weeks later.

Fall Feeding

Pumps and barrels need not be stored away after spring feeding. The pump and barrel can be used to mix sugar solutions and greatly speed the filling of jars, top, or division board feeders for fall feeding. □

Research Review

By DR. ROGER A. MORSE
Research Editor of Gleanings
Professor of Apiculture
Cornell University
Ithaca, NY 14853

How Varroa Disease Spreads

DESPITE THE FACT that varroa disease is widespread in much of the beekeeping world — except North America, Australia and New Zealand — we still know little about its biology. A recent paper on how the varroa mites are spread from one colony to another is of special interest. The observations reported here were made on an island where the observers had controls over the location and number of colonies.

The authors found little difference in the number of house bees and field bees infested with mites. However, when drones were examined it was found that flying drones were much less infested (5.2 percent) than were drones in the hive (41.9 percent). No explanation was offered for this great difference. Drones caught at mating areas (drone congregation areas) were likewise lightly infested (6.1 percent). The authors could find no evidence that mites might move from a drone to a queen in the mating act but neither would they rule it out. One wonders if a heavy mite infestation reduces drone flight and, if so, how. Perhaps, the number of bacteria and other microbes in the blood of infested bees is greater than in uninfested bees. I have seen no reports of this as regards varroa disease, but it is known to occur in the case of acarine disease, another disease caused by mites feeding on the bee's blood. In the paper being reviewed here the authors report that the drone brood was much more heavily infested than worker brood, a fact that has been long known. The special relationship between varroa and drones is fascinating and, if it can be fully understood, may someday be utilized in a control system for the disease.

Many species of mites live in flowers, feeding on pollen and nectar. The large majority of these mites do no harm to bees, but use them for transport. The mites often attach themselves to foraging bees and in this way are carried from one flower to another. It has been suggested that varroa disease could be spread among bee colonies when varroa mites drop off foraging bees on a flower and then attach to the next bee visiting the flower. In this study the researchers shook and examined several species of flowering plants that bees were visiting in the vicinity of a heavily infested 120-colony apiary. They found no varroa mites on the flowers, which apparently indicates that varroa is not transmitted in this way. This is not surprising since varroa mites apparently feed exclusively on the blood of larvae, pupae and adult bees, and probably could not survive long on flowers, but it is important that this part of the study was carried out. All this suggests that within an apiary most of the spread of varroa is done by drifting bees.

When worker bees infested with varroa mites were held in queen cages at room temperature for seven days, mite survival was high. Each cage held ten workers. It was observed that the greater the number of surviving bees after the test period the greater number of surviving mites, an observation that follows logically. This simple experiment points clearly to the fact that varroa mites may easily survive in queen cages that are shipped from one place to another. Probably the greatest danger we face insofar as the spread of this disease is concerned is that it could be done in a simple, innocent fashion by almost anyone.

Huttinger, E.H., Pechhacker, D. Sulimanovic and I. Tomac.
Spread of *Varroa jacobsoni* from one colony to another. Apiacta 16: 71-76. 1981.

Notes on Queen Rearing

Dr. Karl Weiss of Germany has tested different methods of queen rearing to determine if certain recommendations are valid. He found there was no difference between queens reared from eggs and those reared from one-day-old larvae. Queens reared from two-day-old larvae were lighter in weight. Those reared from three-day-old larvae had fewer ovarioles and presumably would lay fewer eggs. All this supports the practice of using one-day-old larvae in grafting, as is now being done by commercial queen breeders.

It was observed that one-day-old larvae are more resistant to changing temperatures than one might expect. In the laboratory, 50 to 90 percent may survive for 24 hours at room temperature. Those that are kept outside of a hive for up to five hours will develop into normal queens. However, these young larvae must not be left exposed to direct sun. It is very important that the royal jelly in which they rest must not be allowed to dry. I am aware that many queen breeders keep a damp towel over combs from which they are grafting as well as over newly grafted cells before they are returned to a cell building colony. This is probably a worthwhile precaution.

Apicultural notes: queen breeding problems. Apiacta 16: 77-78. 1981.

Report Pesticide Losses

It is increasingly apparent that several state and federal agencies have recognized that some pesticides cause excessive bees losses. **However**, there is really no loss unless it is reported and documented. It does no good to say months later that a loss occurred.

In New York State, the Department of Environmental Conservation has started a program to record all bee losses called to their attention. There are nine Department offices scattered across the state and any county agricultural agent can tell one where they are located. The Department has indicated, and I have faith, that changes in the laws can be made if our case is carefully and clearly documented.

Some states have shown more interest than others in the pesticide problem. I suggest that in those states where there appears to be little interest, that beekeepers keep up the pressure until they do show interest. The Environmental Protection Agency in Washington has much to say about pesticide usage but in the final analysis most of the real decisions that affect what is taking place in the field are made at the state level.

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Monthly HONEY Report

LAWRENCE GOLTZ

August 10, 1981

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

Wholesale Extracted — **Reporting Regions**

Sales of extracted, unprocessed honey to Packers, F.O.B. Producer. Containers Exchanged	1	2	3	4	5	6	7	8	9
60 lbs.(per can) White	42.00	32.50	34.80			38.40	33.00	34.50	32.40
60 lbs. (per can) Amber	42.00	31.00	32.40			36.00	29.00	33.00	31.80
55 gal. drum (per lb.) White		.53	.58	.55		.57	.55	.55	
55 gal. drum (per lb.) Amber		.48	.54			.55	.52	.53	
Caselots — Wholesale									
1 lb. jar (case of 24)	26.50	24.45	25.75	22.44		23.00	24.50	23.00	24.50
2 lb. jar (case of 12)	25.00	22.40	24.25	21.00		22.00	23.80	20.25	22.00
5 lb. jar (case of 6)	30.00	26.95	26.25	20.40		24.50	26.00	25.40	23.00
Retail Honey Prices									
½ lb.	.90		.90	.73		.85	.82	.80	.92
12 oz. Squeeze Bottle	1.35	1.19	1.25	1.05	1.75	1.15	1.25	1.26	1.20
1 lb.	1.35	1.35	1.50	1.25	1.75	1.35	1.35	1.40	1.45
2 lb.	2.55	2.49	2.89	2.33	3.45	2.40	2.49	2.45	2.69
2½ lb.	3.15				4.25	3.00		3.09	3.55
3 lb.	3.80	4.00			4.88	3.60		3.80	3.79
4 lb.	5.00	4.79		4.50	6.80	4.55	4.39	4.85	
5 lb.	6.25		5.95		8.50	5.20	5.05	5.65	6.15
1 lb. Creamed			1.55					1.45	
1 lb. Comb	1.75		2.00		1.87	1.65	1.90		
Round Plastic Comb	1.50				1.75		1.75		
Beeswax (Light)	1.80	1.95	1.90		1.85	1.95	1.85	1.90	1.85
Beeswax (Dark)	1.80	1.85	1.85		1.75	1.85	1.80	1.85	1.75
Pollination Fee (Ave. Per Colony)	25.00		22.50				18.50	15.00	

Misc. Comments:

Region 1

A fair honey crop, a little above average in New England. Prospects are good for a fall honey flow. Moisture conditions are much better than last year and most flowers were blooming early. Almost no honey was carried over from last year. The moisture supply and the recovery of the clover in Vermont has improved the honey yield. Fuel costs have forced beekeepers to reduce their dependence on outyards and additional expense will force honey prices up. Honey market is slow and prices are up.

Region 2

The spring honey flow was average in Pennsylvania and the honey color was amber instead of the usual light amber. Honey sales are slow in Pennsylvania for the summer period. There was no locust honey produced in most of this region due to the effect of the early spring cold. There was a good basswood honey flow in New York state where the average may run 30-40 lbs. but the crop was very spotty.

Region 3

There was a poor honey crop in Illinois up to the end of July but beekeepers are hoping for a crop from soybeans. About the same conditions exist in Wisconsin. Bees are working soybeans in Indiana. There was no honey from the clovers in Indiana and the season's crop will be very short. Surplus honey is almost non-existent in northern Ohio but is somewhat better, though very spotty in central and southern Ohio.

Region 4

Many beekeepers were feeding bees in late June in Minnesota to avoid starvation. Early July brought hot, dry weather. Where basswood was available some spectacular gains were made. After the second week in July, rainy weather set in. A short crop is expected in Minnesota as of the end of July and early August. Honey sales are a little slower than last year.

(Continued on page 519)

Beekeeping Technology

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

The Queen "Box" At ATI

PEOPLE QUITE commonly stop by the Institute for a tour or information concerning the bee program. We are alway happy to accommodate such visitors, but we always feel a tinge of something as the tour winds around toward the queen "box". We tried to name the box the queen rearing lab which had a much more academic ring to it, but it appears that the facility was destined to be called the "box".

Years ago the structure was used to house and transport military telecommunications equipment on the bed of a truck. After a period of service, the truck (along with the box) was retired from active service. ATI purchased the truck for use at the school, the box was taken from the truck and has remained at its present location for approximately five years. After acquiring ownership of the box in 1978, the bee program renovated the box to be used as an outdoor queen rearing laboratory. Hence the reason for our need to explain why the box off an old military truck has become such an integral part of the bee program at ATI.

Even though the structure has been painted an agreeable barn red, it still looks like something off a truck. However, beneath that unassuming exterior is a facility tailor-made for our queen program.

The box was already wired electrically. Our only requirement was to get power to the service box. Approximately twenty outlets were instantly available. Eight ceiling lights were also included as was a heater and a small ventilation system. The box is heavily insulated with a firm hardwood floor. Six windows that will open and are covered with brass screen are positioned on the sides of the box. Each window is equipped with a blackout shutter that can be pushed up to cover windows thus completely darkening the inside of the box. This characteristic is extremely valuable. After a days work, quite a few bees will have accumulated inside the box. The shutters are closed, the door is opened and in just a few seconds most of the bees evacuate the facility.

The box has large, heavy double doors that allow easy entrance and exit, even with cumbersome equipment. Tables, storage shelves and queen rearing paraphernalia have been arranged inside so that things are quite convenient. Water is located nearby, but outside the box.

Students have spent quite a while painting, landscaping and cleaning around the box. The consequence of all this work has been the formation of a very functional facility, but one that we always feel a need to justify to visitors. The main attribute of the box is that its cost and development were minimal which was probably the single most important characteristic.

Surrounding the box are various colonies and nucs that are required to produce queens. One of the starter colonies is shown in the photo. This is an open swarm box — strong with several frames of capped brood and hopelessly queenless. A queen excluder is positioned under the lower most hive body to prevent virgin queens from drifting from nucs to the starter. Cells that are placed in the starter are grafted (transferred) from a breeder colony near the front of the box. By moving frames each day and keeping the queen confined to a specific frame for twenty-four hours, we always have the correct age larvae for grafting. The larvae are grafted into queen cups inside the queen box. The cups along with their wood cell base are stuck onto wooden bars and are then positioned onto special frames. These frames are placed into the starter for twenty-four hours, before being transferred to finishing colonies located nearby. Approximately ten days later, mature queen cells are available for whatever use we desire.

We produce approximately 2000-2500 cells during each queen rearing season. Four frame nucs and baby nucs are used to mate some of the queens. These nucs are positioned around the box in a random fashion. ATI does not routinely have queens to sell. Beekeepers that are traveling in the Wooster area are invited to stop by and visit ATI's queen box. We can assure you that you won't see anything else like it on your trip.

The queen rearing lab, better known as the queen "box".

Building A

By ROGER A. MORSE
Professor of Apiculture
Department of Entomology
Cornell University
Ithaca, NY 14853

MEN HAVE BEEN making bee beards for hundreds of years. Jay Smith, a famous queen breeder, who died several years ago, used a picture of himself with a bee beard as a trademark. If one uses care, it can be done without anyone being stung.

The best bee beard I ever built is shown here on Professor Robert Mathews of the University of Georgia. We made three beards the same day we built his, one after the other, about ten minutes apart, all with the same bees. The other two were good, but this one, the last of three, came out exceptionally well. I'm especially proud of the matched sideburns. All the bees are obviously quiet; one young lady is still in the process of landing on the lower right lip. On the afternoon we built these beards, one of the three people was stung four times, but this was because we tried to remove the bees too rapidly from him.

My method of building a beard of bees is a little different from some. I prefer to use a natural or artificial swarm. When such a mass of bees becomes airborne under natural conditions it will attempt to move to a new homesite. If the queen is caged, the bees in the swarm, after moving a few hundred feet, will return and settle around her, whether her cage is on a stake or held by a wire under someone's chin.

The procedure is as follows: First one selects a colony with the right size population. A colony with about four pounds, or 16,000 bees is good. The colony is carried to the place one wants to build the beard, usually from a distance of several miles away so the bees are not familiar with the landmarks and will not drift. It is kept in full sunlight. A day or two after the colony has been moved one finds the queen and cages her in a small cage with a screened face. It is not necessary to put food in the cage. It is not advisable to examine the colony the same day it is moved, as the bees are usually cross and inclined to sting for about twenty-four hours after they are moved.

The cage with the queen is tied to a stake. It is convenient to have a stake with a cross arm about four feet off the ground. After the queen cage is tied into place with some wire, a one or two quart feeder jar filled with sugar syrup and with twenty to thirty holes in the cap is inverted and tied onto the crossarm beside the queen cage. The bees in the colony are smoked lightly over a period of two or three minutes to encourage them to engorge with honey. They are then shaken from the frames onto the ground at the base of the stake. This operation must be done rapidly or many of the bees will become airborne and return to their nome. When the proper number of bees are shaken, which may be all or part of those in the hive, the hive boxes are taken away quickly and placed on another hive. The brood should be kept together so that it can be added to the broodnest of another colony. If brood is not protected and kept warm it will chill and die.

The bees shaken onto the ground will find and join their queen within about thirty minutes. The queen is recognized by odor, including chemical substances (pheromones) that only queens emit. Upon finding and recognizing her queen, a worker releases a pheromone that attracts other workers to the queen. The worker does this by exposing a scent gland on the tip of her abdomen and fanning her wings to disperse the

What appears to be a ticklish situation is merely a matter of remaining calm.

Bee Beard

pheromone. There will usually be a handful of young bees that are not alert enough to find their queen. They remain on the ground and are lost unless one makes a special effort to save them.

During the next twenty-four to forty-eight hours the bees will engorge. Scouts will seek a new homesite. One may observe scout bees dancing on the swarm cluster surface, sometimes only an hour or two after the bees have been put on the stake. It is remarkable how rapidly they adapt to their new situation, realize they no longer have a home, and begin to search for a new one.

The next step is to make the beard. It is important to select a warm, sunny day for the operation. It is not difficult to force the bees to become airborne. To do so the queen in her cage is removed from the cluster and the cage is tied to another stake, six to eight feet away. Bees in a cluster, whether a natural or an artificial swarm, are always alert to the fact that their queen might become lost. Because this is true some of the bees are always searching for her. A few minutes after she has been moved, some of the bees in the cluster will find her. It will take these bees several minutes to understand the queen they find is their own queen. After about eight to ten minutes, some of the bees that have found the queen will begin to expose their scent glands on the tips of their abdomens. This attracts more bees. The process is the same as when the bees were first shaken onto the ground. Bees having recognized their queen will return to the cluster and begin to perform a special dance that we call a breaking dance. It tells the bees in the cluster to break up and move.

The scenting and breaking dances go on for 30 to 40 minutes. A high-pitched, buzzing sound can be heard from the cluster. We do not understand the function of this sound but by listening carefully one can predict, within a few minutes, when the swarm will become airborne. It appears that about five per cent of the bees in a swarm participate in the back and forth movement and in the breaking and scenting process. The remainder of the swarm is stable, apparently waiting to be told what to do.

When the swarm finally becomes airborne it does so in about one minute. It is a fascinating sight to watch, with some bees clinging tenaciously to one another and others falling off the cluster and becoming airborne in the process.

When the bees all become airborne their communication system breaks down for three to five minutes but no longer. All the worker bees, and any drones that are present, mistakenly think their queen is airborne too. They begin to move to the new homesite following directions given by the scouts. Only rarely will they move directly to the queen, and when they do so it is because they have not found a new homesite. Under these conditions it is more difficult, but not impossible to build a bee beard.

Under the circumstances described, the queen is abandoned. As the swarm is departing, a few workers will be seen rushing furiously over the screen on her cage, trying as best they can to cause her to become airborne too. However, these bees too soon depart. The bees in the swarm will remain away from their queen for six to ten minutes, almost never longer. As they move in the direction of their new home they disperse rather than remain in a compact unit as does a queenright swarm; they are looking for their queen, who they recognize by a chemical she emits as she flies. Unlike the situation described above, where the bees are finding a caged queen, only one pheromone, a volatile 10-carbon fatty acid, is responsible for queen attraction in a migrating swarm.

When the bees realize their queen is missing, they return to her. At this stage it is a simple matter to build a bee beard in a matter of a few minutes. I prefer to build a stiff wire shelf that may be tied immediately under the chin. After about fifty bees have returned to the queen, the cage is picked up, the workers shaken off, and the cage placed on the shelf. The bees will do the rest. One remains near the stake and the queen in her cage is easily found. It is important to remain in full sunlight. Bees do not care to fly into the shade.

It is probably advisable for one to place small wads of cotton in the ears and the nostrils. I usually don't bother but it does prevent a bee from crawling into one of these cavities. Such bees are not inclined to sting, but if they are pinched or squeezed they might do so.

