Gleanings in

MARCH 1980

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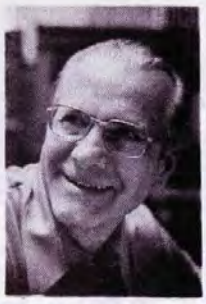

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Cover Story

Miss Frances Bean (center) of Texas was chosen American Honey Queen, Sheila Sasser (right) of North Carolina, American Honey Princess, and Kathy Stark (left) of Michigan the runner-up to the Queen and the Princess. The queen contest was part of the ABF convention in Dearborn.

Gleanings in Bee Culture

March 1980 (ISSN 0017-114X) Vol. 108, No.3
Created to Help Beekeepers Succeed
107 Years Continuous Publication by the Same Organization

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Monthly HONEY Report

LAWRENCE GOLTZ

February 10, 1980

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

Wholesale Extracted	Reporting Regions								
Sales of extracted, unprocessed honey to Packers, F.O.B. Producer. Containers Exchanged	1	2	3	4	5	6	7	8	9
60 lbs.(per can) White	42.00	31.20	32.10	31.80		38.40	31.50	31.25	31.20
60 lbs. (per can) Amber	42.00	29.40	31.20	28.50		34.80	29.40	30.20	28.30
55 gal. drum (per lb.) White		.52	.55	.52		.58	.51	.51	.54
55 gal. drum (per lb.) Amber		.49	.52	.50		.52	.48	.50	.50
1 lb. jar (case of 24)	24.50	21.65	22.70	20.50	33.60	22.00	21.40	22.85	24.55
2 lb. jar (case of 12)	24.00	21.15	20.00		33.00	21.00	22.00	20.75	22.13
5 lb. jar (case of 6)	29.00	23.00	23.20			23.50		20.95	23.94
Retail Honey Prices									
½ lb.	.90	1.10	.78		.70	.75	.71	.72	.74
12 oz. Squeeze Bottle	1.35		1.20	.95	1.30	1.05	1.15	1.12	1.14
1 lb.	1.35	1.42	1.44	1.15	1.70	1.15	1.25	1.16	1.35
2 lb.	2.55	2.39	2.25		3.45	2.15	2.43	2.04	2.41
3 lb.	3.80	3.19			5.10	3.40	3.75	3.15	3.28
4 lb.	5.00	4.49			6.10	4.35	3.99	4.40	4.50
5 lb.	6.00		5.40		8.10	5.00	5.04	4.97	5.44
1 lb. Creamed		1.39	1.40				1.42	1.32	1.36
1 lb. Comb	1.75		2.07	1.25	1.85	1.65	1.69	1.45	
Round Plastic Comb	1.75		1.65				1.48		
Beeswax (Light)	1.85	1.75	1.90	1.85	1.75	1.80	1.80	1.82	1.82
Beeswax (Dark)	1.85	1.70	1.85	1.65	1.60	1.75	1.75	1.73	1.70

Misc. Comments:

Region 1

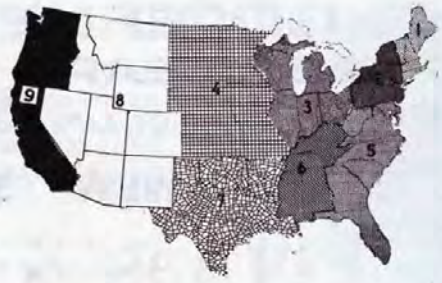
Honey sales slow in December and January. Gas prices seem to make customers travel more to one stop shopping. Bees in good condition but will need early attention. Warm and open winter through January.

Region 2

Honey sales slow to average throughout area. In larger cities of New York state, notably Rochester and Buffalo the competition is strong and honey prices are down. In smaller cities and country stores the prices remain higher. A & P continues to sell liquid and crystallized honey at $1.39 per pound, and they are as competitive as anyone in town. Bees wintering well to date.

