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Created to Help Beekeepers Succeed
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COVER STORY

Beekeepers sometimes take advantage of some form of structure to provide cover for beehives, although most building is aimed at providing space under roof for processing and storing the honey crop and sheltering equipment. The idea of hive shelters has never been popular in America, although it is not uncommon in Europe. The advantages of having hives under roof may be more than offset by the disadvantages.

CONTENTS

By JAMES D. FORD, JR.
7160 South Brookhill Drive
Salt Lake City, Utah 84121

Mother Nature's

JUST A WORD first off on our experience with raising canaries. My wife and I are relatively newcomers to the art of raising canaries and have enjoyed their beautiful song for only 7 years. We've learned a lot from both experience and listening to some of the real pros that have kept birds for many years. This article is in response to one of these fine canary breeders.

My background has been a lifetime of intense interest and schooling in the biological sciences and especially in the invertebrates. I've been especially interested in animal behavior since my graduate work in bee behavior. Currently, I'm a professional beekeeper and international consultant on beekeeping. The mention of my broad interest in biology and specialty in bees pertains because the following observations and eventual conclusions would not have been possible without interest and training in both areas.

Early in our endeavor to breed canaries, we realized the difficulties of getting our birds into both breeding condition and feeding condition. We soon learned it is one thing to have eggs, it's another to have them hatch, and yet still another to have the hens raise them until they can feed themselves. We've tried about all the different mixes known. We've given vitamins, minerals, tonics, sixteen different types of seed, cod liver oil, and even Geritol. Experience-wise, we feel like we've become chemists and nutritionists for our birds.

With all our reading and knowledge on bird care, it was very apparent that if Mother Nature's results were only as good as ours, the survival of the species would be in serious jeopardy. It wasn't until two years ago that we discovered what Mother Nature makes available to bring her wild birds into breeding condition.

In 1968, while attending junior college in Idaho, I had the good fortune to take an ornithology course from a very fine professor who believed Mother Nature was the best teacher, and the woods should be the classroom. We spent many hours observing the behavior of birds in the Yellowstone area as well as the southern part of Idaho. The finches were especially fascinating. It was then, in the early spring, that I first observed a specific behavior of finches and other small birds.

In the very early spring, long before the early flowers pop out of the ground, and long before the first insects become plentiful, these small birds could be observed high in the elm and willow trees seemingly pecking at bare branches. At that early time of year, there are no leaves on the trees. I simply wrote in my notes, "unusual behavior of various finches seen high in elm and willow trees pecking at branches." Some years later as a beekeeper, I took for granted that beehives located near elm and willow trees would always start to raise their young earlier and in greater numbers than beehives not near these trees.

On closer observatlion, it was determined what these trees had that made the difference between bee locations — POLLEN. In the publication *American Honey Plants*, it states, " "The elms are very attractive to bees for pollen. The American or White elm is especially valuable and a large tree will attract so many bees that the humming sounds like a swarm."[1] The elms and willows pop out with a little catkin much like a pussy willow. Little, if any, honey is to be collected, but tons of pollen is available. The stored honey in the hive along with this magical food is so nutritionally power packed with its proteins, minerals, and vitamins that it makes the bees' diet complete.

These two separate observations, the birds pecking at supposedly bare branches and bees collecting pollen, did not come together until a couple of years ago when upon closer observation of our bird friends, I noticed they were obviously eating the pollen from the trees and not pecking uselessly at bare branches.

The third element of discovery occured when we started to collect pollen from our beehives for our human customer's consumption. It seems the Europeans have been eating pollen for lots of years and in fact, some very exciting research was completed by a team of scientists in Russia linking the eating of pollen and honey to human longevity. It seems every person over 100 years old in Russia was either a beekeeper or had a neighbor as a beekeeper and all had as a principle part of their diet pollen and honey.[2]

This is all well and good, but what has all this to do with the "birds and the bees"? The simple conclusion is that birds, bees and people do very nicely eating pollen. But why? What's in this golden food? Interest in the U.S. has increased and at long last research has been done on pollen. The findings so far are tremendously exciting to both human and bird nutrition.

First, let me comment that Mother Nature is the finest nutritionist, scientist, chemist, etc., and she always provides the best diets for her many creatures. We who try to raise and breed her wild creatures would do well to heed her methods. Pollen, the most complete, naturally-occurring food on the face of the earth is what our feathered friends were eating. It seems most logical that this pollen available in rich supply very early in the spring is assisting to perfectly condition the finches and wild canaries for the breeding season.

It has been said that if science were able to synthesize pollen, they could synthesize life. Pollen is the male germ cell of plant life, and as such contains the mysterious power which enables it to regenerate plant life. An observation may be drawn at this point. It seems logical that pollen should be the most complete food when one considers that it is from the flower that all foods ultimately develop and it is the pollen that flowers depend upon to develop the fruits of most plants.

This assumption is now verified with scientific data **on the composition of pollen.** The following is a brief summary.

Amino Acids — There are twenty-two essential amino acids (proteins). Only one food known to exist contains all 22 essential amino acids — pollen. The average amount of proteins by weight in pollen is 25%.

Vitamins — Pollen contains vitamins A, B-1, B-2, B-3, B-5, B-6, and B-12; also, C, D, H, K, E, Choline,Folic Acid, Panothenic Acid, Rutin, and vitamin PP, just recently discovered. Likely, pollen has vitamins not yet discovered.

Major Minerals — Pollen contains Calcium, Phosphorus, Iron, Copper, Potassium, Magnesium, Silica, Sulphur, Sodium, Iodine, Chlorine, Boron, Titanium, Molydbenum, Zinc.

Conditioning Food

Micro Nutrients — Twenty-eight minerals are found in the body. Fourteen are essential vital elements present in such small amounts they are called trace elements or "micro nutrients". Pollen contains all twenty-eight minerals.

Enzymes and Coenzymes — Pollen contains Lactic Dehydrogenase, Succinic Dehydrogenase, Cytochrome Systems, Saccharase, Phosphatase, Amylase, Diaphorase, Catalase, Pectase, Disstase, Cozymase. These represent the known enzymes and coenzymes.

Fatty Acids — Pollen contains Caproic, Capric, Myristic, Stearic, Palmitoleic, Oleic, Linoleic, Linolenic, Brucic, Abrachidic, Caprylic, Lauric, Palmitic, Behenic.

Carbohydrates — Pollen contains Pentoses, Cellulose, Sporonine, Starch, Polysaccharides, Raffinose, Ribose,Desoxyribose, Sucrose, Fructose, Glucose.

Pigments — Pollen contains Xanthophyll and Carotene.

Calories — Each ounce of pollen contains twenty-eight calories with approximately two tablespoons per ounce.

All these vitamins, minerals, oils, carbohydrates, and proteins sound great, but if not mixed together just right, balanced and counter balanced in just the right combination, their value cannot be utilized. Mother Nature is the originator of this recipe and has had several thousand years to test its effectiveness and proper combination. The success of all wild creatures attest to the credibility of the originator of the pollen recipe.

We can conclude then that in nature pollen is available to small birds and that it is power packed with nutrients to assist conditioning the birds for the breeding season. What can we as breeders of small exotic birds do? Obviously, we cannot let our birds loose in February and March to eat pollen and come back to lay eggs. Most of us can't provide elm and willow trees in our small basement aviaries.

Well, that's where the beekeeper comes in. Beekeepers have developed a special device that traps the pollen bees collect and put in their pollen baskets on their hind legs. We make the bees crawl through small holes to get into the hive that are just big enough to allow the bees through, but not the pollen pellets on their back legs. The pollen falls off and is collected in a little drawer.

Pollen, thus collected, can be dried or frozen and fed to the birds either all by itself or mixed with their special conditioning foods. My canary breeder friend took some and mixed it up with her super deluxe high-potent breeder mix and was amazed as she watched her birds literally pick the pollen out of the mix and eat it before they would eat the rest.

Now, I can't claim we've had any great scientific study with small, exotic birds. I could tell you of the studies with mice where increased growth and vitality was noted, increased breeding and litter size, and even how pollen stopped cancers in mice; or how sick monkeys responded almost as magic to pollen. I could even verify how pollen cures anemia in people as it did in my three year old son and how it regulates digestion to alleviate chronic constipation and chronic diarrhea, and helps colitis.[3] I could even tell you about the Florida beekeeper who fed pollen cleanings to his chickens and about his huge rooster people from that part of Florida came for miles to see because of its size. I could tell you how President Reagan eats pollen every day and attributes his youthful appearance to eating pollen.[4] But, all I can tell you about birds is that my canary breeder friend had one of those unusually successful breeding seasons last year and for the first time in seven years, I am beginning to believe canaries won't be an endangered species if they have pollen to eat.

So how can a bird breeder acquire pollen? Currently, it is only available in health food stores at a very high price of $12 — $13 per pound. We have been supplying it to our bird breeding friends for less than half that price. I'm very anxious to receive more information on its effects on breeding small birds. If anyone is interested and excited about using pollen for breeding their birds, please write me and I will send more information, James D. Ford, Jr.; 7160 S. Brookhill Dr., S.L.C., Utah 84121, Phone (801) 943-7618. □

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Beekeeping Technology

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

The Kenya Top Bar Hive

MANY BEEKEEPERS HAVE recently expressed an interest in the Kenya Top Bar Hive. ATI has a few hives of this type that are used as teaching hive for both United States and International students.

The hive was developed to serve beekeeping needs in countries where commercial manufacturing equipment may not be readily available. Initial research and development was done by the University of Guelph in cooperation with Kenya. The hive is often referred to as a transitional hive since it falls between a box hive and a modern movable frame hive.

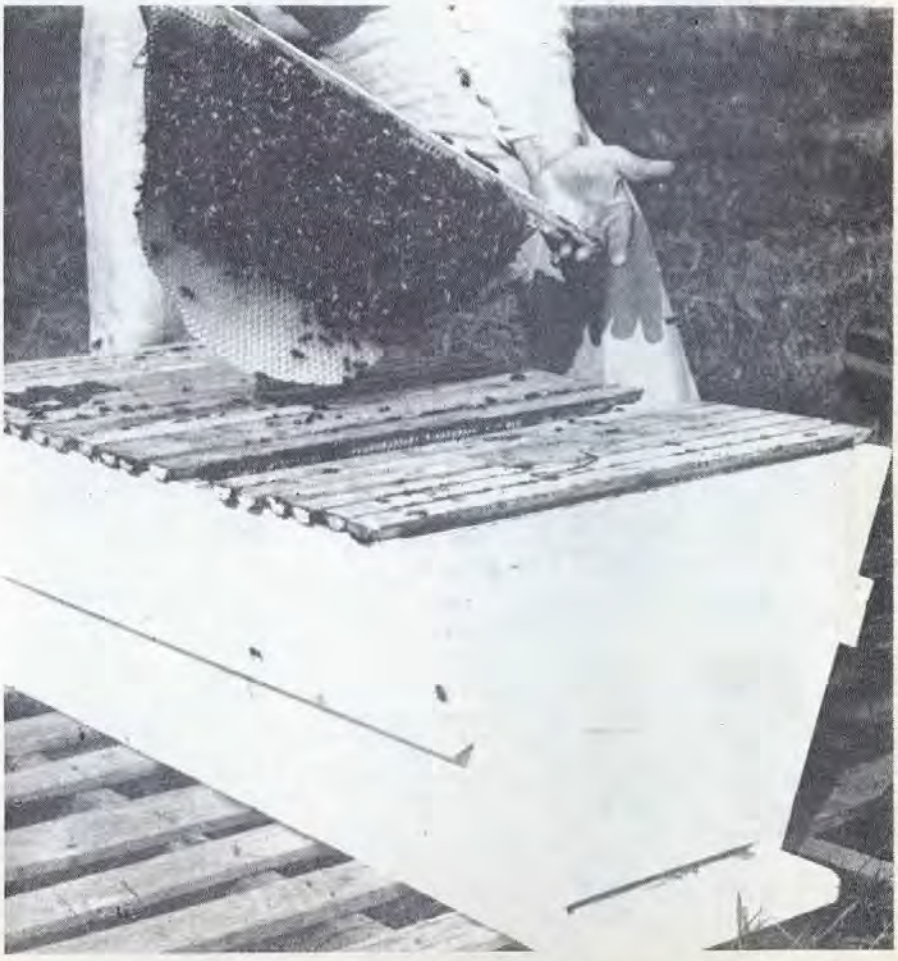
Construction of the hive and top bars is relatively simple as long as a few basic principles are followed. Top bars are 1¼" wide and 19" long and normally ¾" thick. Sides of top bars are bevelled to such an extent that a pointed edge comprises the lower surface of the top bar. This pointed edge is coated with bees wax to encourage the bees to build on one top bar at a time. Even under ideal conditions, bees will jump from one comb to another on occasion. Frame ends are notched to allow frame stability when positioned inside the hive. No end bars, bottom bars, or foundation are used.

Developing nations normally have a good export market for beeswax. consequently, no real concern is allocated to saving honeycombs for future use. Wax is often as important as the honey crop. After the bees have constructed comb on the Kenya Top Bar, it must be held in the same position as it would be when suspended in the hive. The inherent weakness of comb attachment to the top bar results in hives being difficult to move from one location to another.

The most outstanding characteristic of the long, single hive body is its slanted sides. In nature, bees tend to construct their comb in an elliptical shape. When hive sides are at 110° — 120° with the bottom, the elliptical shape of a natural comb is approached. As a result, bees do not attach combs to hive body walls to any great extent.

The hive body is made of two trapazoidal shaped ends, two sides and a permanently attached bottom. End measurements are 18" (top) by 9" (bottom) and 12" hive. The hive is normally constructed from ¾" wooden material. Sides and bottom are 36" long. Entrances may consist of holes or slots cut in sides or ends. After 28 frames (number of frames may vary if hive length is changed) have placed in the hive body and pushed together tightly (no bee space between top bars), an outer cover is put on to protect the hive. In many instances, Africanized bees are kept in hives of this design. Such hives are suspended about two (2) feet above the ground to avoid vibrations, ants, fires, and other such problems.

The Kenya Top Bar Hive is simple and functional. Construction measurements are important, but not critical. Since beekeeping equipment is readily available in the United States, most beekeepers would only want to "toy" with such a hive. Frames are movable, but just to be on the safe side, I suggest interested beekeepers contact their state apiarist to be sure hives are legal in a particular state.



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Monthly HONEY Report

LAWRENCE GOLTZ

October 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	33.00	37.80	32.40	35.00	34.85	31.80	34.40	33.00
60 lbs. (per can) Amber	42.00	27.60	36.00		34.00	32.90	29.80		32.40
55 gal. drum (per lb.) White	.58	.55	.59	.56	.54	.59	.57	.58	
55 gal. drum (per lb.) Amber		.46	.57		.52	.57	.56		
Caselots — Wholesale									
1 lb. jar (case of 24)	26.50	24.25	25.80	24.48		23.00	22.10	23.10	23.00
2 lb. jar (case of 12)	26.00	22.40	24.20	22.56		22.00	21.05	22.20	22.40
5 lb. jar (case of 6)	30.00	26.95	26.75	25.80		24.50	23.50	24.30	25.10
Retail Honey Prices									
½ lb.	.90		.90	.82		.85	.84	.85	.91
12 oz. Squeeze Bottle	1.35	1.25	1.50	1.18	1.15	1.15	1.28	1.35	1.32
1 lb.	1.35	1.40	1.50	1.35	1.35	1.35	1.42	1.35	1.49
2 lb.	2.55	2.70	2.85	2.49	2.45	2.40	2.35	2.45	2.70
2½ lb.	3.15	3.50				3.00	2.99	3.49	
3 lb.	3.55	3.75	3.99			3.60	3.25	3.99	3.85
4 lb.		4.80		4.89	4.50	4.55		5.10	
5 lb.	6.00		5.95			5.20	4.99	5.99	5.90
1 lb. Creamed			1.55					1.65	
1 lb. Comb	2.00	2.00	2.25			1.65	1.63	1.75	
Round Plastic Comb	1.50						1.55	1.35	
Beeswax (Light)	2.10	1.90	1.95		1.90	1.95	1.85	1.90	1.85
Beeswax (Dark)	2.00	1.85	1.90		1.80	1.85	1.80	1.85	1.75
Pollination Fee (Ave. Per Colony)	25.00		22.50					15.00	18.00

Misc. Comments

Region 1

Fall honey flow was good but over all the crop was below average in Connecticut. Massachusetts was below last years crop; New Hampshire had a fair crop. Reports from Maine are very good. Late summer rains in Vermont have given a boost to clovers. Market for honey is fair with an increase in retail prices.

Region 2

Honey sales have been soft in Pennsylvania; no change seen in the market in New York. Honey sales are very good in Maryland as beekeepers supply local honey to customers. Fall honey flow below average in Pennsylvania due to rains. Fall flows in New York were not strong but did supply some of the wintering requirements. Crop was spotty in New York State; no one beekeeper has a large crop and many have slightly below average and down. Bees strong.

Region 3

Northern Ohio had a very poor honey crop and a variable yield in other parts of state, mostly below average. Some colonies short on winter stores. Most areas in Indiana had a crop failure and many colonies may have to be fed if they are to come through the winter. The fall honey flow in Illinois was better than the summer honey flow, but for the season it was a poor crop. Anticipate loss of colonies if the winter is severe. Demand for honey is excellent in Indiana but good white honey nearly impossible to find.

Region 4

Retail honey prices have gone up in Minnesota due to increased costs and the short supply. Most reports are that the crop is around 2/3 of normal; but some reporting as low as 1/5 of a crop in Minnesota. Lots of feeding needed to bring colonies up to wintering weight. Beekeepers demoralized by disappointing crop and competition from lower priced foreign honey. Honey sales fair in Minnesota. A very disappointing season in Iowa, but bees are going into winter with honey and are very strong.

(Continued on page 599)

The Honey-Guide

"The natives credit this bird with supernatural powers!"

By FANNY KRAISS DEVINE
Wooster, Ohio

IN THE Transvaal Province of the Union of South Africa, Gold is king; the green Mamba glides through the tall grass in the veldt with one third of its long body perpendicular, coolly surveying the land over which it slithers unopposed, for this snake carries certain and agonizing death in its fangs; and a tiny bird as plain as the common sparrow confuses, confounds, and frustrates the bounty hunter, yet leads a man in search of precious wild honey straight to the beehives hidden away in hollow tree trunks and wedged in the cleft of a rock. This noisily insistent bird is the *HONEY-GUIDE — INDICATOR VARIEGATUS.* Its resemblance to the sparrow is misleading for it is zygodactylic, having two toes in front and two behind, as do parrots and cuckoos; and, like the cuckoo, it is parasitic, forcing other birds to raise its young. The Honey-Guide nestling is even assured of having its foster parents' sole attention, for it emerges from the egg equipped with a temporary hooked-tooth on both mandibles. With this formidable pair of forceps it ejects its nest-mates, one by one, until it alone remains in the nest, heir and beneficiary of all that the hapless parents (usually barbets and woodpeckers) have to offer; mission accomplished, this weapon disappears. The youngster is frequently spared even this much trouble, for the parent who lays the single egg in a stranger's nest is often successful in breaking all the legitimate eggs already there!