To remove the bee beard one picks up the queen cage and moves it where it is wanted. The individual with the beard shakes his body as best he can to dislodge the bees. At this point it is important to not squeeze any bees. Unfortunately, it is easy to catch a bee under the shirt collar. It is interesting that should one or two bees sting, and release alarm odor in the process, this will not precipitate an attack by the remaining bees. Under these circumstances the bees have no food, brood, or home to protect, and they are not inclined to attack.

For about thirty minutes after the bees have returned to their queen it is possible to manipulate and move them as much as desired. After this time they appear to become less inclined to fly. When the playing is done the queen cage is tied back onto the stake where it was first located. After two or three hours, or the next day, one may repeat the process; it is only necessary that the scouts have time to reexamine the new home they have found. Without doing so the swarm will not behave in the manner described but the bees may move slowly to their relocated queen. When one is finished, the swarm may be hived in the normal manner, either with or without its own brood. One does disrupt honey production by upsetting a colony in this manner but the results are usually worth the effort.

In making a bee beard it is best to wear light colored, smooth finished clothing. Bees are much more inclined to sting dark, rough clothing. One should always avoid suede, leather, or wool when working bees or building a bee beard. I hesitate to build a bee beard on a person with long hair as it is easier for a bee to become entangled and mistakenly sting.

It is important to repeat one point. Well-fed bees, like well-fed people, are much easier to manipulate than hungry ones. Most of the severe stingings one reads about take place when a dry swarm (one that has exhausted its food) is encountered. Dry swarms can be vicious. I have had several bad experiences working with dry or near-dry experimental swarms. Under adverse circumstances it is not uncommon to be stung 50 to 100 times in a matter of a few seconds. Such encounters cause one to be cautious!

Strictly Backlot

By CARL CALLENBACH
135 College Avenue
Elizabethtown, PA 17022

MY LEGS ARE not particularly attractive. Too long and a bit knobby, they connect two only fair feet to a rather mediocre upper body where bees seldom sting me. For bees find my calves altogether too enticing. Give me a sting on the ear, the elbow, anywhere but on my calves. I believe that the word is out among my bees: Sting him on his calves!

For ear, elbow, and anywhere-but-on-my-calves stings I generally administer the following first-aid treatment: Dark, muttered oaths. Bees are deaf, I read, so I don't understand why I mutter, and someday I hope I can muster up the courage to shout. Suppressing my desire to scream my oaths probably triggers at least a hundred miscellaneous glands and neurons and synapses and wondrous things which in turn cause my body to emit a variety of angry smells. Particularly my calves!

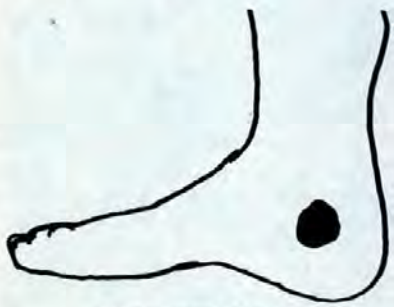
For stings in my leg muscles, I have usually applied meat tenderizer paste, the rationale being, I think, that the tenderizer contains an enzyme which aids in breaking down the venom protein. I'm not sure. In order to apply the paste, I must leave the angry hive, take a swig of water from my trusty Mickey Mouse thermos, and mix the paste. Being away from the aroused hive is the best part of using meat tenderizer, probably more important than the paste.

Anyhow, and this sounds silly and a bit masochistic maybe, but until a couple of weeks ago I'd been waiting to take a sting on my calf. (I've always considered the phrase "Take a sting" to be a quaint expression.) For a while I had problems with it. I preferred the statements "The bees stung me" or "I was stung by the bees" which seemed to me to put the blame squarely on the responsible party, the bee or bees. Compare, for example, these sentences: "I took the fish out of the basket." and "I took three stings on my left calf." In the first sentence I is the doer of the action; in the second sentence, I receives the action, or to be painfully specific, the left calf of my leg received the action. No matter. I have learned to live with "Take a sting." A sting is most often the result of my careless behavior. "Take a sting" generally follows phrases like "Jarring a super" or "Dropping a frame of bees." The perpetrator of the sting is, however much it hurts my calf muscle to say this, usually me. "Take a sting" is accurate afterall!

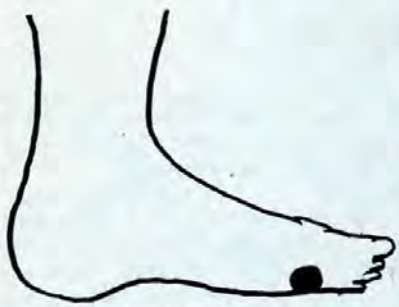
I wanted to check out a first-aid treatment for stings I saw described in *The Mother Earth News* (n0. 69, May-June, pages 34-35), an article by Michael Blate focusing on the technique of using acupressure points to relieve symptoms, like the smarting pain associated with stings on my calf muscles.

I took a sting: It worked!

Called G-Jo, the method involves two rather simple procedures. These are, according to Blate, (1) finding the acupressure point associated with your symptom and (2), properly



G-Jo Point No. 20



G-Jo Point No. 24

stimulating that point. These points, some 116, have been described in books dealing with acupressure. We're concerned with two, G-Jo Point 20 and G-Jo Point 24, both according to Blate, two good pressure points for dealing with painful stings.

Blate writes: "While every G-Jo spot is located in a different part of the body, the rules for finding and using the points are generally the same. First, locate the proper place with a deep, probing pressure from the thumb tip, the bent knuckle of the index finger, or even the end of a pencil, pen etc...Then stimulate it with a deep, digging or goading massage. Get in there and really work the point around! Usually, just 15 or 20 seconds of this admittedly sometimes painful process will be enough to bring profound relief." He adds that most G-Jo points are stimulated bilaterally; you should duplicate the stimulation on the opposite side of your body.

Blate cautions that pregnant women, patients suffering from severe heart problems, and wearers of pacemakers generally should avoid using acupressure. And he adds a few other precautions: Don't use G-Jo within several hours of taking drugs, medications, alcohol or other intoxicants. If you've just taken a hot bath, eaten a lot, or were involved in strenuous exercise, delay stimulating the G-Jo point for half an hour.

G-Jo No. 20 (See Diagram): This is the pressure point I stimulated to relieve the smarting sting on my left calf. I found the point by tracing a diagonal line from the crown of my inner ankle to the tip of my heel. Blate writes that you can't miss it, and he's right. After taking the sting, I walked to the truck, took off my shoes and socks, found the point, and pressed and massaged with my thumb. Immediately there was what Blate calls a tender-ouch feeling, then the smarting abated. Maybe an hour later some of the pain returned and I repeated the process.

G-Jo No. 24 (See Diagram): I haven't tested this second sting relief spot. I've lately been carefully guarding my legs. Blate, after noting that the point is also very good for relieving sunburn, writes: "You'll find it on the outside edge of either foot, just in back of the bulge that's directly behind the little toe....This spot will be particularly tender if you're suffering from either sunburn or bug-bite pain, and is, therefore, usually not hard to locate."

The meat tenderizer is back in the kitchen cabinet. Maybe I could barter some honey for a steak? Or a leg of lamb?

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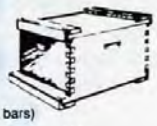
	6 1/4"	27¢ ea.	25¢ ea.	Commercial Grade either size 9 1/8 or 6 1/4	30¢ ea.	29¢ ea.



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A truly wise man is an old beekeeper.

Bee Talk

By DR. RICHARD TAYLOR
Trumansburg, NY 14886

EVERY YEAR, about the middle of July, I taste one of the great joys of the season, and that is the discovery of lots of supers on the hives suddenly filled with honey. It always astonishes me how quickly this happens. I think it must have been about ten days ago that I peered into a few of the hives to find almost no honey at all in the supers. The bees hadn't even begun to draw foundation out in most of the sections. There weren't many bees in some of the supers, even though they were hanging out on the fronts of the hives by the bushel. That is rather discouraging, and I began to wonder whether maybe there wouldn't be any honey this year. Then suddenly, yesterday, I found super after super filled right out to the corners with snow-white sections of comb honey. I don't know, of course, what kind of honey it is, but I suspect sumac and sweet clover. I don't think the old reliable basswoods did much for me this year.

When I go into the apiary and see a crop like that on the hives it naturally makes me wonder whether I shouldn't have put more supers on, or perhaps added another super a couple of weeks ago, even when things looked so discouraging. Well, there isn't much inclination to add supers when there's hardly any honey in the supers already there. I'm not going to worry about this. Any honey that does not end up in supers for me will end up down in the hive for the bees, and that is the best place for it. I figure that every pound of **extra** honey left for the bees this year will mean two extra pounds of honey in the supers for me next year. Don't ask how I arrived at that formula. It is pure guesswork, of course. But the principle is clear: Extra honey in the hives this fall means extra honey still in the hives in the spring, which means lots more bees in the hives next spring, which means a bigger crop for me next year. I explained all that a couple of months ago.

But this raises an interesting question, one that keeps coming up at bee meetings I go to. If there were all that many bees in the hives a couple of weeks ago — so many that they were clustering all over the fronts of the hives — then how come there were not more bees working in the supers? Why are bees sometimes so slow to occupy comb honey supers? The answer is, quite simply, that since the honey flow had not started, then there wasn't much for them to be doing in the supers, and besides, it was cooler outside.

I've often had beekeepers tell me that the bees are slow to occupy comb honey supers. They say the bees go up into the extracting supers right away, but that they don't seem to "like" comb honey supers. And some beekeepers think this is a strong reason for raising extracted honey rather than comb honey. But I think they may not have perceived the situation quite accurately.

If you put extracting supers of drawn combs on the hives, then of course, the bees from below overflow into them immediately. The supers are simply expansions of the combs they are already on. But that doesn't mean they are **working** in the supers.

Drawing by Cindy Diamond, ©1981

They are not storing much honey up there if there is no significant amount of nectar coming into the hives. Bees can't make honey out of thin air. All they are doing in the supers is occupying them. Then of course when the flow gets underway, the supers fill up fast with honey.

But a super of sections fitted only with foundation is not, of course, an extension of hive space in the same way. It is more natural for the bees to cluster around the entrance than to go up there into comb honey supers to loaf around waiting for a honey flow to start. But when that flow does begin, they go into the comb honey supers at once, and fill them with honey with amazing speed. It takes less than twenty pounds of honey to fill a super of thirty-two round sections, which is a good deal less than it takes to fill a shallow extracting super.

So here is the point. The fact that bees are sometimes slow to occupy comb honey supers does not mean that they do not like them. It only means that, until a honey flow gets underway, they have no great need for them. If you put section supers on a hive and a week later find that there are not many bees in them, you should not infer that the bees are reluctant to store honey in section supers. You should instead infer that there is not much nectar coming in. Check again in a couple of weeks, and you may be in for a pleasant surprise.

Now when I wake up in the morning and note that the birds are not quite as noisy as they were awhile ago, and that the sun is rising a bit later than before, I begin to realize that summer has passed its peak. Squash and melon vines have begun to crawl all over the garden, and soon their bulbous fruit will be swelling beneath their huge leaves. Before very long, if nature is so disposed, the goldenrods and asters will be everywhere. Of course my impulse is to get supers back onto my hives to catch what might then turn out to be a great fall honey flow, but I am going to resist that impulse. I have gotten my honey crop, and what the fall flowers yield, the bees can keep. There will still be enough of the delicious goldenrod comb honey for my hot cereal this winter, stored in the few odds and ends of unfinished sections that will have been left over from the summer crop and returned to the bees for completion. When the frosts finally come there will be very few, if any, poorly finished sections on hand, and very little comb honey, if any, to save over until next year.

Questions and Answers

Q. I have two birdbaths in my yard near my two hives. I keep clean water in them all the time, but my bees go to my neighbors swimming pool instead of the closer birdbaths.

What can I do to attract the bees to my birdbaths? F.B., Maryland.

A. This may be quite a problem to discourage the bees from the swimming pool and turn their attention to a hive watering device near your hives. We feel that the accessability of the water may not be satisfactory from the bird-watering devices. We would suggest tapping the water from a barrel mounted on a platform, allowing the water to drip into a pan of gravel or some form of absorbent material. Perhaps if this device was placed near the bees very early in the spring before the swimming pool is filled, the bees will become accustomed to coming to the water source rather than the neighbors pool.

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Q. I have been reading *500 Answers To Bee Questions, 6th Edition*, Copyright 1973. On page 83 there is a question of keeping bees in an attic.

I have a question also about attics and that is , would it not get too hot in a attic? I would like to keep bees in my attic but I never did because I've been aftraid the comb would melt in the heat of summer. J.H., Ohio.

A. Attics are sometimes intolerably hot in the summer, even for a colony of bees, which has a remarkable "air conditioning" system. We would not advise placing bees in any form of protective enclosure whether it be an attic, shed, barn, cellar or even a glassed-in building. Bees do best in the open air, in full sun or a partly shaded location, in all twelve months of the year.

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Q. I have been keeping bees for sometime, I always clean up old frames and reuse them. I always boiled them in lye water. Only now I cannot stay out of the hospital if I breath the steam while boiling them. I have been piling them up till I have about 300 and would like to know if there is anything else I could use other than lye. It seems like there should be something else that can be used. M.S., Michigan.

A. Of course lye is the most effective cleaner but we have also heard that some of the strong detergents will also do a fair cleaning job. This may be an alternative that you could tolerate.

Q. When is the best time of year to combine two weak units of bees for this coming winter? I have the problem and I don't know the right time or the technique. B.K., Vermont.

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A. The best time of year to combine two weak colonies is at the close of the midsummer honey flow or at the beginning of the fall honey flow. The timing allows the two units to combine harmoniously while there is honey coming in and brood is being reared. The arrangement of the stores and brood can be completed before winter and adjustments made by the bees if necessary. The queen will have time to produce eggs from which bee, suited to winter survival, will be raised. If a honey flow of any kind is in progress the colonies can be combined by simply placing one brood chamber atop another; otherwise, place a newspaper between the units.

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Q. I took a swarm of bees out of a house. I introduced a new Italian queen. The bees are doing fine and are of a golden color. Among these I have noticed darker bees. The color is normal. They are good workers and gentle. What could be the reason for the dark bees? At first I thought I had a robbing problem but in checking I find the nurse bees and even hatching bees have this trait. Could it be due to the mating of the queen? J.S., Pennsylvania

A. Undoubtedly the appearance of dark bees among a colony of lighter colored bees may originate from one of several causes. It is said that a queen, after multiple matings, and after she begins egg laying, will draw semen for the different drones with whom she has mated. The different semens have remained segregated in her spermatheca, so periodically workers will be hatched with slightly different physical or behavior characteristics from the previous bees. Color change is one characteristic that may show some variation as each semen is tapped during egg fertilization and laying.

Genetic variation may result in color variation. Color is subject to a certain amount of influence during inheritance, as are other traits. The appearance of the occasional bee of a darker color may be explained by this rather extraordinary occurance. Hair pigmentation is the usual locale for the appearance of these color traits, although possibly the epidermis may also show unusual pigmentation.

Another explantion for the occasional dark bee is that it simply drifted into the colony from another hive. Apparently this ruled out when you observed newly emerged bees with this unusual coloration.

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Q. I received bees on June the 17th and they left on the 23rd. I have no idea why. Have you any idea why they left? They were making comb and the queen was laying. R.C., West Virginia.

A. We presume you are referring to a package of bees installed in a hive, from which the bees later left. Abnormal behavior of bees has been fairly common this past spring, due perhaps to the unusual weather or perhaps to one or more other factors of which we are not entirely aware. The scarcity of nectar and pollen or inability to forage may have caused a severe food shortage, a cause of absconding. You did not indicate whether you were feeding the bees. A newly installed package must be fed continually until they become self sufficient, usually a matter of several weeks.

Robbing by bees from a nearby hive may cause a small colony to abandon its hive. Disturbances by predators such as skunks or an invasion by pests such as mice may cause a weak colony to move out and abandon the hive. Excessive heat or flooding with water could drive bees away. An objectional chemical odor in or near the hive can be a factor. Bees seldom leave a hive once they have established a brood nest but it does happen occasionally and is often difficult to pinpoint the reason.

Management For Success Part II

By GRANT D. MORSE, Ph.D.
Saugerties, NY

(This article is continued from our August issue.)

Inspection of the Exteriors

As I have said often in the past, an examination of the exterior of the hives will often make an internal examination unneccessary and time wasting, besides disturbing the bees. Today as I looked at the entrances of my hives I noted that one of them was not bringing in pollen except in a very few instances. So I took off the cover and looked at a few frames. Nothing seemed to be wrong except that they were short of honey. Consequently, the queen had reduced her egg laying pace, and the field bees were under no urge to bring in pollen.

Nectar Sources

Today there were no dandelions in bloom. Their short season is over. What a good source of pollen they are in addition to whatever nectar they yield! I wondered what the bees were working on. They were coming in good numbers, and were carrying pollen profusely where it was needed. Rocket is in bloom but the bees did not seem to be working it. I didn't have time to explore the adjoining fields to find the nectar and pollen sources the bees were using but there must have been one. To me, knowing the food sources the bees are using is one of the most interesting phases of beekeeing.

I forgot to say above, under external examinations, that I noted one colony that had fewer field bees coming in than was true with the others. That is, it had fewer field bees coming in than its neighbors. Here is one reason why every beginner should operate at least two colonies rather than only one: It gives the operator a basis of comparison. In this case I believe the reason for the lesser number of field bees of this one hive reveals a poor queen. An internal examination revealed fewer frames of brood, even though the queen looked to be vigorous. Of course, there are other possibilities. This colony may not have wintered so well as the others. But the chances are the trouble lies with the queen. That is the colony I shall requeen.

