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John Root

Lawrence Goltz

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COVER STORY

The drone in the foreground has a limited life expectancy at this time of the year. The rate of expelling the drones depends upon the advance of season, the close of the honeyflow, the condition of the colony and the amount of stores.

CONTENTS

Monthly HONEY Report

LAWRENCE GOLTZ
September 10, 1978

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								
In 60 Lb. Cans	1	2	3	4	5	6	7	8	9
White (per lb.)		.52	.48	.47	.50	.55	.49	.45	.49
Amber (per lb.)		.48	.45	.45	.45	.50	.44	.41	.42
1 lb. jar (case 24)		19.00	20.25	18.20		18.50	19.00	17.75	
2 lb. jar (case 12)		17.95	18.80	17.50		18.00	19.25	17.25	
Retail Extracted									
8 oz. jar		.60	.63	.59		.58	.59	.59	.63
1 lb. jar	1.25	.98	1.12	1.02	1.20	1.05	1.09	1.02	1.10
2 lb. jar		1.90	2.10	1.86	2.25	1.95	2.18	2.00	1.96
2½ lb. jar	2.80	2.40		2.64					
3 lb. jar		2.70	2.89	2.85	3.25	2.75	3.20	2.95	2.82
5 lb. jar	5.50	4.25	4.75			4.25	4.30	4.89	4.73
Creamed 16 oz.		1.15	1.15	1.13				1.09	1.15
16 oz. Comb		1.55	1.75		1.45		1.20		1.85

Beeswax — Light $1.70 — Dark $1.60

Comments:

Vermont - Honey flow good until last of June: ended with about 30 pound average above winter stores. Recent rains helped after dry July and August. Less clover acreage than 20 years ago.

New Jersey - Demand for honey slower, although some beekeepers report short crop. Bees in good condition. Moisture average.

New York - Good honey year to date, especially upstate, where honey flow most prolonged in recent memory. Goldenrod looks promising.

Pennsylvania - Average or better than average crop year. Black locust flow improved quality of honey, but blooming period cut short. Rainfall above normal at end of August.

Ohio - Good crops reported of light honey. Fall honey flow hampered by drouth in northern and eastern Ohio. Bees entering fall in good condition.

Indiana - Retail honey sales brisk at higher prices. Interest in hobby beekeeping is increasing. Most of state shows a good crop. Southern Indiana showing smaller crop.

Michigan - Very dry in places. Might be a fall flow in selected areas.

Wisconsin - Southeast Wisconsin has a fair crop, 100 pounds per hive average. Southwest portion much poorer (60-70 pounds). Sales good. Moisture conditions good.

Illinois - Honey flow was good in the southern two-thirds of state, northern edge below average. Most of honey was of excellent color but high in moisture. Retail sales good.

North Dakota - Moisture conditions good.

Minnesota - Areas of state are variable in crop reports. Total crop probably below average. Good sunflower honey flow. Average surplus may reach 90-100 pounds. Moisture conditions average to good in state.

Iowa - Weather conditions have shortened the crop. As of middle of August average surplus was about 60 pounds. Moisture conditions fair.

Nebraska-Honey flow heavy at times. May be best crop in years. Color and quality good with heavy body to honey. Hives are well stocked with honey.

West Virginia - Weather and other conditions ideal for fall honey flow at end of August.

Virginia - Honey selling well. Fair crop of sourwood was produced and received top prices. Moisture ample. A good crop year, one of the best in years.

North Carolina - Sourwood flow was very good and of light color. Selling for $1.75-$2.00 or higher per pound.

Kentucky - Most locations produced only a light flow in August. Western part of state very dry. Crop remains short. Honey sales moderate.

Arkansas - Drought conditions and excessive sprays for army worms have affected honey crops drastically. Overall average production down. Reports of bumper crops of white honey in states north have cut offers and prices for crop. Soybean honey very light in color.

Texas - Recent rains at end of August gave short bloom off white brush. Cotton crop in west Texas looks good. Retail sales slow. Price steady. Broomweed looks promising for September bloom.

Oklahoma - Honey retail sales good. Honey flow was short but strong. Above average production of good light honey with good flavor. No rain for 7-8 weeks prior to end of August.

Colorado - Lack of rain during July has slowed down the honey flow. Crop is variable in state. Retail sales average.

(Continued on page 487)

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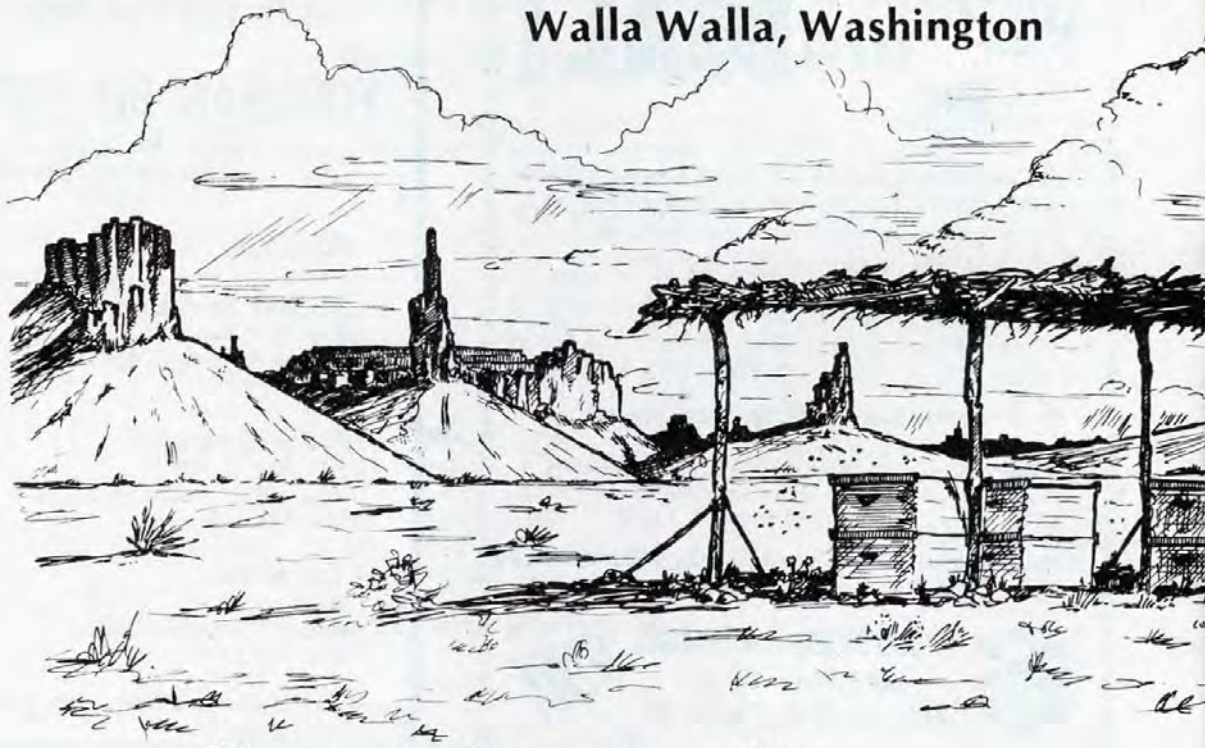

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Gleanings Mail Box

Dear Editor:

I was very disturbed by Mr. Koover's implication in the August issue that Penncap M could or does have the potential to contaminate honey. When Penncap M was first suspected of killing bees in Washington the Food and Drug Administration investigated the possibility of honey contamination. This investigation showed there apparently is no contamination of honey. I fully agree with Mr. Koover that Penncap M and all other toxic encapsulated pesticides should be banned. I do think there is a real danger of fruit and vegetables eventually becoming contaminated by the continued use of micro-encapsulated pesticides, but any implication in a public manner is a serious mistake.

But let's look at things also in another aspect. That is that these problems point out the desperate need for our industry to become modern, to fight for our rights and work on our own behalf. For example, these problems show the need for modern marketing and promotion of honey. Anyone who says honey promotion is unneeded is antiquated in economics.

In Central Nebraska where I operate and in many other areas we can no longer produce honey in an economically feasible manner. This I now believe is due to the use of herbicides sprayed from aircraft. The chemical 2 4 D is completely destroying the environment here. Sweet clover no longer produces honey; alfalfa only occasionally. The destruction of valuable shelter belts, clover for cattle forage, gardens and wildlife cover is becoming rampart. Furthermore the target weed is generally unaffected by the spray.

Pesticide indemnification payments are completely inadequate to compensate the beekeeper for his losses. The criteria are incorrect as relates to damage. For example, dead brood should not be a requirement for severe damage as 100% of field force can easily be destroyed and there is often no dead brood.

Many beekeepers fear that if they are successful in banning or modifying the use of certain pesticides they will lose bee locations as a retaliation from farmers. This fear is only partially justified. I personally am willing to lose locations if I can again produce normal honey crops on those which I have left. In time other locations will be found and the better conditions will allow more colonies per location. I realize that the use of chemicals is sometimes a must. However, I am convinced that many, many times the use of some chemicals is unneeded and that the American farmer is being cheated daily. Our farmers no doubt pay millions of dollars out for unneeded sprays. For example, traditional crop rotation program would reduce corn pests dramatically and save many dollars spent for nitrogen fertilizer. Our farmers are advised that they can grow corn for twenty or more years on the same ground. The result is higher fertilizer requirements, many, many corn pests and eventually lower yields. The total effect is that the farmer loses money, beekeepers go bankrupt and the environment is damaged.

It is fair to say now it is more evident than ever that we must dispel our apathy and get to work. If people never try they will get no where. I, for one, intend, if possible to be in the bee business in the future. Those who do nothing don't much care anyway, or suffer an acute lack of intestinal fortitude.—Gary B.Mackrill, Burwell, Nebraska.

Dear Editor:

I noticed an article in **Family Health** (Feb. 1977, Pg. 22) during a visit to the dentist's office this week titled "Botulism Babies".

Apparently there is more to botulism in babies than the mere presence of C. Botulinum. I am not a medical professional, but I would venture to say that the immune systems of the host are very much involved if babies can get botulism from "mother's milk, their fingers, etc.".

I think we would be well advised to improve our diets and living styles as well as our environments rather than attempting to eliminate all possible sources of germs. It would be unfortunate if good foods like raw honey were avoided because of an excessive concern with germs.

Good luck with pacifying the botulism scare!—Vern Hoffman, Guilderland, N.Y.

NEW BULLETINS & INSTRUCTION MEDIA

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"Bees and Honey Hunting Scenes In the Mesolithic Rock Art of Eastern Spain" by Dr. Lya B. Dams.

Reprints of the article of this title from **Bee World** are available as IBRA reprint number M 93 at a price of 95 cents each, including surface postage from; International Bee Research Association, Hill House, Gerrards Cross, Bucks SL9 ONR, England.

USDA BULLETIN

A copy of technical bulletin 1569, "Nosema Disease—Its Control in Honey Bee Colonies", may be obtained from the office of Governmental and Public Affairs, United States Department of Agriculture, Washington, D.C. 20205.

The author is Dr. Floyd E. Moeller, until recently of the Bee Management and Entomology Research Laboratory, Madison, Wisconsin. No price is mentioned—From USDA Research News

SLIDE SET

"Pollen in Honey", a slide set consisting of forty color slides taken of forty-eight pollen specimens prepared from typical British and overseas honey plants. The set was prepared by Rex Sawyer, Britain's leading expert on pollen. In this set he outlines the structure of pollen grains, their types, recognition and types in honey.

"Pollen In Honey" was awarded first prize at the National Honey Show in London in 1977.

The slides are hand mounted in good quality white plastic, glassless frames, 2 inches x 2 inches to fit all types of magazine projectors. The series is also available as an uncut strip of film.

"Pollen In Honey" costs $14.00 air mailed. Order from Ray Williamson, 40 Newbury Road, Lytham St., Annes Lancastershire, Great Britain FY8 1 DG.

USDA PUBLICATION

"Supplemental Feeding of Honey Bee Colonies" is a new publication available free from the U.S. Government Printing Office. Write to Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

It contains information on formulas for supplementary diets for honeybees and methods of feeding such foods to bee colonies.

A Look At Old Practices

By GRANT D. MORSE, Ph.D.
Saugerties, N.Y.

Getting the Extracted Combs Dry

HAVE YOU BEEN following the practice of letting the bees clean up the combs after extraction time? I always have.

Now Elbert R. Jaycox, extension Beekeeping Specialist of the University of Illinois, in his January 1978 Beekeeping Report, clearly states that the practice is unnecessary, and a waste of time.

Many beekeepers assume that if the bees are not given a chance to dry the combs in the fall, granulation will occur and thus cause granulation in the next crop. Jaycox says it isn't so. He declares that when such wet combs are given to the bees just before the nectar flow, they will liquify the granules and "consolidate all the traces of honey on the combs" before refilling them.

Further, he states, wet combs are very attractive to the bees just before the flow, provide extra food, and tend to encourage activity in the added supers.

He says nothing about caution against robbing when such combs are given in the spring. He doubtless assumes that knowledgeable beekeepers will select carefully the time of giving such wet combs.

Hive Entrance Sizes

Anyone who has read my articles knows that I have repeatedly emphasized the desirability of keeping hive entrances reduced in size, often even through June here in the North, because the nighttime temperatures here so often fall into the 40's at those times.

Entrances kept open to the full tend to discourage producing brood in the combs adjacent to the openings. I have seen two or three instances here in the North in which bees of Caucasian origin filled the standard size entrance of the hive with heavy constructions of propolis all the way across the hive front, leaving several small entrances of approximately a half inch in width. That was their reaction to the beekeeper's provision of a wide-open entrance.

Jaycox talks about this subject in his January 1978 Monthly Report. He quotes a Russian study reported in the Alpenlandische Bienenzeitung, October 1977 in which the bees were given an opportunity to determine the size of the winter entrance by covering the regular entrance with a strip of waxed paper.

The bees elected to produce entrance holes in the paper, oval in shape, about 8 x 9 mm (25.4 mm equals one inch). The total area of the several largest holes was only 281 square millimeters—an area equivalent to a half inch portion of the standard 7/8 inch entrance. They seemed to prefer entrances located about 2-1/2 inches above the bottom board.

Morse and Seeley (1978) also mention size of entrance of colonies selecting bait boxes as home sites. Most of you have probably already read their report in the May 1978 issue of **Gleanings in Bee Culture**. They state that entrances to nests in the wild are "usually quite small, typically less than six square inches". Since the swarms entering these nests in the wild had a choice (bait boxes with larger entrances were offered), the bees' preference is rather clear.

Doubtless the bees' preference was based not alone on choice of a small entrance for the purpose of reducing exposure of brood combs to the exterior temperatures, but also because small entrances make protection easier against marauders.

The Requeening Problem

The beekeeping fraternity is pretty much persuaded that securing a new queen in each colony each year without inducing swarming is one of the chief challenges to the operator.

The beekeeper who is reconciled to annual requeening with purchased queens has chosen one rather sure way, but many are disturbed by the question of quality of such queens, or with their cost, or both.

If one has both the time and the skill to raise his own queens, that is another solution. But not too many have both the skill and the time. Consequently, many keep searching for some other satisfactory method.

The economic value of first year queens as opposed to two year queens or those of greater age, is once more documented by Mr. Ivor M. Forster (1974) of the New Zealand Ministry of Agriculture and Fisheries. He found that, as a group, first year queen colonies always produce more honey than those with second year queens. The test, made on 300 colonies, showed a difference of 30 pounds of honey. Further, he found that colonies with spring produced queens yielded 20 pounds more honey than colonies with autumn queens; and colonies whose queens mated from the colony produced 25 pounds more than those with introduced queens.

Beginners' Fears of Swarming

If you are typical in your reactions to owning strong colonies in the springtime, you are quite fearful of their swarming. I know how you feel and, believe me, don't think that even the most experienced beekeeper doesn't feel that way too—the only difference being that he thinks he knows what to do about it.

I had some colonies last spring (May 20) that were very strong. They were in two hive bodies. I was short of drawn combs so I didn't Demaree them, that is, put frames of brood into the third super. So what did I do?

I reversed them and did so again in about ten days. As I did so I looked at the bottoms of the frames in the upper super to see if any cells were present. None was. Like many a beginner, though I didn't really need to do so, I pulled out two frames from the center of each hive body to make sure. An operator with a large number of colonies couldn't afford to do that. I started with frames at the side so as to make sure not to crush the queen—an occurrence which seems to happen all too often.

If I had found queen cells what might I have done; being short of drawn combs? Well, as a last resort, I could have divided them, placing each of the two hive bodies, of which each colony consists, on a separate bottom board and given one of them, the stronger, a new location a few feet away. Thus reduced in strength, they would then probably not swarm.

Or I could have made up two or more nuclei of about five frames from each colony, making sure that each such new unit possessed a promising queen cell. Of course, that means those units would not provide me with any honey this season; but neither would they do so if they were allowed to swarm. Later when one of these nuclei is found to have a fine new laying queen, I could place her nucleus over the unit containing the old queen whose bees wanted to swarm. That would bring them back together again, and ready to profit from the first nectar flow.

As I made up such nuclei I try to block their entrances completely for 3-4 days

with liberal stuffings of green grass. That encourages the bees to remain in their new unit rather than to return to the old one—which most of the older bees will do anyway.

When I make up nuclei earlier than July first I put packing into the area of a ten frame hive body that is not occupied with frames. That reduces the effort the small number of bees there need exert in order to maintain a brood rearing temperature of 93°F.

These new nuclei can later be placed over any colony that has a queen older than one year, using the newspaper method.