It would appear that in the case of the Honey-Guide, nature is on the side of the wrongdoer! Or is it merely a case of providing survival for a species where the parent-bird is perhaps not equipped to nurture its own young?

The Honey-Guide's favorite food is the grubs, larvae, and young contained in the hives of wild bees and wasps. But this poses a problem, for the bees' nests are usually quite inaccessible to a small bird, being as a rule wedged into the clefts of rocks or fortressed in hollow trees. Through observation, and who knows how many thousands of generations it took, the Honey-Guide discovered that the upright-walking creature whom we call "man" is fond of honey, and that to obtain it he destroyed the hive and abandoned the most succulent portions: the grubs, larvae, and young.

This clever little bird has learned to "harness man's labor" to his own benefit; so-called, "domesticated man", but without obligating himself to his personal care, as man must care for his horse and cow. This little bird is "one up" on man! When the Honey-Guide spots a man, he "sets up a great to do" above and around the man. Its harsh, incessant chatter never ceases — especially if the man is carrying an ax or a crowbar. If the man is interested in honey, he will indicate it by following the bird. The rattling chatter ceases so long as the bird sees that the man is following.

While the man interested in honey smokes out the bees, splits open the tree trunk or cracks the rock, the little Honey-Guide perches in the near-by bush, nervously chattering softly, anticipating plunder! A man, leaving such a site with dripping honey comb sections in any available carrier has only to look back and catch a glimpse of a plain little bird picking out his reward.

Now this is all very well for the man in search of honey. But for the hunter with camera or gun, the Honey-Guide is a maddening spoil-sport! The rattling chatter is clearly understood by all animals. It means "man near-by", and usually, one with gun! Many a stalker has lost his quarry at the precise and crucial moment of capture — on film or by bullet. Since this bird will not "give up", there is nothing to do but follow the leader, or else abandon the original pursuit.

The natives credit this bird with supernatural powers! Perhaps they are all true; or coincidental; maybe a little of each. They claim that if the Honey-Guide is denied his fair share of the spoils, it will most surely mislead you the next time and take you straight to a venomous snake, a sleeping lion, or into the mighty jaws of an enraged rhino.

The unwritten laws of the jungle are honored; in such matters savages are more trustworthy than civilized man. If a man, for instance, places a hollow log in a tree to attract bees, it will not be looted by another; even the Honey-Guide would not lead anyone to it.

There is also a belief among natives that the Honey-Guide occasionally practices sheer altruism, guiding natives straight to a dead elephant or rhino whose ivory tusks and horns have not yet been removed!

Savages say that "God" has given this bird the work of finding for men things that are lost. He is the St. Anthony of the unbaptized, the unredeemed.

We humans who live in cultured ease are really simple and very limited creatures. It is quite possible that the savage whose life is a constant test of courage, ingenuity, and instinct has a mind so finely-honed that he and the Honey-Guide and other "unprotected creatures" share a network of communication which we shall never fathom; and they may unltimately redeem us. □

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Notes From The Straw Skep

By BESS CLARKE
50 Lycoming Street
Canton, PA. 17724

STORIES WITH AN Indian theme are always good at Thanksgiving time so I'm going to share one which is a bit different.

A couple of our friends who live an alternate life style have studied Indian culture and feel that the Indians lived in harmony with nature, taking from the land only the minimum needed for survival. (It occurs to me that requirements for survival may vary widely from culture to culture.) At any rate, Chip and Gina get along nicely on their acreage in northern Pennsylvania without electricity or fossil fuels.

They keep a few colonies of bees — that was how we got acquainted with them in the first place — and they have a big garden, a woodlot, a sauna, and a horse.

You may remember that I wrote about Chip's adventures in Ecuador in the March, 1981 issue of *Gleanings*.

When Gina became pregnant, the couple decided that they wanted their baby to be born in the tipi which they had erected in an old apple orchard and were using intermittently.

They made careful plans, including participation in a series of home childbirth education classes. Sheets, pillow cases, and receiving blankets were washed, bagged, and sterilized in the oven of the woodstove in the farmhouse kitchen. A campstove, set up outside the tipi, provided boiling water for sterilizing instruments. A pick-up truck was parked nearby in case there was a need for emergency action.

An Indian birth ceremony, adapted from the Apaches, was used to symbolically purify the tipi before the baby was born. The structure was filled with smoke from sage, quartz crystals were placed in the four directions of the compass, cattail pollen was scattered, and the feather of a great blue heron was on hand for use as a birthing feather.

Daniel Travis Hollister made his appearance on August 18, delivered by his father, with the assistance of several friends. Daniel's Indian name is "Wild Horse" and a picture of the animal is painted on the canvas above the bed where his mother lay for the delivery.

Gina's labor lasted only four hours and the delivery occurred before the officiating physician had arrived at the scene. Chip said he caught the baby as he emerged, tied the umbilical cord with sterile string, and cut it; and he enjoyed being an integral part of the birth process.

"Home birthing is not for everybody", said Gina, but she is one of many in her circle of friends who subscribes to the philosophy that the home is the ideal place to bring a new life into this world. They feel that being born is a natural process and they prefer a home situation to the isolation of the hospital.

Gina had regular prenatal care and all indications led her to believe that she would have an uncomplicated delivery. As it happened, the placenta adhered to her uterus and she was taken, briefly, to the hospital for attention. However, she was at home again in two hours.

While she was gone, little Daniel was left in the care of his paternal grandparents, who, along with the doctor, were late for the birth. A wet nurse, a friend who is nursing her own baby, volunteered to feed the new arrival if it became necessary.

Daniel has been checked by a pediatrician who administered bilirubin and PKU tests and pronounced him healthy.

Who knows? Daniel may grow up to become president some day. Then he could tell everyone that he was born in a tipi!

We had a letter recently from our friend Tom Sanford who used to be Extension Beekeeping Specialist in Ohio. Tom has moved to Florida where he currently holds a similiar position at the University of Florida. He is continuing his practice of writing a newsletter to keep beekeepers informed. You Florida beekeepers are in luck; Tom's a good man.

Recipe

Now for a recipe. How about a **Walnut Honey Loaf**? Lois Benton adapted this recipe and uses it most successfully.

WALNUT HONEY LOAF: Combine 1 cup honey, 1 cup milk, and ½ cup sugar in a three quart pan. Beat over medium heat, stirring constantly, just until sugar is dissolved. Let mixture cool. Combine 2½ cups flour, 1 teaspoon soda, 1 teaspoon salt. Have at hand ½ cup chopped walnuts, ¼ cup shortening, and 1 egg. Add all ingredients to honey mixture and beat until well blended. Grease a 9 x 5 loaf pan ONLY on the bottom and pour batter in. Bake at 325°F. for 75 to 80 minutes. Cool in the pan for 15 minutes, then turn onto a wire rack to continue cooling. Serve in thin slices with cream cheese. □

A sting is worth a thousand "don'ts".

It Won't Happen Again

By SUSAN OFFRINGA
Abilene, TX

ONE BEAUTIFUL OCTOBER afternoon I visited a small bee yard I have in a apricot orchard near alfalfa and cotton fields. The weather was one of those warm, windless days before the first cold blast of a West Texas "blue norther" sends me searching for the winter coats and gloves I stored away last spring. The colonies in this apiary had been swarms hived on foundation in new equipment the previous April. I reduced each colony to a standard brood chamber with two shallow supers of capped honey for winter stores. As I checked each colony, I installed a metal mouseproof entrance reducer before the effect of the smoke wore off. After inspecting the last hive, I reached in my pocket for the screws to install the entrance reducer. A quick search of my pocket revealed no more screws, just the tiny hole in my pocket the screws had fallen through. I promised myself I would drive out with more screws and install the mouseproof entrance reducer at the first opportunity.

The road to Hell is paved with good intentions — a number of them mine. I did not get around to installing the missing mouseproof entrance reducer until spring inspection. Upon examining hives, I was please to find most of the colonies populous, with ample pollen and honey for brood rearing before the main nectar flow. The colony where I had neglected to install an entrance reducer was the unfortunate exception. Its strength was far below the other colonies in the little apairy. An accumulation of wax cappings, windblown sand and compacted leaves littered the back of the bottom board. A cockroach streaked out from under a section of pecan hull, making it's escape before I could squash it with the hive tool. The wax moth larvae under this mess were not so fortunate. I made short work of their prospects. Ordinarily, it is unnecessary to clean bottom boards much during spring inspection. The winters in West Texas are quite mild compared to some other parts of the country. There are usually a few warm days in between the cold spells when the temperature is high enough to allow the bees cleaning flights. Consequently, bees in our locality generally do their own "spring house cleaning".

I was appalled to see what at first glance appeared to be a live shrew perched halfway between two top bars of the brood nest. After recovering from my initial surprise, I realized the shrew was too still to be alive. Sometime during the winter, the shrew had invaded the hive looking for a free lunch, and the colony had objected and settled the issue permanently. All that remained of the once voracious shrew was it's mummified furry head and shoulders showing above the top bars. The torso and hind leg skeleton dangling below the bars were devoid of any fur or flesh. Apparently, after stinging the shrew to death, the bees carried the shrew's lower body tissue outside the hive to prevent contamination of the hive interior.

Although the common shrew is half the size of a mouse, ounce for ounce a shrew is probably one of the most vicious animals on earth. Endowed by nature with a weak venom, it will attempt to eat animals over twice its size. Driven by an insatiable appetite, a shrew consumes twice its body weight daily. Standard diet is insects, worms, snails and occasionally mice, snakes or other shrews encountered in its never ending quest for food. Cold weather finds the shrew tunneling through dry leaves or new fallen snow searching for sustenance.

The setback caused by my negligence and the shrew's depredation plagued the colony half the spring. The colony seemed to take twice as long as the others in the yard to reach full strength, even with the addition of a couple frames of capped brood. They were not populous enough to take advantage of the early fruit bloom, nor were they able to store much honey by the time of the first alfalfa cutting. Our usually reliable spring mesquite tree bloom was cut short by an attack of army worms that ate the flower clusters just as the mesquite began blooming. The summer weather following was very dry; strong colonies at this site barely averaged 25-35 pounds of surplus honey from both cotton and alfalfa. Unfortunately, the shrew-weakened colony hit full strength during a darth of nectar, and had little opportunity until the fall broomweed flow to collect winter stores.

A little extra effort on my part could have prevented the damage done to that unfortunate colony. Instead of a loss of a season's surplus honey, I might have had a strong colony, able to take advantage of nectar flows if I had taken time to return and install a mouseproof entrance reducer.

It won't happen again.□

Congratulations Master Beekeepers

At the annual EAS Banquet held August 7, 1981 at the Browers Commons, Rutgers University, New Brunswick, N.J., Dr. Clarence Collison, Chairman of the Master Beekeepers Certification Program announced that 11 persons had successfully completed all three portions of testing for the MBCP and had been declared Master Beekeepers.

They were as follows: Norman Bantz, New York; Richard Bonney, Massachusetts; Marc Caputo, Ohio; Ping Sun Chun, New Jersey; Willie Robert Cole, North Carolina; Craig Foster, Maryland; David Hampton, Ontario, Canada; Ms. Ann Harman, Maryland; Fred Harris, New Jersey; Richard May, Rhode Island; and Ernest Miner, Jr. of Maryland.

Out of the 53 persons who tood the test, 16 were from New Jersey. We congratulate Fred Harris of Sparta and Ping Sun Chun of Morristown for successfully completing testing for the MBCP which by all descriptions was no easy feat.

Testing for the next MBCP will take place in conjunction with the 28th Annual EAS Conference to be held August 4-7, 1982 at West Virginia University at Morgantown. Applications can be obtained from EAS secretary, Liz Rodrigues and returned to her by the June 3, 1982 deadline.

You must be present in person at the Conference Site in order to take the test on the date specified by the MBCP certification committee.□

From New Jersey Beekeepers' Association News.

Monthly Honey Report

(Continued from page 590)

Region 5

Supplies of light honey in bulk are short in Florida. In some cases it appears the buyers are willing to pay the interest on honey which is on loan support, but generally the base price is not high enough to make such honey cost more than 56¢.

Region 6

Colonies have been gathering winter stores in Kentucky during September after having depleted their reserves during the long summer drought. While no fall surplus is expected normal winter stores may be gathered. Weather has been normal in Kentucky, with improved honey sales. Tennessee had a good honey flow from goldenrod and aster. Moisture needed. Honey sales have been good in Tennessee, especially bakery grade.

(Continued on page 613)

Siftings

By CHARLES MRAZ
Box 127
Middlebury, VT 05753

IT LOOKS LIKE the "natural food assassins", are back at work again. First, honey has been crucified as a cause of botulism poisoning by a medical study that seemed an awful lot like a deliberate effort to give honey a bad name, instead of being one of the classical "health foods" it has always been through the centuries. Not a single infant, from the paper on the subject, was on an exclusive honey-milk formula, with honey in its diet every day for almost every meal. From the study I read, these infants only had a minor exposure in tiny amounts for only a very short time. Why is it that babies on natural honey milk formulas never seem to develop digestive problems? In fact, it is the best way to correct and cure many digestive problems.

Lately, of all places, the latest attack on honey is in *Organic Gardening*, a publicaiton that is supposed to, we think, advocate the use of natural foods. It is in the September, 1981 issue, "A Hard Look At Honey", by Susan Milius. I have no idea who Susan Milius is, but apparently from the article, she knows very little about bees, honey carbohydrate chemistry or metabolism. I doubt if she ever ate honey in her life or ever met a bee face to face. Why *Organic Gardening* ever published such an article obviously having no basis in fact is hard to understand.

Yet, *Prevention*, published by the same publisher, often puts in a good word for honey. Even in the bible, King Solomon says, "Eat thou Honey, it is sweet to the taste and health to the bones". Perhaps Susan Milius believes she is wiser than King Solomon; but I doubt it.

Recently I just received a letter from Dr. Fang Chu, head of the Apitherapy Society of the Chinese Beekeepers' Association. He mentions working with Apitherapy for 25 years. In his letter Dr. Chu states, "Bee products have been used for preventing and curing many diseases in our country since ancient times. Nowadays, there are numbers of doctors, professors and scientific workers who are enthusiastic about apitherapy in our Apitherapy Group of the Chinese Apicultural Society".

In September *Gleanings* I told you about a letter from Mrs. B of New York who used honey to heal her daughter's swollen and infected thumb. If you doubt what she says, ALL YOU HAVE TO DO IS TRY IT YOURSELF. You try it once and I know you will be amazed at what pure natural, unheated and unfiltered honey will do to heal the body. A year and a half of anti-biotics and cortisone cream failed to heal Rosa's thumb, yet the honey healed it in 10 days. Is it not possible that natural honey could also heal inside the body as well as the outside?

These stories and experiences on the healing property of honey on wounds and burns have been going on for years and are occasionally published, especially in Europe. There is a Doctor Bulman in England who used honey for surgical ressing with excellent results for years after reading Dr. Beck's book. Just try it on burns. The results are amazing and wounds will heal without scars, as we and others have observed many times. It is time beekeepers started fighting back at this unjust criticism with facts.

Page 474, September *Gleanings* is an article by William G. Lord on "Spray Feeding". Whenever I read an article on feeding sugar syrup, I cringe. I haven't fed our bees for over 30 years. We leave them honey. It is much cheaper and the bees come through winter much stronger. Besides, feeding bees is an awful hard, dirty job, and expensive. No doubt there are situations and conditions where feeding must be done, there is no alternative, but if you do not have to feed sugar syrup, leave honey and you will take care of a lot more bees with much less work. Feeding a thousand or more colonies of bees in the fall, when the season is short, as in Vermont, is quite a struggle to finish feeding before it gets too cold. When we leave a full super of honey for winter feeding, the bees are all ready for winter as soon as we take the surplus honey crop off the hives in August. No worries trying to get them fed in time as we used to do, 30 years ago. What a relief!

William Lord has a good system, but what an awful job if you have to feed 20 to 50 tons of sugar syrup; removing the combs from the hives and filling the combs with syrup, one comb at a time!! Besides, a super with thirty pounds of honey will go much further than even fifty pounds of sugar syrup. There is much shrinkage when feeding syrup. I don't know where it goes, but the combs do not hold as much syrup as you feed them. With just a few colonies feeding is no problem, and perhaps a lot of fun to a beginner, like feeding a new baby. The best way to learn what an awful job feeding is, is to feed for a long period of time.

So ends another honey crop for this season. Here the crop is fair, better than the total failure of last year. There have been rains this year and we find much volunteer clover coming up this fall. If it doesn't kill out this winter, it does look like lots of clover for next year. We hope.

Page 486, "Strictly Backlot", by Carl Callenbach is most interesting to me because of the work I am doing in bee venom therapy. Carl brings out the use of what we call, "trigger points", to apply "accupressure" for the relief of the pain of bee stings. I have used these "trigger points" or "hot spots" for some fifty years when treating rheumatic diseases with bee venom therapy. These trigger points are everywhere in the body, especially when you have arthritis. When you hit them with pressure of the thumb, the sharp pain will really make you jump. That is where you apply the stings for the best results. Accupressure is getting quite a play lately. Bonnie Pruden advocates massaging these "G-Jo" points to treat arthritis. This will give temporary relief. You need the bee venom to get more or less permanent relief. What is interesting to me is that it gives relief from the pain of a sting. It must be somehow related to the way bee venom applied to these points give relief to the pain of arthritis.

1982 ABF Convention In Savannah, Georgia

"On a soft winter evening, when bushels of the small, sweet Georgia oysters are steamed open on sheets of iron laid across pits full of glowing coals, then eaten from wooden tables set up under the placid moon, the results are messy and marvelous."

That author had quite a way with words, and, in a word, the Georgia Host Committee plans to gild a lily (or an oyster) during the 1982 American Beekeeping Federation convention in Savannah, Jan. 19-22. The above described gastronomical delight will be enhanced when the convention takes a boat ride downriver to historic Fort Jackson.

The Fort Jackson outing is but one of the delights being planned for the Federation convention. The delights start right in the hotel.

The Hyatt is the centerpiece of the nine-block River Street area of Savannah. Warehouses which once supplied the country's busiest cotton export trade have been renovated and are now crowded with shops, restaurants, galleries and nightspots.

The convention program of speakers, films and panels is being organized with every aspect of the industry in mind.

For good measure, there will be the annual honey show, commercial exhibits and displays, ladies' auxiliary program, and meetings of other groups in conjunction with the Federation.

Savannah is convenient to reach by auto, train, air, bus, and even by boat (dock right at the Hyatt). Informaiton on the city is available from the Savannah Area Convention and Visitors Bureau, 301 West Broad St., Savannah, GA 31499. For information on the convention itself, contact the host committee: ABF/Savannah-1982, Jesup, GA 31545. The Federation will be mailing out an information packet for use in advance registration with the hotel and the convention this month. If you do not receive the mailing by early December, write the host committee.