Installing Sheets of Foundation

This year I was short of drawn combs so I had to use sheets of foundation in part in making up nuclei. It is far from being desirable. But it will work if the bees have good nectar sources. I was well pleased today in noting that in one nucleus several of the sheets were already being drawn out. Normally, it is best to have foundation drawn in a super above the brood nest, and at the beginning of the nectar flow. Queens seem to like to lay in newly drawn combs. Certainly such frames are free of drone comb and honey and pollen, and are truly beautiful when full of newly capped brood.

Disadvantages of Two-Queen System

In previous articles I have elaborated on the virtues of the two-queen system. I still believe it has great benefits, chiefly in that it provides a new queen, and retards swarming; also, it tends to give opportunity for a bigger honey crop. But two-queen set-ups have disadvantages. I'll enumerate some of them: It makes manipulation more difficult because while the operator is working on the lower unit, the upper unit must be set aside, and so the field bees have no place temporarily to go. It discourages the operator from making manipulations to the lower unit that ought to be made, for example, Demareeing. If the two units are to be united later, the operator must depend upon chance to assure the acceptance of the new queen above. If he does not wish to take this chance, he must go through the lower unit prior to the union, find the old queen, and eliminate her. That is not always easy. Also, it is time consuming. If followed to a logical conclusion, and the two units united when the nectar flow is on, the number of hive bodies may produce a colony that is a bit high to manipulate. Despite these disadvantages, I'll vote for the two-queen system.

Early Swarms

Unless one looks carefully, swarms come out much earlier than might be suspected. Already (May 12) two swarms have been reported in this vicinity. The scouts from those swarms must have been looking for nesting sites in the latter part of April. That may not sound early to a beekeeper operating in the South, but here in the North that is truly early.

These early swarms point out the need for reversing of strong colonies early in May, or the performance of some other swarm avoidance procedure at an early date.

A Requeening Plan

Almost every beekeeper recognizes the desirability of having a young queen in every hive. They lead to less swarming, avoid supersedure, and help produce better crops of honey. Accordingly, every beekeeper needs a requeening plan. He must decide when his time permits introducing them, how many he can afford to buy, and the method of introduction to be followed. Unless he has a plan, he can scarcely hope to produce satisfactory yields.

Emphasizing Honey Flavors

Some beekeepers find it profitable to keep as much of their crop as possible separated into its different flavors — clover, basswood, wild flower, etc. This is provided a good market can be found that is willing to pay an extra price for this extra effort. Some beekeepers may have overlooked the extent and value of such a market. I'll give you an example. An attorney friend of mine in Florida gave me a two pound jar of leatherwood honey bottled in Australia. He told me he eats no other flavor. I sampled it. I believe I have never tasted a honey flavor more attractive,

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Management for Success Part II

(Continued from page 492)

even that of sourwood. There is a good market for special flavors.

Making up a Calendar

Like an Indian, many a beekeeper carries much information in his head rather than commit it to writing. Unless one has a tremendous memory it will be profitable to make up a calendar based on the cumulative experience of one's years. For example, when should the first Demareeing take place? Or, if one doesn't follow that practice but employs other swarm avoidance practices, when shall the first inspection take place to determine if queen cells are being produced?

When shall the stronger colonies receive their super? It may not be the same date every year but the chances are the date will not vary much. What is the date of the first chief honey flow? When can one hope to take off the first honey? And so on. An occasional glance at such a calendar may help one avoid being late with early fall examinations to determine queenlessness, need for adding stores, winter packing time.

The Value of Experimentation

Many of us are pretty much set in our ways as regards how we like to operate. But there may be value in employing conservative methods of experimentation. For example, instead of requeening a yard with queens from more than one breeder, why not requeen different yards with queens from different sources and thereby give different strains a chance to show their superiority? Or, if you are on the fence as regards the value of packing for winter, why not pack a whole yard and let a comparable one go unpacked. If you don't believe in Demareeing, why not try it out in one yard and see what happens? Or maybe a venture into the two-queen system in one yard may persuade you that you have been missing a good bet. If we didn't learn as we go along, the chances are we wouldn't be very successful. Conservative experimentation is one of the most reliable methods of learning. A venture into the use of six and five-eighths depth supers in one yard may be very persuasive.

Better Apiary Sites

The longer a beekeeper operates, the chances are he increasingly recognizes the value of a good site for a bee yard. But such sites are hard to find, especially if one doesn't own the land.

I can think of one yard operated by a fellow beekeeper over the past thirty years. It's close by the highway but out of sight of the traveler so it hasn't been vandalized yet. But the land slopes away from the road and down over some rocks. Over these thirty years that beekeeper has carried heavy loads of supers of honey up that rocky terrain to load it on to his truck.

This yard is in bear territory, too. It has been plundered by bears so many times that the operator has had to build bear fence. In many ways it is a good location but it has so many drawbacks that it should have been abandoned years ago.

How does one find good sites for bee yards? He has to take time to look for them.

The Importance of Yield

If one is to be financially successful in the bee business he must operate in an area that provides good reliable annual yields. How much is "good"? The Canadian Beekeeping magazine in its 1981 Spring issue quotes one of its beekeepers, John Gruszka; Prov. apiarist in Saskatchewan, as saying to young beekeepers: "It is necessary to produce 150 pounds of honey per colony to pay expenses."

I should say that 150 pounds of surplus honey per colony is highly desirable, but many a United States beekeeper would be happy with a little less. Nevertheless, yield is doubtless the most significant index of whether an operator is succeeding.

But the level of yield is not determined by location alone. Every detail of operation must pass scrutiny in determining whether a satisfactory yield is being secured. Unless a beekeeper is willing to call in an expert to study the question, he must answer it for himself.

Results Don't Just Happen: They Are Brought About

I think one of the most significant mottoes I have run across in a long while reads as follows: Don't expect your ship to come in if you have sent none to sea.

In the spring how much a beekeeper appreciates the good practices he followed last fall! When he finds a whole yard of bees without a single dead colony, he knows he must have done something right. If, on the other hand, he finds some colonies dead, others wet from condensed moisture, others with mouse nests. still others with no stores, even a few queenless, he should acknowledge to himself that the ship that comes in will be the one he sent to sea.

Time is probably one of the beekeeper's problems. He seems never to have enough of it. Here is where an examination of his practices should enter in. Is he spending his time wisely? Does he keep a calendar? What details are so important that they should take precedence?

I recall that neighboring farmers used to compare their efficiency by noting how early the fields of others were sowed or the hay taken in. It might be helpful occasionally to do the same in the beekeeping field. Since a typical beekeeper works so much in isolation, it should be profitable to check up on his progress by comparing it with neighboring beekeepers. Too often false pride gets in the way. Or complacency. Few beekeepers can afford either. □

1981 Florida Honey Queen

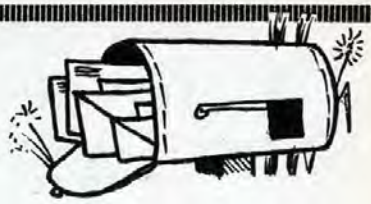
ROBIN KYLE

ROBIN RENE, 18-year-old daughter of Clyde and Mary Kyle of Smith Creek, Florida, who was the 1980 Tupelo Honey Queen, is the 1981 Florida Honey Queen.

She is an accomplished ventriloquist with 10 years experience and uses this talent to promote honey throughout Florida visiting fairs, conventions, exhibitions and legislators.

Queen Robin volunteers her talents to help in many organizations such as Muscular Dystrophy, March of Dimes, Heart Fund, and church related activities. She is a member of Fellowship Baptist Church in Tallahassee, Florida, where she lives and works as a drive-in teller for Industrial National Bank.

Gleanings Mail Box



City Bees

Dear Editor:

Yes, bees will produce a yield of 100 lbs. surplus honey some years in a central part of a city with a population over 300,000, like Omaha, Nebr.

I have kept five to ten hives in our back yard for the past twenty years with about the same number a few miles out of the city, I find that the bees in my back yard build up about three to four weeks earlier in the season, no doubt due to winter protection and the early flowering of shrubs, etc. This creates a swarming problem which necessitates attempting to control by supposedly reversing brood chambers, young queens, and ample space. I find that perhaps 2% of the stubborn ones will defy me and insist on swarming. Having the queens wings clipped, I then split the hive for two weeks. However, I find it still reduces the yield after reuniting them. The main source of honey comes from locust and linden trees which are abundant near the bees in the city. Some years if the weather is cooperative the yield is good.

M. E. Milnes
Omaha, Nebr.

The backyard apiary of M.E. Milnes in Omaha.

Contamination Danger

Dear Editor:

I refer to *Gleanings In Bee Culture*, June, 1980 page 323 concerning certain points raised by Mr. Clarence Kolwyck about the use of galvanized iron items in extractors and about lead.

The problem, if a problem exists, is from lead and cadmium present in the zinc as impurities.

Mechanical Engineers Handbook, Fifth Edition; Lionel S. Marks; McGraw Hill Book Co., Page 618, Table 22; ASTM Specification for different grades of zinc indicate that lead can be expected to be present in zinc from as little as 0.006% to as much as 1.60% in slab zinc if specification B6-46 are met.

Also must be considered is Cadmium shown in same table from 0.004 to 0.75%.

Galvanizing utilizes principally prime western zinc, which has not more than 1.60% lead. Table 22 does not indicate any maximum limit on cadmium.

Both lead and cadmium are undiserable heavy metals in food.

However, I am totally unaware of what significance exist in the galvanized utensils when used in the circumstances outlined. Consultation with persons knowledgeable in this field could be desirable.

Zinc is attacked by acids and alkalies, and lead can be disolved by (or leached) by some acids. As for cadmium, I don't know.

The question is "Does the lead and cadmium present a significant health hazard in the circumstance out-lined?" I don't know.

Max L. Holycross
Columbia City, IN

A Safe Coating

Dear Editor:

I refer to your article in February Gleanings, page 81 (A Bottom Drive Two Frame Extractor). Clarence Kolwyck of Chattanooga, Tennessee in a letter to the editor (page 192, April 1981), warns about lead on the container. I can add another possible hazard, cadmium, which could be of a major concern for all. However, an apoxy-ester coating available from bee supply catalogs solves the problem for a long time on these galvanized containers and galvanized mesh. The preparation must be careful and the application thorough but the problem will be solved. Good preparation, two coats.

Alexander Alt
Santa Barbara, CA

Making Foundation

Dear Editor:

Regarding Wax Foundation — Making It At Home (by J. Iannuzi, June, 1981 issue). I bought one of the units a few years ago when they were $125.00, or thereabouts.

For the author, I would like to make two observations. One, that you cannot compare the full purchase price of $9.00 against the home product as at home, you supply the wax. If you send the wax to a processor they will process it for 60¢ to a dollar a pound.

Second, the foundation is much heavier, but I considered this an advantage because I found my bees thinned the midrib and used the wax to draw out comb. Holding the partially drawn frame to the light it was easy to see the thick margins and the thin midrib under the partially drawn comb and there was not a lot of chewed out wax on the floor beneath.

All other points I agree with heartily. Incidently I do not use the foundation mold press much anymore because of the mess, the time, and the fact that I can send and receive wax, for a "work up" charge more easily.

F. N. Burgoyne
San Francisco, California

Brood Chambers

Dear Editor:

The discussion of one brood

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Gleanings mail box

(Continued from page 496)

chamber versus two was interesting. Here, in Southern California, it is usual for beekeepers to run bees without queen excluders. Sometimes a hive will have brood in three stories. I have always thought that more brood meant more honey later. By giving colonies 3, 4, or 5 stories as needed they can develop unimpeded, swarming is reduced and honey production will be maximum. As the season advances the brood hatches and the combs are filled with honey. The queen is usually restricted by the honey to the first story in the fall. Incidently, I do not believe that light honey stored in dark combs will be darkened if extracted promptly.

Modern beekeeping can be summarized as having colonies with young queens and plenty of room for brood, honey and pollen. One only has to read Dr. C.C. Miller's book to see what a nightmare swarming is using single brood boxes.

Peter L. Borst
San Diego County, California

More On Botulism

Dear Editor:

I am a Pediatricaian and an hobby beekeeper. The discussion between Mr. Charles Mraz and Dr. C. Carr on infant botulism has been interesting. I agree 100% with Dr. Carr's comments, not because he is a fellow physician, but because he is correct in his statements. I would suggest to Mr. Mraz that until he has had modern training in pediatrics and bacteriology, he stick to writing about the subject he knows best, BEEKEEPING.

Forest G. Hawkins, M.D.
Wilmington, Delaware

Stay Health
Eat Honey

A child can ask a thousand questions a beekeeper cannot answer.

Capping The News

THE EDITORS

"Beekeeping Small Talk"

The African/Brazilian Bee Threat

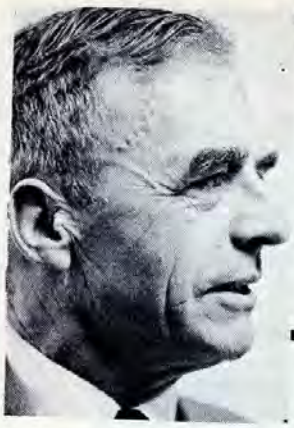
THE PUBLIC PRESS reports about the African/Brazilian bees continues in the news. Perhaps more has been published in newspapers and magazines on this subject during the decade of the 1970's than on any other beekeeping subject.

Most readers of *Gleanings* are aware that this sub-species of the *A. m. adansonii* was released from a research station near Rio Claro, Brazil in 1957. The researchers were very much aware of the unusual character of the bees and had taken precautions to prevent the release of the swarms from this original stock. Unfortunately the security measures failed and a number of swarms with *A. m. adansonii* queens escaped, spreading rapidly from the release site. Rapid migration carried their decendents northward and southward through South America. At the present time their northward migration has brought them through Venezuela and reportedly into the Isthmus of Panama. According to scientists and observers who have followed the progress of the migration their unusually disruptive behavior has been only partially, if at all, gentled by having come into contact with European bees along the way. Often the habitat occupied by the European bees in South America was totally dominated by the hybrid bees, formed when the decendents of the African bees moved in. The climate of South America, particularly the tropical central and northern regions favor the adaptation of the African/Brazilian hybrid to local conditions. This advantage would be present through Central America, Mexico and possibly our Southern states as well, should they reach these environs. It is significant that the introduced bees were somewhat more modified in behavior as they moved southward in South America. This is variously attributed to a temperate climate, more intensive efforts to cross European queens with the Africanized bees or the fact that beekeepers were learning to use improved handling methods and equipment.

We are now faced with what some observers consider to decisive involvement in Central America, with the bees threatening or already present in Panama. They predict migration through Mexico and the possibility of the bees' arrival in the Southern United States by perhaps the year 1990; sooner if an unlawful importation comes about by accident or by a deliberate attempt to circumvent the ban on importing foreign queens.

What can be done to counteract this threat, assuming of course that the migration of the bees northward will continue and that their presence poses problems for beekeepers in the path of the migration? The debates among scientists, beekeepers and enforcement agencies over tactics must now be solidified into some form of agreement about action. The public is not always acquainted with all the facts despite the rather exensive publicity given the bees. Non-beekeepers, who will have much to do with regulations, funding and legislation will need guidelines and a route of communication from knowledgeable, practical minded individuals or a committee who truly understands the problem and have a plan of action worked out to whatever degree is possible under the circumstances. This approach, worked out in advance, would certainly be preferable to a "crash" program, which is the inevitable result of having the public suddenly being told, often through under-informed reporters, that the invader bees were already in the United States. Curiously, reports have circulated in beekeeping circles that bees bearing traits similar to those of the African bees have appeared in the United States already; apparently introduced by researchers interested in the genetics of *A. m. adansonii*. No firm identification has as yet been made, at least to everyone's satisfaction, of bees with Africanized background in the United States. Actually, aside from the unusual behavior, there is little to distinguish the bees with the adansonii genes from the average Italian bees. One element which may contribute to the territoriality of the Africanized bees, should they be able to reach the United States, is the climate. This essentially tropical bee does not at present appear to be able to survive the winters of the northern states; although some question exists whether this trait can be depended upon to restrain their movement north under the protective care some of the Northern bees receive. In any event, this fragle barrier would be of little comfort to the Northern beekeeper who must depend to a various degree on a supply of queens from the Southern and Western bee breeders.

Although short of crisis by several years, the Africanized bee situation demands some serious planning and thinking. Some experimental action should be anticipated while the bees are in their present position. The alternative is to do nothing. If the situation is much less of a threat than some reports lead us to believe, then doing nothing may be a satisfactory course, aside from the ban on importing bees, as is already in force. Histories of actions against invasions in agriculture show a mixed record — from pathetic failure and sometimes destructive consequences to brilliant successes. Unwise measures often result from poor planning, which in turn is often the result of lack of time to study the problem. While there is yet time, our planning, and experimental action, if necessary, should be readied. Scientists, enforcement agencies and beekeepers working together in a team under informed, agressive leadership is now needed. If for no other purpose, such planning and action will help to counter increasing concern among the public about the so called "killer bees" invading America. If countermeasures are left to chance and to hasty and piecemeal action, we may have to bear consequences that have a greater potential for harm to beekeeping than is the threat from having Africanized bee in our backyard.



Siftings

By CHARLES MRAZ
Box 127
Middlebury, VT 05753

IF NOTHING MORE, my comments in Siftings, seems to generate considerable interest in some of the statements I make concerning my experience in 60 years of beekeeping. Recently, a pediatrician, also a hobby beekeeper said, "My credibility is being eroded by my emotional and not factual stand on honey." Yes, my stand on honey is based on **FACTS**, 60 years of them. Some recent publicity on infant formulas, I feel, hardly adds to the credibility of some pediatricians.