I recommend that you learn to clip one wing of each of your queens. Then you will have the satisfaction of knowing what queen is in your colony, and how old she is. Such clipped queens also slow down any attempt at swarming for a few days.

Afraid of Getting Stung?

If you're normal in your reactions to the threat that 50,000 bees in one unit can inspire, what can you do?

Well, you can wear gloves—leather ones with long sleeve gauntlets. But that's "chicken", of course. So you try to operate barehanded. Will you get stung? You may, but unless you're dangerously allergic, it's not likely to be your lasting detriment. In fact, operating barehanded encourages you (compels you, in fact) to go easy—not crush any bees.

But if you will precede your manipulations with a few **small** puffs of smoke at each point where the interior of the colony is exposed to the air, the bees may not sting you at all. I didn't get stung once today as I reversed my colonies.

But if your bees are too aggressive, if they sting severely and frequently despite your operating barehanded, and with care, get a new queen for the offending colony. It isn't worth it for a beginner to operate unpleasant bees. Research shows that it is not necessarily so that gentle bees are not good producers, though my experience is that the aggressive ones are superior gatherers.

Feeding Dry Sugar

If you need to feed your bees, the best way, in my experience, is to do so with sugar syrup, fed from large glass containers with caps that are four or more inches across. In the spring the solution may be 50-50; in the fall a ratio of two parts sugar to one part of water is recommended. Such sugar should have been melted in hot water (not boiled).

Such containers can be placed directly over the frames of the hive bodies in which bees are operating, and protected with an empty hive body. If the weather is cool, it is a good plan to cover the glass containers with a mantle of cloth of some kind.

But if, for some good reason, you can not feed sugar syrup, dry sugar may be fed. I feel this should be done only in an emergency or in anticipation of a possible shortage of stores at a time when it is inconvenient to feed sugar syrup.

In this event the sugar may be placed (as much as 5 pounds) on the inner cover provided it has one or more holes in it which give the bees access.

Many Canadians place dry sugar on their colonies in the fall as a precaution against shortages. But bees will often not touch such sugar until their stores are either exhausted, or nearly so. Also, the bees need to be able to get moisture from some source each day in order to ingest the crystals of sugar. Ants often become a nuisance when sugar is fed dry.

If no inner cover is in use, a piece of newspaper, or a piece of tin foil smaller than the area of the hive may be substituted. Dry sugar should not be allowed to fall upon the brood else it may be killed. On the basis of my own experience, I cannot recommend extensive feeding of dry sugar to colonies.

Opening the Hive

Actually, how often does an amateur beekeeper need to open his hives? If pollen is being brought in in good abundance (a fact which may be readily observed at the hive entrance) the operator can be rather certain that the colony is queenright. If the number of bees coming in with nectar is high, the operator knows the colony has good strength.

Unless no pollen is being brought in, or unless the colony workers seem to be loafing, why open the hive? Well, the operator may want to inspect for the possible presence of disease.

If the operator inspects the bottoms of the upper frames for the presence of queen cells when he reverses his hive bodies, there's seldom need for further examination. He soon learns to estimate the quantity of honey present by hefting the supers, allowing, of course, for the weight of all the other items present—and that is considerable, perhaps as much as 24 pounds.

If nectar is being brought in in considerable quantity, the tops of the combs will show the presence of newly constructed white comb. So just taking off the cover supplies the answer to that question.

Obviously, then, there are really few occasions when the hive need be opened—unless the operator truly enjoys looking.

Which Bee To Use?

If you are a beginner you may have been wondering whether you have selected the right race of bees to fill your hives. Should they be blacks, Africanized Brazilians, Carniolans, Caucasians, Italians, or some other, (of which there are a goodly number, most of which have not yet revealed their merits to us)?

Blacks were the first bees brought to America from the northern half of Europe. They served their purpose here because they were hardy. But they produced relatively small crops, and were almost universally unpleasant to handle. They are gone almost totally from our shores except as represented by minor characteristics in a few hybrid strains.

The Africanized Brazilians may never reach the United States except in the most southern and most western areas because they are typically a tropical race.

The Carniolans which originated in the southern part of the Austrian Alps and in Yugoslavia, largely, have not been totally popular in America because their honey production is not so high as that of the other races. Also, they tend to swarm rather freely.

The Caucasians which originated in the high valleys of the Central Caucasian Mts. have two weaknesses on the American scene. First, they tend not to bring their working force to full strength early enough to take advantage of early nectar flows. Second, they use too much propolis.

We come to the last of the five races listed previously—the Italians. They are not ideal. They tend to rear brood earlier than demanded by the length of American winter; they consume large quantities of winter stores; and they are known as avid honey thieves.

Despite these negative qualities, they are doubtless the best race of bees to have been used extensively here. They build large congregations of workers, especially in summer, and are good gatherers, and they do not swarm more than other races (less often than many), and are reasonably gentle.

So if you are cultivating the Italian race of bee, you are probably on the right track, especially if you have the right strain of Italian bee.

(Continued on page 485)

Ukranian Beekeeping In New Jersey

By M. H. STRICKER
Stockton, N.J.

TUCKED AWAY IN the hills of northern New Jersey is a very small village bypassed by the highways visited by few people. It is the home of several families of refugees of one of Josef Stalin's purges in Russia. Ukrainians, who shun the name of Russians. They live in neat self-carpentered houses with beehives in almost every back yard. Though they are thousands of miles from their homeland, the bees still remind them of the land of milk and honey along the Black Sea that they left so many years ago.

The honey flows here are nothing like those they remember, but everyone I talked to was glad to be here in a free country that they found truly free compared to what they left behind.

Where most families have only four or five colonies, "George" has about 60 colonies nicely terraced on a south slope in back of his house. He is known locally as the "bee master" and all the others in the settlement defer to his ability.

When I first visited the apiary in November, all colonies were wrapped for winter. George uses a layer of cardboard completely surrounding the hive, then wraps that in either plastic or oilcloth, whichever is available. Each colony is provided with top ventilation; at each end of the cover, or a special rim that fits under the cover, is a half inch hole. Inserted in each hole is a tin tube that extends about two inches beyond the packing. The bees are not given access to these holes as the inner cover holes are covered with wire.

When I questioned this, I got an excited explanation in broken English that I couldn't quite understand, but it must work because when I visited the yard this spring, winter loss was nil, and the small opening left for flight at the bottom board had apparently been ample for flight, and the tubes had carried the excessive moisture away since colonies were dry and there was no sign of dysentery.

The equipment is homemade, but made with the skill of a cabinet maker who is a man who loves his bees and thinks they deserve a fine home. Purposely there are no "handholds" in the hive bodies. This is to hinder stealing which had at one time been a problem. Now several German shepherds do guard duty and the apiary is

George and friend looking at colony.

The terraced apiary packed for winter.

fenced so that would-be "appropriaters" will now have their problems.

Ideas abound in this settlement, some brought from the old country, others designed to fit the needs of this. One of the latter is a homemade "super-lifter" George designed due to his advancing age, saying, "The brain may get stronger, but the muscles sure don't!" Briefly described, it is a long legged "saw-horse" with two wheels so it may be easily positioned over the colony to be worked. Its upper part contains a screw jack securely fastened to an oak two by six. The underside of this piece has two hooks for holding two short pieces of rope. The rope runs to a "cradle". This "cradle" is simply two pieces of oak two inches wide, one inch thick and twenty-five inches long. Holes are drilled in both ends of these sticks so bolts eighteen inches long are inserted. These sticks suspended on the ropes with the bolts fitted in the end make what George calls a "cradle".

The "cradle" is positioned over the super to be lifted. Wing nuts tighten the bolts and the super is held securely and as quickly lifted by the overhead jack-screw which has a long handle for ease of operation. The "horse" is then wheeled aside so the colony can be worked, or the super can be lowered to a wheelbarrow for its trip to the nearby extracting house.

It would, perhaps, be well to note that though these colonies are neatly arranged on terraces, the alternate end of each terrace is ramped gently so that wheelbarrow or lifter can be moved easily from each level.

Another wheeled "appliance" is an idea brought from the Ukraine but works just as well here and is called a "robber-cage". George has made a large rectangular cage high enough to cover the tallest colony, yet having enough room inside for a man to work beside the colony. The cage is made of "shingle-lath" but so braced that it is not as flimsy as it may look from a distance. There are two wheels carefully balanced so the contraption can be moved with ease. Robbing in this area sometimes becomes a problem, so George uses this "contraption" when he wishes to inspect colonies at critical times of the year.

While the cage is in position and the colony is open, all bees are kept out. If the flying bees belonging to that colony are allowed in, it is a simple matter to tilt the cage slightly exposing the entrance to the incoming bees.

Evidently robbing was often a problem in the home country, so this cage is often used. It is convenient to use and a man who loves to take his time admiring his bees and their progress can do so in perfect safety.

After the colony has been examined and all parts replaced, the cage is wheeled away to the next colony. With this carefully built and maintained equipment, without cracks and extra openings, there is never a robbing problem. Colonies quickly settle down and many can be worked safely during a dearth.

When I began to make a few notes and take some pictures, the neighbors who had congregated began to drift away. When I asked some names, the spell was broken and the hospitality began to drift away too. A few of the men agreed to write their names for me, but they wrote them in Cyrillic, showing me that the oppression and suspicion of years in Russia are not forgotten easily.

This spring I visited the apiary again and found the bees all alive and in fine shape. Colonies were all strong and the ventilation had evidently worked since there was no signs of dysentery. I was welcomed even more than last autumn, probably because I had left my notebook and camera at home!

Beekeeping---Its Glamour And Its Grind

By HOWARD J. ROCK
Dale, Wisc. 54931

WHEN ONE REACHES the traditional retirement age after many years of beekeeping in all the major honey producing areas, one is left with the impression of having climbed a mountain and, having tired, sits down for a rest and looks back over the territory covered to realize whatever lessons or impressions such a life has offered.

Of course, there are always many detours of unproductive activities, disappointments undeserved and unpleasantries in general but these things are encountered no matter what other vocation might have been chosen. I have had many people tell me in my travels, and they have come from every profession, business or just plain job, that many times they were convinced that their vocation was the worst one in the world. A prominent artic explorer once said that such convictions were born of inadequate education and preparation and not from life experiences, themselves.

My first experiences with honeybees were negative ones. I spent my early childhood in a crossroads community. There were few modern conveniences and if you wanted milk you walked down to the dairy farm on the southern edge of town and carried it home yourself.

There was a sixty-hive comb honey apiary just back of the farm house. They were black bees, and they were managed by a son of the farmer. He prided himself on his toughness and he wasn't very gentle in his management of these nervous black bees so that they were always most irritable. Carrying home the milk each day was like running the gauntlet and I suppose that today with all our psychological expertise, I would have developed an anxiety neurosis, or worse.

Surprisingly, back in the 20's, no one dreamed of complaining to the law and so this ruffian beekeeper was entertained daily by the girations of some hapless kid trying to avoid spilling the milk bucket while fending off a coterie of stinging bees.

The comb honey that came from that apiary was so beautiful and succulent, it was a blend of white Dutch clover, basswood and raspberry, that my fear was easily vanquished by my childish gluttony for something sweet and the prospects of having my own bees so that I could be surrounded by these fascinating insects throughout the seasons.

Then the state inspector came to inspect this apiary. When he showed me the queen bee in one of the hives, I was hooked for life. This inspector was my first experience with skill and intelligence where bees were concerned. I made up my mind that some day I would be just as competent as he most certainly was.

It was easy to be a success with bees back in the 20's. Bee pastures in this region were bonanza-like, being limited only by the fickle weather of east-central Wisconsin. AFB scared everyone, but as Dr. E.F. Phillips said at the time, it was no insurmountable problem for the serious beekeeper.

Back then, beekeeping did attract a wrong element, the type who expects to get something for nothing. Such beekeepers had little success as their winter losses were astronomical, not from disease but just plain starvation. They were loud in complaining that there was no money in bees while those who were making money said nothing but quietly acquired the equipment of the losers at bargain prices.

I suppose that anyone who is enterprising enough to engage in beekeeping will sooner or later acquire the wanderlust from reading about new people and new places in the bee journals. Many will just visit other bee territories in the off season but the more hardy will actually go there to work. No better education can be had. Beekeepers, in their daily routine, travel the most remote territories. Dr. M.C. Tanquary once said that if you want to find apiaries, go to the most out-of-the-way places.

One of the bigger dividends that accrues to the beeman who is willing to travel is the meeting of rugged individualistic honey producers who operate in territories far from the larger commercial areas. Reading the inspiring articles of "The Old Timer" in the past issues of **Gleanings** reminds me of like men that I have met in the high country of New Mexico, the swamps of Georgia or in the north woods country. They operate from 100 to 500 hives that gather the crop from native plants like silverberry, fireweed, gallberry, tupelo and other native plants that are indigenous to "pocket" areas. These men are sharp observers, self reliant and more often than not, uncommonly good chess players. They are usually very well read in serious literature and one often wonders to what heights they would have climbed if they had had the advantages of a formal education in the basic sciences. It reminds me of Dr. Phillips saying that there were many territories written off as poorly because no competent beekeeper had ever operated there.

One of the shocks awaiting the new employee in a commercial operation is the vast amount of work to be done and the aggravations of working in inclement weather. A backlotter can be a sunshine beekeeper but not so on a commercial scale. Migratory work is very demanding. I remember trucking bees through the Berkshire mountains on my way from Connecticut to northern New York. It was daybreak and the superb scenery was enhanced even more by the sunrise but all I could think of was that the inhabitants were still enjoying their nightly rest while I hadnt slept in twenty-four hours. These situations don't happen all the time but working the clock around is no novelty in big scale operations. Like one operator in Washington once told me, commercial beekeeping demands the best that is in a young man. It amuses me when retired professionals or skilled laborers tell me that they are going to take it easy and supplement their pensions with "four or five hundred colonies".

One of the banes of extensive beekeeping is the losing of apiary sites on the whim of a new landlord. Sometimes you have to move the apiary to a not so ideal location. We had to do this one night in Washington. The field we had to cross was just being irrigated, unbeknownst to us, and we got stuck in the mud. It was 2 AM and we approached the nearest farm house in hopes of using the phone. The man of the house appeared at the unlighted back door carrying a shotgun. From the sound of his voice as he challenged us, he was very frightened. We hit the dirt in unison as we hastened to tell him who we were and our predicament. He turned out to be a most decent chap. He had no phone but drove us into town, twenty miles distant. We secured the needed help and although he lost most of his night's sleep he refused to be reimbursed. You can bet that the next time we passed his house we left a large can of water white honey. Other nights' adventures didn't all turn out that well. You win some, you lose some but most people are generous and helpful.

One feature of life today that confuses beekeepers who have been active for forty or fifty years is the mobility and mechanical ease of present day operations. But still, the quality of life itself is steadily deteriorating. Years ago, the northern beekeeper who had spent his youth in the South or California was looked upon by local beemen as a celebrity, a soldier of fortune who could animate the nightly conversations around the oak heater of a country crossroad store sometimes up to ten o'clock, an unusually late hour.

Now most of the larger beekeepers go South or West as a matter of winter routine. Back then, vandalism and the theft of entire apiaries was virtually unheard of. Compared to the inhabitants of metropolitan areas, beekeepers are comparatively well off but rural crime is on a sharp increase. County patrol officers tell me that there is so much theft and worse that they can't keep up with it all. I must have been very fortunate as no one ever disturbed my comb honey apiary over a fourteen year period and many times I had twenty to thirty finished supers setting over bee escapes overnight. The only damage I ever suffered was from the spraying of sweet corn with Sevin, which was perfectly legal.

In spite of all the newer problems and disadvantages that have come with the population explosion, beekeeping still retains a strong hold over those engaged in it. I know of one commercial man who, being fed up with everything, sold out after a long wait for a substantial buyer. I expected him to move to Sun City, Arizona, or some other retirement mecca but I shouldn't have been surprised when I next saw him. He had the local bee inspector with him and was driving over a large radius, buying up odd lots of bees. One would expect to encounter such enthusiasm as his in a beginner but he was a commercial veteran of over forty years. You could hardly say more about the pleasure and excitement that beekeeping has to offer.

The only beekeepers who are not active are those who are irreparably disabled.

KANSAS HONEY QUEEN

Miss Beth Haworth, Kansas honey queen plans to be in the American Honey Queen contest in San Diego, California next January 1979. Miss Haworth is the daughter of Mr. and Mrs. Robert Haworth of Kansas City, Kansas. Beth has held offices in her 4-H club and in the county 4-H Junior Council. Clothing design, fashion merchandising and communications are Beth's special interests.

Beth plans to attend KCK Community College in the fall and later transfer to Kansas State University.

Beth Haworth

Raising Bees and Baffling Bears in the Bush

By AVIS WALTON
Victoria, B.C., Canada

THE FIVE Moody children, ages 12 to 17, and their parents, Rod and Jo Moody, are all skilled beekeepers. They raise queens who often mate with wild drones in the forest glades of Vancouver Island, British Columbia.

Judy, Roy, Glen, Bill all pitch in to work and play hard on the family team, but the most keenly interested is David, who is 14. He asks more questions, keeps more records, and comes up with more ideas. He'll no doubt wind up becoming a professional apiarist.

The Moody bees gather fireweed honey in the rugged forest, logging and wilderness areas of Vancouver Island, set in mountains of spectacular beauty. Timber reaches heights of 200 feet. A few become wild bee trees...cedar...fir...hemlock... spruce and others have been drilled by enterprising woodpeckers and gouged by lively squirrels for their nests. These hollows eventually rot and become homes for wild bees.