Watch for the complete convention program to be published next issue.

Entrance to the Hyatt Regency,Savannah, scene of the 1982 American Beekeeping Federation Convention.

ABF Honey Show

The finest examples of honey and beeswax will be on display at the 1982 American Honey Show to be held in conjunction with the American Beekeeping Federation convention, Jan. 19-22, in Savannah, GA. All Beekeepers are invited to join in the competition.

A completed entry form and the entry fee must be mailed to reach the Honey Show Committee by Jan. 8, 1982. Mail to American Honey Show, ABF/Savannah-1981, P.O. Box 1982, Jesup, GA 31545. The entry form may be obtained from the above address.

Honey and/or beeswax exhibits must be presented to the committee at the Federation convention before 9 a.m., Jan. 19. They may be mailed or shipped (UPS recommended) in advance to the committee at the above address. Ship in time to arrive by Jan. 15. Shipments should be packed well, preferably double-boxed.

Strictly Backlot

By CARL CALLENBACH
135 College Avenue
Elizabethtown, PA 17022

EVERY BACKLOTTER'S summer should be spiced with at least one hairbrained attempt to remove a swarm of bees from a house — the older the better. Matching wits with a large swarm in a weathered and slightly battered board-and-batten house can drive me crazy!

A sandstone house with wood trim and fabricated shingles, too, can set my adrenalin flowing, even on hot, sultry Lancaster County days in July. The secret to success, I've discovered, is to sprinkle my seige of the honeybees with at least three weekend trips upstate to the mountains or, for the beach buffs, no fewer than two treks to the Jersey shore.

That's the best way to live with the odds: For every fifteen maniacal attempts to remove swarms holed up in houses, the law of chance says I'll be successful at least once. I try not to fight the odds. Sometimes I give the odds a go, but I always like to have my hammock in the mountains ready. And my excuses.

About four years ago a lady called me and asked whether I could take some bees out of her house. I drove to the location, nearby, checked out the swarm, and in a moment of clear-headed reason, told her the task was far too complicated for me. The bees, I told her, have been here for many years, and were entering their nest using seven or eight entrances — long cracks between the wood trim and the stone, holes in the wood trim in back of the spouting. I was also thinking to myself that the size of the swarm, should I beat the odds and trap it, might create a terrifying day or two for a family distressed at the sight of ten or twenty thousand bees dangling evenings in front of their livingroom picture window. And how would I set up the hive I'd bring to house the bees if I did trap them out of their nest? I couldn't nail a supporting structure to the metal shingles. There was nothing to rope onto. I told her I was sorry.

Then, in early June, this year, I returned to the same sandstone house; this time the owners were acquaintances. I had worked with David's wife on campus, and this time there was little good sense in my decision to try! I explained that it would take time, that there might be lots of bees, that my monitoring the foolish seige would be sporadic and dependent upon responsibilities I had elsewhere: The mountains, my garden. I explained that I would bet David twenty-five dollars I could not trap the bees. I was that confident. David refused the bet. He promised to help build a platform should I beat the odds and trap the bees.

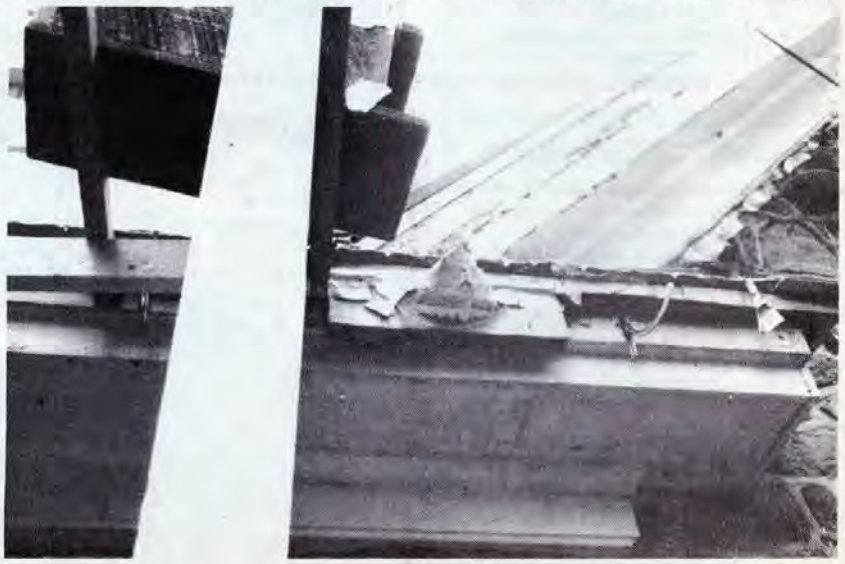
A week later I ordered two Carniolan queens from Georgia. It was too late to turn back now!

That weekend I loaded up my bee equipment. I added two large rolls of duct tape and a roll of black plastic I use, in more enlightened moments, to mulch tomatoes and melons when grass and straw are not available. I borrowed David's step ladder, took off the spouting and began taping the cracks on either side of the spot where most of the bees were entering and leaving. I left an entrance of approximately 12 inches, but there's nothing scientific about that. I was very sweaty from the oppressive humidity and I wanted to go home and take a shower. That evening we left for the mountains.

When I returned to the house, I observed bees entering several places other than the crack I'd left them. I used more tape and a piece of plywood to replace a rotten board. I returned a week or two later, found that the bees seemed trained to the crack I'd left, so I attached a board with hardware cloth cone over the crack. The cone was tipped back and held by a wire I taped to the roof. The bees could still enter and leave without having to negotiate the cone. I wanted to be around when the trapping was underway, but we were heading for State College and a long weekend at Spring Creek.

To make the trap functional, I had only to staple the tipped up portion to the wood, and when we returned to Elizabethtown, I did and left for the garden to pick greenbeans for freezing. That evening I checked the trapping progress and found a small buildup of bees attached to the edge of the roof near the cone. I guessed that (1) the bees had swarmed while we were going down Spring Creek on an inner tube or (2) the bees had found another entrance.

The next few days, I believe, proved me correct on both counts. There appeared to be less action; the bees were entering and exiting along the wood moulding away from the nest, and worse, I began to suspect they had somehow found numerous intricate pathways through the metal shingles. I taped a portion of the cracks between shingles and stuffed black plastic along the moulding. I went home and that evening called David and said I thought it was probably an appropriate time to think about surrendering. I told him we were leaving town for a couple of days. I said I'd check the swarm in the morning, but that he'd better begin to



I attached a board with hardware cloth cone over the crack.

consider an exterminator.

In the morning, with the mountains on my mind, I saw that there was a chance the bees were successfully trapped. I watched the goings-on for a half hour: Bees were returning with pollen and instead of searching for new entrances, they were joining the cluster hanging from the wire cone; other bees were frantically searching for new entrances but they were giving up and returning to the cluster.

We built a 10-foot stand, and I placed a 5-frame nuc in position near the cone. The nuc was filled with four empty drawn frames and one frame containing egg, brood, and a Carniolan queen. Then I packed for the mountains.

Four days later I replaced the nuc, now almost too full of bees, with another nuc containing the remaining queen. Three weeks later I removed the nuc and tore down the stand, the day before we took my daughter to a two-week nature workshop in the Adirondacks.

Mountains or shore. It helps if you keep moving when you're taking bees out of old houses.

We built a 10 foot stand pad and I placed a 5-frame nuc in position near the cone.

Brother Gerard

"New Melleray, a Tappist monastery was estabtablished in 1849

By PAT SLATTERY
Cazenovia, WI

THE WORD "Melleray" actually means honeycomb in French. This was because during the French revolution, the monks were driven out of their monastery in the forest to escape persecution. They had no food, but came upon a bee tree, and the honey sustained them. The original Mt. Melleray was founded in Ireland.

The honeybees had returned to New Melleray Abbey this year, and for at least one monk, their buzz is one of the most joyful sounds this side of Life Eternal.

Brother Gerard McDonough, who's been a Trappist monk for 40 years, is the resident bee expert at this Iowa monastery, located twelve miles southwest of Dubuque. Gerard has enthralled hundreds of visitors at the Abbey with tales about beekeeping. A genial giant of a man at six feet, six inchs and weighing 240 lbs., Brother Gerard enjoys giving his many friends an affectionate bear hug as a greeting. He's not the type of monk who heads for the hemitage in the woods; he enjoys being around people.

The Trappist monk is fond of pointing out the spiritual connection between honeybees and monk. "We both live under a Superior, and we both live together in common," he notes. Brother Gerard often quotes an address given by Pope Pius XII who said "Oh, if man could only learn from the life of the bee, what a happy world this would be."

Brother Gerard came to the monastery at the youthful age of seventeen, six months before graduating from high school. He was in a high school seminary near his native San Francisco but couldn't get the Latin, which at that time disqualified him from being a priest. Gerard still wanted to serve the church, and heard of the Iowa monastery which had been founded in 1849 by Irish monks. He wrote and received a letter back that he was accepted, and so he bought a one-way

Brother Gerard

and His Bees

and by 1851 there were bees at the newly founded monastery"

ticket east, and has been at the monastery ever since.

The Trappists have a tradition dating back to the 11th century. Their lives, according to the rule of St. Benedict, are divided between periods of prayer, study and manual labor. They arise at 3:15 a.m. and end the day after evening prayers at 8 p.m. Church services are held seven times throughout the day.

The first Trappist brothers were serfs, while the priesthood was reserved for noblemen. It was a great sign of egalitarianism in the Middle Ages to see brothers and priests working side by side in the fields. Some Trappists concentrate on liturgical music (choir monks) while other spend more time on manual labor. Because of his size, Brother Gerard was sized up for outside work. He attended only the daily mass at 4 a.m., and spent the rest of his day working with his hands.

"We used to say our daily office of prayers and our 'Aves and Paters' (Hail Marys and Our Fathers) out in the fields while we worked," Brother Gerard recalls. He worked at many jobs on the farm, including riding the range on horseback to herd cattle, milking cows, running the laundry, plowing, firing up the boiler, picking corn by hand, and tending 4,000 sheep.

One winter Fr. Francis, who was being transferred to the Trappist Monastery in Missouri, told Gerard he had a new job for him. "You'll have thousands of little sweet things to watch over," he told Gerard.

Fr. Francis wasn't a knowledgeable beekeeper, and for the winter had brought his bees indoors. He thought it would help them by occasionally firing up the furnace. Brother Gerard's first job with the bees was to haul out of the cellar the few colonies that remained alive, as four inches of dead bees covered the cellar floor.

"I was terrified of working with the bees at first," recalls Gerard. But he soon learned to love the bees over any other job, and for twenty-five years he was New Melleray's beekeeper.

At his peak Brother Gerard had over 100 colonies, which met his goal of having a beehive for every monk at the monastery. In his best year he had a crop of over 20,000 lbs. of honey. One season he raised twenty acres of rape, and combined the seed to sell to beekeepers. Another year he raised a field of Japanese buckwheat.

Gerard marketed all his honey retail, much of it through the monastery's gift shop. "You can put the Trappist monk label on anything and it'll sell," he notes. He bought a used bread dough mixer and started creaming honey. He perfected a method of adding ice cream flavoring to honey, and came up with twenty-three varieties of honey such as chocolate, raspberry, mint, etc.

His flavored creamed honey developed into a blooming mail order business. One box of his specialty creamed honey got all the way to Rome where the Abbot General of the Trappist Order sampled it. From Rome came an airmail letter which read "To Brother Gerard, the sweetest brother in the world.

His honey house, which was formerly a winery, was a slick operation; totally steam powered with extracted honey, going by gravity flow to the basement for processing and bottling.

In 1970 Brother Gerard fullfilled a lifelong dream by going to Sacred Heart Seminary for Delayed Vocations in Milwaukee to study for the priesthood. Another monk couldn't be found who was interested in taking over the bees, so Gerard's business came to a standstill. To make matters worse, a spark from a welder flew into the old railroad boxcar where he stored his equipment, and $10,000 worth of beekeeping paraphernalia went up in flames.

A year before he was to be ordained, Gerard suffered a severe heart attack. He was in fact clinically dead for ten minutes, and had a "Life after Life" experience. "I could see the doctor and the nurses working feverishly below," he recalls. I experienced a great feeling of peace and contentment in the presence of a dazzling light. I didn't want to come back, but the Lord must have had other plans for me, as I felt myself slip back into my body."

Brother Gerard has never regained his original strength, and today has a hard time lifting an empty deep super. He needs much rest and takes continual medication. He spends his days doing pastoral work with visitors at the monastery guesthouse and a Dubuque hospital.

Many farming changes have occurred at New Melleray over the past decade. The entire 1,200 acres of tillable land are now in corn, and a year ago the monastery's prize herd of registered Black Angus cattle were sold off.

Novice master Fr. Willy ordered several hives of bees for his novices this spring so they can experience God's hand in nature through working with bees.

So even though there are only a few hives at the monastery, at least it's a start in the right direction. And, although Brother Gerard's health won't permit him to work with the bees, the novices will at least be able to learn from the apiarist monk, who has spent much of his vocation praising God while working with a hive tool in his hand. □

Research Review

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

African Bees Coming North

DURING THE PAST few months we have seen a flurry of articles concering the advance of the Africanized bees northward in South America. I wrote Dr. Moises Katzenelson, Extension Apiculturist in Argentina, and asked about his recent experience with these bees in his country. It is important to understand that Argentina is and has been one of the major honey exporting countries in the world. The Africanized bees have been in Argentina for nearly 20 years. Dr. Katzenelson has been in his present position since before the introduction of the African bees into Brazil so he is throughly familiar with what has taken place.

In his reply Dr. Katzenelson writes that south of 32 degrees south latitude, the Africanized bees have no effect. This line is about 150 miles north of the capital city of Buenos Aires. The only American I know who has studied the question extensively is Professor W. P. Stephen of Oregon State University. I discussed this question with him last January and he, too, told me that Africanized bees apparently did not migrate further south.

Dr. Katzenelson wrote that north of 32 degrees south in Argentina and in Paraguay, the Africanized bees he has observed were not as aggressive as they are said to be in tropical Brazil. In northern Argentina beekeepers make up nucleus colonies from Africanized stock and Introduce Italian or Carniolan queens with no difficulty. Even when daughter queens from this stock cross with Africanized drones the offspring are not especially aggressive.

This experience leads me to repeat that the Africanized bees should not be expected to be a problem in most of the United States. There have now been two introductions of Africanized bees from tropical Brazil into Poland and in both instances the bees were not aggressive in Poland's temporate climate. African bees are a tropical race. They thrive in the tropics and under tropical conditions they are more aggressive than their European counterparts.

From the point of view of a biologist, the reasons why bees might be aggressive in one climate and not in another is a great fasciation. I think this question bears directly on the future of our own industry and I hope it will soon receive the attention it deserves.

A New Bulletin on Yellowjackets

The Yellowjackets of America North of Mexico is the title of a new USDA Agrjculture Handbook (number 552). This will be of interest to students and beekeepers who find they, or at least their bees, are blamed for wasp problems. The 102 page handbook covers such topics as taxonomy, biology, economic importance, medical importance and control. The authors are R. D. Akre, A. Greene, J. F. MacDonald, P. J. Landolt and H. G. Davis. Three of these researchers are from Washington State, one from Indiana and one from Maryland so the coverage is nationwide.

The copy I have before me states that the publication is offered for sale by the Superintendent of Documents, Washington, D.C. 20402; no price is indicated. I presume copies may be obtained at no charge by writing a Senator or Congressman.

Shipping Bees by Air

Shipping package bees by air has never been popular. Several shipments have been lost because of overheating and/or suffocation.

• Two engineers from the U.S.D.A. have studied the problem recently. They followed four test shipments between Phoenix, Arizona and Calgary, Alberta, Canada in 1980 and 1981. Standard packages with a can of sugar syrup were used.

In the last shipment 243 kilograms of bees (over 500 pounds) made the two hour trip successfully. Some problems arose: Sugar syrup leaked from the cans. presumably because of the decreased air pressure; some bees were jarred from their clusters when the plane landed; there was some overheating while the plane was still on the ground that could have been avoided by precooling the cargo compartment.

The author's comment that plane cargo compartments are heated so as to protect the occasional dog or other animal present. The compartments are not equipped to cope with the heat produced by a large number of such animals or several hundred pounds of bees that generate a great deal of heat. In the last successful shipment the cargo heaters were turned off and the bees were able to keep themselves warm. It is suggested that if air shipment is to become standard procedure that a temperature sensor be installed so that the flight engineer could adjust the air conditioning system should it be necessary.

The paper I have before me, which is a copy of a talk and is not yet a published paper, presents further information on the temperature changes during the flight.□

Ashby, B. H. and W. A. Bailey
Bee transport by air. 61st Canadian Society of Agricultural Engineering and the North Atlantic Region, American Society of Agricultural Engineers, Brock University, Ontario.August 9-13, 1981. 13 pages.

Foulbrood Disease

American foulbrood, caused by Bacillus larvae is the most serious disease affecting the brood; it is most contagious, a real threat for the beekeeping in large areas. The mere presence of Bacillus larvae in the hive is not the only decisive factor for the disease to set in. The colony is diseased only when the biological mechanisms of protection in bees. are disturbed. Very great numbers of microbes are necessary for experimentally causing the disease in a strong, biologically well-balanced colony.□

CHRISTMAS GIFT OFFER

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A man's gift maketh room for him, and bringeth him before great men. *Proverbs 18, 16*

Honey Touted over Table Sugar

The kind of sugar eaten can make a difference, a U.S. Department of Agriculture scientist said here today.

Otho E. Michaelis IV, Ph.D., of the Agricultural Research Service reported data gained from feeding laboratory rats various sugar diets. The sugars being tested were those with small single-molecule configurations (monosaccharides), those with a double-molecule (disaccharides), and those with larger molecules (trisaccharides or polysaccharides).

Common table sugar is a disaccharide, and Michaelis and Bela Szepesi, research nutritionists at USDA's Carbohydrate Nutrition Laboratory, Beltsville, MD, reported various adverse metabolic changes among rats consuming disaccharide diets.

Rats displaying the disaccharide effect had larger livers, increased fat-inducing enzymes, more fat in the blood, higher levels of insulin in the blood, and more body fat, Michaelis said. Most of these changes are considered to be risk factors for diabetes and heart disease in humans. The problems were not so evident in rats on equivalent mono- or trisaccharide diets.

The most common monosaccharides are fructose and glucose, Michaelis said. Fructose, for example, is found in fruit, corn syrup, and is a component of **honey**. The most readily available disaccharide is sucrose, which is refined from sugar beets and sugar cane. Polysaccharides include starches.