Region 3

Honey sales have slowed a little. Layoffs in various industries and high living costs are cutting into sales. Honey producers may be in a squeeze for a while.



Winter mild so far with colonies in good condition. Beekeepers checking colonies early for feeding but colony losses should be below last two years if moderate conditions continue. Colder at the beginning of February.

Region 4

Honey sales are good. Winter very mild. Bees will probably need supplemental feeding. Losses may be light if winter continues moderate.

Region 5

Weather very mild so far this year. Bees using up stores and some feeding will be necessary in the early spring.

Region 6

Winter has been very mild through January. No winter loss as yet. Ample days for feeding lighter colonies and for some winter flights. If moderate winter continues bees may be active in early spring. Honey sales continue good.

Region 7

Warmer than average winter throughout the region. Brood rearing has started and some feeding has been necessary in Arkansas and Oklahoma, although stores reported adequate in other areas. Honey is moving very slow in stores in Arkansas. With gasoline prices going up the migratory beekeepers will be having a tougher time.

Region 8

Winter conditions through January

(Continued on page 161)

Bee Protection Task Force Meets

A DECEMBER MEETING of the Interdepartmental Bee Protection Task Force (IBPTF) in Washington was chaired by M. D. Levin SEA-AR. It was suggested that an apiculturist be added to each of the four regional integrated pest management planning groups.

Phil Gray, EPA-OPP distributed copies of the EPA "Outline of Protocol for the Reporting, Sampling and Investigation of Pesticide Incidents Resulting in Honeybee Kills". The protocol outlines the procedure for collection and submission of samples of killed bees for pesticide analysis. Samples will be accepted by the thirteen projects of the epidemiological studies program. The present proposal limits the analytical services to those beekeepers whose colony losses exceed 25 colonies per spray incidence.

Pesticide registration guidelines will include a section dealing with pollinators in the future.

A report was given on the Denver Entomological Meeting. "It was apparent that Pennwalt Corporation would not accept responsibility for bee kills when residues of methyl parathion were found in dead bees, even though Pencap-M was sprayed in the vicinity of the affected colonies of bees, unless the presence of the microencapsulated formulation could be proved". The meeting participants heard this information from Dr. H. Shimanuki who had attended the Denver meeting.

Phil Gray noted that EPA had informed Penwalt that the company would be required to develop an effective chemical method of detecting the microencapsulated material when applied to crops. They would be given one year to develop such methodology.

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Gleanings Mail Box

Dear Editor:

I have clipped and enclosed the very timely article which appeared in the **Wall Street Journal** of January 15, 1980 pertaining to the "Taming of the Killer Bees" no less.

Actually I expected to hear about this development from a bee journal sooner and with more scientific reporting.

So the killer bee danger has been diluted down to nothing by natural genetic interplay — in Brazil.

Let us give a good play to this development and reassure the populace that they can relax and that there is no great danger remaining.

A subscriber
Dearborn, Michigan

(We received the clipping "Brazil Is Abuzz In Honeyed Sound of Reformed Bees", from the **Wall Street Journal**, Tues. Jan. 15, 1980, Page 1 from a number of people who apparently read it and feel reassured that the African-Brazilian bee problem has vanished: That American beekeepers "have nothing to worry about." Not so, says Dr. Orley Taylor in his recent report to the American Beekeeping Federation in Dearborn, Michigan. Dr. Taylor of the University of Kansas had just returned from Venezuela where he had studied their behavior and the bee's impact on the communities among which they are spreading. People and livestock continue to die from stings, beekeepers are giving up beekeeping and the temper of the bees is unabated by crossing with European bees. The productivity of these hybrid bees is not as great as has been previously reported, it is said.

Your are correct. **Gleanings** had not reported on the Brazilian bees in 1979 although a number of reports were published earlier (1973, 1974, 1975, 1976, 1977). Frankly we had hoped that we had heard the last of the "African bees" — but now we wonder.