This is great for the Moodys. They like to cross their queen bees with wild drones. This gives the new generation strength, endurance and adaptability to survive the hazards of life in the bush, including fending off bears.

Bears will attack beehives. They can knock single individual hives galley west with a good swipe of their heavy paws and break them open to gorge on honey, wax, and live bees, for they are insect eaters. They love honey so much they will brave getting stung on tongue, lips, or even eyes, for honey is the most delicious taste they ever experience. It's yummy!

Remember the line in Winnie the Pooh? "Isn't it funny how a bear likes honey? Buzz, buzz, buzz. I wonder why he does?" Pooh really knew what he was talking about!

In view of all this doesn't it seem a bit silly to be keeping bees in bear country? Problem is, that both bears and people favor special kinds of honey, and one of the most popular varieties comes from the nectar of British Columbia fireweed. This is a tall plant up to 4 or 5 feet (1 to 1-1/2 meters), topped with a long spike festooned with tiny flower bells, in misty tints of mauves, pinks, and blues.

Fireweed springs up, as if by magic, in burned-over forest lands or where flames have burned logging slash, or waste. It thrives in war torn areas of the world, even in great cities, far from open country. During World War II fireweed bloomed in bomb craters in London, Paris, and Berlin. This is natures way of covering ugly black wounds with healing beauty.

The young Moodys were little tots when the family first started placing their hives in the bush. They gave a lot of thought to the bear problem, and finally came up with a workable solution. Now they place 10 hives, usually 4 to 6 supers high on a heavy wooden pallet.

Putting the hives, in groups of ten, on heavy 3/4 inch plywood bases, and binding a similar heavy roof over the hives, with steel straps, really amounts to building a beehive condominium. This makes a very strong complex, and each hive is less likely to be chilled in a cool wind. The six inner hives are protected from cold on three sides. The four end ones are exposed only on two sides. This is a great advantage in chilly weather.

To discourage bears, the beehive condominiums are surrounded by electrically wired fences, set back about 1 to 2 meters on all sides.

Mother bears are the really dangerous ones, especially when cubs are tiny enough to wiggle through the gaps in the lower part of the fence. They smell the alluring honey, try to get it, bees sting them. They panic, try to climb the fence, get shocked, and cry for help! No amount of shocks will prevent mother bear from getting into that compound. Fierce anger, and fear double and triple her normal great strength. Enraged, she crashed through the fence, pushes, pulls

Roy, Glen, Bill and David behind beehive condominium...showing supers 4-deep...and packaged bees on top. Note the 3/4 inch plywood roof and floor both have edges reinforced with 3 more layers of the same plywood, for extra resistance against bears.

and tosses her babies out. At this point, the Moodys, if they happen to be about, retire to their truck about 100 meters back. They open and slam the truck doors. Fill galvanized pails, which are part of their regular equipment, with rocks or metal tools. They make all the noise they can, shout, scream. The din usually drives the bear and her cubs away.

Rod stands by with a loaded rifle, and sometimes fires shots into the air to startle the bears. He is dead against shooting bears except in dire emergency. The Moody's believe in hunting only with cameras. After all, the bush is bear territory. Man is the intruder.

In all their years of beekeeping in the bush they have never suffered a bearish accident. When Rod was 18, and lived with his parents on a fruit orchard in the Kootenays of British Columbia, he had to shoot a 500 pound bear to save his father's life. She was gorging herself on apples in their orchard. Rod and his Dad thought they had chased the bear off, and did not at first notice a cub up the tree. She returned to threaten old Mr. Moody circling around and around him. Every time he tried to run for the house she was in his way, up on her hind legs, rolling and threatening. Rod managed to run for it, grabbed a rifle, wounded her in the leg. While she was stunned with pain he and his dad got inside, and after a time Mother and her cub went off into the woods.

The mother died a few days later. The cub was rescued and turned over to the forest ranger.

The young Moodys and their parents camp out in tents in the bush all summer long, and for many week-ends during the school year. They picnic beside sparkling mountain lakes in any one of hundreds of parks in B.C. or in camp sites provided by the logging companies...go fishing... swim...climb mountains, scale rock cliffs, explore alpine meadows.

As you can see by the photos, when working with their hives the Moodys wear regulation beekeeping costumes...heavy white cotton-twill coveralls...veiled hard hats, flexible horse-hide gloves. Even so they are stung occasionally, but build up more and more resistance to stings, so their reaction is relatively mild.

David Moody in coveralls, hard-hat and veil.

Pros and Cons of Overwintering

By CHARLES WILSON
Belmond, Iowa

PROBABLY AT NO time in memory has the country as a whole suffered worse winter losses of bees than last winter. Here in Iowa losses were staggering! Fifty percent overall. Such losses cannot be tolerated if a beekeeper is to make a profit. I lost twenty-five colonies, certainly the worst loss I have ever had but I had come close to that previously through bungling, for reasons I'll not go into in this article.

In any event our half-hearted fall preparation, if that be the case, caught up with us last winter. In my case I learned a long time ago not to bank on any "easy" winter and hoped my bees would always come through the winter with 15 to 20 pounds of untapped reserve honey. So I try to follow the method recommended by Professor Paddock who taught beekeeping at the University at Ames, Iowa some years ago. Give the colony a good queen, sound equipment, adequate stores and ventilation and they will usually come through. Location, of course, with wind protection is a vital factor but what can you do, for example during thirty days of below freezing and often below zero, cloudy, windy days and nights?

This brings me around to what my original theme is, "Pros and Cons of Overwintering". Many claim overwintering honeybees in harsh climates pays. So do I, but now, however, I wonder if those who didn't try to overwinter their bees and killed them off last fall aren't some better off and perhaps were giving the horselaugh to those who tried to overwinter. I know a rather large beekeeper who has never wintered his bees. Personally I felt this was a terrible waste and an expense he could avoid, however, his reasoning was that it cost more to overwinter colonies than to buy and build up packages of bees in the spring. Say a three pound package costs from $18.00 to $25.00 plus shipping costs. A sixty pound can of honey is worth about 45 cents per pound which adds up to $27.00. Most cans hold only fifty-five to fifty-eight pounds, but fifty-six pounds at 45 cents per pound, the total of $26.20 is slightly more than a package of bees. If you leave only sixty pounds of honey on a colony of bees here they will "eat themselves to death". Because you may think they are OK or you are unable to get out to feed them you may lose both the bees and the honey they have consumed. Others argue that it's as cheap to overwinter bees because the fall honey is usually poor quality anyway and not "table grade". They take off the early summer honey and let the bees fill up the brood-food chambers from the fall flowers such as smartweed and the goldenrods. Naturally there are more factors to consider than

the amount and value of the honey involved. The amount of labor costs saved in not packing as contrasted to that used to prepare the colonies for winter is very important in making the decision.

Those who argue that it is more economical to gas off the bees in the fall and buy packages in the spring had their reasoning being strengthened by observing the results of last winter. However, unless you have a solid contract, packages may not be that easy to get. There is no doubt a terrible drain on Southern queen breeders and package producers in the early spring. This brings us back to where we were—overwintering. Of course, those who kill off their colonies each fall have no spring hive cleaning or feeding to worry about which is quite a job and usually not without a mess. Those who overwinter don't usually need a big outlay of cash with which to buy packages. If you should have a spring that is slow in coming and a bad season you have that large outlay of cash to recoup regardless. Nearly every beekeeper, large or small buys some queens and bees every season to rebuild his stock and recover winter losses but to buy new packages for a complete restocking is not the usual practice, at least in Iowa.

Though disasterous as it was, I guess many of us needed a lesson to convince us "not to take winter for granted". I try not to, but am inclined to get careless. I know when a colony is not up to snuff in the fall but figure I usually lose a colony or two anyway. Probably by uniting I would save a colony, the honey they would consume and the mess cleaning up in the spring.

There are those who say not overwintering allows more time for extracting, time saved by not having to attend to the details of preparing for winter. Of course, there is the chore of storing the hives overwinter when the bees are killed off. So much of the question of which method is easier balances out.

First year package colonies don't usually suffer from a heavy queen loss problem but it can happen, of course.

Whether to winter over colonies in extremely harsh climates does not go by any set rules but usually is pretty much up to the circumstances of each beekeeper. Many say too, and I believe it, that overwintered colonies are always ahead of package colonies in build-up and produce larger crops.

And so it goes on and on. Most of us have learned that makeshift wintering methods don't pay. An exceptionally early spring saved us in 1977, however 1978 was quite another case. Maybe now it will be a case of "Once bitten, twice smart!".

Personality and Beekeeping

By PAUL MAHAN
Hobe Sound, Florida

WHAT TYPE OF persons make good beekeepers? To begin with most people are afraid of bees. If you talk to a non-beekeeper the first question asked is: "Do you get stung?". So I take it most people are afraid of bees because they sting. They look askance when you tell them that a beekeeper doesn't pay any attention to a few stings and that most beekeepers are immune to the venom injected by the stinger.

I retired in 1959, and with no previous experience, took up beekeeping as a hobby. It was not long until my hobby turned into a small business. For a number of years I worked between 50 and 60 hives. Then in 1969 I sold my honey business to devote my time to freelance writing. I kept two hives and my hobby equipment because I wanted to have my own honey. That same summer I found two swarms in my yard and by the end of the year I had seven hives. I didn't want to bother with more than five, so I had an idea. My idea was to find someone interested in keeping bees as a hobby, then I could get rid of my extra hives and at the same time pass along the information that I had gleaned from my ten years with bees.

After reading an article in the May issue of the magazine **Outside**, under the title "Bees on the Decline", I'm convinced that it was a good idea. According to Harvey M. Caine, who did research on honeybees with the Sierra Club as part of the environomental studies program at the University of California at Santa Cruz, bees are on the decline in the U.S. Caine estimates that a third of the American diet depends directly or indirectly on honeybee pollinated crops. And here's the clincher according to Caine, **"...future crops may be threatened by the fact that two percent more bees die from pesticides each year than can be replaced by reproduction".**

Thomas C. Orndorff and his bees, with the orange trees in the background.

That spring I moved my seven hives to the orange grove. When it was time to bring them back I had two prospective beekeepers. I delivered a hive to John Dykes and one to Larry Roberts, both boys in their early teens. I gave John a bee supply catalog and he ordered the necessary equipment for a beginner and he also subscribed to **Gleanings in Bee Culture**. I'll skip the details because as it turned out, as John and Larry grew older, both lost interest in bees.

An amusing incident happened while I was working with John and Larry. It was the second summer and John had four shallow supers full of honey. He didn't have an extractor, so after I finished with my own honey I called John and told him that I would come by, get his supers, and extract his honey. Right away John said that he would take them off and bring them to my honey house. I waited a reasonable time and then decided I'd better go see about the delay. When I arrived at the scene the air was full of excited bees. Bees were swarming all over the two supers that he had taken off and the open hive.

I put on my veil, put the supers back on the hive, and replaced the cover. As it so often happens when something goes wrong, it is the innocent bystander who gets hurt. While I was working a big German shepherd dog came nosing along and when he came within range several of

the bees targeted in on him. When last seen he was about a quarter mile up the road and yelping at every jump.

After that incident John lost all interest in beekeeping. Larry never overcame his fear of bee stings.

Five years ago I met Thomas C. Orndorff. Tom, like myself, is a native of West Virginia. He moved to Florida and settled here to take advantage of the building boom in this area. Tom is in his late forties and is a building contractor. Evidently he harbored a latent desire to keep bees because when we met at Dykes Lumber Company yard he asked me how he couild get a hive of bees.

Suzanne Folsum with her two hives, with the lush tropical growth in the background.

The following spring, when I brought my bees from the orange grove, I sold him a hive with two shallow supers. Tom owns an acre of land. There are plenty of scrub palmettoes in the surrounding area. I loaned him my bee book and gave him the name of the nearest bee supply dealer, Ken Bridges. He bought all the necessary equipment, including an extractor and more hives. When I returned from North Carolina that fall, Tom had three hives and was selling honey. When I had a chance to talk to Tom he said, "I guess I'm hooked. I'll probably always be a beekeeper. This past spring he moved eight hives to the orange grove.

Three years ago a neighbor, John C. Robinson, decided that he wanted to try his hand at beekeeping. John, like Tom, is in his late forties, but he has always lived here. He works for a landscape company and supervises that maintenance work on a number of large estates, located at a winter resort here. John is a big man with the shoulders of an athlete and he was a star football player during his school years.

That spring I started John in his new hobby with one hive, but no supers. I loaned him my bee book and gave him a list of the equipment he would need to get started, so Ken Bridges had another customer. The picture shows John mulling over what to do with a swarm he found in an abandoned Styrofoam ice chest. You'll find out what happened later.

It was a year ago this spring that I started my third successful beekeeper. Now that women are joining the work force in many and diverse occupations, why not beekeeping? Suzanne (Sue) Folsum is a school teacher and she teaches here in the local school. You'll have to guess her age from the picture. Sue lives in an apartment, near her parents, with her two sons, Christopher nine and Matthew seven. She hopes that when the boys grow older they'll become interested in bees. She has an ideal location for keeping bees because an acre of land surrounds her home that is a veritable tropical paradise.

I started Sue off as a beekeeper by selling her a hive, with two shallow supers, fresh from the orange grove. In less than six weeks she extracted her first honey. In her enthusasism as an entrepreneur in the free enterprise system she sold all of it forgetting to keep some for her own use. She estimates that during the summer and fall the hive produced over 100 pounds of honey. She is now reading about how to make candles out of the wax.

Sue's father, Carl Dahlquest, is retired and he has a complete woodworking shop. He built the two hives you see in the picture. Sue started them with three-frame nucs. They are both now ready for the palmetto honey flow. Her original hive is still at the orange grove and at the last check it had filled four supers.

So there you have it, three out of five which is not a bad average. Three persons, the first a builder, the second a landscape supervisor, and the third a school teacher, each one different in background, education and occupation, but now all three confirmed beekeepers. By taking advantage of my experience they have avoided many of the errors that beginning beekeepers make.

I helped John remove the bees from the ice chest. We managed to save most of the brood and ended up with two new colonies. A short time ago Tom came to me for advice. He had just moved into his new house, but before he had the outside finished a swarm settled in the space between the first and second story. It so happened that I remembered reading an

John C. Robinson looking at the swarm he found in the abandoned styrofoam ice chest.

article in **Gleanings**, and by looking through the back issues I found it. The article is on page 211 of the 1977 May issue and is titled "The Bee Factory", by Louis Bronaugh.

Bronaugh explained in the article how he used a similar situation to start new colonies. He placed a bee escape over the entrance and left it there until most of the field bees had emerged. He than placed a hive, with a queen in it, and caught the bees. He then removed the bee escape, closed the entrance to the hive, and moved it to a new location over two miles away. He repeated the operation two more times that summer. Tom intends to increase his apiary to 12 colonies and now he has a bee factory to produce the bees.

The benefits from my idea have been many. Three new beekeepers and 14 more colonies than existed before I started. The supply dealer, Ken Bridges, has three good customers. A beekeeper at Fort Pierce is selling nucs and queens. And last, I've benefited by finding a way to bridge the generation gap. When you read this article I'll have passed my 80th birthday.

Siftings

By CHARLES MRAZ
Middlebury, Vermont

WITH THE excellent cooperation of the program chairman, Walter Rothenbuhler of Ohio, we had two programs on bee venom therapy at the last Eastern Apicultural Society meeting in Wooster, Ohio. It was indeed a success, more than 100 attended and great interest was shown in this field of the treatment of rheumatic diseases with bee venom. We hope that each EAS meeting will have a program on this subject for all those that have now become experienced in this fascinating field of beekeeping. The next EAS meeting will be in Ottawa, Ontario, Canada, and we hope it will again be included in the program where we can meet and exchange ideas and experiences. We hope more beekeepers will become interested as this form of therapy becomes better known. Even though I have had almost 45 years experience in this field, there is so much more yet to learn and it is time the younger generation took up this work to keep it going for the ultimate relief of perhaps 50 million people in the U.S. that suffer from the agonies of rheumatic diseases.

As usual, the EAS meeting in Ohio to me was a great success and the big reason I believe is because it is mainly for the hobby beekeeper. It is they that have the greatest enthusiasm and spread the good word about bees to the public. Also, they have the most fun with beekeeping. What better way is there to spend a summer vacation at such a low cost? Those of you that have not attended an EAS meeting as yet plan to come to Ottawa in 1979. You will have a wonderful time with our neighbors to the north. If you have never met our neighbors before, it is time you did, so come next year.

At the meeting I met a commercial beekeeper from Ohio that moves bees to Florida every year. Talking with him, I was much surprised to hear his story of the problems he had last season in Florida. He described the condition of his bees just before the orange honey flow. The bees all just disappeared, only a small colony of very young bees left. Exactly the same thing I saw in Mexico last year. While beekeepers with good colonies in Florida made up to 200 lb. average of orange blossom honey, he made only a 6 lb. average. With 1,500 colonies, it is easy to see what a tremendous loss this problem can be, not only in Mexico but in the U.S. as well. I did not know this problem was so serious in the U.S. before. I am sure there are many beekeepers with this problem that we do not know about. It is time something is done about it. We hope to do something about it in Mexico if all goes well. If it works there, it should work well anywhere this problem shows up.

Roger Morse made some excellent comments on "The Botulism Story". He pointed out that botulism is aneroebic, that is, it cannot grow in the presence of oxygen. It can only develop, for instance, in canned, non-acid foods where there is no oxygen. It is for this reason I believe raw, natural honey that is not heated above 110°-120° and not filtered could prevent, not cause botulism poisoning. Raw natural honey contains the enzyme glucose oxidase, which will form hydrogen peroxide, H_2O_2 even in diluted honey. Hydrogen peroxide is a very powerful oxidizing agent and even in a very dilute form would quickly destroy or prevent botulism, even in the digestive track of the intestines.