Michaelis noted that while the effects of disaccharides can be demonstrated in rats and have been observed in some human subjects, further research is being done to determine the mechanism by which the body recognizes and reacts to disaccharides. USDA *NEWS* 8-26-81.□

Capping The News

THE EDITORS

"Beekeeping Small Talk"

IT IS GENERALLY assumed that for most problems of beekeeping there are a means of solution: Diseases will yield to therapy; the African bee threat can be blunted or warded off by an intensive cross breeding program or by quarantine; excessive dependence on foreign honey by tariffs or other restrictions; and insecticide problems by bans or closer controls on chemical use. Many of the proposals have merit and will, or possibly could, prove to be the means of solving some of the most vexing problems of beekeepers. The question is not so much of their effectiveness, but of the logistics; of the enormous job of rounding up financing, people and equipment to cope with these very serious problems. Experts tell us these problems can be solved, as has indeed been proven by many examples where diseases have been curbed, marketing stabilized and bee damage lessened by cooperation between beekeepers, applicators and insecticide manufacturers. We have only touched on implementing some of the solutions but the possibilities exist for much more progress in the future.

One problem which is so close to the beekeeper, every beekeeper, and so basic to the production of honey and pollen that it is overlooked by the individual beekeeper and escapes scrutiny by the organizations of beekeepers while the problem becomes more acute. Various agencies assist the beekeeper by providing disease inspection and control, marketing agencies consider imports and exports and domestic honey sales and issue reports. There are research facilities to improve the breeding of bees and there are agencies which monitor bee kills and offer at least a token protection to the beekeeper who suffers from severe spray damage. The problem of decreasing nectar and pollen sources is largely ignored by researchers and by agencies concerned with other beekeeping problems. Very little is being published, which reflects the nearly total unconcern with this riddle of why bees fail to gather honey crops at different times and in certain locations. The most authoritive publications Pellett's *American Honey Plants* (1923) and Lovell's *Honey Plants of North American* (1926) are outdated, although they remain classics in respect to reporting of the conditions of their day. Much has changed since these early years of the 20th Century in respect to bee forage, yet these considerable changes have been largely ignored by even the beekeeper who has suffered a large decline in honey production.

Honey producers who are perceptive and who, over a period of years, have had the experience of producing voluminous crops where today only marginally productive years are the rule, are aware that these conditions exist but are powerless to do anything or to convey to others the impact which this has had on the beekeeping economy. It is the individual beekeeper who first feels the pinch of lowered production due to deficiency in forage. The honey packers, equipment manufacturers and the queen and package producers, for example, will eventually have to accept a lower volume of business as weakened purchasing power from honey producers and lessened interest by hobbyists would have its affect. Taking empty supers from hives in the fall after the bees began the spring season with so much promise is very discouraging. Of course, a failure of the honey crop is usually due to a multiplicity of adverse conditions, a shortage of honey plants being only one. What may escape detection is the overall decline in productivity even in "normal" years due to the shortened supply and variety of nectar forage. This shortage has not come about suddenly but rather over a period of three of four or more decades which is beyond the experience of nearly all beekeepers except those who have been beekeepers for nearly a lifetime.

The disappearence of honey plant forage has not been sudden: It has a history which predates the African bee problem; came ahead of the very severest of the insecticide problems; and began to plague the beekeeper before the acarine mite and the varroa disease posed a threat to American beekeepers. A shortage of honey plants came about principally because of the changing crop pattern on American farms, and the conversion of cultivated and uncultivated land to urban development. The trend has been progressive, although on occasion a very productive nectar or pollen source becomes locally available through increased planting. Sunflowers and rapeseed are examples. The longer trend has seen fewer and fewer acres of nectar yielding forage, however.

Corn and the other cereal grains (wheat, oats, barley rye and rice, for example) are not nectar plants as every beekeeper knows but their importance to agriculture has increased considerably with more and more acreage being planted to these crops as well as a greater percentage than formerly, when a much larger proportion of land was in permanent pasture or in a state of semi-cultivation where the clovers or wild forage plants grew abundantly. Soybeans, of unquestioned economic value in agriculture, are unpredictable nectar plants. The soybean continues to be an enigma to beekeepers who are outside the central midwest. Improving nectar yield from soybeans may, at least in part, depend upon introducing new nectar bearing varieties which are adaptable to latitudes or other conditions which seem to inhibit soybean nectar secretion away from the Mississippi-Missouri Valleys.

It is unfortunate for the beekeeper that the non-nectar producing crops are those which are best adapted to mechanical practices. This is especially true with corn and soybeans, so predominant in the midwest, and for wheat and other grains grown in large acreages in other areas. Such specialized crops as vegetables, fruit and nut orchards and timber land come into the focus of beekeepers when pollination is needed and less as predominant nectar sources, although some very important three species have steadily sustained beekeeping. Even these sources are threatened with reduction through timber cutting without replacement. We see this in the forested Appalachian region containing the tulip poplar (*L. tulipifera*), the upper midwest forests containing

Capping The News

basswood (*T. Americana*). Happily, the tulip poplar is very vigorous and during forest succession will increase in proportion to other forest trees. Forest resources furnishing lumber promise to remain stable in the United States due to good management but the tree species prorogated are usually of little value to the beekeeper. The secondary benefit of having cutover land growing up with fireweed, however, would please beekeepers.

Why is the study of nectar resources neglected while we turn apprehensive eyes and ears to other problems? Perhaps the basis of the neglect is the nature of the science involved. Ours is a society primarily interested in and trained extensively in the physical sciences. Engineers, machinists, carpenters and the new breed of computer technologists for example can write and follow directives, and using the proper material, can nearly always produce the desired products or results. Not so with the affairs of nature. Plants and animals react within a predictable range but not precisely, as do the efforts to create inanimate objects of metal, wood and plastic. Living away from the land, creating our own supposedly unassailable environment in large cities tends to foster decision making which favors political or technical solutions to the problems of agriculture much as would be suggested for the problems of manufacturing or distribution of goods. Training institutions tend to reflect these attitudes. Agricultural students are trained in systems management and computer science with barely time for botany, entomology, zoology, and ecology. Research finds more support by selecting projects which promise to show quicker results in processing and marketing an agricultural product rather than production. The intricately involved problems of beekeeping and forage plant resources are not solvable by methods which allow no deviation for the vagaries of nature, or the nature of man and bees. Input, in statistics and logic, does not yield predictable results when dealing with nature as is the results from planning a bridge or a high rise building.

Even if we understand the problems of diminishing honey crops because of the loss of forage plants, there appears to be no immediate solutions to most of the problems. To maintain our present level of food output will leave little latitude for tampering with our present crop system. We may see less and less of a variety of fresh fruit and vegetables on the market as a result of the influence of a number of trends in agriculture. One of most obvious to beekeepers is the lack of pollinating insects, due not only to the shortage of bees but to the effect of insecticides on all forms of pollinators. More of our foods will be manufactured from the plants which are relatively simple to grow, harvest and process using a minimum of non-mechanical assistance, both on and off of the farms. To produce fresh fruits and vegetables, with the best eating qualities, often requires attention to details which we seemingly cannot any longer afford, or care to invest. As agriculture gears to this so called "greater efficiency" we see less and less of our agricultural acreage in the clovers and other legumes. They are not needed for their nitrogen fixing capabilites since nitrogen fertilizers are available in several forms. Pasturing livestock in legumes is less efficient than feeding in feedlots with a feed base of grains and the grasses. Legumes are generally not an important cash crop; they must usually be channeled through the process of nuturing livestock which may or may not increase the cash value of the legume to the farmer.

There are isolated attempts made to improve bee forage, particularly tree planting, on a limited scale. The amount of bloom required to produce a noticeable surplus of honey is one of the least understood of the principles of beekeeping. Honey crops are not gathered from a single ornamental basswood grown in the front yard or from a "few rows of zinnias for the bees" in the garden. All helps, of course, but the amount of bloom required to produce a noticeable surplus of honey in a apiary would require planting on an unprecedated scale of the most productive of the nectar plants. It would require an investment in money and effort that is likely far beyond the capability of the individual beekeeper. As a whole, the beekeeping industry would prefer to concentrate on problems which can be pointed out as being of greater and more immediate concern such as the African bee problem and what would appear to be some serious diseases that could "wipe out the bees in America" if left unchecked. Meanwhile, our productivity in terms of an economic return in the form of honey and the aesthetic rewards of keeping bees as a hobby are being slowly eroded by another menace that is already taking a toll. We tend to ignore the very serious problem of underproduction of domestic honey when we can import honey more cheaply. It is a short range solution to what we may find later to be very significant factor in the decline of both the quality and quantity or our food supply brought about by ignoring the decline of the beekeepers' productivity. □

Obituary

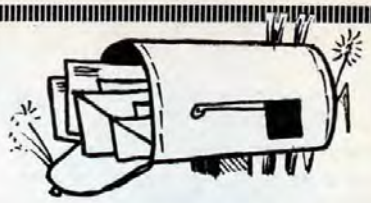
O. Glenn Helvey

O. GLENN HELVEY of Pinckneyville, Illinois died of a heart attack on August 30, 1981.

Mr. Helvey began beekeeping at the age of 18 and at one time had between 350 and 400 colonies of bees. For about the past thirty years he maintained a honey stand by his home on Route 13 which he managed on the honor system.

During his lifetime he helped many others who were interested in keeping bees.

Gleanings Mail Box



Sourwood Honey

Dear Editor:

I have been a beekeeper for thirty-one years and own ninty-one colonies of bees. I live in Wilkes County, which is in the heart of sourwood country. In all of my thirty-one years I have seen true sourwood honey only twice. True sourwood honey as you know, has a light color and a strong, minty odor and taste. Every two or three years we have some light honey, but this is nothing but honeydew. I sent a one pound sample of this light honey to the Department of Agriculture Bee Disease Diagnostic Laboratory in Beltsville, Maryland, for analysis. The report showed no sourwood, only honeydew. Local beekeepers advertise this as sourwood. In thirty-one years I have seen only three men who cared enough about beekeeping to own a bee book or subscribe to a bee magazine. We had a freezing winter in Wilkes County in 1980-81, which is unusual. The two years of true sourwood honey that I have seen had followed freezing winters. I predicted that this year 1981, Wilkes County would see some real sourwood honey. Let me caution beekeepers to be careful before they label honeydew as sourwood. This is not the kind of advertising that the bee industry needs.

Charles C. Swaim
Appalachian Bee Farm
Wilksboro, NC

Pride and Prejudices

Dear Editor:

Doctor Hawkins states that Mr Mraz lacks "modern training" and therefore should write about what he knows best, beekeeping.

"Modern training," that's an interesting statement. What is Dr. Hawkins really trying to say? Does he mean formal training?

Before I expand on that I would like to tell a true story to illustrate a point.

The story is about bee venom therapy. A subject Mr. Mraz is well versed in and one most doctors seem to care little about.

My brother had rheumatoid arthritis for eighteen years. He is a strapping man of 6'4", 220 lbs. who could hardly get out of a car. A man who walked hunched over, who was in almost constant pain, who was beginning to give up the fight.

Charles Swain of Appalachian Bee Farms.

Gleanings Mail Box

Concurrent with my beekeeping interests I began reading articles regarding bee venom therapy for arthritis. After a two year period and under the guidance of Mr. Mraz I approached my brother with the idea of trying this therapy.

After taking up to 14 aspirins a day, day after day and going through side effects of Prednisone he indicated interest.

He went to see his doctors regarding his medication, before we started the treatment of bee stings. Laughing, the doctor said, "Go ahead, it won't hurt you."

We started in September 1979. After checking for sensitivity and finding none, we started with three bee stings per day for three days, then increased to four stings per day for the remainder of the week.

After the first week bee stings were applied every other day gradually increasing the number to twenty at a time.

On November 2, 1979, he made this entry in his log, "I am not having areas of pain or swelling at this time, still have stiffness, but no pain." In just 42 days, after 18 years of suffering, we had made wonderful headway.

He continued with the stings taking only Vitamin C (no aspirin or other medication) until December 5, 1979. A total of 484 bee stings were administered.

My brother went back to his doctor, but now the laughter was replaced with amazement. He could walk with ease. The drawn pained look was gone from his face. There was no pain or swelling and the stiffness was gone from his body. The doctor was so pleased with the results that he asked to see the literature we had.

A short time later the doctor went to a symposium which included a discussion on arthritis. During the discussion our doctor asked about bee stings for arthritis. A colleague replied, "Bees are for the birds." That was the end of that.

Is this part of modern training?

I would like to quote from a book entitled *None of These Diseases* by Doctor McMillen. He writes about the frightening mortality rate in hospitals around the world approximately a hundred years ago.

According to Dr. McMillen, in 1847, Dr Semmelweis working in a hospital maternity ward sensed that some mysterious element was being carried from the dead to the living and from the expecting mothers to expecting mothers. Dr. Semmelweis started a system of having the staff wash their hands after each examination. The death rate went down.

Was he acclaimed by his fellow colleagues? On the contrary, they belittled him so much his annual contract with the hospital was not renewed.

Semmelweis went to another city and a new hospital. He again instituted the practice of washing. Again the grim reaper was halted, but pride and prejudice over powered the proof. Both he and his concepts were rejected by his colleagues. This along with the cries of the dying mothers caused him to have a mental break down. Dr. Semmelweis died in a mental institution.

It took 37 years before the antiseptic method of cleaning hands and instruments was introduced.

Three thousand five hundred years ago, God told Moses what should be done regarding the meticulous method of hand washing and changing of clothes after contact with the dead or infectious disease.

It is saddening to think of the countless loss resulting from the prejudices and unwillingness of man to recognize and accept new concepts. These are a few of the many illustrations that could be made.

Mr. Mraz has a wealth of knowledge and experience. He is a compassionate man who has helped ease the suffering of many. A man who has been given the gift of wisdom. A man that is willing to share what he has with others. Wouldn't it be better to lay aside the pride and prejudices and to work together toward a common goal? □

Robert Knox
Grand Island, NY

Monthly Honey Report

(Continued from page 599)

Region 7

Good fall honey flow in East Central Oklahoma and bees are in good condition for winter. Some areas of state are not so fortunate. Honey sales are good in Oklahoma. Honey sales are slow to moderate in Texas, very little being offered to wholesalers. Very dry in South Central Texas. Cotton crop in West Central Texas was average. Bloomweed and yellow top in full bloom in early October.

Region 8

Fall came on suddenly and ended nectar flow. Excellent crop of good flavor harvested in Montana, probably better than average. Early fall and late summer rains improved stands of legume plants which should impove prospects for next year, but snow needed in mountains to furnish irrigation for dry areas. Crop about average on West Slope and below in San Luis Valley and East Slope of Colorado. Bees in good condition. Retail demand for honey is strong. Packers reluctant to warehouse honey due to high interest rates.

Region 9

Very poor honey crop in Oregon. Heavy rains in June when crop is usually gathered. Many colonies will need feeding. Beekeepers who pack honey are trying to buy supplies. Bulk honey sales have been slow in California but are expected to improve. Colonies in good condition. Honey production expected to be 40-50% below a year ago. Early season production was very poor from orange and sage flows. Some improvement through July and August. Flows from alfalfa seed, safflower and cotton generally good, but high temperatures lowered bee activity. Low moisture conditions in late summer lowered late season crops. □

I'm A Nectar

By J. IANNUZZI
RFD 4
Ellicott City, MD 21043

[On Page 590, November 1980, *Gleanings* published an article of mine with the above title which began: "My genus/species is *Homo sapiens* and not *Apis mellifera*. Sure, I'm a nectar collector but not a honeybee." The item went on to relate my odyssey of accumulating 6 foreign and 17 state honeys encompassing more than 23 varieties and concluded with "Today I find myself 33 states short. Can you add to my collection? Will you?"

[The following is a report on five national and three international responses to that last question as well as the author's nectar acquistions since the appearance of Part I.]

THE FINAL LINE in my previous article was added as an afterthought at the last minute. Little did I dream that *Gleanings* was read around the world and that, within a week of its appearance, I would get a spontaneous response. In fact, six more followed, including three from abroad, five of which actually produced honey samples for my growing collection which at the present writing (June 1981) numbers 28 state and 20 international nectars, and includes the following varieties: alfalfa, acacia, avocado, apple blossom, basswood, blackberry, black locust, bluebell, blueberry, blue vine, buckwheat, clover, eucalyptus, gallberry, goldenrod, Key lime, lehua, lime blossom, linden, ling heather, mesquite, mimosa, orange blossom, palmetto, poinsettia, raspberry, rosemary, safflower, sage, sourwood, sunflower, strawberry, thistle, wild thyme, tulip poplar, tupelo, vetch poplar and wildflower produced by *Apis mellifera ligustica, indica, dorsata* and *Apis trigona.*

The first surprise package concealed a one-pound jar of "wilderness" honey from New Hampshire, received November 7, 1980 and sent spontaneously (U.S. parcel post, $1.73) by Floyd Smith, Upper Walpole Road, who keeps his bees "back in the bush" at his hunting camp on a bear-proof trailer, 7′ x 22′, nine hives on each side, leaving his colonies there from the first of June to the first week of September each year, with production averaging 30 lbs. per hive, which he calls "above local average." So popular is his honey that he sells out "each year before I finish extracting at $1.50 per lb." Very thoughtfully he even included an extra label "made from a photo by my artist granddaughter in case you want to heat the honey back to liquid condition . . . . . honey crystallizes too fast in the natural state." The label bears the following inscription: "Wilderness honey . . . is produced in a deep forest of spruce and fir. Its source is a bog filled with wildflowers, raspberries and other honey-producing trees. Its sweet, delicate taste is far superior to other honey on the market." Light like nectar from the Maryland black locust tree, it indeed has a fine and exquisite flavor.

New Hampshire Wilderness honey now joins my New Hampshire strawberry nectar which was my most difficult collection (the *Gleanings* article although accepted in June 1980 was not published until the following November, between which dates I had travelled through the Granite State). The three-pound jar was purchased for $3 from "Pooh" Sprague's Edgewater Farm, West Lebanon, on my way to the Eastern Apicultural Society (EAS) annual meeting in Burlington, Vermont, August 13-16. The "catch" did not occur until after a full two-hour search over the back roads, at my final desperate stop just before leaving the state because I did not want to miss the EAS noon registration. The first of many stops in this honey safari in the live-free-or-die state was McSwain's roadside stand on Rt. 12A (?) which offered us Roy Abel's orange blossom honey from Florida, the very same stuff I had bought from the same migratory man at his Glen Arm, MD headquarters, after the Maryland State Beekeepers' Association had met there one fall!

My second sweet surprise was produced by the apiary of Edward Chapman, Rt. 1, Box 514, Central, South Carolina 29630 and arrived on November 14, 1980. It looked and tasted very much like Maryland's own tulip poplar. In fact, he called it "vetch poplar," a combination I had yet to taste. It joins the wildflower and sourwood picked up in the Palmetto State between the writing and the publication of the first article.