Editor

Dear Editor:

In respose to Francis Holmes' question of floral and extra-floral nectaries on Oak trees: (**Honey Plants**, 108 No. 1, page 17).

In July of this past year I observed honeybees in audible numbers freely collecting a clear, non-floral secretion from a bract-like nodule on semi-hardwood branchlets of *Quercus agrifolia*, our California live oak. I had to scale a roof to forty feet above gound level to get to the height of the working bees. This older tree is situated on the inland side of the coast range at the bottom of the Redwood belt here on the San Francisco Penninsula, and is in an irrigated ornamental garden. This is the first and only tree I have ever observed with such a "honeyflow" other than the usual pollen the bees collect when the live oak is blooming in early spring. One could hear the bees foraging from quite a distance for several weeks.

On the ocean side of the coast range I get a substantial crop of a dark bitter nature from the tan-bark oaks. I've heard it called oak-gall honey dew but tend to now think it's probably from a similar extra-floral nectary. It annually ruins any better wildflower honey in the combs; this year I think I'll give up hope of getting the light wildflower honey I've dreamed of when I moved my bees to this otherwise poor bee area. A small isolated stand of chinquapins in these wood also secrete floral nectar nearby in late summer, but I at this time can offer no observations on the color or taste or quantity of this source.

Oliver D. Frank
San Mateo, CA

Iowa Regulations on Pesticides

OWNERS OF apiaries, in order to protect their hives from pesticide applications, shall register the telephone number where they can be reached and the locations of bee yards on forms DOA #10, Apiary Registration Form provided by the department, with the state apiarist, before May 1 of each year. Within thirty days thereafter, the department shall provide each ASCS office with information of such locations indicating township, section and range of bee yards in that county, along with the telephone number of each registered owner.

Prior to application of any pesticide that indicates on its label that it is toxic to bees, the applicator shall determine if the field is within a two mile radius of any registered bee yard by contacting the county ASCS office or calling 515-281-3561 during hours when the ASCS office is not open.

The applicator shall give notice to the owner, the owner's agent or a member of the owner's family at least twenty-four hours and no more then seventy-two hours prior to such application. Owners of apiaries, in order to protect their hives from such pesticide applications, shall man the telephone designated on the Apiary Registration form; or, in the event that the owner, the owner's agent or a member of the owner's family will not be available at the designated telephone number, said owner shall call 515-281-3561, provide an alternate telephone number where he can be contacted, and be available at that number.

If an applicator, after diligently attempting to do so, is unable to reach the owner or other appropriate person at either telephone number, he/she shall call 515-281-3561. A representative of the department shall make one additional attempt to give proper notice by again calling both telephone numbers. If the applicator and the department are not successful in contacting and notifying the owner, the owner's agent or a member of the owner's family by calling both telephone numbers, the owner of the apiary shall be deemed to have been duly notified; and the applicator may apply the chemicals as requested.

Pesticides may be applied earlier than twenty-four hours and later than seventy-two hours after notification of bee owner, with consent of the bee owner.

For further information please contact Mr. J. D. "Bud" Hook, Assistant Secretary of Agriculture, Henry A. Wallace Building, Des Moines, IA 50319. Phone 515-281-8610.

Producing Comb Honey

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

I HAD NOT fully realized the extent of the interest in producing comb honey that prevails across this country until I helped teach a short course in beekeeping this past summer.

This interest is among beginners, amateurs, and small operators, not among commercial beekeepers. And what is more natural? Beginners know about the high quality of comb honey, especially if it's basswood, as was the case at the time of the short course I referred to. New York has had a fine flow of basswood nectar now for two years in succession. Sumac, too, yielded more heavily than usual — and for a longer period than normally.

Both of these two good flows were perhaps improved because of the drought, or near-drought, that has prevailed here this season. These two blooms, as you know, are from growths that have their roots down deep enough to reach the minimum of moisture required. The same is true of alfalfa when it is not true of so many other blooms that have shorter roots. A dry period tends also to extend the yielding period of growths with long roots. It doesn't hasten their maturity as a wet season tends to do.