The great problem is that commercial honey as a rule is usually over heated and filtered thru filter presses before bottling. This unfortunately both destroys and removes all the enzymes in honey, including the glucose oxidase. Therefore, such processed and filtered honey no longer has the oxidizing activity of natural honey. For this reason, when honey is specified in such situations, it is important to know if it is natural honey with all the enzymes or if it is processed honey where they are all destroyed or removed. Such questions can be very important. We know that such catylists as enzymes, are potent in extremely small concentrations as in natural honey.

On page 416, Sept. **Gleanings** Howard Rock makes some interesting comments about honey which are only too true. Again, with commercial honey that is overheated and filtered, they all taste the same. In fact they have no taste except that they are sweet. Just as filtering removes the enzymes in honey, it also removes all the flavoring and other biotic material in honey that gives honey its "character". What beekeeper hasn't tasted honey fresh from the hive as it comes from the different blossoms? It is more thrilling than tasting the subtle flavors of different wines. And the different types of honey have flavors that range from "bitter as gall" from bitterweed, to a flavor as heavenly as that from locust blossoms. Those that have tasted the flavor of natural, unprocessed honey from tupelo, sourwood, orange, raspberry, milkweed, etc., will never forget the flavors. I can still remember the flavor of a sample of raspberry and milkweed honey a beekeeper in Maine gave me, 30 years ago. A flavor I never tasted before or since, just a fragrant memory. And the locust honey in Russia in Petygorsk, that we had for a pancake dinner on our tour in 1971! One of the finest flavors I have experienced. And being an old hand in the buckwheat country of Central New York in the 1920's, I can still remember that rich, fragrant, delicious, dark, pure buckwheat honey. True, it must be well ripened and sealed before using. Green, or unripe buckwheat honey, after standing awhile can be horrible stuff. But when well ripened and right from the comb, it is delicious. Also, strangely enough, the flavor of buckwheat honey is very sensitive to heat. It must never be heated but must be used in the crystallized form without heating to retain its delicious flavor. Perhaps someday we will learn you cannot handle honey like "iron ore", but it is a very fragile product and must be handled with care and reverence. No, honey is not honey, it can be many different things. Someday we hope it will be handled with the respect it deserves, it should only be produced and sold by its taste and fragrance. After all, the flowers fragrance is its flavor.

FLETCHER THE 4-H'R

'THAT'S VERY INTERESTING - A MECHANICAL, ROVING SCARECROW. AND SO FAR, HE'S TRAMPLED DOWN ONLY TWO ACRES OF CORN!"

BEE TALK - - - - -

By RICHARD TAYLOR
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PEOPLE MARK THE beginning of autumn in different ways. For some it is the first tint of red and gold in the sugar maples. Others think that fall is here when they begin to feel the crunch of leaves underfoot. For children it begins with the resumption of the school bus. Perhaps farmers shift their mood to fall at the first frost, when hundreds of bright pumpkins are suddenly disclosed. But for me, and I suppose lots of beekeepers, autumn begins with the first faint scent of goldenrod in the apiary, the yeasty odor that is as regular as the earth's turning. I picked it up yesterday, and the summer thoughts and moods were abruptly put to rest. Now it is time for the long thoughts, to watch the life around me slowly retreat, to lapse into a different tempo, and await the winter's cold edge. I've got a lot of wood cutting to do.

I thought I would talk this time about Frank Pellett. I never met him, and yet he had a great influence on me, through his writings. It is one of my great regrets that I never knew him personally, but it was only after his death, in 1951, that I really began to learn what kind of man he was. Until then I had known him only as the author of bee books I valued. In the early forties, when I was a lonely officer in the submarine force, long away from home, I used to spend a lot of time daydreaming about bees. Whenever I could get back to Honolulu I scrounged around for any bee books I could find. I think that is when I first read Pellett's **Productive Beekeeping**, which could then be found almost anywhere. This book, like all of his writings, was suffused with the joy of life and the love for nature. It was only much later that I learned how deep that love for nature really was. He was a modest man, and rarely recorded much about himself, but after his death people who had known him set down their remembrances, and I have been able to get hold of some of these, mostly through the kind help of Mr. Pellett's son, Melvin Pellett. So I think that now, and next time too, I'll try to say something about the work of this great man, and something about the mind and spirit that animated him.

Frank Chapman Pellett was born near Atlantic, Iowa, in 1879. He never finished in the rural school where he started, because of poor health, but he nevertheless took up the study of law, in a law office in Missouri, and was admitted to the bar in that state at age 26. But he didn't like it. Or rather, he yearned for the scenes of his childhood, for the life under the sun, with the animals, insects, and especially the wild flowers that he remembered in Iowa. He had as a boy been deeply influenced by his grandfather who, failing in his ambition to amass a fortune, had nevertheless become a beekeeper and fruit grower of considerable local repute. The memories of his hours with his grandfather now pulled on the young Frank more strongly than the ambition to shine in the halls of justice.

So back he went, with his young wife, and bought a small farm, with a modest house and delapidated buildings, there to devote his life, not to farming, but to nature study. His wife, upon first seeing this place, and contemplating the insecurities that attended marriage to such an idealist as this, broke down in tears. And for years after, the practical farmers around Atlantic shook their heads at the manner in which this valuable farm land was neglected by its new owner. Only one acre was cultivated to raise alfalfa for the cow. The rest reverted to nature. Wildflowers from far and wide were continuously added to it. Mr. Pellett, seeing the land around him unsparingly cleared to make room for the expanding agriculture, became fearful that, unless someone did something about it, the wild flowers he loved were in danger of extinction. It became his mission to save all of them he could.

Frank Pellett soon had a reputation as a beekeeper, as well as a naturalist, and he was appointed the first state bee inspector of Iowa. It says something of his character, and of his love for the world and mankind, that he forever refused to use the title "bee inspector", with its overtones of a police function. He thought of his role, instead as that of helping others, primarily through education. He used the title "State Apiarist", and that is the expression that appears in all the official documents, bulletins and reports that he authored or directed.

Frank Pellett was never one to try impressing others with his knowledge or his importance. He seemed to be the last to recognize that he had done anything of significance, even after he had attained world fame, as much in the area of horticulture as apiculture. He always applauded the achievements of others, even when these appeared competitive with his own, and no one ever heard him speak a derogatory word about anyone. What Mr. Pellett thought was important was not himself, nor even the works of mankind, but rather, nature. And his knowledge of nature was so extensive as to win him some of the highest tributes as a man of science, in spite of his meager formal education. Thirteen books came from his pen, not only on apiculture, but on wild flowers, birds and practical horticulture. There were in addition several books co-authored, and a vast number of bulletins, some rather technical, on wildlife of Iowa. His greatest book is generally thought to be his **American Honey Plants**, first published in 1920, which had five editions; but my own favorite is his **History of American Beekeeping**. These works showed his perfect combination of scholar and writer. He was always accurate, painstaking, objective and thorough, displaying every attribute of the genuine scholar and scientist. At the same time his writings were filled with the warmth of his personality and his somewhat mystical love of nature. If you open his **Productive Beekeeping**, which was part of a Lippincott series on agriculture, you will find on page 7 a picture of the author sitting next to an open hive, entranced, with bees walking on his bare hands, and the picture is well captioned, "Just for the joy of it".

I hate to stop here, but space makes me. Next time I'll say something about the honey plant garden that became world famous, and something about the philosophy of its founder.

Frank Chapman Pellett 1879-1951. From cover of American Bee Journal (June 1951, Vol. 91 No. 6.)

From the West

By CHARLES J. KOOVER
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Is Foulbrood Resistance A Myth?

WHAT IS A myth? My dictionary says, "A collective opinion, belief, or ideal that is based on false premises or is the product of fallacious reasoning". For 10 years or more that I have been visiting Hawaii I have been told that American foulbrood is no more here for our bees are resistant to it and if infected will clean it up. It sounded too good to be true. Then I moved to Hawaii and for two years my experimental hive stayed clean from any disease even when it was moved against my will to a highly infected area on the other side of the island. Finally, upon my request it was moved back to town and although it had been exposed to diseased hives all around it, seemed to be clean from disease. That was eight months ago.

I had a visitor from the island of Hawaii. He is one of the partners of the large queen breeding establishment on that island. I invited him and an entomologist of the Hawaiian Department of Agriculture to drive over to the other side of the island to inspect the combs drawn out on molded plastic foundation in my experimental hive. The hive had not been opened for awhile since I had been on vacation. I handed him my hive tool and let him handle the bees. He was as gentle as a kitten with them and they responded in kind. When he removed the first brood frame he immediately spotted foulbrood. The worst kind with dead larvae lying stretched out in the cells with their tongues extended upwards. There it was, no mistake about it. I hate the word "American" foulbrood. Europe had it long before there were bees in America. So why blame us?

My diseased hive has been turned over to the Department of Agriculture and Hawaii's best and most knowledgable beekeeper has offered to supply one of his foulbrood resistant queens to clean up this hive and produce healthy foulbrood resistant bees.

It will be placed on top of a building where no one can tamper with it. The bees will not be fed terramycin or sulfa drugs. The hive will be under the supervision of a qualified entomologist and myself. It's do or die. For once this myth of Hawaii's bees being foulbrood resistant will be given a fair chance to prove itself or blown sky high. Personally I have no faith in that myth after what I have observed and experienced. Like a parrot I have been quoting the beekeepers of Hawaii in my column in **Gleanings in Bee Culture**. I am sorry for I have raised hopes in the hearts of many beekeepers on the mainland who wrote to me asking for the names of queen breeders here in the islands from whom they could purchase these foulbrood resistant queens. In a couple of months we will know and I hope I am wrong for I would like nothing better than to be able to report that Hawaii has the real McCoy. So bear with me until such time.

A letter from Australia has this to say on the subject. It reached me almost to the day that I learned my hive was diseased. Here is the letter. "You are not right in your fairly recent statement that only the little beekeepers and amateur beekeepers read or heed (my words not yours) your articles in **Gleanings**. I have for many years read with great interest your **From the West** columns in Gleanings and although I have, and still do, read widely I still find I can learn a lot about materials and management from your informative articles. I began beekeeping 47 years ago in a very small way and now at 69 I have produced 69,000 x 60 lb. tins of honey. I would be the first or amongst the first Australian beekeepers to have produced 3,000 tins in a year. Nothing startling by today's or overseas total. As for 1¼ inch spacing, I was most interested to read that a chap claimed to have cured his nosema with the correct spacing of 1-1/4 inches. I hope he is right and it leads me to wonder if this could be a factor in helping bees to overcome European foulbrood as they always used to in the past when apiaries were not submitted to the stress they are today and when Italian queens had not lost their disease resistant powers probably due to being bred in drug dependent environments. E.F.B. was recently discovered in Australia. This is utter nonsense. The beekeeping act of 1931 in South Australia listed E.F.B. as a notifiable disease along with A.F.B. and the greater and lesser wax moth. It was here then and has been ever since and has been in certain pockets from where it reared up periodically. The bee inspectors of those days knew it and knew how to eradicate simply by using resistant stock and sensible management. When it supposedly flared up recently we had not seen an inspector for 15 years. I wrote a couple of short articles in the Australasian Beekeeper about a year ago but the best so far has been an article in the same A.B.K. by Charles Mraz. In the meantime the blind have been leading the blind and the various states have prohibited the movement of bees and equipment and honey over state boundaries inside of states, and they have started to travel on the dead end road of using drugs to treat affected apiaries. I realize they have to but it must be accompanied by much better management and the use of resistant bees—which we have right here in the Ligurian genetic pool in Kangaroo Island in South Australia."---

As for Hawaii. What holds good for Australia applies here. The Hawaiian Beekeepers Association, a small group of amateur beekeepers, is violently opposed to any law to the keeping of bees on the island of Oahu and Kauai and is trying to block any and all legislation in behalf of inspection for American foulbrood and the movement of bees between the Mainland and Hawaii. One gets the impression that they have things to hide. The fact is that the island of Oahu has American foulbrood, chalkbrood and most probably European foulbrood as well without their beekeepers being aware of it. There are certain sections on the island that are infected with American foulbrood. I am familiar with these locations but the very mentioning of the presence of disease brings a heap of abuse down upon my head as being disloyal to these islands. This is utter nonsense for I lived in Hawaii and am living here again before most of these people were born.

These amateur beekeepers here in Hawaii are daydreaming of completely isolating Hawaii from outside importation and exportation of Hawaiian bees. But before that should be considered lets bring our house in order and get brood diseases under control. This can only be done by the trained personnel of the Hawaiian Department of Agriculture. The former Territory of Hawaii would no longer maintain the inspection of bees and refused to support the effort through its legislative body. Hawaii today is our 50th State in the Union and we should act like a state. We have no law relative to the maintaining and inspection of bees and the other 49 States are fully aware of it. It's high time that we act in a responsible way and support our legislators in their efforts to get a workable bee law on the books. Our Department of Agriculture is powerless and is having abuse heaped

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Research Review

By DR. ROGER A. MORSE
Research Editor of Gleanings
Professor of Apiculture
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Chalkbrood

CHALKBROOD, a fungus disease of honeybees, was introduced into North America in the 1960's. The disease was most severe in the early 1970's but continues to plague beekeepers in all states and Canada.

Research at the USDA bee laboratory in Wyoming indicates that, contrary to studies in Europe, chilling weather (I presume it is meant in the spring) does not encourage the disease.

One point which is made clear is that feeding pollen substitute or supplement which is contaminated with fungus spores can cause trouble. Some of the pollen being sold in this country today is imported from abroad and little control is exercised over its quality. Persons who feed pollen to bees should select their supplier with care and insist on quality control. The USDA researchers also state an important safeguard is to select queens with care and from breeders who have disease-free bees.

Anonymous
Chalkbrood kills bee larvae. Agricultural Research 27: 6. 1978.

Pure Venom for the Treatment of Hypersensitivity to Stinging Insects

A SMALL number of persons are hypersensitive to stinging insects, especially wasps. Among the wasps the several species of yellow jackets are most likely to cause problems. Unfortunately for those of us in bee culture many people cannot tell the difference between one stinging insect and another and often what is really a wasp problem is called a bee problem. At present most doctors treating insect hypersensitivity use whole body extracts of the offending insect. However, common sense tells us that this is not as effective as using pure venom, since the allergic reaction is to the venom and not the whole insect. Until the paper cited below, there had been no controlled comparisons of these two approaches to immunotherapy.

In these tests, groups of 20 patients were matched for medical history and sensitivity to stings. After several weeks of immunotherapy, patients were tested for reaction to stings. The results showed that treatment with pure venom was far more effective than using whole body extracts. This paper takes the guess work out of what many have been saying for a great number of years.

Effective methods of collecting honeybee venom have been developed but there are no methods of collecting wasp venom in quantity. What is now done is to collect individual wasps, squeeze each one, forcing it to protrude its stinger, and then gather the droplet of venom which forms. Unfortunately, there has been scant research on most wasp species and little is known about the biology, life history and ecology of wasps.

Hunt, K.J., M.D. Valentine, A.K. Sobotka, A.W. Benton, F.J. Amodio and L.M. Lichtenstein.
A controlled trial of immunotherapy in insect hypersensitivity. The New England Journal of Medicine 299: 157-161. 1978.

Factors Controlling Comb Orientation

STUDIES IN GREECE from 1974 through 1976 indicate that honeybees do not use the earth's magnetic field as a guide in bulding comb. Earlier reports from Germany stated that a swarm building comb in a new nest site, where there was no comb or foundation, would build that comb in the same plane as the parent colony. It was said the bees were guided by the earth's magnetic field.

It is known the earth's magnetic field has an effect on the dance language of the honeybee. More important, from a practical point of view, is the question of the effect of high voltage lines on colonies under or near such lines, and also their effect on bees foraging under such lines. High voltage lines create magnetic fields. Some papers, notably those from Europe, have said there is an effect and others have indicated not. The power line question is still not answered.

The Greek report also says that the shape of the cover, the shape of the hive interior and the position of the hive entrance likewise have no effect on the direction in which bees build comb.

How do bees build parallel combs? Some people would answer that they don't always do so, and of course, this is true; however, for the most part the combs one finds built in trees, buildings and other cavities where there was no comb earlier, are remarkably parallel. We have been working on the question ourselves and without much success. It is a real mystery.

Ifantidis, M.D.
Comb orientation in the honeybee. Apidologie 9: 57-73. 1978.

HONEY INDUSTRY COUNCIL ASKS FOR HONEY RESEARCH

The Honey Industry Council Committee met in Washington, D.C. in August during which they reviewed the infant botulism issue. They decided that no further statements should be made to the press, television or radio unless specifically requested to do so. In view of this possibility, however, a short statement was prepared and approved for distribution to member associations regarding honey and infant botulism.

A motion was approved to ask the release of funds by the USDA for research on the infant botulism issue and especially with the object of exploring methods of removing spores from honey or to otherwise make honey sterile without damage to the color, flavor or other honey characteristics.

The council committee approved a resolution to recommend to the USDA that research on honey be continued at the United States Regional Laboratory in Philadelphia and that Congressional aid or other aid be sought for the purpose. The laboratory has advised the Council that it has the equipment, manpower and know-how to continue research on honey and infant botulism in addition to the current work on finding methods of determining adulteration in honey. Howard Foster of Caluso, California is Chairman of the Honey Industry Council of America, Leslie H. Little, 831 Union Street, Shelbyville, Tennessee 37160 is Secretary-Treasurer.