The next pleasant surprise was Missouri blue vine from the Kalthoff Apiaries, Rt. 2, Box 21, Lexington, MO 64067, delivered in a package insured (!) by the U.S. Postal System ($2.51 postage) on November 25, 1980. Like Mr. Smith's, this sweet stuff was smooth and very tasty and was among the lightest in my collection. Unlike Mr. Smith's, it has started to crystallize so I have just now placed it in the solar wax melter where in a few hours it will be restored to its original state (a microwave oven would be quicker — just two minutes — but also more costly). As all four others, Mr. Kalthoff was rewarded with a thank-you letter and something tangible for his efforts. Wrote I in part: "Incidentally, Missouri brings back fond memories of our travels in 1971. I don't know where Lexington is offhand, but Lake Wapapelo has horse flies as large as elephants! And delicious fried pies." This Midwest offering was especially attractive since It was not a duplicate either by state or floral source.

Photo 1

Photo 2

Collector Part II

The fourth and final response in 1980 to that *Gleanings* article was an airmail letter in English from another collector — over 4,000 bee-related-items — Atze Dijkstra, Oosterwolded, Fr., the Netherlands, who alleged that my Dutch honey cited therein was really "Hungarian" and my Italian, from the shores of Lake Como in northern Italy (*Miele Ambrosoli: Prodotto assolutamente puro; garantito tutto d'api* — Ambrosoli Honey: An absolutely pure product, guaranteed to be all from bees), actually came from Argentina or Australia! His letter bore a sticker advertising the Apimondia meeting in Acapulco, Mexico, October 23-29, 1981, attesting to his astuteness in collecting whereas I had yet to receive an application from that international group in response to a written request. Herr Dijkstra had no honey to send but did enclose two labels from his apiary and asked that I do the same for him. He was in Athens at Apimondia the same time I was there and said he would also appear in Acapulco.

Photo 3

Photo 4

So *anno Domini* 1980 ended with three positive, spontaneous surprise collections from New Hampshire, South Carolina and Missouri (Photo 1). What would 1981 bring?

The first was a postal card, addressed simply to "Dear Friend," from Dr. Richard Taylor, Trumansburg, New York, offering to bring his foreign honeys to the EAS annual meeting in New Brunswick, New Jersey, August 5-8, 1981, for my inspection and collection. (Of course, all readers recognize him as the author of "Bee Talk," a regular monthly column in *Gleanings*, where he trumpets, loud and clear, the virtues of circular comb honey in which he now specializes.) And, of course, I accepted his offer in my reply of March 5, 1981, informing him at the same time that my world collection had jumped to 14 from a puny 6 whereas my domestic acquisitions included 13 over the first-mentioned figure.

There next appeared in my mailbox on March 4, 1981 the recently released embossed honeybee envelope (what a disaster for apiarists after such a long wait!) with the return address of Wayne Stafford, 2015 Lower Huntington Road, Ft. Wayne, Indiana 46819, carrying a one-by-two inch piece of foundation with tiny hexagons. He had just returned from a seven-week trip to the Philippine Islands for the purpose of starting a foundation embossing business to serve the tropical Asian hive bee, *Apis indica*, as he noted that he had three Filipino honeys on hand for my collection, if I would be willing to reimburse him for cost plus shipping. His description, which follows, erased all doubts of acceptance from my mind:

"I can send a jar of comb honey with liquid. The comb is made by *Apis indica* bees, so it look interesting. I would say that it weighs about a pound and a half, but the weight is not on the label. However, it does have a nice label (cultured & produced by: HONEY BEE CENTER Sta. Crus, Laguna, Philippines). The price was 40 pesos ($5.00). Honey is very high priced in the Philippines because production is low.

"I also could send an unlabled sample of *Apis dorsata* (the giant bee) honey. This is a large, aggressive migratory bee that builds one huge comb in the open. The honey is gathered by honey hunters. Most of the honey produced in tropical Asia comes from this bee. I do have a labeled eight oz. jar of this honey from the island of Palawan. My cost $1.50.

"Lastly I have about four lbs. of the strangest honey. It is from the tiny stingless bees belonging to the genus Trigona. Bees from this genus are distributed throughout the tropical world, not just South America. One colony of Trigona only yields about one lb. of honey, and is very expensive in both the Philippines and elsewhere. It has a very unusual taste. I personally saw this honey processed, so I do know that it is pure Trigona honey. It is unlabeled and cost me almost $10.00 per pound. If you like, I would be willing to pour out a one lb. jar of this for . . . . let me know if you are interested."

Two days before spring an eagerly awaited package arrived bearing four, not three jars (**Photo 2**). The stranger was some nectar from China which Mr. Stafford had picked up in Manila. In the accompanying missive was more intriguing information about the stingless bee:

"About the Trigona: this is the genus name of the bee. I don't know which species that it belongs to, but there are many species in this genus. It is not a honeybee, although it does produce a meager amount. This is also true of bumblebees. Can you imagine having a jar of bumblebee honey? These Trigona bees are a lot like the stingless bees of South America that you may have read about. As a matter of fact, there are two genera of these stingless bees, namely Trigona and Melipona. Each genus has many species and they are distributed throughout the world. The honey is like sweet and sour sauce; quite different, don't you think? That one lb. jar is about a one year effort for a Trigona colony. There bees are very small, only about 1/10th inch long."

That Trigona honey! It does taste as described and then some: my nurse wife had to expectorate her sample. It is the only.pound jar in my

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I'm A Nectar Collector

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possession that comes two-tone, with the darker substance, which my spouse calls "mother," on the top. It reminds one of mixing corn syrup with honey, for the same effect, since the honey will separate and remain on top.

In between my first and second letters to the Fort Wayne beekeeper, a strange package arrived from the island of Haiti on March 11, 1981, with this return address: Wally Turnbull, Box 673, Port-au-Prince, Haiti. "Strange" because it bore $1.86 United States, not Haitian, postage. (Haiti IS a sovereign state.) I shook it, assuming another liquid surprise; however, it contained two eight-ounce Cobanas (Photo 3) with this note attached:

"This is 1980 Poinsettia honey from the mountains of Haiti. In response to yours in *Gleanings.*"

Best wishes.
Wally Turnbull

Written in red ink, the message was on the back of a business card which read as follows:

Mountain Maid Artisans
Wally Turnbull, Director
Box 1386 Port-au-Prince
A Christian Outreach of
the Baptist Haiti Mission

On the face of the card also was a sketch of a blackwoman carrying a shallow basket of fruit on her head — obviously one of the "mountain maid artisans?"

The gentleman from Haiti was promptly thanked, adequately reimbursed and also recompensed with a note stating that our other foreign honeys were from Australia, Canada, Chile, Colombia, Denmark, England, Greece, Hungary, Italy, Spain, Thailand, Red China (PRC) "with an offer in the mail of some Filipino honeys."

That *Gleanings* article also drew one final response from Montevideo, Uruguay, an airmail letter from Jorge A. Bosch, Lanus 6028 Bloc #ap 009, who was thinking of sending me "one or two bottles of my honey but I don't know how to send them so as to get through customs. I wish you could help me and I hope to hear from you soon." Honestly, I am still trying to figure out how I can help Senor Bosch since my lonely Colombian honey, acquired through a traveling relative, does need a buddy.

In addition to the foreign nectars listed above, my peripatetic medical brother has since been to the Far East so that I have either added to or fortified my collection from, Australia, Hawaii, the Peoples Republic of China and Thailand **(Photo 4)** and I personally wish to add a few more from the Hispanic countries via attendance at Apimondia, Acapulco, where I hope to latch on to some Nipponese honey from an avid beekeeper I first met in Athens.

Nor have I been sitting still on the homefront. A family trip in the summer of 1980 stretching from Key West to within 55 miles of the Canadian border at Burlington, Vermont, the site of the EAS conference, permitted me to pause in each state traversed for samples of local nectars while duplicating some of my holdings. EAS itself, through trades, yielded some new ones such as R.B. Swann's wild raspberry from Brewer, Maine; J. Hendry's mimosa from Jamestown, Rhode Island; and A.N. Delicata's prizewinning EAS linden from Newtonville, Massachusetts and Charlie Mraz's clover from Middlebury, Vermont. The visit to the Sunshine State was especially lucrative: It provided nine local (?) nectars and seven foreign ones, these latter via England's Crabtree and Evelyn through a Connecticut distributor: Chile, Australia, England, Hungary, Mexico, Rumania and Spain. The Florida purchases were from a new honey business just south of Fort Myers, advertising on huge billboards in the vicinity "the largest bee observatory in the world" which turned out to be eight observation hives, each five deep frames high.

The latest exoteric acquistions have come from Crabtree's own shop in recently opened Baltimore's Harborplace, the cynosure of the waterfront: From Israel and Scotland — orange blossom and wild raspberry — the latter of which was **only** $7.25 per pound although others were marked $8.00!

To date (June 1981), this is an inventory of my holdings:

Alabama tupelo
Arizona mesquite
California avocado, eucalyptus, orange, safflower, sage
Connecticut wildflower
Delaware blueberry
Florida buckwheat, clover, gallberry, Key lime, orange blossom, palmetto, thistle, tupelo, wildflower
Georgia Tupelo, wildflower
Hawaii lehua, mixed blossom
Illinois clover
Kansas sunflower
Maine wild raspberry
Maryland alfalfa, basswood, blackberry, black locust, thistle, tulip poplar, wildflower
Massachusetts linden
Mississippi wildflower
Missouri blue vine
New Hampshire strawberry, wildflower
New Jersey blueberry, clover
New York buckwheat, wildflower
North Carolina sourwood, wildflower
Ohio basswood, black locust, buckwheat, clover
Pennsylvania alfalfa, apple blossom, buckwheat, clover, goldenrod, sourwood, wildflower
Rhode Island mimosa
South Carolina sourwood, vetch-locust, wildflower
Tennessee clover
Utah clover
Vermont clover, wildflower
Virginia clover, wildflower
Washington apple blossom
Australia bluebell, leatherwood
Canada clover, goldenrod
Chile wildflower
Colombia unspecified
Demark poppy?
Egypt wildflower
England wild ling heather
Greece wild thyme
Haiti poinsettia
Hungary acacia
Israel orange blossom
Italy wildflower
Mexico wildflower
The Netherlands unspecified
The Philippines wildflower
Peoples Republic of China unspecified
Rumania lime blossom
Scotland wild raspberry
Spain rosemary
Thailand unspecified

Today I find myself 22 states short. Can you add to my collection? Will you? And to all of you who responded the first time, whether at home or abroad, again a sincere thanks — and may your honeypails be overflowing!

[A professional translator (Arabic, Greek, etc.) and political scientist, the author is also an apiarist by avocation — since 1961. He is also the editor of the Howard County (MD) Beekeepers' Association bimonthly newsletter, *The Nectar Collector*, and was formerly the principal editor of the Maryland State Beekeepers' Association's *The Beeline*, a quarterly publication.)

The Bee Tree

By TAEDE VISSERMAN
Hazelton, B.C. V0J 1Y0

THERE WAS SNOW on the ground but not a lot and it was new. Victor, our hired hand, and I are cutting up a huge cedar for kindling, and were now having lunch. It's hard work for a "soft" school boy, pulling the old cross cut. It must have been about November. Nearby old Nellie is standing, slightly hunched, half-heartedly chewing at a wad of hay, her bridle hung on the hames. Moe-dog is lying on the snow watching for a handout. The cold doesn't bother him; he's part-Husky and, besides, Victor keeps him fatter than a seal. Victor has sat back comfortably, spat into the fire once or twice ("See if it's hot yet") and looked around as if to check if anyone is coming.

"Say, this puts me in mind of the time when I was a kid about your age," he says. "Did I ever tell you about McFee's bee tree?"

I shake my head though it's a mere formality. Victor's stories bear repeating. Besides, they take time to tell.

"Well, see, McFee was this old goat we had for a neighbor back home. A Scrooge if ever there was one. And smart too. He had this huge woodlot, eh, and it was right beside our place and we were in the wood business. Cordwood business, the old man, Elmer 'n me. And he knew darn well the next woodlot was ten miles down the road. Had us over a barrel, eh, so charged us lots. I think it was four bits a cord he charged for stumpage, when the going rate was less 'n half of that. And we got only two buck a cord and had to do all the falling, cutting and yarding it out. In other words, all the work, and him getting half the money. I remember Dad would say 'Well now the rest is workin' for McFee" when we had the stack about half done, an us getting a toothache from gritting our teeth. Dad always swore he'd get even with that McFee someday even if he had to go to hell to do it, but could never see how.

"But in the meantime come every Friday night we'd stop in at McFee's and fork over the money. And McFee would complain about how poor he was and how everybody was always cheating him. He knew we didn't cheat him, we wouldn't have dared, even though we felt like it. We hauled the wood out right past his house and sometimes he'd stop us and carefully measure the load. We always had the feeling, as we left McFee's there Fridays, that as soon as we closed the door he'd bust out laughing to himself; laughing how he had one over us.

"Course us boys were always bellyaching about it too. It got to be a regular thing to talk about, how to get even with McFee, but nothing seemed to come.

"Then this one day Elmer and me was sitting just like this, having lunch, when Elmer he stops chewing and is staring off into the trees like there's a fish hook pulling his nose in that direction. 'Well I'll be' he says, like he's figured something out, 'look at that bee tree, would ya!' And sure enough, there, just a few yards away is this huge maple with bees pouring in and out of a hole about 20 feet up it. Must have been thousands of 'em 'cause you could see this golden stream, plain as day.

"Well, I was about ready to start running, but Elmer he just sits there looking at them. Something hatching in his brains see; he was that sort of person. He was different than me, eh. He was always thinking ahead, scheming, figuring things out. Guess that's why he's in Florida now, retired pretty.

"Anyways, Elmer he says, 'Vic, you know what we're going to do? We're going to wait 'til it's cold weather and then we'll cut that tree down and make us a fortune! ' Well it didn't seem like such a good idea to me. I says, 'And what about the bees?' And he laughs; 'When it's cold they'll fall like raisins.' And I says, 'And what about McFee' and he laughs and asks, 'What about him? Bee trees are for who ever finds them. That's the law'.

"Mind you he wasn't taking any chances and telling anybody about it. Didn't mark it or anything so McFee might see it and charge us for it too. No way, we knew how that old buzzard operated. And we'd sort of giggle and wink at each other now whenever Dad said we were working for McFee. Hell, with honey selling for ten cents a pound it looked like we'd make the stumpage overpayment and then some. Least that's what Elmer figured.

"We had good luck with the weather too, cause I remember the snow came early that year and she set in cold right after that. But you know, the closer it got to the doing, the more chicken I got? It got so's I didn't even like it when Elmer talked about it. I wasn't so sure they'd fall like raisins.

"But more than that, I wasn't so sure McFee didn't already know about our scheme. That he'd come pouncing down on us in one fell swoop just about the time we had the bee tree chopped up. Call in the cops and sell all the wood and the honey while we were sitting in jail. Elmer he just laughed. Said I was a coward. Well, I said you never knew when McFee would stop us, eh, so wouldn't it be just our luck if he did that day? And Elmer he just laughed louder. Figured it was really funny and all. But still and all, Elmer he thought it over and came up with a better idea. Like he said, McFee was a lazy old coot, so if we got it at night he'd never even know we was up there. The whole thing didn't seem to bother Elmer much.

"So it came to the big night. We waited 'til everybody was asleep and then we collected all the washtubs and pails and headed for the bush. Course those damn things rattled all the way and when we drove past McFee's his dog made a hell of a racket, even though he hardly ever noticed us otherwise cause he was so old and deaf. I was so scared, but, thank God, he didn't raise the lights.

"I was still kinda scared when we got to the bee tree. I can still see it standing there, all limbs and huge, in the moonlight. Like some thing out of a ghost story. I wondered how we was ever going to cut it up, with those 'raisins' falling all the time and such.

"But it didn't bother Elmer at all. He just set the axe to making the notch like it was any old day time. Pretty soon you could hear the bees inside starting to buzz. Oh that really tickled Elmer. He about screamed for joy cause it meant there were bees — and honey! — right to the butt and up to the hole 20 feet up.

"And sure enough, in a few minutes bees started to fall out of the sky like raisins. You'd see them fall and they'd buzz on the snow for a second and then be frozen solid. I just pulled on my parka hood and kept my head down and kept on pulling the saw til the tree she came down. We were tough, eh, Elmer and me. We weren't soft like you kids nowadays. We could keep that saw going right on

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Bee Talk

By DR. RICHARD TAYLOR
Trumansburg, NY 14886

I BEGIN WITH a plea to my readers. **Please**, if you write to me, and want a response, enclose a SASE (self-addressed stamped envelope). When I have taken time from a busy day to answer a beekeeper's question, I don't mind too much having to reach into my desk to supply the stamp to mail it to him, but when I have to supply maybe a dozen, then the irritation begins to set in. But worse than this, I sometimes get the address wrong, or cannot read it. Last month a reader in Missouri sent me an urgent inquiry, and my response came back, where it still sits on my desk. I got his address wrong. So he wasted a lot of time writing to me, I wasted my precious time responding, and we both wasted postage — and on top of that, he must have concluded that I didn't care enough to answer. It was very depressing.

So much for that.

Last time I talked about wax moths. It is not a very inspiring subject, but I didn't finish, so I should conclude that discussion now. It isn't very timely now, either, since wax moths are a problem mostly in August; but having started something, I think I'd better go on and finish it.

There seem to be several kinds of wax moths. At least two, and I suspect, several. The kind that attack comb honey are usually much smaller than the kind you find in brood combs, though otherwise they are quite similar — the larvae are fast-moving, the cocoons are similar, though much smaller, and so on. What they do to comb honey is riddle the cappings with pin holes. They like comb honey sections because there are so many cracks and crevices they can get into to elude the bees. Round section equipment is especially attractive to them, because of the spaces in the super that the worms can get into where the bees can't get at them. For some reason, supers that have once had wax worms in them seem attractive to worms in subsequent seasons. Evidently, the parent moths are attracted to them.

Actually, it is very easy to deal with this problem. You just put the comb honey into a freezer and send the temperature down below zero (F). More precisely, here is what I do: I put the round sections, with covers on them, into plastic bags, about twenty to a bag, and put them into a freezer with a thermometer. When the temperature is down to zero or less, which only takes a couple of days, out they come. The bag protects the comb honey from the moisture that condenses while they go back to room temperature. You can deal with an awful lot of honey that way. Even a small freezer will handle two or three thousand round sections in a season. That system kills the wax worm at every stage, including eggs, but just to make sure, I usually wait a few days, after harvesting the honey, before putting it into the freezer. That gives any eggs a chance to hatch, but the larvae, which are instantly destroyed by the cold, are still too tiny to see, so there is no damage to the honey. Do note, however, that the temperature in the freezer must go below zero, to be perfectly safe.

I've treated thousands and thousands of sections that way, with one hundred per cent success. But the year before I bought my little freezer I lost nearly a third of my crop to wax moths.