Beginners favor producing comb honey not only because it is a product that is perhaps even more delicious than liquid honey, but its production does not necessitate getting into the extracting process which many beginners shy away from.

Quite a few at the short course asked me about producing section honey in the 4¼ by 4¼ by 1⅞ basswood frames, or about the Cobana sections that are relatively new, the latter having come on the market in the 1950's.

In a restricted and moderate way I told them to forget about the comb honey sections and about the Cobana sections, and to concentrate on the advantages of producing cut comb honey — unless, of course, they already had equipment for one or the other of these two types.

I did this because I truly feel it is the preferable plan. I'll tell you why before I finish this article.

Section Comb Honey Production

One should not attempt to produce comb honey of the section type or the Cobana type unless he has a strong colony as a point of departure; this is because bees somewhat dislike to work in the narrow, crowded area these two methods demand. To produce a good crop of section honey one needs to reduce the dimensions of the colony brood chamber to one hive body. Some even use a half depth hive body as the brood nest. Some even use foundation in the frames of the brood nest in order to concentrate the efforts of the colony on the supers of sections above the brood nest.

I have never operated that way, nor do I believe it is the more desirable method. My procedure has been to select a strong colony that was housed in two or more Langstroth size hive bodies, and to crowd most of the strength of such a unit into one hive body.

I have preferred to place approximately eight frames of capped brood into the one hive body together with most of the bees from the other frames, and one frame in which the queen can continue to lay. I often even shake most of the bees from the other frames of the colony into the one hive body.

This unit is set up on the colony's bottom board, and on the old location, I make sure, of course, at the start of the operation that the queen is on one of the nine frames in the now crowded unit.

Using frames of capped brood in a comb honey producing unit assures a large number of workers during what is usually a comparatively short season. If any other type of comb is placed in the brood chamber, the attention and effort of the bees may be devoted to them. We want them to concentrate on the comb honey sections above the brood chamber — and to be crowded to the point that they are encouraged to work in no other place.

No excluder is needed in this kind of set-up, as a rule, even if starter sections are placed in one or more corners of the comb honey supers. In the few cases that I have used starter sections (old sections from the previous year which were at least partially drawn out) I have never once had the experience of finding the queen laying there. Some comb honey producers tell me that they prefer to place their bait sections in the center of the super, not the corners, as I do. Such starter sections are not normally needed, in my experience, however.

The second and third hive bodies of the old unit I place on a stack of four or more hive bodies, set them on a bottom board on a separate and somewhat removed location, give them a queen, and leave them to do what they can with their depleted strength. If the season is a good one, such stacks will usually concentrate their forces in one or two hive bodies of the stack as soon as the brood in any or all of them is hatched. Often they will build up to rather good strength if left unmolested. Meanwhile all the combs in the stack are reasonably safe from moth predation because the bees will protect them.

I make it a practice not to establish a section comb honey producing unit until the main flow of nectar has just begun. The chief reason for this is to avoid encouraging the unit to begin swarming preparations; also, the foundation is sometimes damaged by the bees if given too early.

In my experience I find it best to place two or more comb honey supers above the brood nest at the start. Two are enough if one will visit the unit early enough to add more supers if they are needed. When the first super is nearly filled, I insert the second one just above the brood nest. In other words, I reverse the two supers.

Next comes the hardest part of the operation. Every seven, or eight days at the most, I examine the brood nest of each colony minutely to see if queen cells have been started. Some operators merely lift up the hive body that houses the brood nest — lifting it from the rear — to see if any queen cells are in evidence.

I am not content to do this because I frequently find queen cells that are not discernible from such a partial examination. Some do it that way, nevertheless. Such a procedure works better when the brood nest consists of two hive bodies. In such instances, cells, if present, are almost always detectable at the bottoms of the frames of the upper hive body. The bees do not always place queen cells where they are readily visible at the bottoms of the frames of a one-hive-body brood nest.