One news release, dated May 19, 1981 says "Two AID officials threaten to quit in controversy on infant formulas." These officials charge that one million Third World babies perish each year from diseases brought on by bottle feeding with infant formulas. There have been a number of similar news releases recently.

Another, dated June 18, 1981 charges that "At least 5,000 infant deaths each year in the United States are caused by the misuse of infant formula and bottle feeding among poorer families." They blame it on aggressive promotional practices by formula makers.

I have yet to see any cases of adverse effects of natural milk-honey formulas. Research in the past years has shown honey to be superior as a modifier in infant feeding. I have yet to hear of any **EXPERIMENTAL EVIDENCE** from critics to prove me wrong. Opinions that may be produced by high pressure advertising prove nothing. Anyone that wants to criticize my opinion and evidence, and that of many doctors in the past thousands of years, should produce proof based on personal and experimental evidence, such as I have observed through the years. Remember those honey infant formula cards that the American Honey Institute used to send out years ago advocating honey in infant feeding? What a switch for the worse; now honey is being condemned for infant feeding! Someday, I hope the truth will come out, that it is still superior.

In July 1981 *Gleanings*, page 372, is another interesting comment from Richard R. Cater, Technical Service Representative of a large insecticide company. Naturally Mr. Cater does not agree with my advocating biological and other "natural controls" of insect pests. He says I should define if such biological controls are "acceptable economically."

I have been on the receiving end of the insecticide business for some 53 years, when I first moved bees into apple orchards for pollination in 1928.

Some years ago, the citrus industry was threatened by the wooly aphid in California. To control this pest at that time, tents were put over the trees and cyanide gas was introduced into these tent covered trees. Believe it or not control of this wooly aphid by cyanide gas was exactly zero; they became completely immune to it. If an insect can become immune to cyanide gas, one of the most deadly poisons known, what do you use next, more deadly than cyanide.?

An entomologist at that time found that the wooly aphid came from Australia, and went to see what controlled it there. He discovered that the vedelia beetle, something like a large lady bug, was its natural predator. He imported these beetles into California for a total cost of something like $2,000, and released them. In a very few years, the wooly aphid was gone, 99½% control for some 50 years I believe. Is that "economically acceptable," Mr. Cater? Fifty years of complete control for a total cost of $2,000? I even saw this beetle in Belize some years ago. Did it spread there from California through the years? Right through all of Mexico?

Some twenty-five year ago, the black citrus fly became a pest on citrus in Mexico. Anyone that has ever seen citrus growing in Mexico knows that large scale spraying of insecticides is impossible because of the jungle growth and the steep mountain sides. An American entomologist introduced the parasite and/or predator of the black citrus fly. I have been in many orange groves in Mexico over the past twenty-five years and I never saw or even heard of the black fly down there. Where did it go, Mr. Cater?

Then there is the alfalfa weevil. Some 10-15 years ago it invaded the alfalfa fields of Vermont from Maryland, stripping the leaves completely, leaving only shiny silvery skeletons of leaves on the plant. For several years the "poison peddlers" and "squirt gun entomologists" had a field day, advertising in the newspaper, radio, and TV. "Save your alfalfa, spray with parathion."

For about three years we suffered heavy losses of bees during the honey flow. Much of the alfalfa was sprayed during bloom. Fields, after spraying, were sometimes examined and often the kill of weevil larvae was almost zero.

Fortunately, before the farmers got wise to the fact they were spending money for spraying for nothing, the biological control factors moved in. For almost fifteen years now, there has been very little alfalfa weevil. Control is at least 90% and no spraying. Economically acceptable? It sure is for us beekeepers, not to have our bees poisoned during the honey flow.

Take our apple orchards. When I first came to Vermont in 1928, three sprays a year were commonly used on apples. Lead arsenate for calyx spray for codling moth, and lime sulfur for scab control. Now with modern metabolic contact sprays that kill everything, usually more of the good than the bad, orchards now must be sprayed almost every ten days during the growing season.

In Nova Scotia, where a modified spray program has been practiced for many years, only three sprays a year are needed for good control. This program avoids contact poisons that kill beneficial insects that keep most pests under control, especially the hard-to-control soft bodied insects like mites and aphids. A botanical insecticide such as rotenone, a stomach poison rather than a contact poison, is used as it kills only insects pests that eat it. It is not toxic on contact. Dr. A.D. Pickett, an entomologist, is one of the pioneers of

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Siftings

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this modified spray program now getting some support in the U.S. for insect pest control. When Dr. Pickett came to speak to us at one of our meetings on the modified spray program some years ago, one of the university entomologists tried to prevent him from speaking at the university. He didn't get away with it. Dr. Pickett did speak to our group about their spray program in the Annapolis Valley of Nova Scotia.

Then there is the screw worm, that insect pest that literally eats cattle alive in the warmer climates of Florida and Texas. Spray programs were completely ineffective for this problem. Releasing sterilized male screw worm flies soon eliminated the problem with no poison spray whatever.

Recently, the Mediterranean fruit fly has gained a foothold in California and is threatening the fruit industry that supplies half the fruit for the U.S. Some years ago, this Med fruit fly became established in Florida and was successfully eradicated as I remember with a sweet poison bait spray. Apparently the adult flies live on nectar and other sweet fluid from plants. This sweet poison spray was simply spot sprayed on the trees. The flies eating the sweet syrup would die and it soon eliminated this pest in Florida.

I am not sure what program they are using in California. There is talk of a "bait" spray that is sticky so perhaps this same method is being used in California though it is not described in that way. It may be that a complete coverage, saturation spray program is being used. If so, it is impossible to kill all the Med flies in this way. Many of them will be protected from direct contact with the spray by a covering of one kind or another. With the sweet bait spray, the Med fly does not have to be hit with the spray, the fly goes to the sweet spray, eats it and dies.

There is also some reference to using sterilized male Med flies. These are released and when the sterile males mate, the eggs from such a mating are sterile and will not hatch into larvae, much like the successful screw worm program. With the sweet bait program and sterile male fly release, the flies should be eliminated if the successful program in Florida years ago is any indication. If the spray program depends on contact spray only, the results will not be as good, though the sterile male program could very well eliminate the pest on its own. It will be interesting to see how it turns out and what the facts are in the methods being used. There seems to be considerable "cover up" with just what is going on.

Then there is the gypsy moth, another long story as it has been here in Vermont for almost 100 years. After thirty years of modern metabolic contact poison sprays, starting with DDT, what progress have insecticides made to control the gypsy moth? Anyone that has seen the denuded mountains of Massachusetts, mile after mile stripped of leaves by the gypsy moth this past summer will realize modern insecticides have done nothing to control this pest. To spray such a vast area of infestation is like sweeping back the tide with a broom.

It appears that the polyhydrosis virus disease of this insect is starting to take care of the situation. This disease, when it takes over, wipes out the gypsy moth so completely, it usually takes them about thirty years to build up again to destructive numbers. The last outbreak was in 1950. The outbreak in 1980 comes right on schedule.

It would be a simple matter to save a large supply of these virus spores to help control the next outbreak in this area when it comes about 2010. Spores from just five dead larvae killed by the virus will supply enough spores to infect an acre of infested forest. Unfortunately, this will never be done, there is no money in it.

Mr. Cater should remember, biological control is nothing new. Insect pests have been on this earth for perhaps 100 million years. Who controlled these insect pests during these millions of years? The modern insecticide industry has only been around for some thirty years. Mother Nature, of course has been doing the job and she always will. It is modern insecticides that have proved to be a failure to control insect pests, not biological controls..

Take cotton, for instance, it looks like the boll weevils have finally licked the insecticide industry; modern insecticides have failed to control it. Biological controls are now seriously being considered as an alternative to the almost constant rain of poisons on cotton fields without success, except temporarily. The boll weevils have become notoriously immune to spray poisons of many kinds. All insect pests, it appears, eventually become immune to these poisons.

Mr. Cater is trying to make us believe that the insecticide companies are trying to promote insect control methods to reduce the need for insecticides. That I find hard to believe. I hardly believe any insecticide company is going to try to put themselves out of business by promoting biological controls.

About this varroa mite business. That is a far cry from spreading poisons to the four winds over the earth. This miticide is confined entirely inside the beehive. It can kill only the mites and the bees within the hive, nothing else. By the way, the latest word I heard about K-79 is that it does not work, or that it does work too well. It kills the bees as well as the mites. Obviously, if you kill the bees, you kill the mites also. Perhaps we should start looking for a biological control, if there is any. You can be sure, however, no one will waste their time looking for a biological control of the varroa mite, as it is not profitable. No doubt the search will continue for a miracle chemical that can be patented and sold for a high margin of profit, even if the control is only temporary.

If we look back at the track record, of thirty years with modern metabolic insecticides, I see very little to brag about. So far the record has been more and more insecticides that are more and more expensive and that become less and less effective. Now I ask you, is modern insect control "acceptable economically"? I remember some years ago at an apple growers' meeting. An apple grower said to the state horticulturist, "Damn it, Cal, all we are doing now is working for the insecticide industry"... It would not surprise me that they want to keep it that way.

The Codfish lays 10,000 eggs;
The homely hen lays one.
The Codfish never cackles
To tell what she has done;
And so we scorn the Codfish
While the humble hen we prize —
Which only goes to show you
That it pays to advertise!

Notes From The Straw Skep

By BESS CLARKE
50 Lycoming Street
Canton, PA. 17724

IT WAS MY privilege to talk to Dr. Jan Nowakowski, Assistant Professor at the Agricultural University, Wroclaw, Poland, while he was in the United States this summer. Dr. Nowakowski's specialty is apiculture; he keeps 200 colonies of bees for research. He is known world wide for his work, and those of you who attend the Apimondia meetings may be familiar with him. He is planning to attend the Congress at Acapulco, Mexico in October. He has served for three terms as Dean of Education in the Zootechnic Department of his University, and was Vice-director of the Institute of Breeding and Technology for eight years.

We met at the beekeeping short course at Cornell University. Dr. Nowakowski is in this country for three months under a grant from the Pennwalt Corporation to study ways of circumventing losses of honeybees on sweet corn. He is based at Cornell and will also visit sites in the Hudson and Genesee Valleys in New York. He is working, too, with Dr. Alfred Deitz of Georgia on a study of the Brazilian bee. He told me that he has imported Brazilian bees into Poland and has learned that they can not survive the cold winters there.

Dr. Nowakowski spent a year doing post graduate work at Cornell fourteen years ago under the auspices of the Church of the Brethren, an organization which has been reponsible for an extensive exchange in agriculture between the United States and Poland, as well as many other countries around the world.

Nowakowski's son is currently studying sheep at the Ohio State University's Experiment Station in Wooster, Ohio, also under the auspices of the Church of the Brethren.

Mrs. Nowakowski is a surgeon, specializing in diseases of the gall bladder. She and their daughter-in-law and two grandchildern are living in Poland.

When I asked Dr. Nowakowski about the honeybees in Poland he told me that there are two million colonies in the country and the average crop is ten kilos per colony. (That's twenty-two pounds.) There are no big commerical firms. The beekeeping is done by individuals, mostly hobbyists. Much of their good quality honey is exported to the West, and honey is imported from China for domestic consumption. Pesticides are the largest problem faced by the industry there.

In the past five years, largely through Dr. Nowakowski's efforts, bees have begun to be rented for pollination. He moves his own colonies five times each year: To the orchards, for rape, for locust, to the mountains for honeydew and buckwheat, and back to his garden for the winter.

Of course I asked Dr. Nowakowski about the current problems in Poland, and he expressed grave concern. The food shortage is extremely bad and this summer's crops are not being harvested. He said the country depends on sheep for meat; and I was surprised to learn that the fishing industry is a major food supplier. Poland has 500 kilometers along the Baltic Sea and fishing boats dock at three large ports.

Dr. Nowakowski speaks fluent English and exhibits traditional Old World good manners. It was a delight to chat with him.

Have you seen "The Grand Beehive Exhibition" at the Renwick Gallery of the National Museum of American Art in Washington, D.C.? It was organized by the Utah Arts Council and will be open every day from 10:00 a.m. to 5:30 p.m. until November 8.

I'm trying to figure a way to get to Washington D.C. so I can see it, but I'm afraid my chances aren't too good. I'll keep trying, though.

RECIPE

We ate honey ice cream at the short course banquet and it made me think about making some so I came home and found this recipe for HONEY COCONUT ICE CREAM: 1 cup honey, 1 envelope unflavored gelatin, 2 tablespoons cold water, ¼ cup brown sugar, 2 eggs, 3 cups light cream, 1 teaspoon vanilla, ½ cup shredded or flaked cocoanut. Heat honey (do not boil), soften gelatin in water; add to honey. Add brown sugar, eggs, cream, and vanilla. Beat about two minutes. Add coconut. Pour into refrigerator tray and freeze until firm but not hard.

Turn mixture into chilled bowl and beat until fluffy. Pour back into refrigerator tray and freeze until firm. Serve with toasted coconut sprinkled on top, or with chocolate syrup, or any way you desire, including plain.

Honey Harvest Time

By THOMAS TILLMAN
Embudo, New Mexico

ONCE AGAIN THE time between your spring inspections and honey harvest arrives quicker than anticipated. One of your favorite hives has a super or two of finely capped honey and your excitement begins to grow as you begin preparations to take it off. But, as you'll discover in this article, there are two distinct ways of stealing the "Food of the Gods" from the honeybee.

Now, in this first method I'm about to describe, you will see what hard work robbing honey from a hive can be. First of all, choose a warm sky-blue day during some kind of honey flow, taking with you a super of empty comb, a bee brush, and a very good bee suit. You must make sure that your smoker is going strong because with this method you do not want it going out. After smoking the colony judiciously, remove the hive cover and place it upside down and off to one side. Place that exchange super you brought out to the beeyard directly on top of the upturned cover. Remove the empty combs and lean them against the side of the hive so they won't get stepped on. Smoke the bees on top of the frames until most of them scamper between the spaces, then with your hive tool remove one frame at a time, carefully brushing the workers with that soft bristle brush you've had sticking out of your back pocket all this time. Take your time and make sure each frame is directly over the hive so the bees will not be brushed to the ground. Once the frame is virtually free of bees place it in the empty super on the hive cover. Put the empty combs into the super you just took the sealed honey from, replace the hive cover and carry your honey crop across that blooming field of sweet clover, heading for your honeyhouse satisfied with the fruit of your labor. That is, of course, all depending on the good temperament of your bees, because with the technique I've just described they may well chase you all the way back to your honeyhouse, without that weighted box of honey the bees took thousands of hours of flying time to gather.

Oh, but thank the Gods for the beekeepers vision and some of his time-tested practical inventions. The invention I'm referring to in this case is a bee escape invented by a man named Porter back in the 1890's. The Porter bee escape is a little gadget that allows bees to pass only one way through copper prongs adjusted to about one-eighth inch apart. The Porter bee escape can be purchased through your local bee supply dealer for about one dollar and fits snugly into the oblong hole of a commercial inner cover.

But, if you are the do-it-yourself type like I am, you can build a much better escape board yourself. The screened escape board as designed by Dr. Richard Taylor, not only evacuates bees from the super, but also allows ventilation to occur in the honey super so the wax won't melt down on those hot summer days that we so often have here in Northern New Mexico.

To make one you will need some straight, knotless 1″ x 2″s. Saw the wood, cutting two pieces 13½ inches and two pieces 20 inches and assemble them into a rectangular frame. Make two such frames using wood glue and narrow shank nails to assemble. Either a butt-joint or a half-lap joint will do. Once you have them assembled make a ¼″ ledge on each side of the inner part of the frame long enough to fit a piece of masonite 4″ wide by 13¼″ long. Fit the strip of masonite into the ledges and nail it with three-quarter inch nails. Cut an oblong hole in the strip with a router that will accommodate the escape. Sandwich a square of eight squares to the inch hardware cloth cut to the

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Placing the escape board on a hive.

Honey Harvest

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frame dimensions between the two frames and nail them together. Cut away the hardware cloth around the oblong hole and snap in the metal escape, making sure it won't come out by fastening it in with two small sheet metal screws. You are now ready to harvest that super of wildflower honey you've been bragging to your friends about all summer long.

Now, just like the last time, you choose a warm day during a honey flow. You're dressed as before, only this time maybe you're not wearing gloves because you want increased dexterity and you're not as worried about angry bees. After smoking the hive, pop off the cover and take a moment to savour the superb sight of honey comb frosted with white caps. After taking the time to reflect on the wonder of the honeybees world, check to make certain the combs are at least two-thirds capped so that the moisture content is around 17% and you know the honey is ripe. Also see that there are no combs with brood or the bees will not evacuate the super. It is not necessary to check each frame to determine these findings, two or three frames in the center will suffice. With your escape screen within reach, pry up one super and slide your newly made screen under it, checking to see that the hole of the Porter bee escape is up. Lower the super onto the escape screen and square up the edges so there are no large cracks. Now, this next point is very critical in my experience, because if you don't do it right you may come back to your favorite hive and find the disappointment of an empty super, and if you live in a marginal beekeeping area like the high desert region of Northern New Mexico, you cannot afford to lose even one super of your honey crop. Take from your back pocket a roll of good masking tape, (at least ½ inch) and run it all the way around the crack between the honey super and the escape screen, sticking the tape to itself and making sure it is making solid contact at all points. If you have an inner cover you can tape it to the top of the super making certain you tape or screen the vent hole, or you can make a frame to escape screen dimensions and staple window screen to it and tape that on. Once you are sure there are no spaces leading into the super, replace the hive cover and return again in 24 to 48 hours. What you are likely to find on your return visit is a honey super empty of bees, except maybe for a few fat drones buzzing loudly in confusion. Smoke or brush any straggling bees from the frames and lift off that heavy super, taking care of course to bend your knees to avoid any back strain. Place the super of empty comb you brought on the hive and carry that liquid gold across that wild sweet clover field and on up to your honeyhouse with a sneaky grin on your face, thinking how crafty you are to steal honey from those bees and not even get stung once.