Fundamentals for All

"Honey Making and Relative Humidity"

By W. A. STEPHEN
Worthington, Ohio

BEES WERE WORKING well yesterday. The day was what beekeepers know as a good honey day—the kind of day when records may be set. It was like the one when a colony stored one hundred pounds in three days—bright sunshine, no wind, and the relative humidity just right.

What is the right relative humidity? First, what is relative humidity? Well, humidity is the amount of water vapor, or moisture, in the air. Relative humidity is that amount measured in per cent of what the air would hold if saturated. Thus, if the air is 50%R.H., the air is half saturated and could hold as much more moisture; like a pail half full of water.

Of course, the temperature has a lot to do with R.H. Thus, if the previous sample of air was saturated at about 70%F. (21°C.) and is heated to about 90°F. (32°C.), it will only have 50% R.H. So, too, if it has 50% R.H. at 70°F. (21°C.) and the temperature rises to 90°F. (32°C.), the R.H. will be cut in half and the air will have only 25% R.H. It would be as if the half-full pail were doubled in size, while still containing the same amount of water.

The science concerned with air and its moisture carrying capacity is known as psychrometrics, measurements being made by a psychrometer. I took a course in psychrometrics once in order to learn how nectar is ripened as it becomes honey. The reason I have hedged on temperatures, using the term "about" is because the curves on the pyschrometric charts change greatly with temperature (and pressure), so that the figures I have given are only approximately correct. Anyone with charts available will see how difficult it is to be specific. Let's accept the 70°F. (21°C.) and 90°F. (32°C.) figures in the following discussion.

Bees keep the brood nest above 90°F. (32°C.) Outside air at 70°F. (21°C.), when taken in through the entrance, passes through the brood nest and is heated. When this happens, the R.H. is halved. If the incoming air has 50% R.H., after passing through the brood nest, it will have only 25% R.H. This air circulation takes place in the beehive mostly at night, when bees along one half of the entrance are all turned towards the opening into the hive, fanning their wings. Hold a piece of paper near them and it will be blown away from the entrance. Move it to the other side, where there are no aligned bees, and the paper will be drawn towards the entrance, indicating that air is entering the hive to replace what is being drawn out by the phalanx of ventilating bees at the other side. Of course there is air exchange during the heat of the day as well, but it is not as easily demonstrated.

Now, let us suppose that the nectar carrying bees arrive home with nectar of 60% moisture. It must be evaporated—dried out—cut to less than 20%. A lot of moisture must be removed and this takes energy—not only bee energy, which is physical, but heat energy, thermal, which can be measured in calories, or B.T.U.'s. In changing the liquid moisture in the nectar to moisture which can be carried in the air (in gaseous form and really a gas), heat is used up. As heat is used up, temperature drops and, as temperature drops, the air won't hold as much moisture. You can now see how important it is to have the temperature of the incoming air raised by coming through the brood chamber.

When outside temperatures exceed those in the hive, the bees take care of the situation by bringing in water for evaporation. Heat is used up as the liquid water is changed to gaseous moisture which can be carried by the air. Thus, then, the air is only a carrier for moisture, a little being indicated by a low R.H.; a lot by a high R.H.

Martin (1) found that exposed honey will give off and take on moisture from the air. It's going on all the time—liquid becoming gas and gas becoming liquid—as molecules of water pass rather freely from air to honey and honey to air. When this interchange is taking place at the same rate each way, the situation is said to be in equilibrium. When the water particles are leaving the honey faster than being absorbed, the honey is becoming denser, the moisture content lower. When particles of moisture are being absorbed by the honey more quickly than they are being lost, the honey is becoming thinner, the moisture content higher. This is what happens in the hive in damp weather, in spite of all the bees can do. According to Martin's figures, honey of 17.4% moisture is in equilibrium with air of 58% R.H. Thus, honey of 17.4% moisture would lose moisture to air of 50% R.H., but would absorb moisture from air of 60% R.H.

Dealers in honey know that honey from the far mid-west is likely to be quite low in moisture content. Honey from the east may have high moisture content. Honey produced by my bees this year (the early honey) is quite high in moisture. Honey from an apiary about three miles away is about 3% lower. Mine could ferment soon; the other will probably keep well.

The amount of surface exposed to the air is an important factor. Bees "know" this and expose honey-in-the-making to as much air as possible by both circulating the air and by manipulation. The house bees—the honey makers—manipulate the nectar with their mouth parts, much as small youngsters strive to blow bubbles of saliva by spreading a liquid film between their lips. Repeated extending and retracting of the probosis exposes a maximum surface to the air, thus facilitating evaporation. Drops of nectar are hung from the roofs of cells, too, and, on a good day, even the wooden parts of the hive.

Yesterday, if one had shaken brood combs, honey (nectar) would have spilled out. Drops of honey might be seen in cells containing open brood and in depressions everywhere. It's quite obvious that much room would be required to accommodate the nectar before it would be completely converted to honey.

Well, what about providing for extra ventilation? Should supers be staggered? In view of the need for heat energy to evaporate the nectar, it appears that the air should be brought in at the bottom of the hive and be heated as it passes through the brood chambers. By admitting air above the brood chambers, the circulation of air is quite changed. If the R.H. is quite low, this might O.K., but in areas where the R.H. is high, it might make it impossible for the bees to remove the moisture from honey—to ripen it.

In consideration of the facts that hot air rises (actually, it is pushed upwards by cooler air) and moisture laden air is

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Notes from the Straw Skep

By BESS CLARKE
Canton, Pa.

THE 24TH Conference of the Eastern Apicultural Society was held at Wooster, Ohio, August 9-12 was an outstanding success. The program and accommodations were good, and the weatherman cooperated, except for one terrific evening thunderstorm. But the best thing about the meeting was the opportunity to renew friendships with so many persons who have been attending this particular conference over the years. Some of them haven't missed a single one. Where else can you have a vacation with so large a group of people with the same interests? The price is right, too.

The tour to the A.I. Root Co. plant was especially interesting. Demonstrations were set up on the lawns surrounding the factory, and refreshments were dispensed throughout the afternoon, and the event was like a gala garden party. I was pleased to see covers for **Gleanings** being printed right there that very day.

The Ladies Luncheon, always a deluxe affair, included a style show of bee-related clothing, hats, and accessories. I am always amazed at how many fabrics are available with bees incorporated in their designs. Examples of shirts, jackets, skirts and one long gown were modeled. Several women showed shirts they'd made for their husbands.

One of the most interesting, and certainly the most time consuming to make, was a dress of hexagons cut from a variety of material and sewed together. It was worn by Rowena Stockwin who came all the way from Sussex, England to attend the meeting. Miss Stockwin and her sister were visiting with friends they'd met at the Maryland meeting of Apimondia in 1967.

The recipe I have for you this month was the sweepstakes winner at the Pennsylvania State Beekeepers' Picnic this summer. It's a Honey Spice Cake which Barbara Graybill made.

Honey Spice Cake:

One cup shortening, 2 cups honey, 2 eggs, 1 cup sour milk, 4 cups flour, 2 teaspoons soda, 2 teaspoons cinnamon, 1 teaspoon nutmeg, 1/2 teaspoon cloves, and 1/2 teaspoon ginger. Cream shortening and honey. Add two well beaten eggs. Sift Flour, add soda and spices; and blend into creamed mixture alternately with the sour milk. Bake in a 9 x 13 (or two layer pans) at 350°F. for 40-45 minutes. The cake may be iced with any desired frosting, or served as is with fruit or ice cream.

The Ray Stannard Baker Bee Library

By ROGER HOOPINGARNER☆

THE LIBRARY'S collection of early bee books originated from the donation, to Michigan State, in 1946 of a select library of historical apicultural works collected by the author Ray Stannard Baker. Baker was born in Lansing, Michigan, April 17, 1870, and graduated from Michigan Agricultural College in the class of 1889. As a journalist, Baker contributed to **McClure's** and the **American** during the Progressive period. As a historian, he won a Pulitzer Prize in 1940 for his authorized biography of President Wilson. Baker was perhaps best known for the books on country life he wrote under the pseudonym David Grayson.

Included with Baker's gift, are several files of correspondence and manuscript material detailing his enthusiasm for early bee books and in establishing an apicultural library at this institution. In 1924, Baker's interest in bees and the literature of apiculture caused him to visit Thomas Cowan, the dean of British beekeepers, a bibliophile and possessor of one of the largest privately held collections of bee books then in existence. Baker wrote to Cowan in 1925 about the ultimate disposition of Cowan's library. Baker hoped, as his letter explained, "to secure it for the college calling it perhaps the Cowan Library, and making it the basis of a permanent collection which would be built upon and increased with the passage of the years".

The two men continued to correspond regularly through 1925 and 1926. Baker admired the collection and politely, but insistently, pursued it for MAC. Cowan responded to the praise, shyly demurred at selling, but never eliminated the possibility. A letter from Cowan's son interrupted their negotiations. He informed Baker that Mr. Cowan "had a fall off his library steps when getting some books from one of the top shelves", and subsequently died from the injuries. Though tragic, it was an ironic end for a bibliophile.

Baker continued to correspond with Cowan's family during the spring and summer of 1926. They were willing to sell the library, and at Baker's request they sent him a catalog of the collection so that an estimate of its value could be reached. In August, 1926, Baker wrote confidently to the Cowan family that he had sent the catalog to MAC and hoped to provide a favorable response within three weeks. It was not until January, 1929, that the President of MAC, Kenyon L. Butterfield, responded. He indicated that the college had "made no progress in getting money to buy the collection". In the interim, the British Beekeepers' Association acquired the Cowan Library. This disappointment did not diminish Baker's hopes of establishing an apicultural library at his alma mater, and he continued to collect early bee books. Late in 1929, Cowan's daughter informed Baker of the impending sale of another large, privately owned

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The Art of Selling Honey

By WALTER HALL
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WHAT IS A pound of honey and what is its value? To the average individual, honey is just another product on the shelves of any small country store or the much larger chain stores in his neighborhood. Untold thousands of shoppers across America will pass these shelves tomorrow where various brands of honey are displayed for their individual selection. For these shoppers, there is no particular law whatsoever that instructs them that they must purchase a certain brand of honey. In the same manner of speaking, there is no set law that instructs them that they must purchase another item just because they pass the display. Therefore, a great percentage of these shoppers or consumers will finish their shopping tomorrow and leave the store without so much as purchasing one single ounce of honey. The reason that various shoppers fail to purchase a particular item in the stores is because of three age-old reasons.

First, they have no need or desire for it. Second, they have a reasonable supply on hand. Third, there is no reason whatsoever that invites them to purchase a given item, or in our case, a pound of honey.

Now, 90% of the time, nothing can be done about the second reason, enough on hand. This is only common and intelligent reasoning. After all, if you consume only one gallon of milk per week, no matter how much you love milk, if Grandma isn't coming to see you this week, common sense tells you not to purchase another gallon of milk just because you pass the display. So, as a honey distributor, you have no control over this factor in selling more of your product. However, the first and last reasons, on the shoppers' part, can be overcome by two very simple rules of thumb which I will try to cover. If they have worked for me they will definitely work for you.

As a small beekeeper you can easily sell from 400—1,000 pounds of honey each month. Unbelievable, I challenge you to try it. What are the simple rules that will work for you? Let's see.

The first rule in selling honey is display. Ask any professional salesman what is the first rule in getting the everyday shopper to purchase his product. Undoubtedly he will tell you the secret is display. I once ran a bread route for five years and every day it was impressed upon each and every salesman to be display conscious. I was instructed that if I would always display every loaf of bread in the correct and proper way on the shelves, then my sales would be the rewarding factor at the close of the business day. But if I displayed a loaf of bread on the shelf in just any way, then I would be the ultimate loser as far as greater sales were concerned. In the same manner of speaking, place a jar of honey on the shelf just because it's a jar of honey and it will more than likely be there tomorrow; however, display it correctly and you have gained another sale. It's as simple as that.

Always display your honey in the best way to get the attention of the shopper and you will overcome problems 1 and 3. When you display your brand of honey in the neighborhood stores, always remember to display it with all respect to the consumer. Always keep the shelf clean and neat in appearance. Keep all shelves full. Make sure your container is always clean on the outside. One of the quickest ways to lose a sale is a dirty, sticky container. It is also a good way to lose a store location. After all, it is not the store manager's duty to keep your shelves clean. Besides, a clean container on a clean shelf presents an entirely different appearance. While we are discussing containers, make sure the honey is in correct jars. These jars should be only designated jars of uniform design. Always select an attractive label from your supplier. A.I. Root and Dadant & Sons have a good selection that you can choose from. It is also good to label it cotton, clover, wildflower, etc.

While we are still on the subject of display, try in the winter months to keep a display over the dairy case. Also the baked goods section is a good place. You will be surprised at the additional sales you receive from these locations. Every once in a while I also fill one shopping cart with little 4 oz. jars of honey. Again, it is surprising at the amount you can sell in this way. Remember, every good housewife always loves introductory offers.

Before we close the subject on display, let me stress one final thought. As important as display is to move your product from the shelf to the consumer's shopping cart, display is not everything that controls the factor of your having a profitable business of distributing and selling honey. What is the second rule?

Quality is the second rule. If the honey does not taste good to you, then don't put it on the shelves. It is as simple as that. Always try to display only the best flavored honeys that you have. This may consist of from one to three flavors. I usually display clover, cotton and backyard honey. The backyard honey I label local honey. I keep several hives in various places in the city and in my backyard. I also place some in the country. From these hives I acquire several varieties of honey. Let's not be too hasty to condemn backyard honeys. Some backyard honeys are the finest in the world. Don't let anyone try to tell you otherwise. Of all the honey I have ever consumed, I enjoy the backyard honey above all the others. I find the backyard honey in the spring to be the best in flavor, and I have extracted some of the most beautiful honey that I have ever seen. The sealed comb is snow white and makes some of the most beautiful comb honey attainable. Place it on the shelves and see how long it lasts. I also enjoy the backyard honey because it does not granulate as fast as most all other leading types of honey. As spring comes to its end and summer approaches, backyard honeys tend to be darker. This is due to the fact that all fruit trees have quit blooming. The honeybees gather the golden colored nectar from the early blooms.

Granulation can be for you or against you. I find in all the health food stores that I supply, that a lot of their customers prefer to purchase honeys only when granulation has begun to set in or already has turned to solid granulation. Grocery stores are 99% different. However, for the consumers' benefit, I usually keep one row of granulated honey on the shelves. This is fine, but if no one seems to desire to purchase it after a week or so, it is best to remove it and liquify it. Don't continue to leave it on the shelf in hopes of someone buying it. The longer it remains unsold, the more it cuts into your sales. One good way to cut down on granulation problems is simple, rotate your stock.

We have covered most all the points inside the store to help you in distributing and selling honey. But what about at home if that is where you carry on your small operation. It can be simple and easy work or long and hard work. Usually you will find the hard work before the easy. There are a few easy ways to the operation but it takes a few minutes of your time depending on how much honey you intend to bottle. The equipment will cost you less than $100.00. I have found the operation to be simple as "ABC". All it takes is an immersion-type heater, a long, deep galvanized tub and an old discarded refrigerator with a good air-tight door where no heat can escape. The immersion-type water heater can be a 3,000 watt heater. The tub will hold three five-gallon plastic open top buckets of which you can purchase for as little as twenty-five cents each at your local hamburger shop. Let them air out for about one week, wash them, and you will have the best sixty-pound honey containers obtainable. They do not give you rust problems as the cans do from your supplier. Set the water temperature at 150° and in two or three hours you are ready to strain the honey. After straining, allow the honey to set for half an hour and you can then remove the wax from the top of the strained honey. This is another convenience of the plastic buckets over the five-gallon cans. After removing the wax off the top, I usually place a lid on the bucket and store it until I need to bottle an order of honey. After bottling, I usually keep the jars in the old refrigerator under a low heat and the next day I have 300 pounds of warm, fresh honey ready for my customers. When bottling honey, use a plastic bucket with a filler spout at the bottom. This eliminates pouring honey and also eliminates wax from the top of the bottled honey.

In conclusion, some young beekeepers may say that the honey business is too time consuming and expensive. This is true and there aren't many rich beekeepers in the business; however, you can make fifteen to twenty cents profit per pound of honey you sell. I enjoy the profession and wouldn't trade it for another sideline. I've seen some hard times and you can expect some also. You will discover surprises, failures, and long, hard work; but during the season you can discover one thing, a lot of enjoyment and a job well done.

JAPANESE SUPPLY MANUFACTURER VISITS MEDINA

Tadashi Nakamura, a fourth generation member of a beekeeping supply manufacturing family business in Japan was a recent visitor to the A.I.Root Company in Medina. Tadashi's father was unable to make the trip to America but his son proved to be an able representative of the family's firm.

"I am now able to see some of the heart of America", Tadashi remarked as we drove down to Medina from the Cleveland airport. He had the day before been sightseeing in California, and this was his first trip east in America.

The Akitayahonten Company, Ltd., of Gifu, Japan lists in their catalog a full line of beekeeping supplies including packaged honey, pollen tablets and royal jelly. Their honey is packed with the health food trade in mind, apparently an outlet that figures prominently in the retailing of honey in Japan. Japan imports honey as they do not produce nearly as much as is consumed.

Classes are held by the firm featuring speakers who offer advice in regard to the merits of hive products and perhaps extoll their virtues to those in attendance.

The 89 year old firm is located near the giant Toyota auto factories on the principal island of Honshu.

Above: Tadashi Nakamura, second from left with his father, mother and sister in Japan.