One of the important precautions to

observe in looking through the frames of the brood nest is not to hurt the queen. I first carefully lift out one of the side frames (where the queen is less likely to be) which helps in this regard. Then the other frames can be gently moved over into the vacant space before being lifted. When the second frame is lifted it can be put back in the position previously occupied by the side frame.

When queen cells are found they must be destroyed (or removed if one has use for them). Seven or eight days later the manipulation must be repeated because some units will persist in building cells.

If I find cells three time in succession (over a period of 21-24 days) I usually break up the unit and either make it into a liquid honey producing colony, or else (preferably) give its strength and assets to other units.

Colonies headed by queens less than two years old (preferably less than one year old) will build cells in much fewer cases than those with older queens. After all, a queen that is one year old, or less than two years old, is at an ideal age to head a swarm.

Only one entrance (at the bottom) should be afforded to a comb honey producing unit. The cover should be tight (partially to discourage the entry of moths which are ruinous to comb honey but chiefly to prevent or reduce travel stain.)

Some beekeepers place 28 sections in a comb honey super. I find 24 preferable (the space at the sides is filled with a follower board.) Often I use only 20 because I have plenty of supers, and the use of a smaller number encourages the bees to complete the sections more fully, and more rapidly.

Toward the end of the flow, when I have removed the supers that were completed by the bees, if I find some that are not fully drawn out, I place as few as six in the center of a super, filling out the remainder of the space with wood blocks of some sort, and place the super over a strong colony that has no supers at the time. If there is any nectar available, they will salvage these sections which otherwise, are largely useless except to use as chunk honey in a glass of liquid honey.

One problem in comb honey production is that at the close of the nectar flow such units have no second story of honey for wintering purposes — unless, of course, the location is blessed with a second or final fall flow. One has to figure in the cost of producing winter stores for comb honey producing units when setting his selling price for comb honey.

The Round Section Method

Producing the round sections appeals to many beginners. Such sections being round in shape encourages the bees to fill them completely. The bees sometimes dislike to fill the corners of the square wood-framed sections (the same with the 4 by 5 sections). The material of the round sections is plastic, and rather expensive. Also, there's a bit more access room to the round sections for the bees. Since they are smaller and weigh only about two thirds what a wood section of honey weighs, they are filled faster. Some producers say they can get a better price for them because they are light in weight in comparison with the wood sections. But since all sections must be marked for weight in some states, the buying public will not long be fooled.

The method of operating colonies for the production of round sections is essentially identical with that recommended for making the traditional wood framed sections.

Cut Comb Honey

Cut comb honey is usually made in shallow frames on thin foundation. Their depth is commonly 4¼ or 5⅜. The dimensions of cut comb honey are usually dictated by the dimensions of the container in which the cut comb is sold. The number of frames to be used in a super is optional with the operator. I should not recommend more than nine, preferably fewer. No wiring is used, of course.

Initially, two shallow depth supers of cut comb foundation should be given each producing colony. As soon as the bees have the bottoms of the foundation in the super next to the brood nest half drawn out, the two supers should be reversed in order to discourage the queen from laying there. An excluder may be used if necessary, but it is preferable usually to omit it. Follower boards of solid wood fill the unused areas in the super. It is a good plan to make up the supers in the winter time.

When the combs are completed they should be removed from the bees promptly in order to avoid travel stain, and their being daubed with propolis. This is not different from the situation when section comb honey is being made. Wax moths are a threat to these frames as they are to section honey. If it is feared that moths have infested them, they may be placed in a freezer for 24 hours or more. No chemicals are approved for use in this connection. There is good reason for **every** comb honey producer to freeze his sections, as indicated, because moths are almost everywhere, and **after** moth worms are discovered in one or more frames, it is too late to do anything about the matter. As I have pointed out in another article, moths cannot be totally kept out of a colony of bees, even the strongest one. They enter in the night and leave before daybreak.