The form of escape board used by the author.

Queen Rearing

QUEEN-REARING BRIEFS — For as long as we can remember, beekeepers have been eager to know how to raise queen bees. For those who simply want to experiment with raising a few queens as a useful hobby, the following 12-page, newly-published pamphlet will serve the purpose. It is titled: **Twelve Ways to Raise Queens** by Francis Lambert Yost.

Now in simple language with 25 illustrations, the story of the 12 most popular ways to raise queen bees is offered in streamlined terms with complete instructions. Choose the method that seems most promising for your needs. You will find several "sure-fire', easy ways. Order from **Sunstream**, P.O. Box 484, Pittsburgh, Pennsylvania 15230. The price is only 99¢ each, postpaid.

Taken from the *Kentucky Beekeepers' Quarterly*.

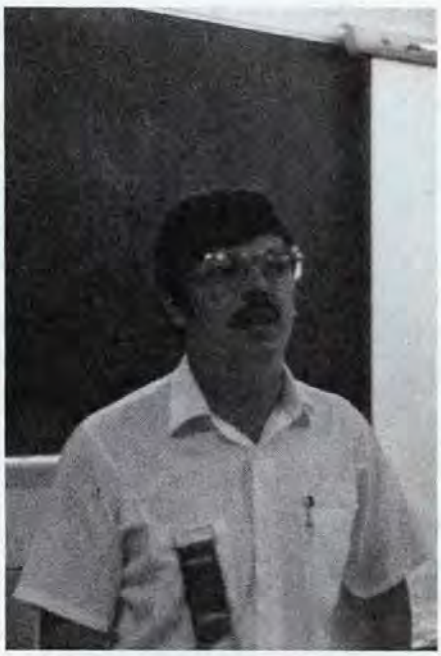
Dewey Caron Leaves University of Maryland

By J. IANNUZZI
Ellicott City, MD

EFFECTIVE JULY 1, Dr. Dewey Maurice Caron, an 11-year teaching veteran at the University of Maryland, College Park where he was professor of apiculture, state and Extension apiculturist, left his tri-hatted post for assuming chairmanship of the Department of Entomology, University of Delaware. His departure was made a little bit more pleasant by a farewell tribute to him by the Maryland State Beekeepers Association (MSBA) June 20 meeting on the college campus when the 30th anniversary of the dedication of the apiculture building, the first of its kind at any university anywhere, was celebrated. In addition to the encomium of words, he was presented with a tape recorder by the Apiotherapy Society of America which he helped organize, a framed print of Ward H. Nichols painting "Bee Yard," by MSBA, a copper smoker by the Central Maryland Beekeepers Association, and a letter of appreciation along with a check from the Howard County Beekeepers Association. More than 160 beekeepers and friends, including six oldtimers who were present at the original dedication, took part.

Dr. Caron was one of the brightest stars on the horizon of Maryland apiculture which he dominated since his arrival at College Park in eptember 1970 when he was hired s an assistant professor to fill the acancy left by Dr. Alfred Dietz who ıad eventually succeeded George Jenvey Abrams (+September 26, 1965) at the apiary building on campus. A one-year sabbatical starting in July 1977 found him at the U.S. Department of Agriculture bee laboratory in Tucson, Arizona, an experience that perhaps ignited his desire to pitch his honeyhouse elsewhere, although he was committed under the terms of his absence to return for at least a year. By the fall of 1979, he had been promoted to full professor, a sterling tribute to his all-round capabilities, since he had been on board less than a decade!

The Christmas-day gift to his parents achieved his present status through hard work and being at the right place at the right time. It all started in Stamford, Vermont, a tiny hamlet just over the Massachusetts border close to the New York line, on December 25, 1942, when he first saw the light of day. There he completed grade school, then jumped across the state line to graduate from high school in North Adams, Massachusetts. A B.S. degree in 1964 in zoology with a minor in chemistry and mathematics from the Universtiy of Vermont was followed by an M.S. in 1966 in entomology with minors in ecology and physiology from the University of Tennessee, Knoxville. Study under Dr. Roger A. Morse at Cornell produced a Ph.D. degree in June 1970 with a dissertation entitled "A Study of Swarms and the Behavior of Swarming in Honeybee *Apis Mellifera L.* Upon graduation, he was hired to succeed Dr. Dietz, now at the University of Georgia and one of those participating in the 30-year dedication celebration.



Dr. Dewey M. Caron addressing the Maryland State Beekeepers Association (MSBA) on June 20, 1981 at College Park, Md., celebrating the 30th anniversary of the dedication of the apiary building on campus.

Besides a regular schedule of teaching at the University, he offered evening and weekend short courses in beekeeping: Beginners, advanced beginners, intermediate, and advanc-

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Dewey Caron (soda in hand) leaving the apiculture building on the University of Maryland College Park campus, June 20, 1981.

Dewey Caron Leaves University of Maryland

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ed, ranging from two days to four, at such a reasonable fee that the courses were oversubscribed every year. The 38-year-old scholar also edited THE POLLEN BASKET, the newsletter initiated by Abrams in 1935 to keep apiarists *au courant* with the latest as well as to instruct them in bee management according to the month of the year. The six-page quarterly now has a subscription list in excess of two thousand. On top of all this, he had been bitten by the 'publish-or-perish' bug since he found time to turn out literally scores of articles for scientific and popular journals, the titles of which could easily fill more than two pages of a *curriculum vitae*. His name could also be frequently found as the author of contributions to *The American Bee Journal, Gleanings In Bee Culture,* and *The Speedy Bee,* the only monthlies on the national bee scene today.

Part of the crowd of more than 100 assembled in front of the apiary building, University of Maryland, celebrating the 30th anniversary of its dedication, and honoring its founder, the late George Jenvey Abrams.

John Lindner, retired Md. state apiary inspector from Cumberland, Md., announcing the winner of the first MSBA beekeeper-of-the-year award, presented to MSBA President Richard D. Hammond, standing near by, June 20, 1981, at the University of Maryland.

As a member or officer of a handful of professional and other groups dealing with entomology and apiculture, such as the Entomological Society of America, the Eastern Pollination Society, the Apiotherapy Society, the Eastern Apicultural Society of North America, the Maryland State Beekeepers Association of which he has been the guiding beacon, the Vermont native was frequently called upon to lecture on any phase of apiology in an articulate, entertaining and well-informed manner, usually without notes, before local, state and regional apian associations, especially along the Eastern seaboard.

Not bothered by the fact that he had no bees of his own because of residency and other restrictions, Dewey Caron considered himself a specialist "in theory" although the campus apiary did have more than a dozen hives and nucs (nucleus hives) of various strengths and heights for the practical application of his teachings and the latest use of the current theories of apiculture. An observation hive, three deep frames high, often permitted close inspection inside the apiary building.

The professor resided at 2106 Hannon Street, Hyattsville, Maryland, where he made his home with his wife Barbara, two young sons and a daughter born in May 1979.

There is every indication that when the history of the Maryland State Beekeepers Association, of which he has been a propelling force, is written, his name will stand high among those of Thomas B. Symons, Ernest Neal Cory, James I. Hambleton, G. H. Cale, Harold L. Kelly, John V. Lindner, James M. Marsh and George J. Abrams, the first GIANT in Maryland apiculture and the founder of the Eastern Apicultural Society (EAS).

(A hobby beekeeper for the past 20 years, the author first met Dr. Caron at an MSBA meeting in the early 70's and has had frequent contacts with him who was the inspiration for the Howard County Beekeepers Calendar, 1980, which won a blue ribbon at the MSBA honey show that year.)

A Night To Remember

By The Old Timer

WELL, HERE IT is spring. Once again I'm looking to the old truck, clearing the back deck of winter debris, checking behind the seat for axe, saw, chains and whatnot, in happy anticipation of another summer out-of-door. This annual "stimulus", not unlike our wild migrants, begins eating at my vitals about this time every year and is so strong today that a couple of old fire blackened tea pails which hung in the barn since last time, have been placed tentatively "handy" along with my sleeping bag. My dreams of late abound in sunlit slopes ablaze with new fireweed and white and yellow sweet clover. I recall ever more vividly the heady humming of contented honeybees foraging frantically on unlimited pristine pastures. Woodsmoke from my breakfast fire, fragrant, etheral, mingling with dawns misty blue haze. Wild creatures, curious, but much too occupied with their new families to pay much heed to a peculiar stranger and trappings appearing over-night in their midst; who by the way, seems to spend more time studying THEM than getting on with his own business. Again, my subconscious brings forward delightful memories of interminable green stretches, sown to perfection by the hand of the Master, with golden dandelions and glistening white pearly everlasting: Incomparable natural borders on most wilderness "roads" (many just a trace on the ground) as I strive for the farthest point possible from civilization. Why? Well, to start with, there is not enough bee pasture during the summer here in our valley and since we don't think it is possible to be completely self sufficient, as we are, WITHOUT HONEY, hence my yearly migration (good excuse) of anywhere from one to several months duration. Without a doubt, the major part of our diet is honey. Besides, we supply our animals with a goodly measure throughout the winter months. Then again it is imperative that our colonies go to bed each fall completely full to the inner cover with natural stores. They wouldn't be content otherwise. After all, without their generosity our life-style would be far less. However, as you've guessed, there is an ulterior motive. I'm hooked on back country solitudes, perhaps even worse than an addict with dope. I **must** visit a wilderness every year and since I don't have far to go to be a "million miles" from the nearest lamp post, my wife often visits to gather wild berries or just explore. Perhaps you're wondering why I don't leave it at that. Well, as I said friend, I'm hooked. Every second year, of an average, I journey "beyond the pale." Nuff said.

Repeating myself — suddenly it's that time of the year. Mind you though, while the sun is quite warm in protected places (where the old dog and cats spend most of their time) we still experience cold, raw winds. Although the snow has all gone from the valley floor, mountainsides and especially north facing slopes, are still locked in the iron grip of winter. Geese and ducks in ever increasing numbers ply the skies at dawn and dusk as the awesome urge to propagate pulls them north to nesting grounds. Anxious to get started, songbirds too are arriving every day, appearing especially vulnerable, flitting among leafless branches. Honeybees are finding some pollen and even a little nectar as willows, dandelions, nut and pine trees begin their growing cycle. Just yesterday, prowling round the back forty I came across a dead cub bear up among the timber. Settling snow had exposed part of his little black body: Another of those riddles destined to find it's way into the pages of my well filled log books. Anyway, the sight of this dead creature, as I squatted there in the snow, brought to mind an incident involving another of his species which occurred shortly after the missus and I were married and living up country.

"...We were sitting down to our own breakfast when, without warning there came the most blood-curdling scream."

Before I get wound up, and to illustrate a point (no offence), I'd like to say that my impression of a city dweller is likened to that of a honeybee larvae, contained as he is for the most part in those high rise "cubicles" or row after row of "pillbox" apartments. He is safe and secure (it seems to me) from the elements and most other things that plague a farmer, and especially one on a backwoods holding. Here in the country one is always expecting the unexpected, and admittedly most of these "happenings" are insignificant daily occurrences. There are broken fences, where-by come milking time, you may have to look for the old cow. Then there's the fence to fix: Or, an animal giving birth, a swarm in the tall pine by the milk house, and another INSIDE. A moose in the hay yard, or worse, in the woodshed, a skunk in the outhouse. Porcupines, wild geese, mallard ducks and deer all have their "say" in events on primitive acreage. Then, on up the scale of "notables" are washouts and slides on the roads "out". An animal with a broken leg, a goat mauled by a bear, a broken down vehicle or canoe, just when you need it the most — and perhaps many miles from home, to name but a few, are the misfortunes which have come our way. However, now and then, one encounters something outstanding as in the following, which has also, a touch of the bizarre.

It was getting on in the fall, the year in question, with it's customary unpredictable weather. A long period of exceptionally squally and cold rainy conditions prevailed, making winter "readying" very trying. It was during this spell one night, in the very early hours, that my wife and I were awakened by the most frightful roar of a big animal in pain or rage. By the time we were fully alert this had been replaced by a spate of unearthly coughing sounds, accompanied by cracking, thudding pandemonium. Scrambling out of bed I remember saying that "it sounded like a couple of bull moose fighting in or around the lean-to" (it was rutting season). My wife rejoined with "yes, either that or the wind has blown down part of that old building onto the horse and cows". Hastily preparing for the plunge outside while the missus lit a kerosene lantern, I noted rain and wind buffeting the cabins north wall. "A cold night, we're not far from snow" I thought absently. Still only half dressed, I stepped outside and paused, listening. The strange cries had ceased however, and only the voices of the storm could be heard. Heading into the wind, my lanterns feeble yellow glow tried valiantly to push back my pitch black surroundings. Head down, slipping and sliding in the soggy barn yard, I made my way more by instinct than anything else. Struggling through the storm laden darkness, I went first to the lean-to behind the barn. There, out of the wind, raising the light, I was surprised and elated to find everything normal. The two old cows,

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Mitchell Brothers Of

By JOSEPH O. MOFFETT
Cushing, OK

THE MITCHELL BROTHERS, Russell (1922) and Norman (1930) operate 3,000 colonies in partnership in western Montana. Russell's son, Bill, also is working in the business. The Mitchell's also employ two additonal men to help care for the bees. Although most of their honey is marketed through Sioux Honey Association, the Mitchells pack some liquid and creamed honey.

They have won many prizes with their honey. Some of these prizes include first place in both chunk and creamed honey at the 1975 American Honey Show at the Boise Federation Convention, two more firsts in creamed honey at the same show (in 1976 at Philadelphia and in 1979 at San Diego), and a first in comb honey at the 1981 Seattle Federation Convention.

The brothers overwinter their bees. They pack the colonies and then cover them with tarpaper. Their winter loss is about 5%. About 25% of the colonies are requeened each year with Homer Park queens. They make divisions from their overwintered colonies. Norman says strong colonies in the spring are essential to successful beekeeping.

Colonies are maintained in a two-story brood nest. Only full depth hive bodies and supers are used. A Cowen Automatic Uncapper, a Kelley 72-frame extractor, and two 50-frame Root extractors are used to extract honey. The major sources of surplus honey are spotted knapweed, alfalfa, and clover.

Important plants for spring build-up are chokecherry, dandelion, fruit trees, and wild shrubs. Between 30 and 40 colonies are kept at each location.

The Mitchells paint their hives different colors, allowing them to pick up odd lots of paint at bargain prices. These different colors also help prevent the bees from drifting from one colony to another.

"The Missoulian", Missoula's daily newspaper, printed a 6½" x 8½" color picture of Norman and Russell on the front page of the October 12, 1977 issue. The Mitchells were removing honey with a bee blower. The caption tells about their multicolored hives which are also shown in the photograph.

Russell's great-grandfather brought bees to Utah, strapped to the back of a covered wagon, with Brigham Young, in the Morman migration from the east in the 1840's, when the Mormons made their famous trek from Illinois to Utah. The Mitchells did not like Utah and they moved north to a farm near Shelley in the Snake River Valley of Southeast Idaho.

Bill Mitchell (left), Susan Harris, the 1975 American Honey Queen (center), and the 1975 extracting crew of the Mitchells. Bill is the fourth generation of Mitchells to keep bees.

Susan Harris, the 1975 American Honey Queen, is standing behind the uncapper in the Mitchell Brothers' honey house.

*Missoula, Montana**

Russell and Norman's grandfather kept a few bees on the family farm in Idaho. Their father, William W. Mitchell, owned a few colonies before he served in the army in France during World War I. Upon returning from the war, he increased his colony numbers, while helping his father farm in the Snake River Valley of Idaho.

In 1926, William bought a home in Shelley, Idaho, and worked as a carpenter while increasing his colony numbers. He had 1,200 colonies by the mid-1930's. William and his wife, Olive, raised four daughters, Helen, Betty Jean, Norma, and Mary Ann, and two sons, Russell and Norman. The entire family worked in the beekeeping business when they were growing up. Both Russell and Norman had bees as Future Farmers of America projects in high school.

Russell Mitchell with what he says is the only good bear. Bears like this one shot by Russell cause the Mitchells considerable damage by destroying the hives to eat the brood and honey.

Bear damage in one of the Montana apiaries of the Mitchell Brothers. Russell and Norman Mitchell literally grew up with the bees, as their father was a commecial beekeeper.

Russell served as a cook in the Navy in World War II, and Norman was an aviation electrician in the Navy during the Korean War. In 1956 the Mitchells bought three small bee outfits in Montana, and eventually moved there from Idaho.

Russell is a life member of the American Legion. He has held all local offices, including commander, and has also been district commander. He has been president of the Montana Beekeepers Association, and served four years (1974-1978) on the executive committee of the American Beekeeping Federation. Russell's wife, Norma, has been president of the Ladies Auxiliary of the Federation, as well as secretary of the Montana Beekeepers Association for six years. The Russell Mitchell's have two daughters and a son, Bill.