That freezer method of knocking out any wax worms has another advantage, which I think I have mentioned before; I had quite a bit of comb honey left over at the end of last summer, much of it somewhat unattractive, since it had been the last to come off the hives. Of course I try to get all my comb honey harvested in July, but it never works out that nicely. Well, this summer, when I got my roadside honey stand going again, I just put that honey from the previous season into a basket, unlabeled, and marked down twenty-five cents. There must have been two or three hundred of them, and they were all sold in no time. There was virtually no granulation in those sections, in spite of the fact that many of them had goldenrod honey in them. And there is a lesson in that, too. Honey customers love a bargain, and they don't care whether comb honey is snow white or not. My beautiful snow white comb honey was right there on the stand, a joy to behold, but my customers got more joy out of buying the dark, unattrative honey and saving a quarter, so long as it lasted. So everyone was happy — I got my leftover honey sold, and they saved a little money.

Now it's over for another year, and I hope I've got enough wood cut for my little stove. I've already dreamed up a great idea to try out next spring, when the bees come to life again — if only I have time to carry it out. □

The Bee Tree

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through no matter how big the tree was, and let me tell you, it was tough. The honey comb and the bees gummed it all up. But she sure smelled nice.

"When the tree fell more bees came pouring out at the bottom. Millions of them. So we ran away for a few minutes to let 'em freeze. Then Elmer went over and busted off a huge chunk of honey and we had a little feast right there. Like he said, that was one piece McFee wouldn't get, no matter what! Boy, oh boy, it was good, let me tell you. We ate so much we were practically sick, but it really gave us a boost to get that tree bucked up. Solid energy honey is, you know, solid.

"And Elmer had this bright idea that we just cut the tree into regular cordwood lengths and roll them onto the sleigh. Save all the fuss of chopping it up in the dark there. It was a good thing too cause the honey was way too much for the containers we had. I'll tell you, those horses had all they could do to pull that load and they were a darn big team. Two, and both bigger then Nellie here.

"So we filled up the tubs and pails with snow so's they wouldn't rattle and set them on top and away we went. I remember how rich we felt when we rolled on the last log and worrying about McFee still stealing it from us.

"But we had good luck. It started to snow about the time we left; big fat snow flakes, the kind that makes the whole world shut up and when we passed McFee's nothing stirred. Mind you I was holding my breath and, to tell the truth, I think Elmer did too. When we were safely past, Elmer laughed and said it served McFee right, being too cheap to raise a pup to replace the old dog, cause the pup wouldn't be a watch dog right away.

"Well, when we got home Dad was so happy. He did a little jig right there

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Questions and Answers

Q. Can terramycin and Fumidil-B be mixed when feeding bees? A well informed beekeeper advised me to mix the two medications in sugar syrup. M.A. Connecticut.

A. Conflicting statements about mixing Fumidil-B and terramycin were made in previous Question and Answer columns.

Several Canadian publications in the late 1970's reported research which indicated that there was an antagonism between terramycin and Fumidil-B when mixed in sugar syrup. It was also suggested that when feeding more than one antibiotic or drug together a certain risk of toxicity was involved. These unsatisfactory results from mixing Fumidil-B and oxytetracycline (terramycin) were reported in *Pest Management Papers* (1978) from Simon Fraser University and in the records of the Advanced Beekeepers Seminar (1978) in Brandon, Manitoba.

The statements about the incompatibility of Fumidil-B and terramycin was questioned by a number of people and subsequent correspondence revealed that the problem of incompatibility was corrected by altering the PH factor. There now appears to be no reason why Fumidil-B and terramycin cannot be mixed and fed together.

One precaution should be kept in mind and that is that terramycin is unstable in honey and sugar syrup. For this reason the best way is to administer this antibiotic is with powdered icing sugar, as a dust. Mix one part of antibiotic to five parts of icing sugar. Prepared mixes of terramycin are available at bee supply dealers or through manufacturers' catalogs which are ready to use. The most effective way to feed Fumidil-B is with sugar syrup (two part sugar: one part water). Use one teaspoon of Fumidil-B per gallon of sugar syrup. Sugar syrup containing the Fumidil-B should not be heated. If the water is heated to make the syrup, allow it to cool before adding the medication.

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Q. I live in Eastern Iowa and have 14 hives. I have been in the bee business for only a few years so I realize I have much to learn. Last spring I purchased 14 queen excluders for the first time. I always leave two deep hive bodies to winter my bees on. This spring I put queen excluders on top of each second (food) chamber. In midsummer I checked them — the two hive bodies had honey in them but the supers had none. I waited until late summer and checked again. Three or four hives had honey in the supers, the balance did not have a drop. We did everything the same as in previous years, except for adding the queen excluders. Last year we had a super year, we had to extract twice.

Where did I go wrong? Is there a certain time to put on the excluders and take them off? D.C. Iowa.

A. Your problem of having a very poor honey harvest has been very common to the midwest this past season. Some areas have had the worst crop in years, most, much below average. The bees did not store honey because of a number of reasons: Unfavorable weather, poor nectar yield and failure to build colony populations at the proper time being some of the reasons.

We do not believe placing the queen excluders on the hive had any effect on the lack of honey in the supers. A colony will fill the lower hive bodies before they place surplus honey in the supers irregardless of whether queen excluders are used. When there is an abundance of nectar and surplus honey is stored in the supers the queen excluders prove to be no barrier.

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Q. I have my hives on eight inch concrete blocks and I have caught toads in front of the hives trying to catch bees. I caught them eating bees on occasion. I see pictures in bee books and magzines of hives setting almost on the ground. How do they avoid the frog and toad problem? J.W. Mississippi.

A. In the North we do not have this problem but we understand it is not an uncommon one in the Southern states. The toad you refer to is evidentily *B marinus* which was introduced to Florida from South America as a predator on insects in the sugar cane fields. The only solution may be to raise the hive entrance further to put them out of reach of the toads.□

The Bee Tree

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by the sleigh, in his underwear. And he was usually all bear in the mornings. Said we could have a couple days off and he'd milk the cow for us. And Mom, she got up and melted honey for us and made us pancakes using all the eggs she'd saved for the week in the batter. And while Elmer and me was stuffing our faces she went on and on about what she was going to do with all that honey money. It was the best morning of my life; the best I ever had.

"For a whole week there she was busy squeezing the honey out and making several cakes of wax. Buckets and buckets of honey. And she sold pretty near all of it. Must have made a hundred dollars or more.

"But here is the best part: She called on McFee too and sold him 50 pounds for twice the price she charged everybody else. Said he was gettin' a special price — which was no lie — cause of how he treated her husband and all. She knew darn well he'd never tell anybody about a bargain . I tell you we laughed about that.

"And a couple of days later it got ever better. McFee stopped Elmer and me and asked how come we were working at night. Had a sort of sly look over his face. Like he knew. Well I about coughed up the whole truth, I was so scared. But Elmer he just looked cool and said it was so's we could make ends meet. Luckily, we weren't wearing the new parkas Mom'd bought us.

"Well, McFee pulled his nose a couple of times and then said cause our mother had been so good to him about the honey and all he was cutting our stumpage rate and right then and there cut it in half. So Elmer he said, without the slightest show of anything, real polite like, 'Well that's very kind of you, Mr. McFee' and McFee smiled and said back what a pleasure it was dealing with hard-working, honest folk.

"And you know he never tumbled? He always treated Elmer good after that and Elmer got into the saw mill business later and cut a lot on McFees and made a mint, I guess that's why he's set pretty in Florida now. But you know I left soon after that. I couldn't look McFee in the eye. It seemed like I had to get away."□

Problems of

"For the commercial beekeeper any one of the six

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

THERE PROBABLY HAS never been a time when the commercial beekeeper had it so tough as now, right at a period when honey prices are high and rewards so potentially promising.

He is the victim of an age in which individual selfishness has doubtless not been greater since the days when men fought each other for possession of the warmest caves and the most attractive women.

We see this aspect of the commercial beekeeper's challenge most clearly outlined in the threats from the prevalent use of insecticides, and from theft of his property, particularly the hives in his outyards. These two threats are so real and so large that many a beekeeper is overwhelmed by them. Further, no ready solution of escape from either of them is evident.

Add to these two major threats are the old ones of swarming, wintering, disease of the brood, and drought, the last named being very recent as well as old.

One might think that the public (and the legislatures, as their agents) would rise to the rescue of the beekeeper. Not so. The public is not aware of the value to them of the honeybee. She is in their thinking merely an insect that stings and makes honey. Also, there's a prevalent tendency for everyone to take care of himself and let the other fellow tend his own gates.

The Scope of Beekeeping

There are approximately five million colonies of honeybees in the possession of some 300,000 beekeepers of the U.S. About 56% of these colonies are owned and maintained by small-scale operators, men and women who have from one to five hundred colonies in their yards.

If we can agree that these five million colonies average roughly fifty pounds of surplus honey for which the beekeepers as a group will get some $125,000,000, we can see that the beekeeping industry is not an insignificant enterprise. Yet, if the figures are only approximately correct, they reveal that the average consumption of this sweet is only about a pound per person. Put in other words, it means that many people never taste honey.

But Nature has cast the honeybee in a more significant role than that of honey producer. She is first and foremost a pollinator. It is estimated that honeybees are responsible for pollinating the plants and trees that yield man approximately one third of his diet. These plants include such ones as most fruits, the berries, the nuts, most vegetables, many plants consumed by animals that eventually become meat on man's table; such plants as: Alfalfa, the clovers, vetch, birdsfoot trefoil, and so on. In this capacity, honeybees pollinate crops whose value totals to as much as ten billion dollars annually. Furthermore, centuries would be required to raise up substitutes capable of taking the place of the honeybee in this role.

As a bonus, the honeybee throws in free of charge her pollination of many wild flowers of plants that serve to retard erosion. They also help perpetuate the many wild flowers that serve to make man's world more beautiful.

Accordingly, the public should be very much concerned with what happens to the honeybee. The fact that the public lacks such concern is in some part, as least, the fault of the beekeeper. There is a real need to launch a program of information that may serve the interests of all concerned, not just the beekeeper.

The Threat from Insecticides

Quite a bit has been written about what a beekeeper may do to reduce the damage from the use of insecticides by crop growers in his area. I could list them here again. But they constitute a rather anemic aggregation.

Most of these recommendations are only marginally effective. The best ones are probably those that include cooperation with the users of the insecticides — to whatever extent that cooperation can be secured. It entails awareness by the insecticide user of the effects of his work; choice of less damaging insecticides when there is a choice; knowledge of desirable hours of application, and so on.

Beekeeper's organizations should be persistent in keeping government representatives informed of the absolute necessity for an indemnification program for colony loses from insecticide poisoning. Payment for such losses helps to stimulate cooperation by government in regulating use of insecticides.

The Danger of Theft

Americans today are paying a high price for the general prevalence of lawlessness.

Theft of colonies from outyards is one of the beekeeper's more difficult threats. His hope to thwart this threat lies in such measures as: Locating yards near dwellings where the occupants are willing to cooperate in acting as guards — and are well rewarded; erecting obstacles to intrusion by thieves with vehicles; labeling every item of furniture including frames; prosecution to the limit of anyone found guilty of theft.

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problems may be a source of financial disaster."

Financial Loss Through Swarming

So much has been written on this subject that I almost hesitate to include the topic here. But, strange to say, this is a problem that plagues many commercial beekeepers as much as it did their grandfathers. If the worry has lessened, it is somewhat because the dimensions of today's broodnest contribute less stimulation to the swarming impulse.

Every beekeeper, be he in the commercial or the hobby field, must find a solution to this problem that suits him. Many are still struggling. Some muddle through, somewhat unaware of their swarming losses, and try to make up on the dry goods what they lose on the molasses.

Diseases of the Brood

The diseases under this heading, such ones as AFB, EFB, sacbrood, nosema, etc., have plagued beekeepers in the U.S. so long and at times with such disasterous results, that today we have rather effective cooperative control of them in most cases.

Because this is true, there is no justification for relaxation of our guard. The beekeeper is his own best protection against intrusion of one or more of these constantly threatening diseases. No beekeeper should ever open a brood nest without spending at least a moment or two in examining the brood to see if it is totally healthy.

If disease is known to be prevalent in the vicinity of any one of one's yards, even if only on a minor scale, state inspection should be requested if it has not already been provided. Some beekeepers are critical of the methods or practices followed by some inspectors. Such owners should request information as to the planned time of visits by the inspectors, and be present to assist them. Most inspectors are quite knowledgeable and acceptably careful in their operations.

Wintering Problems

Wintering used to be a problem for many beekeepers operating in the northern parts of the U.S. and Canada. Losses ranging up to 40% were common. Today, the knowledgeable beekeeper has few difficulties in bringing 95% or better of his colonies through the winter.

To be sure, successful wintering entails adequate preparation. This includes presence of young queens; adequate stores of acceptable quality; upper ventilation; wind breaks (desirably on three sides of a yard); packing in many cases; reasonable restriction of the lower entrances.

Today, beekeepers who exert themselves to assure that these favorable conditions are present, experience few wintering losses.

The Threat of Drought

Weather concerns most those individuals who live close to the soil. The beekeeper lives close to the soil because his bees have difficulty in getting nectar when water is scarce.

If the flowers from which one's bees are gathering are located on deep-rooted growths such as basswood, sumac, alfalfa, and similar sources, droughts of short duration may not be so devastating. Vegetation whose roots do not go very deep can yield nectar with difficulty if frequent rains or heavy dews are absent.

There have been some seasons in some U.S. locations in late years when drought aborted the entire honey crop. What a tragedy for a beekeeper! Many fear we face such conditions for several years to come.

If a drought is widespread, as it so often is, there is little the beekeeper can do to save himself. His obvious safeguards include: Migrating, if feasible; spreading his yards over a considerable area; engaging in pollination service; buying honey and packing it for his customers.

Differences Confronting the Hobbyist

For the hobbyist or amateur, several of these six problems that are very real menaces for the commercial beekeeper need not be major concerns.

For example, the amateur usually maintains but one, or a few yards. He is better able to maintain scrutiny over them, and to thwart theft. If drought dries up his crop totally, he can usually bear the loss of income.

Insecticides are usually used on a smaller scale in the vicinity of homes. The amateur usually keeps his bees in the vicinity of homes, often his own. Accordingly, he may not be subject to great danger from that source.

The amateur usually has his colonies inspected by state authorities because they don't normally trust him to take care of the matter. Wintering and swarming need be problems for the amateur only if he doesn't understand how to manipulate his colonies, or if he is fearful to perform the necessary operations.

By and large, the amateur, or the small scale operator, has the better of it. His income is less dependent, usually, on the bees. For the commercial beekeeper, any one of the six

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Problems of

(Continued from page 621)

listed problems may be a source of financial disaster.

Second Thoughts on Some of These Six Problems

Swarm Control

I shall not endeavor to list here the more common steps most beekeepers today are taking to reduce swarming. Instead, I shall mention two details that are often overlooked. They are the importance of shade, and of ventilation.

In a previous article I have written of the significance of having water available to enable the workers in the hive to keep the temperature under control. Such use of water often entails the employment of as much as a gallon or more in a single day. The energy involved in carrying in and applying such a volume of water reduces the effort that might otherwise be spent by the bees in gathering a surplus crop.

The use of shade boards is sometimes advisable where a hive is rather openly exposed. The board should have insulating strips between it and the hive cover. The back side of the cover board can be placed even with the back of the hive cover, but should project over the south and western side of the cover sufficiently to protect the sides of the hive from the direct rays of the sun.

Extra ventilation may often be provided during the hotter days of the nectar flow, too. This can be done most easily by moving one or more of the hive bodies back a half inch or so. The use of white covers helps in this matter, also.

Beekeepers in Competition With Insecticide Users

Our local newspaper of January 1, 1981 carries a release from U.P.I. with the heading, Makers of Farm Chemicals Pay for Trips of Agri-Woman Speaker Against Controls. The article carries a photo of Carolyn Leavens. The sub-title reads: "Carolyn Leavens has been traveling around the country to speak as a farm wife about what she considers excessive government regulation of farm chemicals, particularly in California. The farm chemical industry is paying her expenses but she said in an interview that she makes her own case and has not been told what to say. Photo by UPI."

The article continues: "Since last May, Mrs. Leavens, of Ventura, California, has appeared as a farm wife speaking against what she considers excessive government regulation of herbicide and pesticide use."

"The best protection of our property lies inspectors authority to deal . . . with

This newspaper release points up the fact that we have here a problem that needs the best thinking of all concerned — the public, the growers and users of insecticides, government authorities, and those who recognize the value to society of the honeybee as a pollinator of such a large of the food that comes on to man's table. The beekeeper's role is a significant one in this matter.

Wintering Made Successful

Canadian Beekeeping, a monthly magazine of the beekeeping industry in Canada, carries in its 1978 winter issue an article by D.F. Peer, formerly a bee scientist with the Canada and U.S. Depts. of Agriculture at the University of Wisconsin.

Dr. Peer is this article describes the details of a wintering program worked out by six commerical beekeeping outfits in Nipawin, Saskatchewan which involved a total of about 40,000 colonies over a nine-year period.

Here are some of the features of the program which Dr. Peer says has enabled these commerical beekeepers to abandon the practice of killing their colonies in the fall and starting again in the spring with packaged bees and queens.

First, the author lists the importance of wise yard selection — a yard free from devastating wind, especially at ground level. Sunlight should be available; low areas lacking good air drainage are avoided. Locations near early spring supplies of pollen are desired. Yards must be located where a truck can be driven into them handily.

Then he emphasizes seeing to it that each colony go into the winter with not less than 135 lbs. total hive weight. When a colony lacks this weight, it is fed sugar in liquid form through a hole in the inner cover.

By mid-September the hive entrances are reduced in size by nailing a strip of lath over them. A horizontal slot 1/2 inch by 3/4 inch is dadoed in the bottom of the lath to allow the bees a small entrance. The author says that their experience suggests that for their northern temperatures, queens with some Caucasian or Carnolian blood may be better than pure golden or yellow queens.

They are careful to kill before packing, all colonies with weak queens. Mice and other rodents are kept under control by setting up rodent bait stations in each yard early in September, and then placing rodent poison on the inner cover of each pack of four before fully wrapping for winter.

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During September the colonies are moved tightly together in groups of four with two colonies facing east and two facing west. Fiberglass wrapping is used for insulation. The lower entrances are now covered and upper exits provided. These exits are good sized and provide ready escape for moisture. The fiberglass packing is next wholly encased in a wrapping of eighteen pounds black building paper.

A top cover of plywood is used to keep out snow and water. Binder twine is tied around the whole pack to hold everything in place. Finally, a piece of plywood with a hole in the center is nailed over each exit hole to make sure the hole does not become clogged from the outside.

The procedures outlined above are different from those we practice in New York State only in the following respects. (Of course, our weather conditions are usually not quite so severe as those in Canada.) We pack two colonies together rather than four and can accordingly have them both face south. We do not use fiberglass or any other kind of packing on the sides because we have not found it necessary. We do use packing on the tops of the inner covers (usually crumpled newspaper) to serve as "rafters" for the wrapping paper that we place on the top of the pack to shed snow and water — not for the purpose of absorbing moisture. The upper exits take care of that.