The wood frames can be used year after year. They can be cleaned (after the comb has been removed) by placing them in boiling lye water for one or two minutes, then dipped in a fresh water bath, or hosed.

The combs of honey should be cut from the frames with a sharp, hot knife, then placed upon sheets of ¼ inch wire mesh to drain until dry. Twenty four hours should suffice. The liquid that drains from the cut combs can be used as desired.

Finally the cut sections are placed in plastic protective containers, called boxes or trays sold by bee supply dealers. Such a package normally has a net weight of approximately ten ounces. Cut comb honey can also be used as chunk honey in liquid packs in glass. If the comb is not completely capped, it still looks fine in a liquid honey pack.

Advantages in Producing Cut Comb Honey

I predict that the production of cut comb honey will substantially eliminate that of section honey — both the wood frame type, and the round sections — just as the production of liquid honey has all but eliminated the production of comb honey.

The arguments in favor of cut comb honey production over that of section honey are rather convincing. For one matter, there is no abnormal crowding of bees in a cut comb honey super. The combs need to be no closer to each other than in a liquid honey producing super. This means that the working quarters in this situation are no more uncomfortable for the bee, no more confined, than in a regular liquid honey producing hive body. Secondly, elimination of crowding reduces the inclination to swarm — a problem that has always plagued the producers of comb honey in the wood, or round plastic frames.

Further, cut comb honey can be produced over a brood nest consisting of two regular Langstroth hive bodies, or over one consisting of 1½ hive bodies. I do not like half depth brood frames, chiefly

because they are not interchangeable with the standard size; but I am compelled to admit that colonies wintered in 1½ supers do all right if the operator makes sure the unit has adequate stores.

An operator can secure more cut comb honey over a brood nest consisting of only one hive body, but then that colony's winter stores are going to be drastically short. There is no reason why a colony of bees will not make as many pounds of cut comb honey as of liquid honey — no matter how many or how few brood nest hive bodies are used.

Cut comb honey brings a far higher price than liquid honey (at least twice as much) so it should be a profitable operation financially. It's true the foundation must be replaced each year, but that is true also with section honey. And the time spent on extracting, settling, and packing liquid honey is considerable.

How the foundation is fastened in the frames depends, in part, on the type of frame used, that is whether it has a slotted top bar, or whether the top of the sheet is nailed in or secured with wax. I prefer nailing, I do not advise the use of partial sheets (starter comb).

An experienced seller of comb honey told me recently that when he hawked his wares in a Boston open market, a section of comb honey in one hand and a plastic tray of cut comb honey in the other, the latter sold 30 to one. He didn't definitely know why. It could be that the plastic container gave greater assurance of security against damage, breakage, etc.

If one is a capable mechanic, I see no good reason why he should not try his hand at making cut comb honey frames. The matter of width is important in order to secure rather uniform weight, and for spacing purposes.

The production of cut comb honey is so similar to the procedures used in producing liquid honey that one is substantially freed of the problems peculiar to section honey production.

Removing Comb Honey from the Hive

This manipulation calls for care since the bees may uncap rather large areas of cells if not driven rather quickly from the supers once the operation has begun. The process is least difficult with cut comb honey.

Bee escapes help to avoid this trouble though their use gives the moths a greater opportunity to enter the comb honey area and lay their eggs there. The Porter bee escape is probably the best.

In a article published in **Gleanings** I described a home made bee escape device commonly used by many Canadians. It consists of a series of two or more V shaped strips on the under side of the inner cover, the large end of the V originating at the hole in the inner cover.

There are always some bees that are difficult to drive down out of a super. The use of smoke often encourages the more tenacious ones to uncap cells of honey at the bottom of the comb honey super, thus damaging the combs for sale. I have had best success in using just a small puff of smoke to get the bees started, followed closely by the use of a fume board on which Bee Go or some similar repellent has been applied. This method works rather well if the sun is shining, but the temperature is not too high, for example, in the mid-eighties.