Bill is in the business with his father and uncle. His son William Wesley was born March 1, 1981. Bill says William Wesley will be the fifth generation of Mitchells to keep bees.

Norman Russell and his wife, the former La Rhea Millard, have four daughters, two of whom are married, and four grandchildern. They live on a ranch near Florence, Montana, where they have some cattle and quarter horses. Norman has served in many leadership positions in the Church of Jesus Christ of Latter Day Saints, including bishop, on the high council, and as a councilor in the Stake Presidency. Norman and his family also are active in scouting and 4-H. Norman writes "We love the Big Sky Country, and all the Mitchells enjoy hunting, fishing, and camping." One of their daughters also actively participates in horse shows.

*Slightly modified from *Some Beekeepers and Associates*, Moffett Publishing Co., Route 3, Box 175A, Cushing, Oklahoma.

Bee Veils

By HENRY C. MULZAC
Putnam Valley, NY

ONE OF THE most essential and characteristic parts of a beekeeper's apparel is the bee veil. Unlike the development of the extractor, wax foundation, or the beehive, the conception of the bee veil is not accredited to any one particular individual or country but rather a general acknowledgement of the honeybees ability to sting. Most experienced beekeepers will advocate the use of a bee veil for safety's sake and its use shouldn't be misconstrued as a sign of one's being afraid of the honeybees. A sting in or around the eye, ear, nose or mouth can bring about the most severe reactions a beekeeper will encounter, so surely the bee veil is protective gear.

Aside from the protection the bee veil provides, good visibility is also important. The veil, when properly affixed, shouldn't sag below the eyebrows nor should any seams and areas of muslin unduly obscure one's vision. Visibility from within the bee veil is also related to the mesh size of the bee veil. A fine mesh, like some of the "sheer net veils" makes visibility rather poor. On the other hand, a wide mesh as provided by some of the wire veils gives perhaps the best visibility. Ideally, the lower portion of the bee veil should be loose enough to permit one's head to move from side to side unrestricted. But, the veil shouldn't bunch up around the nape of the neck.

Many of the commercially available bee veils have substituted for muslin, which was used for the upper and lower portions of the bee veil, wide mesh nylon or cotton for added ventilation. Bee veils can be grouped into three general types; (1) supple (like most net veils), (2) rigid (like screen or wire veils), and more recently, (3) semi-rigid (a net veil held outstretched by a metal frame). Most veils are secured to the beekeeper by either a drawstring or zippered to a shirt or bee suit. Attaching a bee veil with a drawstring is a technique a novice can best obtain by watching another beekeeper.

Virtually every type of bee veil is designed to be worn with a shirt possessing a collar, so that the lower portion of the veil tucks up under the collar. Some of the newer types of bee veils, such as the "English Ring Veil", have two elastic loops which set snugly and comfortably around the shoulder and armpits. Most bee veils require the use of a hat or helmet. Any with a brim extending 3 or 4 inches is acceptable, although most beekeepers prefer the "pith" type helmets. A few kinds of veils, mainly those from Europe, have collapsible cloth hats incorporated into the veil. The "old World" style bee veils, which resemble the protective gear of a "fencer", consist of a hood or entire shirt and don't require a hat.

The Alexander Veil (named after it's inventor) is another "hatless" veil and makes a very practical "spare" or "emergency veil". The sheer net veils are also very practical and can usually be stored in a "band-aid" box. The sheer net veil requires a helmet and has a tendency to get blown in the face, thus making the beekeeper susceptible to bee stings.

Unlike baseball gloves, wine and cheese, one's bee veil doesn't get better with age. Most veils are prone to get snags, burns and receive rough use which may occasionally permit a honeybee to enter. Deliberate breathing like a bull in such an instance is only an invitation to getting stung on the old snout. Trapping and squeezing the bee to death against the loose portion of the veil can alleviate the problem; or, walking away from the hive and removing the veil to let the honeybee escape. All this is best done while holding your breath.

The type of bee veil one chooses to use is a matter of personal preference. At the end of the days work and especially during the off season, the bee veil should be properly stored; removed from the hat or helmet, folded (if of the "square type") or rolled (if of the "round type") and mended around areas of wear. In doing this the life of the bee veil

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A Round Veil

The English Ring Veil

The Net Veil

Beekeeping In Suburbia — Some Success Tips

"During the last six seasons. I have enjoyed considerable success keeping my bees in a densely populated Detroit suburb, less than one block from the well known Macomb Mall Shopping Center."

By STEPHEN BURT
Roseville, MI

KEEPING BEES in suburbia, or in any densely populated area, is entirely possible. To make a success of the venture a number of serious considerations must be dealt with. In my judgement, the most crucial factors are location, proper management, and genetic strain. Each of these topics will be examined in depth, drawing on my experience at successfully managing an apiary of five or more colonies in the heart of a densely-populated Detroit suburb.

LOCATION

Location of the colonies, meaning where they are placed in terms of their physical surroundings, is probably the most vital single factor in establishing an apiary in a populated setting. It is scarcely less important in any locality. Nothing will put bugs in your bee venture faster than just carelessly setting out a hive or two of bees in any old place in the yard. Complete concealment of the hives is the ideal situation, although one very difficult to achieve immediately. Concealment can be realized by the use of privacy fencing, hedging, or by location behind buildings, hillside, or other natural barriers from view.

Bees are sometimes placed on rooftops or inside of buildings, especially garages, with a hole cut through for flight. It must be stated, though, that bees are far easier to manage when the beekeeper is working in the full sunlight, out-of-doors, and with both feet on the ground. Any attempt to locate the bees in any more exotic location than safely on the ground should be viewed as highly experimental.

My apiary has the hives placed on the south side of a barn, locked behind a six-foot board fence, which in turn is surrounded by an eight-foot hedge of privet. The layout of my vineyard and orchard provide some further visual screening. These vegetal obstacles have grown each year, which means that the location is improving constantly with minimal effort on my part. Other plants which would have good possibilities are pine trees, assorted deciduous shrubs, and such small deciduous trees as Russian Olive or Pussy Willow, as all of these types provide dense foliage near ground level. Fortunately for those who begin on a small scale, the need for a perfect location is not as great; so with an equal amount of attention to the bees and their surroundings, both the apiary and its location can be developed in unison over a period of a few years.

A final point about locating hives near hedges or behind fencing is the effect of such physical barriers on the flight of the bees, elevating it markedly. A six-foot hedge or fence will lift practically all incoming and outgoing flight to a height of eight or more feet, with the bees descending at the last instant. Such elevation of the bee activity will literally keep the bees out of your neighbors' hair, going far to keep the apiary from becoming a nuisance.

MANAGEMENT

Management of the honeybee when kept in a populated area is in no major way different from the care given the bee in any setting. Of the essence, of course, is sparing no effort to keep from outraging the bees, as potential victims of a bee sting are much closer and more numerous. A general outline for bee management is as follows: (1) Spring Management, which involves the assessment of the health and ongoing prosperity of the hive, as well as the condition of the hive furniture (frames, combs, etc.); (2) Summer Management, which involves modifying the space and conditions within the hive, with a minimum of disturbance to the bees, while facilitating the maximum production of honey and preventing the issuance of swarms; and (3) Fall Management, which amounts to the removal of the honey crop while assessing again the health, prosperity, and fitness for wintering of the colony, with particular attention given to checking the hive for amount and arrangement of sufficient stores of

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Bee Veils

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would be extended appreciably and continue to serve its most valued function.

The following chart is an objective critique of the types of bee veils currently on the market.

TYPE OF BEE VEIL**	GROUP	VISIBILITY	SHAPE RETENTION*	EASE TO STORE	SNAG RESISTANCE	ATTRIBUTES
Old World Veils	S	fair-poor	fair	good	excellent	economical, no helmet reqired
Alexander Veil	S	good	fair	good	good	economical, no helmet required
Square "Delphos" Veil	R	good	excellent	excellent	good	stores flat, popularly used
Round Wire Veil	R	excellent	good	fair	excellent	wide field of vision
Sheer Net Veils	S	fair-poor	poor	excellent	poor	lightweight, folds small
English Ring Veil	SR	good	excellent	excellent	good	collapsible while on helmet, not windblown, easy on, easy off

S= Supple
R = Rigid
SR = Semi-Rigid

* After repeated use and in windy weather
** All the bee veils provided good protection against bee stings to the face under optimum weather conditions

A Conical Bee Escape Board

By V. SHAPAREW
Oakville, Ontario, Canada

THIS ARTICLE DEALS with the voluntary bee escape to clear the honey supers, as opposed to forced removal of bees using bee blower, acid board, bee brush etc. Many different types of bee escapes have been designed, some of which are in common use today.

Basic Requirements

With the existing bee escape boards the time limit to clear the honey supers was never defined. As you know, it takes from a couple of days to a week and sometimes longer to clear the super(s). Therefore, as a target, I propose that the bees should clear the super(s) within 24 hours or sooner. This implies that if the bee escape board was installed one morning, the super(s) should be clear of bees the next morning. To achieve this target, certain conditions must be met. These are described as follows:

(1) The bees in the honey super(s) must be ready and willing to leave the super(s). If there is some brood in the honey super the bees will not abandon it. If it is cold, the bees will stay in a cluster irrespective of what type of bee escape board is below.

(2) The honey super(s) above the escape board must be bee tight to prevent the bees returning from outside.

(3) The bee escape board must be of a suitable and adequate design. The bottlenecks impeding the bees passage must be identified and eliminated.

The Bee Escape Board

To meet the 24 hours target the bee escape board must embody the following features:

(1) The bee escapes must be simple, free of obstructions, non-clogging type. The more complex the passage through the bee escape is, the longer it takes for the bee to pass through.

(2) An adequate quantity of bee escapes must be installed.

(3) The possibility of closing up the

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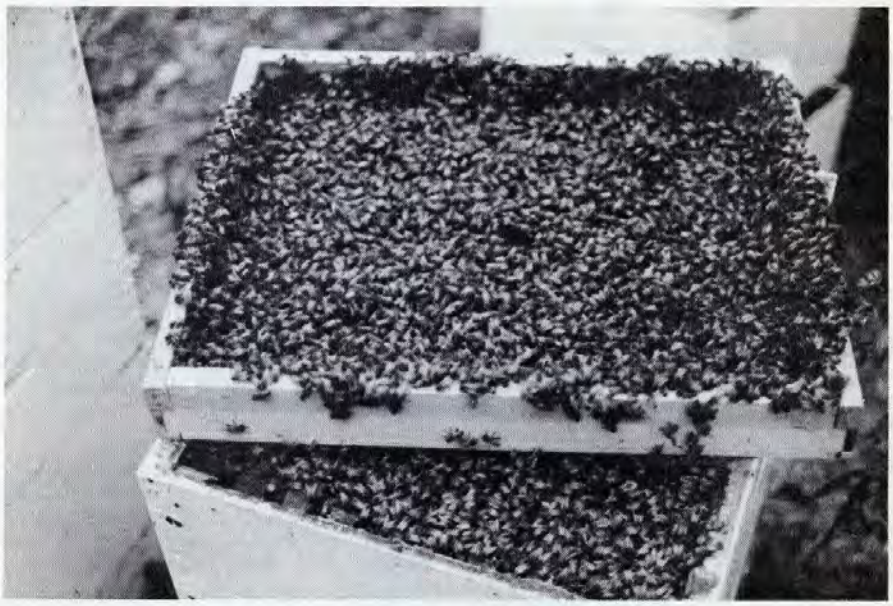

Figure 1 — Conical bee escape board of type C (Fig. 2), with 5 escape cones, 2½″ deep. Was removed from under 2 honey supers 1½ hours after installation. It is full of bees which passed through the escapes.

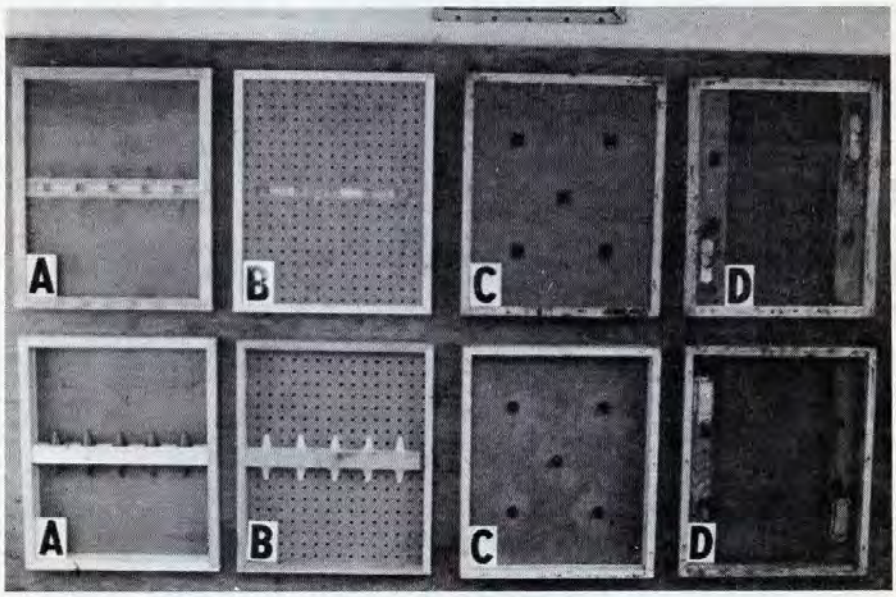

Figure 2 — Variations of bee escape boards tested. Type A, screen partition, horizontal 10 cones. Type B, same as type A except 1/8″ perforated masonite partition. Type C, Vertical, 5 cones, 1/8″ solid masonite partition. Type D, conventional bee escape board. 1/4″ top spacers added. 2″ bottom rim added. 4 conical escapes added.

A Night To Remember

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horse, and three calves lay close together, dry, and chewing the cud contentedly. Puzzled, I moved on and found it was the same in each building. The two pigs, huddled warmly in their straw filled pen, grunted protestingly as I went on through to check our three goats. Chickens, too, fidgeted uneasily on their roosts, but otherwise everything appeared as it should. Scratching my head I made my way back to the barn where I sat on a milking stool only half listening to the muffled roar beyond thick log walls as the north-easter increased it's tempo. Had it not been for the fact that we (the missus and I) had together heard these disturbing "goings on", I might have at this point passed it off as an exceptionally vivid dream. Back inside the warm cabin, over tea, we both agreed that the creek would be running bank-full after all this rain and (tongue in cheek) perhaps an animal had been caught up somehow in a log jam.

Chores at this time of the year take on a mid-winter aspect. Next morning, in about an hour and a half, we were sitting down to our own breakfast when, without warning there came the most blood-curdling scream. I don't know about my wife, but I'm sure my hair stood on end. However, being fully awake this time, we were able to pin-point the direction and as our heads turned as one towards the west window, together we blurted out "THE APIARY!" Now, we had spoken of this possibility once but considered it most unlikely to be the cause of such a commotion, reasoning that such bellows of pain and rage could only come from large animals fighting and becoming injured in the process. We would check the hives after breakfast. Too late. Breakfast forgotten, struggling frantically into rubbers we raced round the house, through the small orchard and the windbreak of small conifers. My wife spotted it first, a broken splintered hive. I was much too occupied taking in, stunned, the heavy, "impregnable" log bear fence scattered like jack straws. Two hives (albeit tilted, one minus top and inner covers) still remained upright, while the rest (five) were broken and dispersed over the wet dead grass. The missus ran to get a nuc box from the pile of six or seven which still stood beside the house and then began collecting pathetic mounds of water soaked bees while I ranged further afield among small seedlings

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News and Events

MONTANA
Eastern Montana Beekeepers' Association

A group of beekeepers and those interested in bees have been meeting on an unofficial basis and decided to form an organization. Meetings have been held in members' homes where beginning beekeeping methods were studied as well as more advanced operations depending upon the members status along the beekeeping trail.

It is intended to affiliate with the Western Apicultural Society and the Montana State Beekeepers' Association. A constitution is under study and interim officers have been selected to guide the organization through the beginning stages.

An educational exhibit will be presented at the Yellowstone Exhibition Aug. 8 through 15, 1981 at the fairgrounds, Billings, Montana. The display has been presented the last four years on an individual basis and now it will become a club project. Hopefully, members can qualify for ribbons by exhibiting honey at the fair next year.

The interim officers are Albert G. Bell, President; Nick Doll, Vice President; and John Urbaska, Secretary-Treasurer. Nick Doll has been selected to be the delegate to the Western Apicultural Society. The newletter is called BEE MAIL and is furnished to members on a monthly basis.

PENNSYLVANIA
Deleware College Short Course

Over 80 people attended the Summer Beekeeping Short Course held at Delaware Valley College on Friday, Saturday and Sunday, June 26, 27, and 28, 1981. Participants came from many local communities and as far away as the state of Washington.

Dr. Robert Berthold, Associate Professor of Biology, and Mr. Jack Matthenius, New Jersey Supervisor of Bee Culture, attribute the increased interest in the honeybee and beekeeping to the emphasis now being placed on natural foods such as honey. Other factors contributing to this increased interest is the fact that beekeeping can be a backyard hobby and also the beneficial effects of honeybee pollination on fruit, vegetable, and berry production in the backyard garden.

Other aspects covered in the summer short course included the processing of honey, marketing of the various honey products and candle making from beeswax.

Because of the continued interest in beekeeing, the college will offer two short courses next year with the first being offered in the spring and the second during the month of June 1982.