Below: John Root hosts Tadashi Nakamura (center) and interpreter Sugi Ta Masahiko at Medina.

Questions and Answers

Q. Is it possible for me to put a one story hive with a good young queen that filled a whole frame of brood in one week on top of another strong hive with an excluder between so as to be able to keep her alive over winter?

Or, must I add more bood frames and honey and place her on the stand of the big strong hive and move the strong hive over several feet?—J.M.M., N.J.

A. The method you have first suggested is most likely to be satisfactory, although we prefer to substitute an inner cover, screened on both sides of the center hole, for the queen excluder. The upper colony, of course, would be placed on top of the strong colony minus the bottom board, and, of course, minus the outer cover and inner cover of the lower unit with the special inner cover between. We have successfully overwintered nuclei consisting of several frames of brood, honey and pollen in this manner although sometimes in severe winters, the survival rate is not as good as hoped for.

If this is done early in the fall and there is four or five frames of honey in the upper unit the young queen should provide enough brood for wintering.

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Q. Can wax moth crystals be used in bee hives when bees are in the hives?—G.L., West Virginia.

A. The moth crystals cannot be used in hives containing bees.

They are used only to fumigate combs which are being stored over winter away from the hives. Treated combs should be well aired before they are placed on a colony.

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Q Can one use a carbon dioxide fire extinguisher to freeze and kill bees in a house wall or attic?—T.S., N.Y.

A. I have never heard of anyone attempting to use a carbon dioxide fire extinguisher on bees to eliminate them from house wall or attics.

I'm sure that this is not a recommended method. I suggest you consult an exterminator who will suggest a more expedient method.

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Q. How long does it take a queen bee to grow wings back after being clipped?—C.J., Michigan.

A. Once the wings of a queen are clipped, they will never grow back.

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Q. I would like to know if there is such a product as wheat honey?—A.M.W., Ohio.

A. We do not know of a product called wheat honey.

We are certain that no nectar is obtained from wheat, therefore, ruling out the possibility of there being a floral honey of this nature.

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Q. Are there four types of cells, A-queen, B-worker or brood, C-drone, and D-storage?

Can bees change old cells to fit or suit their different requirements? —P.R.C., Delaware.

A. In regard to your first question, there are basically three types of cells: queen, worker and drone. Worker cells can be used for either worker brood or honey and pollen storage. Only drones can be raised in drone cells and they may also be used for storage. Queen cells are used only for raising queens.

Worker cells can be converted to queen cells by the bees when necessary, but normally once a cell is built as a worker or drone cell it is not altered to the other. Patches of damaged or distorted worker cells may, however be restructured by the bees to drone cells.

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Q. When I extracted the honey this year I found a lot of the frames had pollen left in them even after I had given them back to the bees to dry them off. What is the best thing to do with these frames? If I give them back to the bees for surplus honey next year the bees will only store honey on or in the comb not taken up by the pollen. I kept some of these frames last winter in the driest place available in our damp climate but even with moth crystals, mold developed on the comb. I would appreciate your opinion on this problem.—R.L., North Carolina.

A. Pollen, like crystallized honey, is very difficult to remove from combs. To remove crystallized honey, we suggest placing the supers under the brood chamber in the spring, getting the bees to remove the crystallized honey by either disposing of it outside or carrying it to some other location. It is quite possible that pollen may be removed from the comb in the same manner. Otherwise, it apparently is a case of removal by the beekeeper, which can only be done by loosening the pollen by soaking in water and then washing the combs clean.

A slight film of mold does not harm combs as the bees will clean them up in any case. A cool storage area with good air circulation usually will prevent mold to the extent where it could be damaging.

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Q. I have twelve acres I want to put to clover and buckwheat.

Six acres are only good for sweet clover. What would you recommend for the other six to get the most good honey? These six acres will raise good ladino, alsike, or red clover and very good buckwheat.

On a normal year how many hives can I have for the twelve acres? I also have a couple of acres of dandelions and 15 fruit trees. Everything else is corn and soybeans for miles.

I have never even seen a bee on a soybean blossom.

Does white blossom sweet clover make more or better honey than yellow blossom?

I am just starting with bees so will appreciate all the advice you can give.—A.B., Indiana.

A. Sweet clover will grow on nearly any type of land under nearly any condition, so perhaps you should seriously consider the balance of the acreage also for sweet clover. Perhaps buckwheat would be an alternative but you must keep in mind that buckwheat honey is very dark and may become mixed with the lighter honeys.

Plants vary considerably in their yield, especially buckwheat, and it would be difficult to say in an accurate way how many hives 12 acres would support. Most beekeepers limit their apiaries to under 20 colonies; this would be our suggestion until you can make a one year's evaluation.

Soybeans have not produced an abun-

dance of nectar in Indiana and Ohio, and apparently this has been due to some factors that exist in other areas where the yield is fairly heavy from soybeans. Perhaps with the introduction of new varieties, our nectar yield from soybeans may improve.

I've always considered the white and yellow sweet clovers as about of equal value as far as nectar yield is concerned.

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Q. I have three strong colonies in some prime pasture and woodland on my property, and I am hoping for a good crop this year. However, a beekeeping neighbor moved sixteen colonies from about one-half mile away to a place alongside my property. He claims this will not cut my yield, but I and some other local beekeepers disagree. This neighbor claims an area can stand up to thirty colonies, but doesn't this apply to pollination only and not to efficient honey production?—R.N., Maine.

A. We cannot judge accurately the true capacity of your neighborhood in respect to furnishing nectar to a certain number of colonies of bees. We can, however, say to support 30 colonies, or even fewer colonies requires a very concentrated and sustained nectar flow from an abundance of honey plants.

We usually consider this the maximum number of colonies in good locations in Ohio; whereas, in more productive areas apiaries may consist of up to 50 or more colonies and still procure maximum production. Marginal territories are usually limited to 15 to 20 colonies. Bees moved to fields for pollination may be much more highly concentrated.

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Q. Is it possible that a virgin queen can run through a queen excluder?

I've heard so many "old wives tales" about honeydew that I'd like to know the truth about it.

A friend gave me an inner cover made of 1/8 inch mesh wire, framed in a normal inner cover frame. What can I expect if I use it in the hot part of the summer or any time?—R.S., Ohio.

A. Virgin queens are very flighty and since they are not yet swollen with eggs, it is possible one, through pure fright, may force itself through a queen excluder. This is not usually the case but it does happen, I am sure.

Honeydew is an exudation of a plant-feeding insect and therefore does not have a floral source as does pure honey. Honeydew is sometimes mixed with floral honey or may be even stored as pure honeydew. It has some of the characteristics of honey. In some countries of Europe it is accepted as an equal of honey although it is not regarded as highly in most of the other parts of the world.

Many find that an inner cover composed partly of wire mesh equipped with a bee escape is more effective than the solid inner cover of wood. For year-round use, the solid inner cover will give more effective protection to the colony due to its insulating value.

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Q. Is there any danger of ruining your honey if you store it [for home use] in plastic gallon milk jugs?

Also, I would like to know about storing supers with uncapped honey. In past years I have left them on the hive through the winter, but this year I intend to take them off and store them with moth balls. Will this hurt any honey that might be left in them, and will it adversely effect the bees when I put them back on in the spring?—N.S., Texas.

A. Empty gallon milk jugs should make excellent containers for honey. If they are cleaned thoroughly, there should be no problem using these containers.

I'm sure that you will be much more satisfied storing supers away from the hives during the winter. Moth crystals will do an excellent job of protecting the supers and it will not harm any honey that they may contain if they are aired in the spring before placing on the beehive. Moth crystals are an accepted chemical and if used according to directions, will be satisfactory for combs of stored honey which are intended for feeding back to the bees.

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Q. I would like to have some information on removing bees from a building. I was planning to take them out in November or December. Would this be a good time to transfer them? Can they be taken out from the inside through a plaster wall? This is a schoolhouse used only occasionally and was built in 1908.—R.S., Pennsylvania.

A. The risk in moving bees from a building in the fall of the year is much greater than in the spring. We would suggest waiting until spring, if possible.

If it is necessary to remove them in the fall, we suggest you do it as soon as possible. After they are installed in the hive, make certain that they have ample food consisting of either honey or fed sugar syrup until the colony weighs at least 120 pounds, including the bees and the hive.

Whether to attempt to gain access to the bees from the inside or from the outside will depend on their position and the construction of the building.

PNEUMATICS SIMPLIFY APIARY CONSTRUCTION

A CRAFTSMAN after the apiarist's heart is Walt Hood of Fresno, California.

Hood uses pneumatic stapling systems (hand-held tools powered by compressed air) to meet virtually all of his fastening needs.

Using a heavy-duty model M-1 stapler from Senco Products of Cincinnati, Ohio, Hood fastens the dovetail corners of his supers on both sides. He then fastens the lifting cleats to the ends with a Senco Model M-111 capable of power-driving staples up to two and one-half inches in length.

The bee frame is assembled with a one and one-quarter inch staple driven into each corner.

Walt Hood uses an M1 Stapler

NEWS and EVENTS

CONNECTICUT
Beekeepers Association

The fall meeting of the Connecticut Beekeepers Association will be held on Saturday, October 28, 1978, at the Connecticut Agricultural Experiment Station, 123 Huntington Street, New Haven, Connecticut, at 10 a.m. in the Donald F. Jones Auditorium.

The speaker of the day will be Joseph Gitta of Gitta Apiaries in Denton, Md., who will discuss "How to Make a Hive with Inexpensive Equipment".

Lunch at noon will be potluck. Bring something you like for the buffet table. Coffee is "on the house".

A feature of the afternoon session will be a film entitled: "Killer Bees: Fact or Fantasy?"

A cordial welcome is extended to all beekeepers and friends to attend our meetings.

American Bee Breeders Assn., Inc.
College Station, Texas

The annual meeting of the American Bee Breeders Association Inc. will be held at College Station, Texas on November 10-11 in the Rudder Tower on campus of Texas A&M University. Guest accommodations are available in the Memorial Student Center, adjoining Rudder Tower.

100th Annual Convention Program
Wisconsin Honey Producers Association
November 9-11, 1978

Delview Motel, Lake Delton, Wis.

Thursday, Nov. 9

6:30 PM Board of Managers Meeting

Friday, Nov. 10
Morning Session
Chairman, August Laechelt

9:00 Registration
Beekeeping Film — Killer Bees; Fact or Fantasy
9:30 Welcome—Bernie Olsen, Mayor and Area Chamber of Commerce Chairman
9:40 Convention Charge — Warren Doede, Pres., Wis. HPA
10:00 The 100th Anniversary: Its Significance and Promise. — Ed. Parminter, Direc. of Pub. Relaions, Wis. Dept. of Agri. & Consumer Protection
10:45 Bookkeeping for Beekeeping: A Seminar on Income Tax—IRS Representative
12:00 Noon Luncheon

Afternoon Session, Chm. Jan Haak

1:00 A Close Look into the Brood Combs of the Bee—Elbert R. Jaycox, Prof. of Apic., Univ. of Ill. at Urbana-Champaign
2:00 Tour — Convention Host, Sauk Co. Beekeepers Assn.
4:30 Queen Candidate Introductions Joan Weber, Chairman Queen Committee
5:00 Dinner (On your own)

Evening Session Activities

Gadget Display—Queen Reception
Auction—Hospitality Room
Visitation and Relaxation

Saturday, Nov. 11
Morning Session
Chairman, Richard Dieter

9:00 Registration
Beekeeping Films: Bee Management—Fall and Winter, Late Winter, Early Spring, Honey Handling
9:30 Beekeeping Problems and Honeybee Diseases in the Past, Present and Future — Basil Furgala, Univ. of Minn., St. Paul
10:15 Panel Discussion of Beekeeping Concerns — Dr. Erick Erickson, Res. Leader, Bee Culture Lab., Madison, Wis.
11:00 A Century of Learning: Points of View in Time — Walter Diehnelt, Jr., Honey Acres, Menomonee Falls, Wis.
11:40 Reading of Resolutions
12:00 Ladies' and Mens' Luncheons

Afternoon Session, Chm. Orville Fager

1:00 Advertising Claims in Beekeeping; Are They Misleading or False?—Elbert R. Jaycox
2:00 Queen Candidate Acquaintance Appearance—Joan Weber
2:45 Business Meeting

Evening Session Activities
6:00 Cocktail Hour
7:00 Banquet
9:00 Queen Coronation Ball

NEBRASKA
Honey Producers

The Nebraska Honey Producers will hold their fall meeting Saturday, November 18, at the Circle C South Motel, 1211 S. Dewey, North Platte, Nebraska. Dr. Robert Malloy and John Root will be guest speakers. A new Nebraska honey queen will be chosen. Registration will begin at 9:00 a.m and a banquet will be held at 6:00 p.m.

ILLINOIS
Beekeepers Association

The Illinois Beekeepers Association will hold its meeting on Saturday, November 18th at the Holiday Inn East, Springfield, Illinois. This will be a one-day only meeting. The starting time is 8:00 A.M.

Dr. Shimanuki of the USDA, Beltsville, Maryland will be one of the principal speakers.

For more information write George Kloppe, President, 1934 So. Lincoln, Apt. B, Springfield, Ill. 62704. Phone: 217-787-7485.

PENNSYLVANIA HONEY QUEEN

Pennsylvania's Honey Queen, Miss Cheryl Ann Fry is as busy as a bee this year promoting honey and beekeeping throughout the state of Pennsylvania. During her reign, Cheryl will be making television appearances, appear at fairs, markets, and participate in several parades and various other affairs.

The More I Learn About Bees The Less I Know

By R. M. WADSWORTH
Superior, Montana

WHAT FASCINATES me most about keeping bees, and hunting wild bees, is I'm always learning something new. It doesn't matter how much I read on the subject, I'm constantly discovering new facts in my own observations, or reading about some new observation or technique that others have made or worked out. Men have been studying bees for centuries, and it seems that everything there is to learn about them should have been learned by now. Not so. Any careful observer can still explode a myth that people have believed for centuries.

As an example, all literature on the honeybee has accepted as fact that when a bee discovers a new nectar source, she goes on a direct bee line back to the hive and communicates to her hive mates, by a dance, the direction of the new food supply. This is probably true 99% of the time—but not always. I have located well over 100 bee trees in the past four years. Most of the time the bees will make a direct bee line to the hive; however if there is some very obvious terrain feature such as a road, stream, or rock slide, they will follow these instead of heading direct to the hive. I have had this happen several times but will describe the two most obvious examples.

Several years ago I found some bees working on wild raspberries alongside a secondary road. I captured some and soon had them working the honey in my bee box. When they left they headed straight up the road. I figured I had an easy hunt ahead of me as the bee tree was bound to be close to the road. How wrong I was. I spent the next three hours following the bees straight up the road, for a mile to the base of a huge rock-slide that ran clear to the top of the mountain. At this point they turned 90 degrees and headed straight up the hill. I found the tree the following day about one mile up the mountain.

This was the first time this had happened to me and I could not believe the colony I found was the same one I had started lining. Thee was only one way to find out. I cut the tree the following day and removed the bees to my apiary. The next day I searched in vain for more bees on the raspberries. Bees will never quit using raspberry bloom as it is one of their best sources of early spring nectar. Lack of bees there proved to me that the bees did indeed follow the road to the rockslide, make a 90 degree turn and follow the slide to the top of the mountain.

The second incident offered more conclusive proof. One year I started working some bees gathering snowberry nectar. I followed them several hundred yards to the top of a small ridge, and there I lost them. The next spring I tried them again losing them at the same ridge. The bees would be working my box vigorously, but when I moved ahead 200 yards they would not return. I checked out every obvious tree for almost a mile out on the bee line but no luck.

The third year I returned with a friend. We had bees going in two directions from the box and since I'd failed twice on the old bee line, we followed the new one, locating the tree within thirty minutes. When we returned to the car I told my friend of my previous failures, and asked if he would like to tackle a tough one. He agreed and off we went, ending up on the same ridge. This time after two hours of frustration I sat down and tried to follow the bees with my binoculars as they left the box. At last, success! They flew about 100 yards out, then made an abrupt left turn. We started searching out the new bee line and found the tree within 400 yards.

This phenomenon has happened to me 4 or 5 times in 100 to 125 bee hunts. How do the experts explain one bee telling another "go down the rockslide to the bottom of the hill, then turn left down the road for one mile?"

That excellent book, **ABC & XYZ of Bee Culture** has a short section in it on hunting wild bees. The author makes the statement "wild bees never choose dead trees for a home. They know instinctively that they are unsafe". I believed that statement the first two years I hunted bee trees, then I found five colonies in a row in dead snags. One day I spent three hours circling one area and there were no likely bee trees on the hill. I finally saw the bees diving into the ground. A closer inspection revealed a dead snag that had been snapped off by the wind. It was late in the fall when I found the tree and I didn't remove the bees until the next spring. They spent the winter covered by deep snow. The fact that their combs were lying on their side didn't bother the bees one bit. They now gather honey for me. Another myth exploded.

As a matter of interest bees do show a preference for certain types of trees. In my area of mountainous western Montana about 75% are in live Ponderosa pines, about 10% in dead Ponderosa pines, about 14% are in western larch (commonly called Tamarack), but I have only found two in cottonwood and one in a cedar tree. On the west coast they occupied what was available and lived in Douglas fir. In California I found them in live oaks and holes in the rocks.