Honey Prices

As we indicated earlier in this article, the production of honey in this country is so limited that the supply does not meet the demand.

But we must not become careless about the reputation in which our product is held. For example, we must make sure that no sugar we feed to bees for wintering purposes ever gets into a pound of honey we sell. We need to tell our users why honey crystalizes, and what may follow crystalization. An effort should be made to accompany every retail package of honey with a pamphlet of information about honey, its nature, its uses and the flavor sources.

One place to secure information pamphlets about honey is from the American Beekeeping Foundation, 13637 NW 39th St., Gainesville, Florida 32601.

They have an informational brochure, "Honey — Facts and Fantasy, as well as several other brochures. When writing them, a stamped return envelope should be included — as is true when asking any organization or individual for a favor.

in statewide examination that gives Instances of brood disease . . ."

The Indemnity Program

The Federal Government has now abandoned its ten year program of compensating beekeepers for losses of bees killed by insecticides. There has been no violent adverse reaction from the official organizations of the beekeeping profession, partly because they feel that the ten year period has seen no apparent positively effective effort by government to correct the cause of indemnification. Beekeepers don't want compensation for dead bees; they want proper control of the agents that are killing the bees. Personally, I feel they should have the compensation until the agents of destruction are properly controlled. Once more, it is my personal belief that the public is quite unaware of the role performed by bees in pollination. When and if the number of bees necessary to accomplish the pollination work of this country is no longer available (if such a happening should occur) then there will be a rapid scramble to replace them, and to protect them.

State Bee Inspection Program

Regardless of your or my personal experience with state inspection of our colonies, it will remain obvious to us that the best protection of our property lies in state-wide examination that gives inspectors authority to deal in a positive way with instances of brood disease when found.

Too many beekeepers are either indifferent or incapable of personally taking care of the matter. Our protection lies in our insisting on a continuation of this program which has proven its worth many times over for a long period of years.

Informing Ourselves about Pollination

Amazing as it many seem, many of us are not too well informed on the details of pollination of the particular plants in our area that require the services of honeybees.

The number of commercial crops needing pollination services is vast. Some of the more common ones are apple, some citrus, pear, cranberry, blueberry, berries such as strawberry, raspberry, and gooseberry, the cucurbits (cucumber, melon, etc.), vegetables such as bean, pepper, eggplant, rape, alfalfa, nuts. Even if you do not personally participate in such pollination programs, you should be well informed about the facts entailed. Your County Agri. Agent can usually supply you with literature.

Are you aware of the free pollination services your bees provide the public — such ones as we referred to earlier in this article when we spoke of soil retaining plants which are kept viable year after year through bee activity? Also, plants whose flowers help to beautify man's landscape? You are at least entitled to realization that such service is being rendered.

The commercial beekeeper who is successfully coping with the problems of the business today is to be complimented. □

Kiwi Beekeeping — Part I

By TOGE S. K. JOHANSSON
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IF YOU WANT to see a kiwi, you have to go a long way. Audiences on the *Tonight Show* would interject: "How far do you have to go?" "So far that the books I purchased took a year and a half to arrive!" It was a very bumpy thirteen hour non-stop flight from Los Angeles to Aukland, New Zealand where the kiwis are nocturnal, flightless birds that you can see during the daytime in light controlled aviaries only. The males incubate the eggs for about 80 days, and recent studies indicate the female will lay as many eggs as she can find broody males with burrows to incubate the eggs (polyandry). "Such extreme emancipation of the female in New Zealand's national bird must provoke sobering reflection"[5].

The human variety of "Kiwi" (numbering about 3 million) can be seen without making any special effort; 1/5 are out in the country on dairy or sheep farms. The sixty million sheep dominate the grass-covered hills along with three million dairy cattle and five — six million beef cattle. As you travel the length of New Zealand, the geography changes abruptly from subtropics in the north to glaciated mountains in the south. A collage of New Zealand's extraordinary scenery could be made by taking selected, gerrymandered pieces from Florida to Glacier National Park and arranging them in a strip approximately one hundred miles wide and a thousand miles long.

Since my travel within New Zealand was sponsored by the Ministry of Agriculture and Fisheries, it is not surprising that I saw a lot of apiaries and beekeepers. I met all but one of the eight field staff in apiculture who have the title Apiary Advisory Officer or Apiary Instructor. I went along on a tour of their districts while they performed their duties of consulting and providing information about current problems. In five days A. Matheson drove eight hundred miles over curvaceous roads and one-way bridges along the west coast of South Island to visit six commercial beekeepers and attend two meetings of beekeepers. Some beekeepers had come as far as ninety miles to the meetings, and one combined the journey with a trip to pick up his children at the local boarding school for a weekend at home. The Government provides grants for primary or secondary pupils who are obliged to live away from home in order to attend school.

There are 211,000 hives owned by 4,092 New Zealand beekeepers, but only one hundred are totally dependent on apiculture for a living, and half of these own 1,000 or more colonies; 3,169 beekeepers have fewer than 50 colonies. One beekeeper told me he hoped to subsist with one hundred colonies. Another with four hundred colonies was building towards five hundred, and seemed very comfortably off with a mortgage free home, free firewood, a garden, fish for the catching, and the possibility of bartering for meat. But an economist considered it required one thousand or more colonies to provide an acceptable full-time income (similarly in North America?). The commercial beekeepers I visited had very adequately capitalized operations, and were enjoying a high standard of living, including some with elegant new homes.

The idea for this trip was hatched in 1972 when I was teaching apiculture at the University of Guelph (Ontario, Canada) where G. M. Reid, one of the Advisors, was completing his degree. I am obliged to him for the considerable effort he expended to generate and synchronize my visits to advisors and beekeepers. G. M. Walton assumed the office of Chief Advisory Officer at the time these plans were being made, and I also appreciate the support and cooperation he provided.

Beekeeper's meetings. Although I visited the apiaries of nineteen of the principal commercial beekeepers, I had the opportunity to meet many others at seven branch meetings and the Southland Field Day of the New Zealand Beekeeper's Association. Some meetings had a different format than we are used to in the United States, starting with liquid refreshment in a pub or hall rented for the occasion. In due course the meeting got under way and lasted until midnight, or occasionally later.

Field days were like our summer meetings with families bringing a covered dish or other contribution for supper. At the Southland Field Day there was a lively business meeting, talks, demonstrations of methods of making nuclei, and an exhibit of gadgets. I especially appreciated a first hand account by J. Schofield, a recent emigrant from South Africa, of the realities of working with the African bee *Apis mellifera adansonii*. When he worked colonies judged vicious by New Zealand standards, he realized that an entirely different scale of comparison was used. A prize winning gadget consisted of a pallet with a bee proof plastic covering and bottom closure on which to pile supers of honey in the bee yard for later removal. In the United States, D. Crowson of Mississippi suggested using single or double commerical black plastic trash bags.

" Some meetings had a different format starting with liquid refreshment in a

The difference in average age of beekeepers attending meetings was striking. The day I left for New Zealand, I had breakfast in San Diego with a former honey buyer who was hesitant about financing a bee operation for his son when he considered how few young persons he saw at beekeeper's meetings. He would have been reassured talking to the optimistic young men and women I met

three days later in Hamilton. One of those young men has established apiaries on Great Barrier Island to produce honeys with exotic names like pohutukawa (*Metrosideros excelsa*, manuka (*Leptospermum scoparium*), tawari (*Exerba brexioides*), and dark "bush" (tree) honey. I wished there had been time to follow up the invitation to continue this first conversation another day, but I was to discover how swiftly six weeks go by when fully packed.

Workshop on breeding. The Ministry of Agriculture and Fisheries, with the assistance of the New Zealand Beekeeper's Association, organizes seminars and workshops to provide in-depth coverage of specific topics. I was fortunate to be a participant in a workshop on "Queen Bee Production and Artificial Insemination" given at Flock House (North Island) and Telford (South Island) Farm Training Institutes.

The accommodations for housing the participants and conducting the workshop at Flock House were ideal. We had excellent meals in the dining room along with the young men and women taking courses at the Institute. The students do all the work on the 3,500 acre farm, including the construction of buildings. That the Principal maneuvered approval of materials for fertilizer bins, a hay barn and a lounge which are, in fact, hand ball courts, a swimming pool and a pub, respectively, indicates the administrator's sensitivity to student needs.

There was a lively party the night the New Zealand Blacks (rugby team) stopped to enjoy the facilities. The principal is one of the coaches, and the team had just returned from a tour of the British Isles. In the United States rugby used to be a "largely unstructured affair, sort of a floating beer party interrupted occasionally by games"[4]. But in 1976 the United States of America Rugby Football Union was formed and in 1980 United States teams played international teams including New Zealanders.

At Telford there was no dormitory space so we enjoyed the hospitality of a hotel and motel in Balclutha, including morning tea served in bed. Evenings were devoted to informal seminars in the hotel pub, and an impromptu party in a motel suite organized by the youngest participant. At seventeen he was the proud owner of a flatbed truck, and had begun to acquire colonies and equipment for his Woodstock Apiaries.

than we are used to in the United States,

pub or hall rented for the occasion."

There was talk about bees during meals and the breaks at 10:00 a.m. and 3:00 p.m. sharp, when all of New Zealand shuts down for tea. This pleasant British custom does lead to some humorous situations as one reported in the *Christchurch Star*: "They arrested 136 people, removed about one hundred peacefully and then, after pausing for morning tea, removed the last fifty protesters from the meeting house".

The basics of queen rearing, genetics and breeding, and drone production were covered by lecture and discussion the first two days of the workshop; the techniques of artificial insemination were demonstrated and practiced in the remaining two days. J. Smith, one of the Apiary Instructors, who had learned artificial insemination techniques in J. Woyke's laboratory in Poland, conducted the laboratory; G. M. Reid, who organized the workshop and arranged for the fabrication of several inseminating devices, assisted; D. Roberts, one of the participants who had experience with insemination techniques, was also helpful.

Several of the beekeepers attending the workshops had purchased their own binocular scopes and insemination equipment at an approximate cost of $2,000. Artificial insemination is a very useful tool in speeding up the process of selection, but producing queens in quantity to head up honey producing colonies is perhaps done most economically and simply under conditions where controlled natural matings are possible. Genetics Systems, Inc. of Florida found problems that need to be overcome, and have discontinued their pioneer attempt to produce queens commercially by artificial insemination.

One New Zealand queen breeder has acquired the use of an island. Others control apiary sites over extensive areas where they can flood the drone assembly areas with selected drones produced by each of their honey producing colonies. Timberless, mountainous areas can be used for mating stations as done in Switzerland, or the vast areas of planted pine forests where there is little or no forage to sustain feral (wild) colonies. There should be a separation of a least 10 miles from other colonies to reduce the chance of mismatings.

Between 1908 and 1913 the Department of Agriculture produced, selected and tested Italian queens and bees at the Waerenga Experimental Farm, Aukland for sale to beekeepers. Commercial producers before and since then have provided queens within New Zealand. The interest in queen rearing and breeding has been on the increase since 1969 when the first shipment of queens was sent from New Zealand to Alberta, Canada.

The workshop participants were asked to list the characteristics they would give priority in their breeding programs. That honey production was first is not surprising, but it is likely this is the culmination of many contributory characteristics rather than a single trait. Temper (quietness on combs, ease of manipulation during poor conditions) was given second priority, with non-swarming third, and wintering fourth. Other col-

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ony characteristics that were listed more than once were brood pattern, color, non-propolyzing, tidiness in the hive, spring build-up, disease resistance, adaptability to the season, hardiness, longevity of queens, and brood production. The last six probably contribute to honey production, non-swarming and the ability to overwinter successfully.

On a cold, cloudy day in New Zealand I watched one beekeeper kick a hive repeatedly, and then proceed to take the hive apart without the use of smoke. This is his definition of a "gentle" stock for breeding! I could not help thinking of the times in past years when I acquired fifty — sixty stings working with professionals who bumped or dropped hives, and left me to put them back together again as I was often the only one wearing a veil.

J. Bray and G. M. Walton were not optimistic that breeding a "superbee" was a realistic objective for New Zealand after observing breeding programs in North America[1]. I. W. Forster was not able to demonstrate any significant difference in honey production amongst three commercial lines of honeybees[3]. Environmental factors have been found to account for 90% of the difference in milk production in cattle, and likewise beekeepers observe considerable differences in honey production between apiaries of genetically similar stock situated a few miles apart with differences in rainfall, soil etc.

Research by J. Louveau *et al* in France have shown the futility of assuming that a stock that does exceptionally well in one area can improve the productivity of native bees in another area with a different ecology. Apparently, bees inherit a programmed brood rearing pattern that is synchronized with the time of flowering in the region in which they have been selected. If by chance that is identical to a region to which they are moved from a higher to a lower altitude, the immigrant bees collected only 70% of what the local bees did. On the other hand production can be improved by moving bees from an area to which they are poorly suited to one that can be demonstrated to fit their inherited program better. These findings make the basis for selecting bees even more complicated. We should heed Columella's good advice in A.D. 60: "We must especially be careful, that they be brought rather from the neighbourhood than from distant regions, because they use to be highly provoked with the strangeness of the climate".

Crossing two individuals with exceptional characteristics results in offspring that tend towards the middle or average. The early efforts to improve egg production in chickens did not show much progress until breeders began to keep records of the progeny of the selected stock, including the animals that were usually culled out. The most easily available model of a breeding system for beekeepers, may be a local dairy farmer with membership in a breeding association. Members keep records from their own herd which are included in a computor data bank. Selections of semen for breeding the cows in the herd are made from a catalog of bulls with a summary of the data of their progeny.

In one of the classrooms at Flock House there were work sheets used by the students to calculate the rate of gain due to selective breeding as a basis to determine the dollar value of a breeder. The bull or ram must have the potential to increase the average milk yield or wool production sufficiently over a five year selection program to amortize the purchase price above that of an unselected animal. If there is no rational basis for including, or excluding a breeder, then selection is purely random, and as likely to be disadvantageous as advantageous, or to make no difference whatever. Simulations can be done on a computer to see the possible advantages of a breeding plan when mathematical solutions are not possible. After these many years of breeding dairy cattle, it is only this year (1980) that a bias in the evaluation of bulls has been discovered that has resulted in errors as great as 571 pounds of milk!

The Wool Plan in New Zealand grew out of groups of neighboring farmers who exchanged breeding stock. Beekeepers also know the ideal characteristics they want in their bees, and are thus best able to make selections from available stock. A geneticist can suggest models for breeding, and a statistician can provide the format of record keeping that will result in significant data. But progress depends upon communication with, and cooperative support of beekeepers. The close relationship between Apiary Advisors and beekeepers in New Zealand creates a climate that promises significant progress. Commercial queen breeders are interested in improving their stocks, are able to visit some of their customers, and can talk to others at bee meetings. A simple postcard feedback on selected characteristics would require little or no outlay:

"As of April 1, 1979 all

registered with the local

Kg/colony; number of colonies swarming without cause; number agressive without cause; number lost (overwintering, etc.). When apiary advisors visit beekeepers they can evaluate whether measurement, and management of colonies by the beekeepers are approximately uniform.

Honey houses. I visited the Glasson's immaculate honey house in Blackball shortly after a TV crew had used the premises for a documentary on bees. There I saw for the first time a peristaltic pump being used to move honey. It had seemed to me this would be the ideal pump to avoid air bubbles beaten in by mechanical honey pumps, but those I had seen in catalogs of laboratory equipment were too small for honey. A prototype was made by D. Bates and C. Bird from milk pump components, and in 1978 Reid & Harrison Ltd. produced a commercial model. The cappings and honey are pumped from the extractor to a tank where the honey drains, and steam coils in the bottom melt the cappings at the end of the day.

Many beekeepers have acquired discarded stainless steel bulk tanks from dairy farms to use as settling tanks, extractors, and vats for producing granulated or creamed honey. Most honey in New Zealand is sold in the creamed form and prepared by continuous stirring (2½ hours per day), adding liquid honey to the portion (¼) of the finished honey left in the vat. In one honey house I saw the well worn wooden paddle used by one of the employees until his retirement. He was replaced by two large mechanical stirrers! The process was an accidental discovery of I. Hopkins, New Zealand's first government apiarist, and published prior to 1887. This and other evidence was used in 1932 by the New Zealand Honey Control Board to obtain a revocation of E.J. Dyce's patent of the method in Great Britain to avoid payment of license fees.

honey houses were to be health inspector . . ."

I saw hot rooms with the source of heat in the ceiling, and fans to circulate the warm air among the stacks of supers of honey prior to extraction. Others use electric heating cable placed in the concrete floor. R. Berry uses geothermal steam in the floor of his honey house to heat supers of honey, and also to keep honey and wax warm while settling. He deals with the sticky cappings by ignoring the problem altogether; a conveyer worm carries the mixture into large double-jacketed tanks where the wax is permitted to accumulate above the honey. The honey is drained out into settling tanks leaving the cappings to be removed at the end of the extracting season or sooner if necessary. The readily available steam has also been put to use in an elegant frame cleaning machine to melt the wax comb, and squeeze wax out of slumgum. The wax collects in tins left on the warm floor for 24-48 hours where the debris settles, and the wax changes in color from black to olive.

Davidson and Penrose uncappers are the norm, and capping melters with heating cable or heat lamps for top heating are as ubiqitous as in the United States. I saw two Cook and Beal capping spinners that had just been installed and the problems of operating them were being identified. A third had been satisfactorily modified with a supplementary motor and a series of warming plates over which the honey flowed.

The packing plant at the Taupo Honey Centre in Taupo had the immaculate appearance of a milk bottling plant, and is open for the public to watch the entire operation. There is an attractive shop and exhibit including a natural nest of bees housed in clear Lucite. The visit to Taupo began with an evening of conversation with R. Janson in one of the local hot pools, and continued the next morning in his boat on Lake Taupo. The plant packs 150-200 tons of honey from 4,000 hives. The cooler being installed in the flow line was the first I had seen since I visited the co-operative honey packing plant of the Norwegian Association of Beekeepers in Oslo, Norway in 1963. Flash heaters should be coupled with flash coolers to deter the damaging effects of heat on honey. It is interesting that one beekeeper is designing his new honey house to include the option of handling honey without heating; a system this writer is familiar with for producing creamed honey. It is one way to insure that honey delivered to honey packers will meet the rigid standards of the Codex Alimentarius. As of April 1, 1979 all honey houses were to be registered with the local health inspector and those not meeting minimum standards would be required to correct deficiencies.

The Tui Apiaries in Tirau pack two thousand sections and sixty-five tons of honey with a hard working crew of three using a hand uncapper. All the honey is packed at one time after which the owner J. Ernest is free to work in his extensive, omnivorous museum. His mint condition 1937 Buick is one antique car that won't be traded for export to a U.S. service man in exchange for a sport car! The museum will be open to the public as well as the honey sales room with its blocks of wax piled up against the walls as insurance for the occasional year when the honey crop is short or absent. R. Box of Geraldine working alone produces 45-50 tons of clover honey from nine hundred hives, and also uses a hand uncapper to extract 1-1¼ tons per day.