SOUTH DAKOTA
South Dakota Beekeepers' Association

The South Dakota Beekeepers' Association will be holding its 1981 annual meeting on September 12, 1981 at the Holiday Inn at Mitchell, South Dakota. Registration begins at 8:30 a.m. Speakers and panel discusions are planned for the morning and early afternoon with the business meeting following. An early evening banquet and 1982 S. Dak. Honey Queen coronation ceremonies are planned for the evening.

Exhibitors are being invited this year to set up display booths for the day. All members, guests and interested people are invited to join to make this a rewarding and enjoyable meeting.

Bob Berthold demonstrating beekeeping techniques.

The advisory council meeting will be held on September 11, 1981 at 7:00 p.m. at the Holiday Inn at Mitchell.

MASSACHUSETTS
Beekeeper of the Year Award

Clyde Light of Feeding Hills was awarded the Massachusetts Beekeeper of the Year Award at the annual meeting of the Massachusetts Federation of Beekeepers Association in Danvers, Mass. on Saturday, June 20.

Mr. Light was nominated by the Hampden County Beekeepers Association for the award, which is given to the beekeeper who has

Clyde Light

demonstrated expertise in the beekeeping field and has done the most to promote beekeeping.

Mr. Light has several hundred colonies of bees which he uses for pollination and honey production.

Mr. Light serves as co-operating extension apiarist for the Hampden County Extension Service, assisting local beekeepers and residents who encounter bee related problems or

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News and Events

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who wish information concerning honeybees. Mr. Light raises queen honeybees for himself and for other beekeepers.

KANSAS
Kansas State Fall Meeting

The National Guard Armory, Chanute, Kansas, will be the setting for the fall meeting of the Kansas State Beekeepers' Association on Friday and Saturday, September 25, and 26, 1981. Activities will begin at 7 p.m. on Friday, September 25th, with the Honey Queen Contest and the crowning of the 1982 Kansas Honey Queen.

Saturday's activities begin at 8:30 a.m. with registration. The business meeting will begin at 9:00 a.m.

Several beekeeping supply firms and a firm selling insurance directly related to beekeeping will be present at the meeting.

Beekeepers are encouraged to make use of the specially reserved rooms at the Chanute Holiday Inn, 3030 South Santa Fe (directly across from the National Guard Armory). Reservations may be made by calling 1-316-413-0850.

The Kansas State Beekeepers' Association invites all beekeepers from Kansas and surrounding states to attend the fall meeting.

FLORIDA
Hillsborough Community College

A beekeeping course will be held at Hillsborough Community College, Dale Mabry Campus, Tampa, Florida, beginning September 19 through October 24, 1981, on Saturdays from 9 until 1 o'clock.

This course is designed to introduce the beginner to the basic principles and procedures of handling the honeybee colony. Topics include: Honey production, equipment, control of diseases and processing of honey.

An enrollment fee of $13 per person will be charged.

For further information, contact Hillsborough Community College; P.O. Box 22127; Tampa, Florida 33622.

WISCONSIN
Education Telephone Network

Wisconsin beekeepers can learn about "Fall and Winter Management of Bees" during an Educational Telephone Network (ETN) conference Oct. 1, 8:30 — 10:20 p.m.

"Winter is the most critical time for bees here in Wisconsin," according to Walt Gojmerac, University of Wisconsin-Extension Entomologist. "Far more colonies are lost than should be."

Subject will be winter requirements and colony preparation, including colony size, disease treatment and protection from the weather.

ETN functions like a huge telephone party line which links listeners throughout the state with speakers in Madison. Listening points are located in every county.

Beekeeping experts from UW-Extension and the USDA Bee Research Labortory in Madison will present the free program.

The speakers said time will be reserved for questions.

If you would like to participate or listen, contact your local county UWEX agent to make sure a room is available.

BELIZE, CENTRAL AMERICA

Belize's National Honey Queen Miss Susanna Vega recently participated in the National Agriculture and Trade Show 1981. Miss Vega is from Orange Walk District. Other district Honey Queens include Ercelia Moore — Toledo, Geraldine Gillett — Belize, and Alice Cobb — Cayo.

Honey Queens were selected on the basis of a series of tests, designed to test their command of both practical and theoretical aspects of beekeeping.

FLORIDA
Dade Co. Bee School

In September, the Dade County Public School System, Department of Continuing Education, will again be offering a course in HOBBY BEEKEEPING FOR BEGINNERS. The class will meet for eight consecutive Tuesday evenings from 7:30 to 9:30 p.m. at North Miami Beach Senior High School. The course will be taught by John Gregory, owner and operator of Beekeeper, an A.I. Root Co. dealer in Miami. Register by calling 681-5138 before 5 p.m. Register early — the last two sessions of this class were filled early! Total cost is $10 per person.

Susanna Vega, Belize National Honey Queen 1981.

MASSACHUSETTS
Fall Beekeeping Workshop

"FALL & WINTER MANAGEMENT; HANDLING SURPLUS HONEY" sponsored by the Middlesex County Beekeepers, Association, will be held Saturday, September 12, 1981, from 9:30 a.m. to 3:30 p.m. at the Schoolhouse, 105 Everett Street, Concord, Massachusetts. Bring a bag lunch (beverages will be provided).

Pre-registration is required; the fee is $5.00. Send check along with your name, address and telephone number to MCBA Workshop, c/o Ruth MacNutt, 24 Governor Hutchinson Road, Billerica, Massachusetts 01821, by Saturday, September 5th.

For additional information call 617-935-6090 or 617-667-5695.

A Conical Bee Escape Board

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bee escape openings with burr comb must be eliminated. Such burr comb is sometimes present at the bottom of the frames. This is easily accomplished by nailing the spacer strip, one inch wide by ¼ " thick on all 4 sides, on the top surface of the bee escape board.

(4) Contain adequate bee dispersion space, say 2" high and full surface area of the board. The bees will disperse quickly within this open space, but it takes some time for them to disperse into the brood chamber. The need for this bee dispersion space was not recognized by previous bee escape board designers.

Development and Testing

A simple, free of obstructions and economical conical bee escape was designed and reported in Reference 1. It took two summers of testing to arrive at the optimum dimensions of the bee escape cone. Once the dimensions were set, I have tried a multitude of various designs of bee escape boards, with vertical and horizontal orientation of cones. The tests have shown that the bees do not escape any faster through an escape board with 70 as compared to 15 conical escapes. The difference in performance of a board with 15 escapes is only marginally better than that with 10. Ten conical escapes are adequate to clear two full depth honey supers in 24 hours. For three honey supers it becomes marginal, i.e. during warm weather it will clear three supers,however during cool weather it will take longer. In the same way a bee escape board with five escapes is quite adequate for one honey super, but becomes marginal for two honey supers. In all cases the bees escape rate was faster with bee escape boards 3" to 4" as compared to 2" depth. Therefore if a shallow super, without frames, is placed below the escape board, the bees escape rate will be further improved.

What Prompts The Bees To Escape

To observe the escaping bees in action I used specially constructed observation escape boards. For 20 minutes after installation of the escapeboard the bees did not attempt to escape. During the next five minutes the escaping stampede was in full gear. I have observed the escaping bees being present in every escape cone and these bees were literally pushed from behind by other bees trying to get to the exit. This escape momentum can be maintained if there is sufficient space below the escapes to accommodate the new arrivals. Figure 1 shows a vertical bee escape board with five escape cones and 2½" deep, which was removed from under two honey supers, 1½ hours after installation. The space was packed with bees, about five pounds of them. At that time about half of the bees passed through the escape board. Furthermore, I have observed that during the first 3 hours about 90% of the bees have cleared the honey supers. Guided only by these tests I have arrived at the conclusion that the bees urge to escape was initiated after they realized that their normal lines of communication with the brood chamber were disrupted.

Practical design

Although the conical bee escapes can easily be adopted to a large range of the escape board's designs, for practical reasons the number of basic designs is narrowed down to two, namely horizontal and vertical orientation of the escape cones. Figure 2 shows the alternatives of such designs. The letter designates the design type. The top row represents top or plain view, while the bottom row represents the view looking at the board from the bottom.

The existing bee escape boards, with other types of escapes, have an overall depth of about one inch. They require less storage space and may be somewhat easier to install by lifting one end of the honey super and slipping the board in. However, these boards lack the bee dispersion space, which is essential for fast escape.

The minimum depth of conical bee escape boards is 1.6" for types A & B, and 2.5" for types C & D, see Fig. 2.

Independent Testing

In the spring of 1980 I had submitted for testing and evaluation several bee escape boards of type A, B, C, (Fig. 2) to the Department of Environmental Biology, University of Guelph, Ontario, Canada. Other bee escape boards, which are available on the market, were also included in the test program for comparison. The test results have shown that the performance of conical bee escape boards is superior to any other escape boards. On these grounds the University of Guelph have endorsed the use of conical bee escape boards by Ontario beekeepers.

By November 1980 there were a few thousand conical bee escape boards in use in U.S.A. and Canada, and a few hundred abroad. Many users of these boards have written to me expressing their complete satisfaction with their performance. Several beekeepers have reported that their honey supers were clear of bees 5 to 8 hours after installation of conical bee escape boards.

Possible Improvements

The performance of your existing bee escape boards will be improved by adding the following:

(1) A spacer, 1" wide by ¼" thick on all 4 sides, top of the escape board, as stated in 3.3.

(2) Nail on a shallow rim, say 2" deep, to the bottom of the escape board, as explained in 3.4.

(3) If the performance is still not quite satisfactory, then add a few conical bee escapes, as shown in Figure 2 D.

Conclusions

The conical bee escape is a simple device, has no moving parts, contains no obstructions for bees to pass and causes no injuries to passing bees. It is highly efficient and very economical.

References:

1. *American Bee Journal*, Volume 119 No. 3, March 1979, Page 175, "New Concept in Bee Escape".

A Night To Remember

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and weed stems. Suddenly, shockingly, there it was — a huge black inert form almost buried in rails from the fence and torn up earth. Thinking, "I should get the rifle" I instead cautiously approached the dead bruin and, taking a chance, very gingerly reached out a hand. The body, of course, was still warm so the chilling cry we heard at breakfast proclaimed the creature's death throes. He was a monster even in death. His great body, lying mud and blood encrusted among the debris was awe inspiring to say the least. I can certainly understand such destruction.

So the mystery was solved to some extent, however, it was plain he could not have succumbed to anything hereabouts. Later on when we were able to examine him closer, we found several frightful wounds on his face and body with long strips of skin just hanging. Some of these injuries were undoubtedly self-inflicted so we reasoned perhaps he had been shot somewhere far to the south (for we had no close neighbors and lived about two miles from the end of a dirt road). Perhaps he had bitten himself, as animals will, to get at the source of his pain. Back tracking, we found where, incredibly, he had leapt or fallen from a high ledge coming off the mountain, a height, we thought, in excess of twenty feet. He had crossed the raging swollen creek leaving behind tufts of hair, skin, and even a piece of bone. He then blundered onto the apiary where he had vented his wrath.

To end this narrative, my notes say simply: Using horse and stoneboat we (my wife and I) hauled the carcass back into the woodlot, deposited it there in a depression and eventually covered with earth and manure. Well, there you have it. As I said in the beginning, there is never a dull moment on a farm. As the man said, "There aint no better place to raise young-uns. The stuff you learn on city streets won't do a man any good if he ever has to **really** fend for himself and a family."

Isn't it strange that I would rather be able to milk a cow — than be king?

Beekeeping In Suburbia

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honey for survival until spring.

A vital element of bee management at all seasons is the examination of the quality of the queen. Paradoxically, a first quality queen will head a much larger colony while being far less likely to lead out a swarm, both of which lead directly to an optimum honey harvest. Good queens are judged far more accurately by their work, meaning by the size and compactness of their brood nest, than by such factors as size, appearance, or color. A top flight queen less than one year of age is of course the ideal type. A bad queen, however young, is no better than her worst fault.

Actual management requires that the hives be opened at certain occasions during the year. With increasing skill and experience, the beekeeper should need to work his colonies somewhat less in direct proportion. When a hive is to be opened, the beekeeper ought to have some lucid objectives in mind as to what he is trying to accomplish. The beekeeper ought to remain open to the learning process, as one can never be absolutely sure what will be found upon opening a hive. The main point is that no beekeeper, especially one in a populated setting, can afford to thoughtlessly pull apart his hives, and needlessly disturb his bees.

In populated areas hives should only be opened on nice, warm days. When working strong, multi-storied colonies, my rule of thumb is "seventy and settled." A cloudy day will do if the temperature is above eighty and none too windy. The sensible use of a smoker is most advisable, especially if the hive is in more than one story. For a fuel, rotten but dry wood gives a long-lasting yet cool smoke that does not go out when the smoker is left unattended. A touch of smoke at the entrance at the start and a puff or two whenever separating covers or supers is all that is necessary or desirable. In terms of controlling a hive, it is far easier to maintain than to regain. Should a hive completely lose its temper, close it as gently as possible. Obviously, if you have been stung frequently, the combination of alarm odor and loss of patience should dictate that further manipulations be cancelled for the day. A certain confident and gentle touch is necessary to handle bees without getting stung. Fortunately, when the bees are in one's own back yard, there is almost always another opportunity tomorrow. With this attitude, working one's bees is normally an enjoyable time with nothing but positive stimulation.

A necessary part of management in populated areas is the provision of a dependable source of water for the bees. This need does not arise from any water shortage in populated centers, but from the need to keep one's bees out of pools, birdbaths, and water sources for pets. Honeybees will often converge on dripping faucets or where dogs have urinated on their bedding when kept outside. I use plastic dishwash tubs filled with water and provided with a board drilled with dozens of quarter-inch holes. This minimizes but does not completely prevent my bees from getting into mischief in search of water. Fortunately, bees need water to the greatest extent during the spring build up, while feeding extensive amounts of brood. If bees collected water with the same frenzy in the summer months, with all the childern in my neighborhood constantly in pools and running through sprinklers, I would run out of business if not out of town. In all, thirsty bees pose a far larger nuisance to the neighborhood than angry ones, and the suburban beekeeper ignores this problem at his greatest peril.

HONEYBEE HEREDITY

Honeybee genetics is a fascinating subject. Bees can be and have already been bred to show a wide range of physical and behavioral traits. Substantial differences also exist in traits among the various geographical races of the honeybee. The grey Caucasian race has been in my apiary a very gentle bee, but one with the serious faults of excessive swarming and inferior honey production. The commonest bee in America at this time is the yellow Italian race. In my apiary, Italians have been dependable honey producers with variable temper. The crossest colonies would attack at great distances from the hive, and would attempt to sting my rototiller. Such hives were only improved through requeening. I have enjoyed excellent success by mating Caucasian queens to the local, mostly Italian, bees. The workers, a dark yellow color for the most part, were usually very gentle while having greater productivity than either pure race. Continuing to breed along these lines leads to some very mixed-up looking bees, with every shade from grey to yellow in one hive. By selecting for gentle yet productive colonies, I have maintained good, clean colonies, appearances of the bees aside. Requeening the colony with an ugly temper is always worthwhile, especially if the bees are kept in a populated area. Purchasing or breeding better queens cannot solve all the problems of the suburban beekeeper. In the last analysis, gentle bees are gently kept bees.

CONCLUSION

Keeping bees in suburbia is not greatly different from beekeeping in any other setting. A good, working knowledge of bee biology and hive management is invaluable to keep the apiary from becoming a nuisance. The typical suburban beekeeper is more often than not a novice, at least at the outset. For the absolute beginner, there is no substitute for starting out on a very small scale and making the first harvest one of knowledge.

Ohio Bill Would Affect Migratory Beekeeping

A BILL TO amend sections 909.01 and 909.03 and to enact section 909.101 of the revised code will regulate migratory beekeeping in Ohio if passed.

Section 909.101 states that (A) "At least 30 days before the location in this state (Ohio) of each apiary containing one or more migratory hives, the owner or operator of the apiary shall submit its address and location to a newspaper of general circulation in the area in which the apiary is to be located and to **Beekeeping Notes**, published by the Cooperative Extension Service for publication."

(B) Each owner of an apiary — shall file with the Director of Agriculture a request for the inspection of each migratory hive upon the entry into and exit from Ohio. A fee of one dollar per hive, per inspection will be charged.

(C) If the inspector finds no diseased, migratory hive they will be certified as such. If the inspector finds one or more diseased migratory hives the owner or operator will be ordered to destroy the infection.

(D) An apiary shall contain no more than fifty migratory hives. An apiary with migratory hives shall be at least three miles from any other apiary containing resident, migratory hive, or both.

Monthly Honey Report

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Region 5

The Sourwood honey flow did not produce an average crop in the mountains of North Carolina and that which was produced was not up to the usual standard of color and flavor. The yield was very spotty, both good and bad. It has been a good beekeeping year in central and northern Georgia with crops above average. The sourwood crop in the mountains of northern Georgia was good. During July the weather was very hot and moisture below normal.

Region 6

Bees did very poorly in Kentucky during June and July, being one of the few times in the memory of the reporter that there was no crop storage during these consecutive months. Only in the tulip poplar and in a few other areas of Kentucky was a good crop gathered earlier in the season. Honey sales are slow, perhaps because of the dark color of the honeys. Rainfall and temperature has been about normal in Kentucky. In Tennessee honey prices are up and the demand is good for white honey. Prospects are good for a fall honey flow. Most honey produced in Tennessee was from tulip poplar. Bakery honey is moving well.

Region 7

Good rains in Texas at the end of

(Continued on page 522)

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All our queens are selected. We have but one grade. The culls, we destroy. Only those that we would use in our own apiaries do we sell to our customers.

Clipped and Marked, 50¢ each extra.