Since repellents do not drive bees very far, if there is more than one comb honey super on the hive, all but one should be set off quietly on a clean support, and without even a single puff of smoke. Then the bees may be driven from each super in turn. The ones that have been set off have to be put back on the hive before the fume board is used since it is almost impossible to drive bees down out of a super unless it is on the brood nest.

A problem arises if any super has a space at the top or bottom greater than ⅜ inch. In those cases the bees tend to build burr comb and put honey into it. When the supers are pried apart, the honey drips down on to the super below and if allowed to continue, may hurt its sale value by smearing it with honey. Such a super, if discovered in time, should be set off on a separate stack.

It is good practice to have bottom boards with entrance closers ready to use, also tight covers, particularly to discourage robbing which is likely to occur at such times. The use of too much smoke when removing comb honey is almost certain to cause the uncapping of cells at the bottoms of the combs. Not a single bee should be left in a super of comb honey when they are transported to the honey house and stored there.

A dry storage room is essential else the combs absorb too much moisture. Sometimes a fan can be brought into use; at other times a dehumidifier is needed. The absence of moths in the storage room should be definitely assured.

I suspect that many of you will be producing cut comb honey — chiefly because it can be produced in greater quantity on a given colony, brings a better price than liquid honey, and causes less swarming than when sections are used.

Source Consulted

Morse, Roger A. **Comb Honey Production**. Wicwas Press, 425 Hanshaw Road, Ithaca, N.Y. 14850. 1978.

New Visual Aid Program From Israel on Beekeeping

THE PURPOSE OF the material in this kit is to help in the teaching and promotion of modern beekeeping methods. It may be used by instructors in their field work and courses, to stimulate interest for beginners as well as to transmit knowhow to more experienced beekeepers.

The kit is based on many years of practical experience and experimentation by Israeli beekeepers and researchers. It presents the basic principles of modern and sanitary bee management through 40 color slides and explanatory texts. The development of modern beekeeping practices in Israel is described by Yeshayahu Stern, Director of the Department of Beekeeping in the Ministry of Agriculture, and an authoritative discussion of bee diseases and their treatment and prevention is presented by Dr. Jochai Weis, Veterinarian for Bee Diseases, Veterinary Services, Beit Dagan. A future kit will deal with bee biology, bee breeding, seasonal work schedules, pollination and advanced mechanization.

Israel, the "land of milk and honey," has a history of beekeeping going back to biblical times. Today, its bee industry is among the most modern and efficient in the world and it can serve as a realistic model of development from "natural" beekeeping to modern management. Through this kit some of the valuable experience gained in Israel may hopefully be shared with beekeepers around the world.

PRICE: U.S. $30 each

AVAILABLE FROM: The Israel Association for International Cooperation P.O.B. 13006, Jerusalem, Israel