A few days before this writing I made an observation that I thought unusual. This year our whole countryside has been blue with the bloom of American Vetch. In previous years my bees haven't looked at vetch bloom but this year they love it. The vetch flower is long and slender, a tight fit for a honeybee. About 50% of the bees crawl in the end of the bloom as far as they can, then stretch their tongues to their maximum length to obtain the nectar. The other 50% have learned a short-cut. They go directly to the base of the flower and pierce the petal with their tongues, lapping up the sweets in comfort. After the bee has departed, a small hole can be observed at the base of the flower.

Several times I have read that when wild bees swarm, they instinctively go some distance from the parent hive to set up housekeeping on their own. This is supposed to prevent over-grazing, so to speak, of the bee pasture. Last year I broke a new record (for me) of finding three bee trees on the same day. All of them were within a 400 yard circle and two were within 100 yards of each other.

This year I broke another record (for me) finding two bee trees within five minutes. I had cut a bee tree the day before, and as I worked, I noticed robber bees stealing the honey. This is usually an easy way to find another tree, so early the next day Iwas back, armed with my be box. The tree I had cut was 300-400 yards down the hill from the end of the road. As I got out of the car I set the bee box on the hood and turned to assemble my other gear. When I turned back, a minute or two later I had two bees buzzing my box. they filled up and flew straight down the hill, with no circling or marking the location of the box. On a hunch, I walked down the hill 100 yards and there they were two dead pines about 10 feet apart, with bees in both of them. One tree had a large piece of honeycomb on the outside adjacent to the entrance.

A third example. Several years ago a neighbor boy, Rex Moats, and I spent all day lining bees to a giant Ponderosa pine. When I finally spotted the bees going into

(Continued on page 485)

Mother Nature Fools MSU Researcher

According to research by Dr. Roger Hoopingarner, Michigan State University bee specialist, worker honeybees make at least three times as many trips to and from the hive to gather nectar as scientists believed.

Roger Hoopingarner, MSU professor of entomology, spent six months in Tucson, Ariz., on a sabbatical leave to study factors relating to bee performance in crop pollination.

One of the major things Hoopingarner was aiming to determine was the cost-benefit ratio of the location of the bee colony relative to the crop to be pollinated. He wanted to find out the advantages and disadvantages of placing bees at various distances. Competition from desert flowers foiled this line of inquiry. The bees did not have to travel to the experiment site—the desert flowers provided them all the pollen and nectar they needed.

He did find out, however, that under good foraging conditions, a bee will make many more trips to and from the hive than previously thought. If conditions are right, a colony can produce a lot more honey than beekeepers might expect.

"In good flying weather, with flowers producing nectar available to them, some bee colonies were producing up to 15 pounds of honey per day", Hoopingarner says. "Theory and the existing literature would have it that four pounds is about the maximum".

His observations indicate that the difference in these figures is due to the surprisingly large number of foraging trips bees make each day.

Another factor may be the bees' preference for collecting nectar rather than pollen. Hoopingarner learned of this preference when he moved his research into a greenhouse to get away from the competition of the desert flowers. The basic assumption had always been that, because pollen and nectar are both important to the bees, they would collect both with the same vigor. Hoopingarner found that this is not the case. A colony will leave pollen collecting to go after nectar.

"This makes sense when you consider the plant that's producing pollen and nectar", he suggests. "The pollen is more important to the plant. It is available in larger quantities and over a longer period of time than the nectar, which the plant produces only to attract the pollinating insect. Small quantities of nectar are available for only a limited time, so the bees must take advantage of it when it is present".

Hoopingarner found he could not stimulate bee colonies to forage for pollen unless they had had nectar or sugar syrup available to them sometime during the day. This finding has practical implications for persons who keep bees for crop pollination.

"Beekeepers who want improved pollination from their bees should feed them sugar syrup", Hoopingarner suggests. "This will satisfy their preference for nectar so they will concentrate on gathering pollen and, in the process, pollinate the crop. Growers may even find that, by feeding sugar syrup, they could get a given pollination job done with fewer bees".—From M.S.U. Information Services 7/27/78.

ADULTERATED HONEY FOUND IN OKLAHOMA

Calling it "Honey Moonshining" the **Oklahoma Journal** reported on the action of the State Health Department's Consumer Service in notifing an Oklahoma honey packer that it must desist in selling adulterated honey. An embargo has been placed on the stocks of remaining honey.

Federal authorities allow for honey to be listed as an ingredient as long as the products contains at least 3% honey.

The word "honey" is permitted in the product name, the federal standards say, as long as the product has 10% honey content.

A federal violation is considered a misdomeanor on the first offense and a felony on the second.

FUNDAMENTALS FOR ALL

(Continued from page 474)

lighter than dry air, it looks as if the ideal arrangement would be to have the air come in through the bottom entrance and exit at the top. Perhaps instead of staggering supers, we should set up top covers, allowing the air to escape at the top, instead of being drawn off at the bottom by the phalanx of ventilator bees.

It's all a complicated procedure that hasn't been well studied. It is only because bees are so adaptable that they make good honey in spite of all our hive arrangements and manipulations. It would be good to know whether our intentions to make them more comfortable by staggering supers, etc., were a help, or a hindrance. Scientists know how much heat (measured in calories, or British Thermal Units—B.T.U.'s) is used up in changing liquid moisture into gaseous moisture; that is, changing liquid to a gas. If we want to know how best to ventilate our hives, we need to know how much air, at what R.H. and temperature, is required to carry the heat used up in evaporating moisture from a certain amount of nectar to make it into honey.

Perhaps if I had arranged the covers to provide for upward ventilation on my hives this summer, I would have had honey that would not ferment. The process of determining what is best may sound complicated, but not too difficult. A scientist I once knew said that no problem was too difficult if reduced to its elemental parts. Some day, someone will find the answer to the best way to arrange beehive ventilation. It will almost certainly be different for different parts of the country under different weather conditions at different times of the year.

(1) Martin, E.C.

The Hydroscopic Properties of Honey. Jour. Econ Ent. 32 (5): 660-663, 1939.

FROM THE WEST

(Continued from page 472)

upon it by a small group of irresponsible local beekeepers who do not speak for the majority of the beekeepers of Hawaii.

I would like nothing better than to see the Federal Government establish a bee breeding station in Hawaii for the benefit of all the beekeepers of America. Quarantine rules, like the ones for the importation of dogs for instance, could be established. There is no rabies in Hawaii.

That old adage, "Divided we fall, United we stand", applies to Hawaii today to stop that useless bickering between beekeepers and the lawmaking body of these islands.

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Mead Making

By D. P. McNELLY
615 Pinegrove Avenue
Rochester, N.Y. 14617

I AM AN amateur winemaker. Recently, I have become a beekeeper also because the two hobbies blend together in the form of mead. I live in Upstate New York near the Finger Lakes Region, one of the better locations in the country for the growing of high-quality wine grapes. If you are familiar with our domestic wines, you will recognize names such as Taylor, Gold Seal, Widmers and others which are made in wineries about 50 miles southeast of Rochester. The May, 1977 issue of the **National Geographic** has an article on this area and its grapes and wines.

Because of my interest in winemaking, upon many occasions I have made mead (honey wine) and pyment. The latter is grape juice ameliorated (a fancy word for adjusting the sugar content) with honey.

Also, I've made cyser, a wine from apple juice sweetened with honey. Each of these became delightful, flavorful wines. My wines are made dry, that is, with all the sugar or honey content fermented into alcohol. Using honey causes the wine to have slightly different characteristics from wines made using sugar to adjust the sweetness of the juice.

By combining my two hobbies, I now make "Estate-Bottled Mead". Estate-bottled wine is at the top of the pecking order of winemaking. This means that the entire process is carried out in one location. The grapes are grown, harvested, crushed, pressed, and the juice fermented into wine, aged and bottled all on one property or estate. I raise bees, gather honey and ferment into wine, all on one location—Estate Bottled Mead!

Several years ago on a drive through Medina, I purchased a beekeeping beginer's kit from Root and ordered a hive of mail-order bees. After several years of hesitant experimenting, I seem to have solved a number of the mysteries of beekeeping, or lucked out at least, and have been able to harvest 50 pounds of honey from a single hive. This amount is not unusual for Upstate New York, but with our severe winters and my inexperience, I'm impressed. This can be made into 20 or so gallons of mead, or 100 regular size bottles of wine.

Since I was first an amateur winemaker and then became a beekeeper in order to make mead, perhaps some readers might be interested in reversing the process. If you have hives and harvest honey, you can easily become a mead-maker.

First, some history: Mead is thought to be man's oldest alcoholic drink. Wine from fruit juices probably followed. Beer is really a form of wine made from grain such as barley and rice, together with the present-day addition of bitter flavor of hops. Mead predates all distilled drinks such as whiskey, rum, gin, vodka and brandy. Each of these are distilled from a different form of wine (if the term wine is broadly interpreted) made from corn, sugarcane grain, potatoes and grapes.

Back in the early days when mankind lived in tribes and small villages, there was a limited amount of mead available, since initially, all honey was wild. Because of this, it was saved for special occasions and festivals such as marriage. A man captured a maiden from a nearby tribe, because probably he was related to the local belles. Usually he thought it prudent for the two of them to disappear into the woods for a period of time until her father and brothers gave up looking for her or no longer wanted her back. During this time, the man's relatives would give the happy couple a supply of mead to take with them to celebrate the event. They withdrew for perhaps one phase of the moon (nearly a month) and because they took with them a supply of honey-wine, this period became known as the "honeymoon". Because ancient peoples did not understand or enjoy balanced diets, present-day experts reason that the mead provided some missing vitamins and minerals, thus temporarily improving health and fertility. As a result, pregnancies occasionally resulting from the honeymoon, and tradition has it that the mead-maker, not the bridegroom, received the credit.

In another story version, mead was given to very young people who were married for political reasons such as the daughter of a Duke to the son of a Baron. Because of their tender ages, they were given mead to help them rise to the occasion and meet the responsibilities of the honeymoon. These are delightful stories which represent as enjoyable an explanation of the term "honeymoon" as I've ever come across, as well as one that

seems to make sense. After all, the word has to come from somewhere.

Mead-making offers you another solution to cleaning up the mess after extracting honey. Instead of the usual washing down, or stacking equipment in your backyard to be cleaned by the bees, wash out the combs with warm water and come up with a solution that is near 20% sugar. This can be fermented into mead with little difficulty.

Since I have only three hives and cannot justify the purchase of an extractor to help me harvest honey, I cut the comb from the frame, drop it into a large plastic dishpan and crush it with the end of a 2 x 4. If I want strained honey, I pour the crushed comb twice through a gauze which removes nearly all the small pieces of wax. I then accumulate the drained wax in another dishpan, flood with warm water, stir and strain off the washings into a carboy for mead-making.

It is important to adjust the solution, whether it be honey and water for mead or grape juice and honey for pyment, to 22% sugar before fermentation starts, upstate New York grape juice usually is 14% to 18% sugar. If it is 16%, the winemaker will adjust by adding 7.6 ounces of sugar per gallon to bring it up to 22% to produce a dry wine. If much more sugar than the proper amount is added, it will not ferment out and therefore be left over, making the wine sweet. Charts are readily available to indicate the proper adjustments. In regular winemaking, sugar is usually used to bring the sugar content of the grape juice up to 22%. In this step, I use honey in place of sugar because it gives improved character to the wine.

To make mead, I suggest a 5 gallon glass carboy which has been thoroughly cleaned. Dissolve 12 pounds of honey in enough water for a five gallon mixture, stirring thoroughly. Check the sugar content with a Brix hydrometer, which may be purchased for three dollars or so. Adjust with additional honey until the mixture is 22% sugar. Add wine yeast, which is sedimentary and will settle out to clear up the wine.

To make 5 gallons of mead, it is suggested that the juice of 5 lemons be added to give the mead a slightly acidic bite. Because honey is partially deficient in the nutrients yeast requires, in addition to the sugar in the honey, supplemental nutrients will assist in the fermentation process. Yeast nutrient is commercially available, made from ammonium sulfate and potassium phosphate. On top of the 5 gallon glass carboy, install a water trap or bubble tube and add a quarter teaspoon of potassium metabisulfate. This prevents the mead from turning into vinegar, which will happen if exposed for too long to the air. Again, these can be purchased at any local wine supply store. Some people add a pint of strong tea to the five gallons of mead. This is their way of providing some astringency derived from the tannic acid in the tea. Some people think that dark honey makes a better mead because it is generally more strongly flavored. It tends to add a darker color when fermented out. In my first experiment with mead, I used orange blossom honey from Florida—delightful!

After the fermentation has been completed, the dead yeast settles to the bottom of the carboy and the honey wine begins to clear. The mead should be siphoned off, the residue on the bottom thrown away and the mead returned to the carboy. This siphoning process to clear the wine is called "Racking". The dead yeast and residue on the bottom is the "lees". Water should be added to within one inch of the top to replace the volume lost in the siphoning, the water-lock reinstalled, and another quarter teaspoon of potassium metabisulfate added.

Wine and mead do improve with several years of aging. It is suggested that the carboy be set aside with the water-lock installed and left undisturbed, except for perhaps additional siphonings to assist in clearing every three or four months, until six to twelve months have elapsed. At the end of the year, it will be ready to drink (that is, if you can wait that long).

To make pyment or cyser, follow the same process, using grape or apple juice. Adjust the sugar content, using honey, as measured with a Brix hydrometer, to 22%. Skip the tea and lemons. Nutrient is optional, but desirable. Use the potassium metabisulfate.

Sack Mead is the same as regular dry mead but made from a honey mixture stronger than 22% so that the mead is sweet.

Metheglin is a dry mead, but spiced with herbs (called "cruits" in this case) such as cloves, nutmeg, rosemary, ginger, mace, cinnamon, or any spice of your choice to taste. Sack Metheglin is sweet, spiced mead. Hippocras is pyment with spices added.

Mead made from fruit juices is called Melomel. The most desirable Melomel is made from white fruits.

Technically, a government permit is required to make wine. It is readily available at no cost from the Bureau of Alcohol and Firearms.

To purchase the inexpensive supplies required to make mead as mentioned in this article, check your Yellow Pages for a local winemaking supply store. Today they are located in nearly every large metroplitan city. There are two near me whose addresses I can supply by mail. Also, if you need more detailed instruction or have any questions, drop me a note.

Whether or not you personally consume much wine, you will find it makes a welcome and unusual gift for friends and after you've mastered mead-making, you can graduate to Sparkling Mead—a form of Champagne!

A LOOK AT OLD PRACTICES

(Continued from page 462)

It's easier to comprehend the good qualities of the Italian bee if it is understood that for perhaps a thousand years or more the Italian beekeepers building on the work of their predecessors, the Greeks, had full opportunity, due to extensive international trade by water, to "bring home to Rome" the best bees they could locate along all the shores of the many countries visited.

Doubtless the Italian bee which eventuated was, and is, the descendant of the best of their findings.

THE MORE I LEARN ABOUT BEES THE LESS I KNOW

(Continued from page 481)

the entrance at the bottom, I called Rex to the spot and told him he was within sight of the tree and to try and spot it. He looked a moment, and said "there they are in the top of that pine". Sure enough; there was a large colony in the bottom and a smaller one in the top. Juding from the scratches on the bark, bears had tried for years unsuccessfully to rob it. This incident occurred in the spring. Normally little or no honey is found at that time of year. The bottom colony had 135 pounds of honey and the top colony 15 pounds.

All of this just proves to me that the more I learn about honeybees, the fewer positive statements I should make about what I think I know. The bees will make a liar out of me every time.

BEE ESCAPE

By ROLLIN MOSELEY
Scottsboro, Alabama

IN NORMAN, Oklahoma, recently, 300 hives of honeybees burst open when the second trailer of a tractor-trailer truck came loose and ran onto the center median of a highway.

The Oklahoma Highway Patrol says it took 10 hours, but most of the 10 million escapees were captured.

Bees Beyond The Mountains

By LARRY GOLTZ
Medina, Ohio

AS MUST BE the situation with many other travelers, Harold Lange's unique honey sign caught my eye as I drove north on busy U.S.Highway #5 in northwest Washington State. A right turn at the next exit brought me around to the modern, attractive one floor home surrounded by flower beds which displayed the vivid colors and luxurious herbage characteristic of the plants nutured by the rich Skagit Valley soils. Moderate temperatures and ample rainfall favor a rich variety of ornamental and food plants which contribute to the beauty of and a high per capita income from the agriculture of this valley. Truck crops such as pickles, onions, cabbage, cauliflower and carrots, for example, supply local canneries with a long season's perennial bounty of fresh produce. A beekeeper will quickly recognize that to produce a full crop of cucumbers, for example, bees are needed for pollination. A small battalion of pickers working their way through a large pickle field near the highway provided me with clear proof that the occupants of the white hives at one end of the field had done their job well.

A rather timorous knock on the front door of the Lange residence brought forth a pleasant, smiling young lady who was tending to the family business in the absence of her father, she explained. Her father and mother were on a short vacation across the mountains. For a flatlander from lake plains of northern Ohio I was beginning to comprehend the significance of the word "mountains", having a few days previously come down from the Canadian Rockies of British Columbia and Alberta and crossed the Cascades of lower Washington. I was to again cross the Cascades thanks to the kind guidance of my host. I would see what is meant by operating bees on "the other side of the mountains".