A unique problem solved with the co-operation of apiary advisors G. M. Reid and T. Bryant was the handling of dense honey with a moisture content of 12-16.5%, using live steam during extracting. A refractometer is used to check the moisture content during the process. The Southland beekeepers with this problem could use the Nipawin (Saskatchewan, Canada) system of taking the honey off before it is capped when the moisture content is 18%, or even 22-24%. Dehumidifiers are used to remove 2-4% of the moisture in 24 hours. T. Taylor has increased production with this system to such an extent that he had reduced his operation from 1600 to 1000 hives. Other systems of dehumidification have been used such as vacuum, or stacking honey supers with flexible tubing connected to a chamber where the relative humidity is adjusted. D. Peer speculates the Nipawin system could double production because the colony is not using energy to produce cappings on the combs. As there is no price advantage in producing honey with less humidity, it behooves the beekeeper to do all that is possible to meet present inflationary costs. In fairness it should be stated that the Nipawin region does have low humidity compared to beekeeping regions where even fully capped combs may have a moisture content of 20%. Processing honey to meet artifical trade standards may result in loss of flavor and potentially turned-off consumers. □

(Continued Next Month)

Part II will describe hive and equipment, nectar and pollen sources, marketing, pollination, honeybee pests and diseases, research and other interesting features of beekeeping in New Zealand.

California Students Expand Their Beekeeping Business

By PAT WOY
Claremont, CA 91711

A FOLLOW-UP investigation on the beekeeping project for Pomona (California) Youth Services indicates even greater progress than anticipated. The March, 1981, article told about the beginning of a beekeeping project for valley youth who were in need of jobs and on-the-job training.

Today, for several reasons the beekeeping project has blossomed into one of the most important and lucrative aspects of the PYS urban farm program. Not only has the number of hives increased from 6 to 50 this past year, but to everyone's amazement a new facet of the bee business is keeping them busier than ever — building and selling hives.

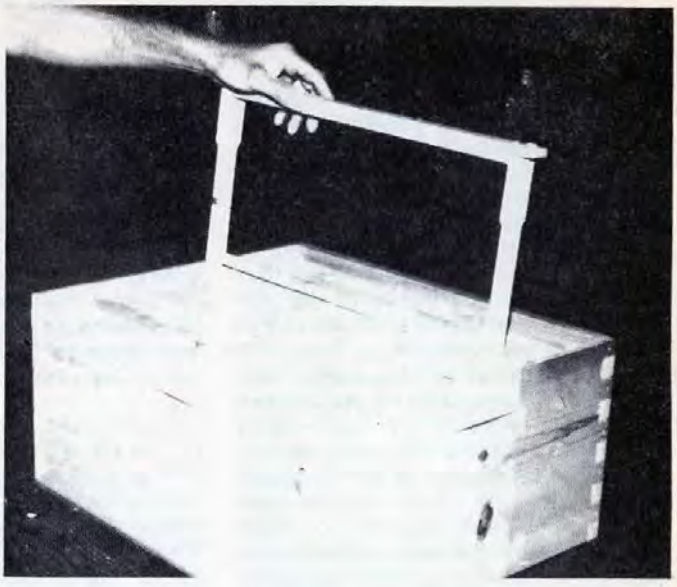
In April, 1981, Pomona Youth Services combined forces with Park West School, a continuation high school in Pomona Valley. Under the direction of John Owsley, PYS Executive Director and Dan Puszert, Park West woodshop instructor, about 20 local youth are involved in the hive construction business. " Our hive quality is unmatched, while our prices are extremely competitive since overhead is low," says Puszert, who designed his own jig for hive construction.

Materials are purchased by PYS and profits form hive sales help finance their various youth programs. The supers and frames are constructed from #1 and #3 kiln-dried pine and meet standard hive requirements. By the end of September, 1981, sales of supers with frames are expected to number over 4,000.

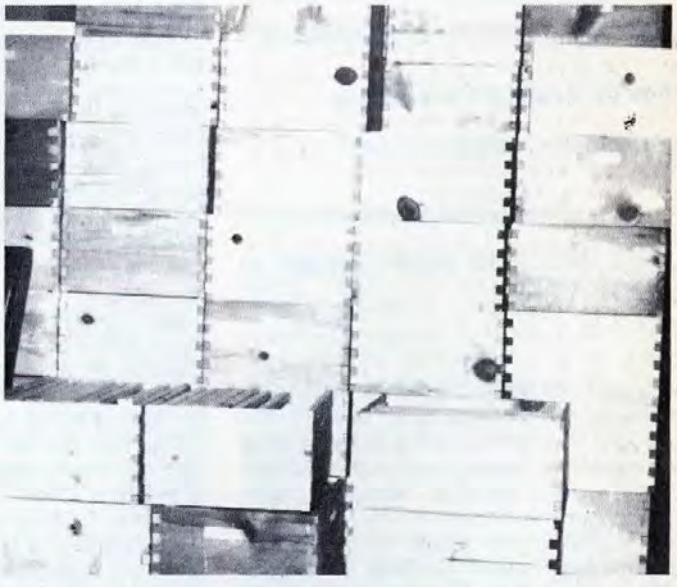
No advertising has been necessary. "Word-of-mouth" has brought in enough business from individual beekeepers to keep the students busy from 8:00 to 12:00 five days a week. When hive production is in full operation, advertising literature and price sheets will be mailed to commercial honey producers.

Two other facts of beekeeping are being considered by PYS: (1) Operating an apiary supply business, since none exists locally. (2) Transporting colonies for crop pollination. When these two areas are fully developed, Mr. Owsley sees several benefits for the students in the program. "They'll learn about running a business, merchandising, stocking, accounting and bookkeeping. Our students may never have

(Continued on page 634)



Super and frames constructed by PYS students. Photo by Pat Woy.



Hive order being readied for shipment. Photo by Pat Woy.

PYS student cuts wood to correct size. Photo By Pat Woy.

News and Events

FLORIDA
American Honey Producers

The thirteenth annual convention of the American Honey Producers will be held in Orlando, Florida at the Court of Flags Hotel, January 25 through 29, 1982.

The opening meeting of the convention will begin at 9:00 a.m., Monday, January 25. The registration desk will be open all day. The 1981 Executive Committee will meet in closed session from 9:00 a.m. to 12:00 noon to discuss final details of the convention. The Board of Directors will meet in the afternoon beginning at 1:00 p.m. A two day educational seminar under the leadership of Dr. Larry Conners has been scheduled for Monday and Tuesday. These educational sessions are not a part of our general sessions.

The Tuesday program will include registration for the entire day and the General Assembly program which begins at 10:00 a.m.

On Wednesday the General Assembly program lasts until noon. The membership business session is planned for 1:30 to 3:00 p.m. The Board of Directors meets from 3:00 to 5:00 p.m. The banquet is scheduled for 7:30 p.m.

The new Executive Committee meets at 9:00 a.m. Thursday — finalizing the convention.

Our convention headquarters, The Court of Flags Hotel, is situated on 25 acres of beautifully landscaped ground and is ideally located for visiting points of interest. The facility is just minutes from Disney World, Cypress Gardens, Wet-N-Wild, Circus World, the Kennedy Space Center and other points of interest in Central Florida.

Transportation to attractions and other points of interest is readily available. Scheduled bus and maxi-van trips leave from the main lobby area. A reputable car rental agency is located on the property. Transportation to and from the airport is available.

Sleeping room rates are $47 single and $51 double. Reservations with one night's deposit will need to be made by December 25. Check in is after 3:00 p.m. and check out is 11:00 a.m. Court of Flags Hotel, 5715 Major Boulevard, Orlando, Florida 32805, Phone: 305-351-3340, Toll Free — 800-327-0721.

LOUISIANA
Progressive Beekeepers' Association

The Progressive Beekeepers' Association of Louisiana will hold their annual meeting at the Holiday Inn, Highway 71, Alexandria, LA on Saturday, December 5, 1981.

Registration will commence at 8:30 a.m. with the call to order at 9:30. A noontime luncheon will be served by the Holiday Inn. Everyone is invited to attend.

CALIFORNIA
92nd Annual Convention of the California Beekeepers' Association Harrah's Convention Center South Lake Tahoe, California

The convention program will begin at 4:00 p.m. Monday, Nov. 16 with a CSBA Board Meeting and the Queen presentation and reception hosted by the Ladies Auxiliary at 8:00 p.m.

Registration begins at 8:00 a.m. on November 17th.

Space does not permit printing the complete program in *Gleanings* but an outstanding group of speakers will talk on a variety of subjects including EDB update, wax moth control, beekeeping in China, and a discussion of terramycin use.

An annual banquet and queen coronation will be held at 8:00 p.m. Thursday, November 19th.

OHIO
Ohio State Beekeeper's Fall Meeting

The fall meeting of the Ohio State Beekeeper's Association will be held November 14, 1981 at Capital University in Bexley, Ohio. The meeting will be in Room 260, Ruff Memorial Hall on Pleasant Ridge Road. Registration is $6.00 for members and $7.00 for non-members.

Kiki Pickering 1981-82 Ohio Honey Queen

The program will include presentations on preparing honey for show, collecting old bee books, and testing honey for adulteration. For more information, write: Zale Maxwell, 1410 Sheridan Drive, Apt. 5B, Lancaster, OH 43130.

Kiki Pickering, 18, was selected at the summer meeting of the Ohio State Beekeepers' Association as the 1981-82 Ohio Honey Queen. She is the daughter of Mr. & Mrs. Al Pickering of Circleville, Ohio. Kiki will be a freshman at Ohio University in Athens, Ohio, this fall.

Kiki has represented the Ohio State

(Continued on page 630)

News and Events

(Continued from page 629)

Beekeepers' Association at the Ohio State Fair, the Ohio Honey Festival and will be making other appearances throughout her reign as queen for the promotion of honey and the honey industry.

CANADA
Canadian Honey Council

The Canadian Honey Council's Annual Meeting will be held at the Royal York Hotel, Toronto Ontario on November 23rd, 24th and 25th 1981.

November 26th is Tour Day with a bus trip to Niagara Falls. The Ontario Beekeepers' Association's **Centennial** Convention will be held at the Royal York Hotel, Toronto on November 27th and 28th 1981.

NEW JERSEY
EAS Honey Show

Three round sections of beautiful comb honey entered by Dr. Richard Taylor of Trumanburg, New York in the 1981 Eastern Apicultural Society Honey Show at Rutgers University, New Brunswick, New Jersey, not only won the EAS Blue Ribbon, but also were awarded the Ross Rounds, Inc. trophy for the best round section entry. This award consists of a museum replica of a "Golden Bee" by the sculptor Gaston Lechaise, with a small inscription to commemorate the occasion. Competition was close in a field of about a dozen entries, nearly all of which scored very high marks.

The Ross Rounds Award has been won at previous EAS Honey Shows by Duane Waid of Interlaken, New York at the 1979 Conference in Ottawa, Canada; and by Helen Light of Feeding Hills, MA in 1980 at Burlington, Vermont.

The 1981 winner, Dr. Taylor, is also the author of serveral popular books on beekeeping, including *How To Raise Beautiful Comb Honey.*

NEBRASKA
Nebraska Honey Producers

The Nebraska Honey Producers will be holding their annual fall meeting on Friday and Saturday, November 6 & 7 at the Holiday Inn off U.S. Interstate 81, Grand Island. Registration will begin both mornings at 8: a.m. with meetings and activities for both the men and women following. We will be having a guest speaker from British Columbia, John Corner, who will be discuss winterizing, queen production, Canadian beekeeping, and also the African bee. A banquet will be held on Friday night with the crowning of the new queen for 1982. She will assume the responsibilities of the 1981 queen Shauna Kuhl of Randolph. It will be very interesting two days, so please plan to attend.

NEW YORK
Empire State Honey Producers' Association

The Empire State Honey Producers Association will hold its annual winter meeting at the Hilton Motor Inn in Syracuse December 4 and 5. The Inn is near the junction of Interstate routes 81 and 90 (the Thruway).

A special feature at this year's meeting will be a report concerning the Department of Environmental Conservation's investigations and actions concerning honeybee — pesticide losses in the State. There will also be a honey show with four classes of liquid honey, comb honey, round section honey, cut comb honey and beeswax.

WASHINGTON
Washington State Beekeepers' Association

The annual meeting of the Washingtion State Beekeepers' Association will be November 12, 13 and 14 at Everett's Holiday Inn, Exit 186, 128th St., off I-5. The Stanwood Camano Island Association will host the meeting.

A honey show will be held in conjuction with the meeting. For information write to the host committee, P.O. Box 1205, Stanwood, WA 98292. A banquet will be held Friday evening with a guest speaker.

Registration will begin Thursday morning November 12th at 10:00 a.m. Some of the topic scheduled for discussion are: Pollination, orchard, seed and berry, two queen systems, marketing, evalunating queens and colonies, wintering, how to sell yourself, and the honey loan program.

For more information contact The Host committee, P.O. Box 1205, Stanwood, WA 98292.

PENNSYLVANIA
Wayne County Beekeepers' Association

The Wayne County Pennsylvania Beekeepers' Association recently won first place in the group exhibits division at the Wayne County Fair. The association capitalized on the fact that Wayne County is a leading dairy county in the state and developed the exhibit around the theme, Wayne County — Land of Milk and Honey.

The association has forty-three members and has been quite active in recent years, especially in regard to

(Continued on page 634)

Left: Tom Ross, President of Ross Rounds, Inc. Right: Dr. Richard Taylor, Winner of Ross Rounds Award. Photo by Nancy Oden.

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"Old Reliable" Hybrid Italian Bees
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Tested queen $2.00 each

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Marked or Clipped: 30¢ ea.
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TERMS: Orders $100 or more, 10% deposit and balance due 2 weeks before shipment—others, cash with order.

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California Students

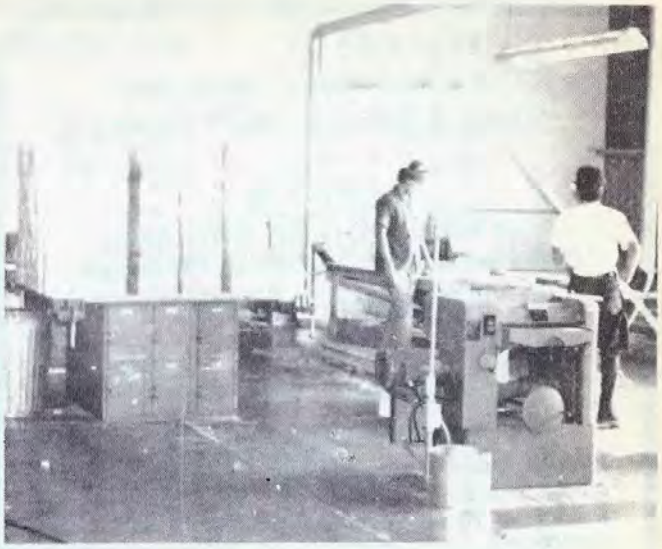
(Continued from page 628)

another opportunity to learn these particular skills that can be utilized the rest of the lives," says Owsley.

The 34 hives added this year to the beekeeping program have all come from the school's woodshop. To start new colonies, old ones have been divided or swarms have been collected. Recently Los Angeles County donated a large section of land at Bonelli Park to PYS for the maintainence of colonies. PYS's long-range goal is to increase the number of hives to 200 within the next two years.

Frank Twyman, the retired postal employee who set up the beekeeping program, still donates his time to train the student workers. His right-hand man, Jesus Quesada, has been with him for over a year. "I'm spending more time with the bee project," says Mr. Twyman, "but I'm like a teacher, I enjoy watching the students learn."

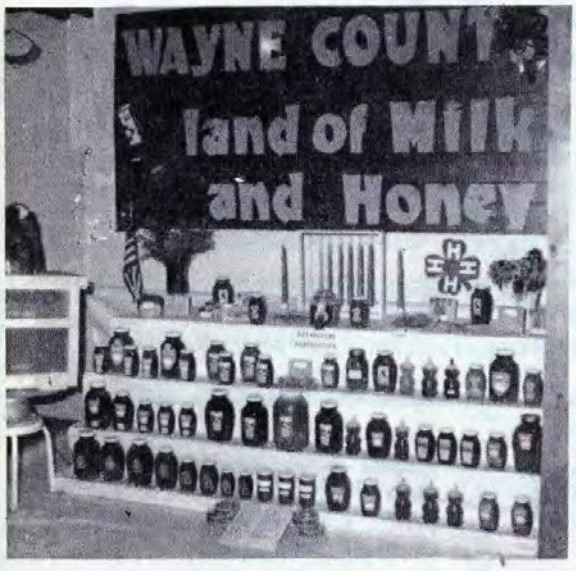
For Furthur information contact:
Pomona Youth Services
John Owsley, Executive Director
56;8 East Foothill Blvd.
Pomona, CA 91767



Park West School's woodshop used for hive construction. Photo By Pat Woy.

Dan Puszert, woodshop instructor, and Bill Haifley, PYS employee, show off hives. Photo By Pat Woy.

News and Events



(Continued from page 630)

educational and promotional events. Officers are Robert Noll, Pleasant Mount, president; Howard Day, R.D. #1, Honesdale, vice president; Evelyn Mignerey, Lake Ariel, secretary; Francis Motichka, treasurer. John Creightonl, county agricultual agent, who is a beekeeper himself, serves as an advisor to the group.

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Classified rates, 41¢ per counted word, each insertion, payable in cash in advance. Each initial, each word in names and address, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it) count as one word. Not less than 10 words accepted. Copy should be in by the 5th of the month, preceding publication. Send classified ads to : The A. I. Root Co., Advertising Department, Gleanings in Bee Culture, 623 W. Liberty St., P.O. Box 706, Medina, Ohio 44258.

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.

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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.

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

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.

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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. Deer Creek Honey Farms, London, OH.

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.

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

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—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.

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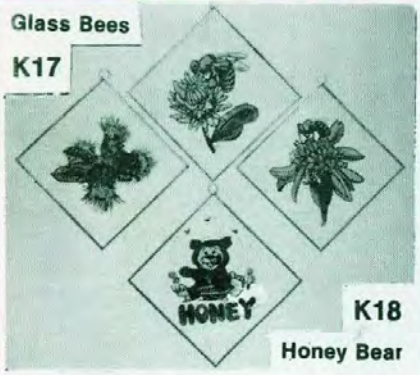

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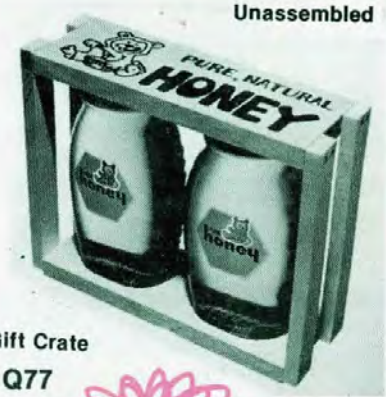

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