References: Union Bank & Trust Co., Montgomery, Ala. Any Bee Journal in U.S. or Canada; any Extension Agent.

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Bears To Be Introduced In New Jersey

IT IS QUITE evident that the Bureau of Wildlife Management will persist in its obstinate determination to bring bears to the South Jersey Pine Barrens. The bureau met with the New Jersey Beekeepers Assn. and the commercial beekeepers of the state, in Trenton, to listen to many reasons why the bears should not be brought to the Pine Barrens which has had no bears for the past seventy years. But, they were not impressed and plan to establish a bear population as soon as bears are procured. Bears are known to be a problem to farmers, crops, fruits and berries. They are a special menace to beekeepers as they prefer eating bee brood and honey to anything else and will demolish bee hives to appease their craving.

Since it is known that bears in North Jersey, New York and Pennsylvania cause damage, must often be captured or trapped and relocated, the beekeepers see no reason for introducing a problem that does not exist in the Pine Barrens and could learn of no redeeming reason why bears should be in the Pine Barrens except that it would be good for the bears.

Several letters have been received by the bureau from communities and Chambers of Commerce who have learned of this plan through the media (It is not openly advertised) objecting to this proposal. These letters have been disregarded because they are interpreted by the bureau as "We hate bears" type and are not typical of the public's sentiment.

The bear situation in South Jersey will be far different than it is in North Jersey, and considerably more damage has been done to beehives than has been reported. In New Jersey there is no compensation for this type of loss and in Pennsylvania the hives must be within 300 yards of the home to come under the law's protection. That is why these losses are not recorded. Commercial beekeepers keep their bees in what are called out-yards as one location will only support twenty hives. Other beekeepers rent their hives to pollinate various crops. Blueberries and cranberries, for which New Jersey is noted and ranks high in the nation's producing, are produced in South Jersey. These berries depend on bees for their pollination and since no berries are produced until the flowers are pollinated, 15,000 hives are put in the fields to accomplish this. If it were known that bears are in the area, no beekeeper would risk his hives as each hive, depending on the amount of honey it contains, is worth at least $150.00. Having bears in the barrens would be detrimental to beekeepers, farmers, fruit and berry producers, and the many persons that use the pine forests for recreation.

Because the funding for the bureau comes from hunting and fishing licenses and is not supported directly from taxpayer's dollars, the bureau feels that they are not responsible to the general public and are free to follow their objectives as they will.

I think that legislation is needed to control the actions of any group. Our government is founded on the principle of checks and balances so no one department can become a dominating power.

N.J. Beekeeper's Association
Edward J. Littig
President 1980-1981

Monthly Honey Report

(Continued from page 519)

July has helped white brush and mesquite. Bees are in good condition compared to last year. In June and July temperatures were cooler. A short honey flow during early July gave 70 to 80 lbs. of honey on strong colonies in east central Oklahoma. Under normal contitions, the honey flow is over by July. The honey came from horsemint, sunflowers, arrowleaf clover and some late, white sweet clover. The demand for local, white honey is good. Arkansas has 50 to 60 per colony averages being reported. Rainfall has been about normal. The soybeans have been planted over a wide range of dates and the longer blooming period will have an effect on the nectar yields. Soil moisture conditions are good. There has been some damage to bees around wheat fields which were sprayed for army worms.

Region 8

The honey crop appears to be above average in Colorado. Honey is light in color and of excellent quality. Consumer demand for honey is average and prices are rising slightly at retail due to the increased costs of production and processing. Montana has had a 100% increase in rainfall which has produced excellent honey flows of light, good quality honey. The later bloom from alfalfa should add to the production average.

Region 9

No reports on crop and honey conditions. Reporters are needed in California, Oregon and Washington.

Mountain Bees

Over 72, but still working with his bees, Marcum Brite, who lives in the heart of the Appalachian Mountains, in Harlan County, Kentucky, has been a beekeeper for many years.

There are few crops around for the bees to work, but lots of forest trees, including the much loved sourwood, and each year his bee colonies provides the family with the major part of their sweetener for the family's needs. Combined with his wife's intensive vegetable gardens on the two small flat areas on the mountain farm, the Brite family which has seen 12 children raised, uses its own skills and talents to provide a major part of the family's food needs.

Marcum Brite.

Photo by Dr. Arnold Krochmal.

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MAGAZINES

THE AMERICAN BEEKEEPING FEDERATION needs your support; participate in national affairs; receive six issues of the NEWS LETTER per year. The ABF, Inc., 13637 N.W. 39th Avenue, Gainesville, FL 32601.

DO YOU FIND IT difficult to secure information about sheep and sheep ranching methods? THE SHEEP AND GOAT RAISER reaches more sheepmen with more information on range sheep than any other magazine published. Subscription $5. Box 1840, San Angelo, Tex. 76901.

THE SCOTTISH BEEKEEPER — Magazine of The Scottish Beekeepers' Association, International in appeal. Scottish in character. Membership terms from R. G. Brown, Publicity Convenor, Richmond Villa, Richmond Avenue, Dumfries, Scotland. Sample copy sent Price 20 pence or equivalent.

THE INTERNATIONAL BEE RESEARCH ASSOCIATION regularly publishes new information on bees, beekeeping, and hive products, for beekeepers and scientists all over the world. Mail inquiries from USA: H. Kolb, P.O. Box 183,, 737 West Main, Edmond, OK 73034, Phone: (405) 314-0984. IBRA PUBLISHES: **Bee World,** a quarterly journal for the progressive beekeeper. **Apicultural Abstracts,** a survey of scientific literature from all languages. **Journal of Apiculture Research,** for original bee research papers. Books and pamphlets on all beekeeping topics. Catalogues of publications and details of journals and membership $1. Specimen copy of **Bee World** $1.50; **Journal of Apicultural Research** $1.50; **Apicultural Abstracts** $2.00, from INTERNATIONAL BEE RESEARCH ASSOCIATION, Hill House, Gerrards Cross, Bucks. SL9 ONR, England.

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.

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.

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.

BEE CRAFT — Official (monthly) magazine of the British Beekeepers Association. Contains interesting and informative articles. Annual Subscription (Sterling cheque 2.22 p.or U.S. $6.) Post paid. The Secretary, 15 West Way, Copthorne Bank, Crawley, Sussex, RH10 3DS.

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

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

"Pollen Natures Life Force" pamphlet is available now to beekeepers at no charge. Champie Pollen Co., 5118 N. 18th Ave., Phoenix Arizona, 85015

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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.

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DEALERS WANTED — The A.I. Root Company has dealership territories available in the south. The new branch supply located in Athens is ready to serve. If you are interested contact Lee Russell, Branch Mgr., 1700 Commerce Rd., Athens, Ga. 30607. Phone: (404) 548-Root.

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

SEEDS

SEEDS OF HONEY PLANTS — Catalog on request. Pellett Gardens, Atlantic, Iowa 50022.

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BEESWAX WANTED — Highest prices paid in cash or trade for bee supplies. The A.I. Root Co., Medina, OH 44256; Council Bluffs, IA 51501; San Antonio, TX 78204. Box 9153.

BEESWAX WANTED — Small lots to truck loads. Write or call. **DONALD SCHMIDT,** 859 W. 9th Street, Winner, SD 57580. PH: 605-842-0350.

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

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

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

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

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

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HONEY WANTED—Any quantity in cans or drums. Walker & Sons Apiaries, Box 415, Milford, Mich. 48042. Phone: 313-684-2935.

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

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

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

OHIO CLOVER HONEY — Barrels or Cans. Bruce Bollinger; Republic, Ohio; Phone: 419-426-7207.

IF YOUR honey is better, I'll pay you more. U.S. or Foreign. Cans, drums. Sample: Allan Hardman, Kawana Honey Company, 2100 Kawana Springs Road, Santa Rosa, CA 95404. (707) 528-4377.

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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.

HONEY WANTED: All varieties, any quantity, also comb honey. Office 612 464-4633. Residence 612-633-8371 — 612-457-2409. Nature's Treat, 6764 W. Bdwy., Forest Lake, MN 55025.

WANTED

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

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

WANTED — Extractor — Stainless Steel — Hand Turned, J. C. Byler; Box B211; Milroy, PA 17063.

PROPOLIS

PROPOLIS U.S.A., ROUTE 8, HAYWARD, WISC. is again buying hive scrapings and propolis that has had the wax floated off in cold water. Please send a 5 to 10 pound sample if you live south of Illinois border or in treeless plains states. Paying $2.00 to $3.00 for scrapings and $5.00 to $10.00 for concentrated propolis. We also pay shipping costs. NO C.O.D.s except barrels or large shipments by truck freight.

POLLEN

BEEKEEPERS CONSIDER trapping pollen. You can make extra income per hive and still produce your honey crops. For free information on pollen prices and pollen traps. Write or call collect to Champie Pollen Co., 5118 N. 18th Ave., Phoenix, AZ 85015. Phone 602-277-0482. We buy pollen from beekeepers and we are not affiliated with any other companies.

FRESH, PURE, Bee Pollen available in 1 pound containersat $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.

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.

NORTHERN CALIFORNIA ITALIAN QUEENS. April 1-May 15. 1-5 $6.00, 6-25 $5.50, 26-99 $5.25, 100 up $5.00. After May 15: 1-5 $5.50, 6-25 $5.00, 26-99 $4.75, 100 up $4.50. Ship air mail post paid and insured. Live delivery guaranteed. Bachman Apiaries, 1801 Calin Lane, Anderson, CA 96007. Phone 916-365-4029.

FIVE HUNDRED single story hives, 1981 queen excellent condition. $40.00 each. Call after 7:00 p.m. W.L. Tate, Rt 2, Millry, AL 36558, Phone: 205-846-2661.

FOR SALE: 1300 colonies, supers, excellent equipment. Wisconsin and Florida locations. Will divide. Bogen schutz Uncapper, dovetail saw, 100 comb supers. Phone: 608-924-3255.

NORTHERN BRED CARNIOLAN queens. $5.00 each, p/p. Glenmont Woods Honey Farm, 6137 Ely Rd., Wooster, Ohio 44691.

FOR SALE: 200 two story hives with bees, over 200 extra hive bodies, extra lids, bottoms, etc. Large truck with boom, 40 frame extractor, uncapper, liquefier, cappings melter, large storage tanks, plus much more. $35,000. 408-688-7140, 680 Wildwood Drive, Watsonville, California 95076.

THREE HUNDRED two story hives locations Whiteville, NC; Conway, SC $50 hive all or part. Norman Sharp, Fishers, NY 14453, Phone: 716-924-2747.

FOR SALE — 32 beehives — 1 frame 9-5/8 deep. Call Evenings 715-255-8777.

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FOR SALE — 150 hives of Bees — Frank Brodock, 14570 Lincoln Road, Chesaning, Mich. 48616, Phone: 517-845-3346.

TWO HUNDRED PLUS hives with hundreds of supers and complete extracting set up suitable for 1000 plus hives, with 2-ton truck and possible pollination contracts — $20,000. Reason for selling — other business expanding too fast. John Thomas , Farmington Falls, Me 04940, 207-778-6765.

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NEW BEE BOOKS. Send for list. Linden Books, Interlaken, N.Y. 14847

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BEE EQUIPMENT manufacturers-Oregon pine woodenware, super ends rabbet-joint and beekeeping supplies, smokers, excluders. etc. Write or Call for Commercial prices: MONCRIEF BEE SUPPLIES, Post Office Box 625, 1105 Lakewood,Lakeland, FL 33802. (813) 858-6754.

WAXMASTER CAPPING SEPARATOR...melts cappings fast with temperature controlled, circulated hot water, electrically heated. Pack fine quality honey with the PACKING HONEY BOTTLING SYSTEM. All equipment stainless. Free brochure. HONEY SALES COMPANY, Mfrs., 2817 No. 2nd Street, MINNEAPOLIS, MINN. 55411.

WE CARRY A COMPLETE LINE OF BEE SUPPLIES and containers. Write for price list. E & T GROWERS. R. 1, Spencerville, Ind. 46788. (A suburb of Ft. Wayne). Phone 657-5136.

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.

YOU'VE SEEN OUR CLASSIFIED ADS, NOW SEE OUR OBSERVATION HIVES, page 488 of this *Gleanings*. Kawana Honey, 2100 Kawana Springs Rd., Box G., Santa Rosa, CA 95404, Phone (707) 528-4377.

"CONICAL BEE ESCAPES AND TEMPERATURE CONTROLLED VENTILATORS is our specialty. For free information write to: Trafalgar B. Equipment, 3371 Trafalgar Road, RR 1, Oakville, Ontario, Canada L6J 4Z2."

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*Beehives dovetailed — $3.50 each
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BEESWAX, old combs and scrapings collecting? Process it easily and economically with the BEESWAX PROCESSOR. Write Shots Inc., 4418 Josephine Lane, Robbinsdale, MN 55422.

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RADIAL HONEY EXTRACTORS-5 frames, 6⅜ or 5½. Patented. Wholesale and retail sales. GAMBLE'S HONEY EXTRACTOR CO., P.O. Box 7997, Greensboro, NC 27407, Phone: (919) 299-3973, Day or Night.

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FOR SALE 75 complete cobana, supers, painted, with frames, foundation, ready for the hive. 218- 238-5594 or write. Rich Olson, Rt. 1, Lake Park, MN 56554.

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NEW-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 each pp., Blossomtime, P.O. Box 1015, Tempe, AZ. 85281.

USED ROTARY Knife Uncapper. Used Cowen Uncapper, Used Cilbertson Uncapper and Used Auto-Load Extractor. Cook & Beals, Inc., Loup City, NE 68853, Phone: 308-745-0154.

THREE HUNDRED FOURTEEN 10 frame doubles with supers, 80 frame extractor, cowen uncapper, Kelly jumbo capping melter, many extras. Clarence Covert, Phone: 412-285-3512.

FOR SALE: HONEY CONTAINERS — 800 Cases 12/10 oz. #1717 Round Brockway $15.00 Gross — 990 Cases 12/40 oz. #A-29 FLT STD W/M (Quart) (Arkansas) $21.00 Gross — 288 Cases 6/60 oz. #9050 Round W/M $33.00

Gross. Phone or Write: Fair Oaks Apiaries, Route 1, Box 302, Wallace, NC 28466, AC919-285-4835.

USED HIVE BODIES $1 to $2.50 depending on conditon large amount, Norman Sharp, Fishers, NY 14453, 716-924-2747.

EIGHT HUNDRED good single 10 frame hives, 2,000 deep 10 frame honey supers. All reasonably priced. The A.I. Root Company, Box GS, P.O. Box 706, Medina, Ohio 44258.

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

FOR SALE

COMPLETE PACK KING BOTTLER — never been used. Also 2 each 500 gallon honey tanks — 3″ gates. Phone: (406) 388-4862.

STAINED GLASS BEE — 7½″ from wing to wing and 4¼″ high. Made from beautiful amber and gold colored glass. Send $11.75 postpaid to: Creative Glass Works. 151 N. Main St., Creston, Ohio 44217. Allow 3 weeks for delivery.

FOR SALE: 1500 colony outfit in North Eastern Saskatchewan. Included is a 96 x 40 foot honey house and a 96 x 40 foot warehouse. A shop , a wintering building and house situated on a 3 acre plot. Only serious inquiries. Contact Richard Gane, Box 143, Aylsham, Sask., Phone: 306-862-9425.

HONEY PRODUCTION BUSINESS in Southeast Colorado, 250 colonies, equipment for 200 more. Prime locations on Arkansas River. Large Building, extracting equipment. Four state retail route. Phone: 303-456-0975.

COMPLETE HONEY operation. Five irrigated acres, hives buildings, extractors, and more. Century 21 Sun Basin, Evenings: (509) 787-2597.

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THREE HUNDRED beehives — 1½-story — lots of supers and equipment, one ton Chevy truck with enclosed bed (1974), commerical cider mill — 36″ racks — commerical ice cream machine — Woodland Apiaries, RD 1, Box 34 B, Petersburg, PA 16669. Phone : 814-669-4761.

Georgia Beekeepers Making Plans For Successful Federation Convention

THE GEORGIA HOST committee is planning a convention that will be profitable and informative for beekeepers and their businesses.

Commercial exhibit space will be available so manufacturers can introduce their products to the beekeepers.

The other organizations which usually meet in conjunction with the Federation are making their plans as well. The Honey Industry Council of America, the National Honey Packers and Dealers Association and the Mid-U.S. Honey Producers Marketing Association have all indicated they will hold sessions during the week.

A half day "bee school" is being set up for beginning beekeepers and those who would like to brush up on their basic skills.

The American Honey Show will be held during the week, providing a place for beekeepers from across the nation to display the finest honey their bees could produce.

First, the hotel selected for the convention, the Hyatt Regency Savannah, is brand-new, having just opened in April. The Hyatt Regency is set in the center of River Street, an area where warehouses, left over from the days when cotton was king, have been renovated and packed with restaurants, gift shops and museums.

The general sessions will run Tuesday through the week of January 17th.

Persons having specific questions about the convention itself may contact the host committee by writing ABF/Savannah, P.O. Box 1982, Jesup, GA 31545. For more information on Savannah, contact the Savannah Convention and Visitors Bureau, 301 West Broad St., Savannah, GA 31499.

Troy Fore, general chairman

Honey sweetens a beekeepers labor.

Have a good day

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Cat. No. R20

Queenline Economy

2½ lb.

ROUND COMB SECTION COVERS AND ROLL LABELS

F45A 200 pcs. (100 sections clear) — F45 400 pcs. (200 sections clear) — F46 Roll of 100 labels

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