Harold Lange was a commercial beekeeper in Texas before World War II. After Navy service he and Mrs. Lange were living in Texas, but in 1948 they were faced with an important decision; a choice between job opportunities in Florida or Washington State. Deciding by the toss of a coin the Langes headed north to the fertile Skagit Valley in northwestern Washington. "Have you ever regretted the direction dictated by the fateful flip of a coin?", I asked. A wry grin crossed the face of this burly, friendly Texas-born beekeeper. "I have not", he replied in the manner of one who in any event would have taken full advantage of the beekeeping opportunities wherever he had set up shop. Evidence that the intervening years have been productive is readily seen by my tour of the modern honey-extraction plant set among the landscaped grounds. A portion of the new crop was already in plastic and glass packs ready for distribution to the several grocery chains supplied by Lange Apiaries. Selling honey in plastic buckets of ten, twenty and even larger sizes attest to consumer confidence in Lange Apiary honey. An attractive honey stand which blends well with its surroundings services a drive-in trade which moves a fair share of the annual crop. I found hard to believe the remark of a lady customer who said to Sherry, Harold Lange's daughter, as I waited nearby, "I have passed your honey stand a number of times but this is the first time I have stopped". Judging by the eye-catching appeal of the large honey sign accented by the Lange-brand bee showing the way to an attractive display of sparkling honey I will venture that she will continue to stop again and again, for years to come.

For Harold Lange the honey packing business now takes precedence over producing. At one time he ran several thousand colonies on both sides of the Cascade mountains. "I keep several hundred colonies to play with", was the way this former president of the Washington State Beekeepers Association spoke of his present bee holdings. "I'll turn their operation over to my employee", a young man I met as I toured the plant. "I sell bee supplies and in this way have the opportunity to meet and enjoy talking to many new beekeepers in our area". This genial man with his years of beekeeping experience has found a role that provides an invaluable service to those who come to Lange Apiaries for supplies.

My visit to Lange Apiaries was not all bee talk. Sherry, the Lange's daughter and mother of two is an artist of extraordinary ability. Her work in acrylic and other art forms have earned national acclaim. An interviewer has to surmount a becoming reticence to get Sherry to recount her achievements and awards. Her work is on display at Sherry's Designs, an art-jewelry store operated in partnership with "Sunny" Fitzgerald who creates original designs in jewelry matched with decorator art by Sherry. The shop is located a few miles north of the Lange honey stand off Rt. #5 in the shopping center.

The day following my introduction to the Lange apiaries found me heading east over the Cascades accompanied by Sherry and her children. She had made arrangements for us to meet her parents at Winthrop, a town restored and created in amazingly authentic early western style. After meeting the Langes and enjoying lunch together Harold Lange and I teamed up for the return trip. I was pleased at the prospect of visiting several of his bee yards along the way, but, how do you fit a six foot plus former Texan into a sub-compact Toyota? Very nicely, I found, but it was a worry until I found that it was possible.

Among beekeepers it is an almost universal trait to be seized with the desire to pry off a corner or two at any strange apiary along the way to "see if they are doing anything". Irregardless of whether they are my own bees, or, as in the instance of my recent trip, where they were yards in the far-off Pacific Northwest I must admit to an instance or two of this harmless prying. My apologies to a couple of you fine beekeepers in British Columbia. In this instance a strange apiary set in the semi-arid environment of north-central Washington surrounded by sage, blue and white Barnaby thistle and green fields of irrigated alfalfa is enough to stimulate the curiousity of any eastern beekeeper. For whatever reason we had, by necessity or pretext, my gracious host obligingly proceeded to remove heavily-loaded combs for inspection and a few photos. The whole scene was in strange contrast with our midwestern and eastern beekeeping. The bees were populous and working well in my estimation. "Not warm enough to vigorously work the

alfalfa today", according to Harold. Rustling through the dusty, knee-deep ground cover I observed a few bees working on silver sage. To me these plants appeared drouth-stricken and almost beyond living. A good distribution of foraging bees proved that this was a misconception and hives stacked with supers filled out with sealed honey were proof enough of the potential of these eastern slope apiaries.

"I used to operate clear to the Idaho line" was the matter-of-fact statement from the man who has trucked his supers of honey as far east as Spokane where he maintained an extracting plant as well as across the Cascades to his home plant. "My trucks were geared for the long pull up the grade but sometimes I worried when I had barely a finger's clearance under the trailer bed", a statement made curiously real as my little rented car strained over and beyond the divide where "coming down" was sometimes going up. "It's no illusion", said Harold. "A fellow riding with me once during a rain swore that the water at the curb was running up hill!" There is truth to the old saying that travel is broadening, there is nothing like being there to witness the fact.

A commercial beekeeper in Texas before relocating in the State of Washington, Harold Lange and his brother worked at the "moving game" with bees to take advantage of several flows during the season. Sometimes they were Texas-long miles apart. "I guess we overdid it at times but we were young and loading the bees of an evening and driving all night and stringing them out in the new territory next morning was our game. We didn't have the convenience of the improved mechanical equipment we have today back then. There was many a long night and day moving those bee yards."

The return home became easier as we crossed the divide and wound our way westward. The history of this mountain passage came to me much more vividly from this man who had witnessed the taming of these fearsome gorges with their deep, rock-strewn beds by the Diablo and Ross Dams. The man who engineered those then-remote bows of concrete lies buried near a peaceful village among the foothills approaching this great mountain range.

As we snaked down and westward to Lange Apiaries I could not help but feel that there must be between beekeepers bonds of understanding that traverses continents and oceans, generations and languages and mountains and prairies. Perhaps as we work with and observe these curious insects their high order of dedication to "purpose", though it is said to be mindless, leaves with each of us a greater appreciation of the creativity of man and his **Master.**

Uncapping at Lange Apiaries.

Obituary

William D. March

WILLIAM D. MARCH, 84, Mantua, Ohio, died August 11, 1978. Owner of Co-operative Honey Company and a Root Dealer. Started beekeeping in the Ukraine, Russia when 12 years old. Beekeeper in Ohio and Florida for over 50 years. Survived by wife Irene, son Roland and two grandsons.

THE RAY STANNARD BEE LIBRARY

(Continued from page 475)

British collection of bee materials. Unfortunately, this collection, owned by Lt. Col. H.J.O. Walker, went to the University of Wisconsin. The Baker collection contains a catalog of the Walker Library, and it is tantalizing today to realize how many rare books in the literature of apiculture the Walker collection contained.

Mr. Baker continued to collect bee books for another sixteen years. He described his adventures collecting bee books in **Under My Elm**, one of his David Grayson books, published in 1942. Shortly before his death, Baker donated his bee library to Michigan State. In accordance with his original intention, as expressed to Thomas Cowan, the Library has "built upon and increased it with the passage of years" so that it has now grown to several hundred volumes. For example, we acquired James Bonner's **The Bee-Master's Companion and Assistant**, Berwick, England, 1789, only last year.

The Baker collection is especially strong in works on bees printed in English although it does contain early works in other languages. Almost all of the early English books are present. The collection also includes numerous works with chapters or significant sections on bees. It is primarily a historical collection and the majority of the books were printed before 1850. For example, the library contains such rarities as Thomas Hyll's **A Pleasant Instruction of the Parfit Ordering of Bees**, London, 1568, one of the earliest English treatises on bees, and Charles Butler's **The Feminine Monarchy**, Oxford, 1634, which contains a bee's madrigal printed so that four singers may sing it simultaneously.

MONTHLY HONEY REPORT

(Continued from page 452)

Montana - Crop is very spotty due to variable weather conditions. Some yards will have above state average and others under. About 100 pounds average across state.

Washington - Southeast Washington having too much rain during early September. Bees in good condition.

Oregon - Poor crops being reported. Moisture above average.

California - Crop so far reported to be average for state, better than during dry years of 1976 and 1977, but not up to best expectations. Colonies moved into blue curls and tarweed from cotton in early September. Hope to make overwinter stores of 30-40 pounds in these locations. Spray losses about 5 to 12% of total colonies.

Marshmallows Replace Candy In Queen Introduction

By GORDON D. WALLER AND
GEORGE V. PUGNEA
Bee Research Laboratory
Tucson, Arizona

A SIMPLE CAGE can be made to hold, transport, and introduce queens by using 2 small wooden blocks, a 3-1/2 x 2-1/2 in. piece of 8-mesh hardware cloth, 2 staples, and some solder (Fig. 1). The wire cloth is folded over one block to make a cage with inside dimensions 3/8 x 3/4 x 2-1/2 in. A 3/8 x 3/4 x 1 in. wooden block is stapled in place at one end. The other end has a removable block cut slightly larger and tapered to assure a snug fit. Cutting the hardware cloth so that only smooth edge pieces are used for the open end of the cage eliminates sharp wire ends that might otherwise puncture a queen. Several spots of solder are used to hold the wire edges together where they overlap. **Caution**—You should wash the cages thoroughly before using them to prevent killing queens. A similar but slightly thinner cage is available commercially in England (see **American Bee Journal**, August 1977, p. 525).

The described cage fits snugly between the top bars of a beehive without separating the frames. The safest method is to leave the wooden plug in place and return daily to check the "attitude" of the workers before releasing the new queen. However, this is not always practical, so the next best method is to pack the open end of the cage with queen candy. Workers have access to the new queen, both from above and below, and the queen candy has good exposure at the open end for easy removal by the workers.

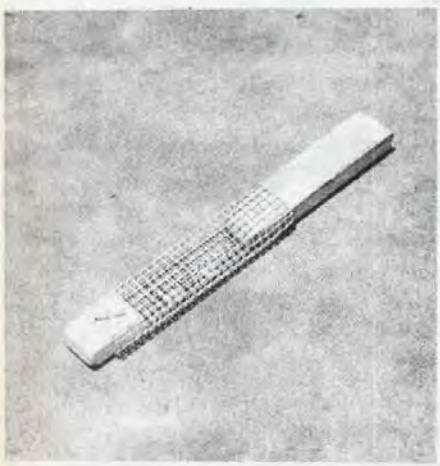

Fig. 1 Queen cage made with wooden blocks and 8-mesh hardware cloth.

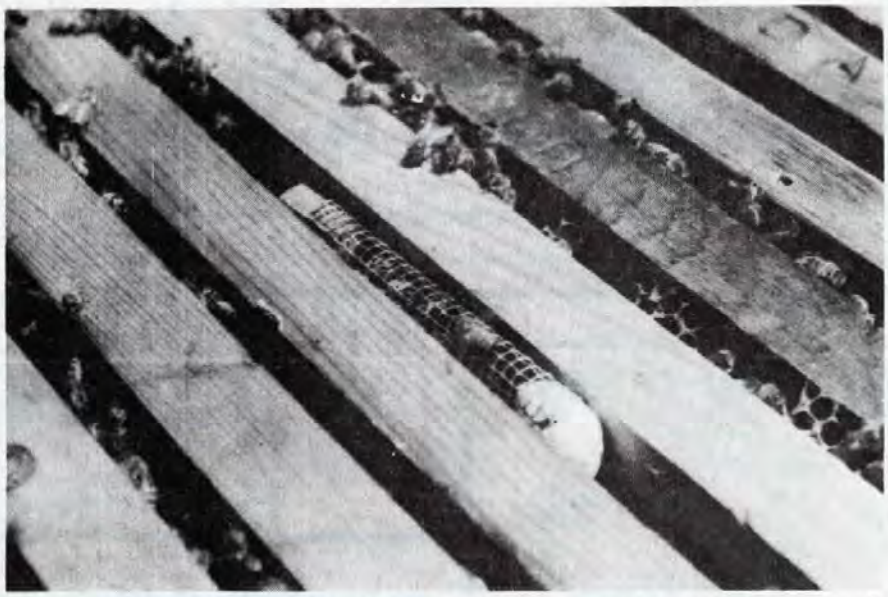

Fig. 2 Queen cage held between top bars with half a marshmallow for automatic release.

During the past 2 years we have used half of a regular marshmallow as a substitute for queen candy in the homemade cages described (Fig. 2), and we have had good queen acceptance. The only problem has been that a marshmallow may become too dry, which means that the queen may remain a "prisoner".

However, we recently checked the release of 30 queens and found the following: 12 released first 24 hours; 14 released second 24 hours; 3 released third 24 hours; and 1 released by hand after 72 hours. These queens were introduced to newly made divides and all were accepted.

Because of the possibility that the marshmallows might introduce toxic substances into a colony, caged worker bees were fed a diet of marshmallows with water. No ill effects were observed during a 10-day observational period. We concluded, therefore, that marshmallows are safe to use as queen candy.

For specific application you might try the following procedcure when introducing a queen that has arrived in a mailing cage. First, find a place to work where the queen can't fly away—inside a building near a window or inside a truck cab or car with all windows closed. Remove the screen from the Benton mailing cage and catch the queen. (This is a good time to paint and/or clip her!) Place her with no attendants in the homemade cage and use 1/2 marshmallow to close the opening. This caged queen can now be placed between the top bars of a brood chamber after the old queen is removed from the colony. The advantages of this system include: (1) No attendants in the cage to increase the fighting tendency, (2) good exposure of the new queen to the bees of the colony, and (3) no need to separate brood frames to accommodate the mailing cage, and thus no excess burr comb or thicker-than-normal combs.

We have had good success when we have used this cage and marshmallows to introduce new queens to a colony and hope you will too.

BEE PLATES

L.I. Thorne, Beehive manufacturer of Wragby, Lincoln, England sent this photograph of his auto with the "Bees B" plates. "I won't tell you how much it cost---but I couldn't resist it", said Mr. Thorne.

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Classified rates: 32¢ 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. Copy should be in by the 10th 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 44256.

MAGAZINES

THE AMERICAN BEEKEEPING FEDERATION needs your support; participate in national affairs; receive six issues of the NEWS LETTER per year. The ABF, Rt. 1, Box 62, Cannon, Falls, Minn. 55009.

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THE INTERNATIONAL BEE RESEARCH ASSOCIATION regularly publishes new information on bees, beekeeping, and hive products, for beekeepers and scientists all over the world. Consultant IBRA Representative for USA: J. Engelhardt, 1500 Maywood Avenue, Ann Arbor, MI 48103. IBRA PUBLISHES: **Bee World**, a quarterly journal for the progressive beekeeper. **Apicultural Abstracts**, a survey of scientific literature from all languages. **Journal of Apicultural Research**, for original bee research papers. Books and pamphlets on all beekeeping topics. Catalogues of publications and details of journals and membership $1. Specimen 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.

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TOO LATE TO CLASSIFY

1,000 HIVES in excellent condition. No AFB. Locations, extracting equipment, building, trucks. Will consider selling part. A. G. McConnell, Meadow Lake, Sask. Phone: 306-236-5388.

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The Revolutionary New HUBBARD Extractor

All the extractors have V-shaped sloping bottoms with large center drains. The extractor tank and reel are made of heavy 16-gauge 304 quality stainless steel. Note the continuous weld and reinforced construction on reel and tank.

Note the easy to use controls. The top dial is the speed control; the bottom dial sets the acceleration time.

Our family of extractors

The Hubbard Extractor comes to you complete and ready to use!! All you do is bolt it down and plug it in. The unit is all stainless steel with heavy welded construction. Absolutely **NO** lead soldered joints. The acceleration and speed are fully adjustable with convenient dial settings. The smooth, gradual acceleration (2 to 20 minutes) prevents costly comb breakage. The raised cone bottom allows free honey flow and easy clean-up inside and out. The Hubbard extractor is a quality food industry product, engineered for extended life and superior performance.

REMEMBER — YOU GET WHAT YOU PAY FOR!!

Model Number	2401	4401	8001
Frame Capacity	24 Deep/44 Shallow	44 Deep/60 Shallow	80 Frames
Voltage Required	110 volts	110 volts	110 volts
Motor Type	¼ Hp.	½ Hp.	¾ Hp.
Drain Diameter	2" FPT	3" FPT	3" FPT
Tank Height	34"	36"	38"
Tank Diameter	30"	38"	55"
Reel Diameter	28"	35"	52"
Shaft Diameter	1¼"	1¼"	1½"
Brake Type		Electric Disc	Electric Disc
Warranty	One Year Complete	One Year Complete	One Year Complete
Catalog Number	**HO 61050**	**HO 61070**	**HO 61040**
Price	$1250 Net	$1795 Net	$2350 Net

FRESH PACKED

Pure Bee Pollen

2 lb. Can $12.95

Postpaid in USA - Canadian orders add $1.

FOOD APPROVED GREASE

For Extractors and Food Handling Equipment. Packed in Tubes for Alemite Guns. ***$5.50*** per tube

THE FOLLOWING ARE NET PRICES — NO DISCOUNT

			9⅛"	6¼"	5⅜"
100	Hoffman Top Bar Std. Frames	#1	$38.00	$38.00	$38.00
400	Hoffman Top Bar Std. Frames	#1	136.80	136.80	136.80
1000	or more Hoffman Top Bar Std.	Comm. Grade	250.00	250.00	250.00
5	9⅝ Deep Supers, 9⅛ Frame	#1			28.85
50	9⅝ Deep Supers, 9⅛ Frame	#1			280.00
100	9⅝ Deep Supers, 9⅛ Frame	Comm. Grade			375.00
5	5⅛ Shallow Supers, 5⅜	#1			22.00
50	5⅛ Shallow Supers, 5⅜	#1			200.00
100	5⅛ Shallow Supers, 5⅜	Comm. Grade			375.00
5	6⅝ Shallow Supers, 6¼	#1			22.00
50	6⅝ Shallow Supers, 6¼	#1			200.00
100	6⅝ Shallow Supers, 6¼	Comm. Grade			375.00

HUBBARD APIARIES

ONSTED, MI 49265
Telephone 517-467-2051

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Root Extractors Are Dependable

L35

L10

L15

Every extractor is built with the same quality standards as our other Root products. They give you dependable service year after year.

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The L15, two-frame reversible extractor is unmatched for speed and convenience. Both sides of the combs can be extracted without removing.

For more information about Root extractors visit your nearest dealer or write one of the outlets listed below.

The A. I. Root Company

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