Honey Adulteration, Pesticides Are Concerns At 36th Annual A.B.F. Meeting

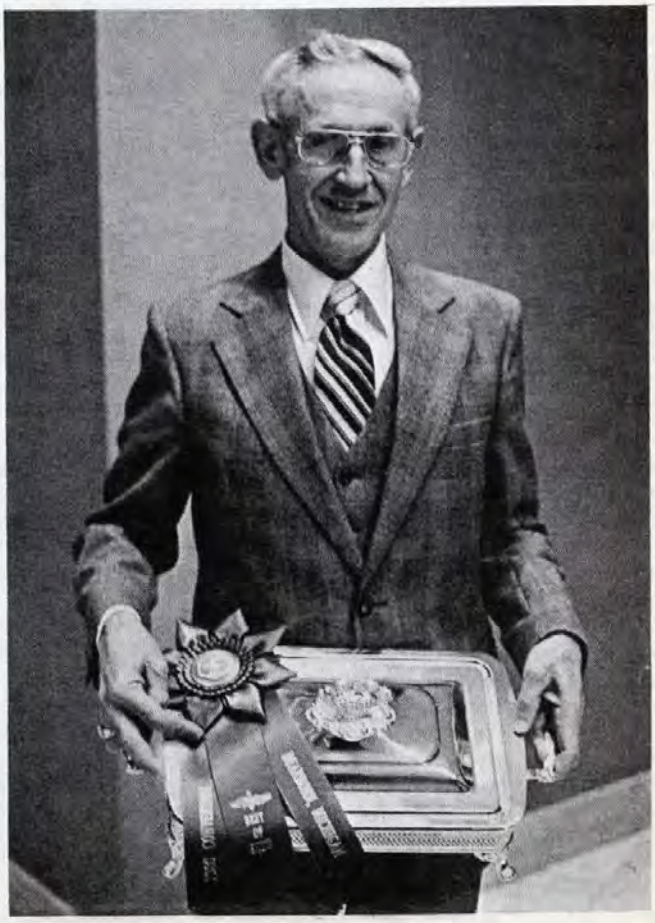
By LARRY GOLTZ
Medina, Ohio

THE 36th ANNUAL American Beekeeping Federation meeting at the Hyatt Regency Hotel in Dearborn, Michigan began on a somber note for those attending the breakfast meeting of the Honey Industry Council which sounded an alarm about the reported practice of marketing adulterated honey. An adulteration task force with Charles Adams as chairman and Robert Rubenstein as counsel has been actively pursuing information about the most flagrant violators. Samples of suspected honey are being sent for analysis to the laboratory of Dr. Jonathan White in Navasota, Texas. In 1979, out of 49 samples of honey tested, 14 were found to be adulterated. The tests used to detect adulteration of honey were developed by Dr. White formerly of the U.S.D.A., who now operates the private testing laboratory. The tests used to detect adulteration are the Isotope Ratio Analysis and a back-up test, the T.L.C. test, at a cost of $60.00 per sample.

"It is easier to head off the authorization to use a harmful pesticide than to have it removed from the market" was the opinion expressed by Phil Gray of the EPA who addressed the convention on Thursday. "We need more than dead bees and the statements of beekeepers to prove in court that microencapsulated pesticides are causing the bee kills being experienced", said Gray. "We need hard data." Explaining the need for a program of analytical methods needed to place a pesticide on a restricted basis Gray emphasized that there must be more research done on the pesticide assessment studies, guidelines for use classification and analytical methods to identify killer pesticides. The EPA hopes to take a more active role in testing encapsulated pesticides in the future. The EPA will assist individual beekeepers in reporting bee kills. Twelve directors will be designated in the United States to receive the documented bee kill reports on losses of 25 or more colonies of bees. This will give, it is hoped, concrete residue analysis as evidence from the kill site.

Speaking as an affected beekeeper Arnold "Bud" Hilbert of Traverse City, Michigan made an emotional appeal for all beekeepers to "save the bees by uniting to promote research and education". He cited the losses to three Michigan beekeepers, numbering over five hundred colonies killed or damaged, in his area the past season. He pointed to this as indicative of the seriousness of the threat to commercial beekeepers. "Swarming", he said, "is no problem here but the pesticide losses certainly are. What's going to happen if contaminated pollen from areas treated with microencapsulated pesticides is eaten?" he asked. "We need more research, especially since pesticide losses may eventually affect everyone who keeps bees," he added. "It takes twice as many bees to produce the same amount of honey since modern pesticides have come to be used extensively" said Hilbert, who produces cut comb honey from 1,200 colonies of bees.

Dr. William Wilson of the Laramie, Wyoming U.S.D.A. Bee Laboratory leads research on bee diseases and pesticides. Bee behavior studies are conducted in the laboratory and in the field. An interesting comparison was made between the destruction of one apiary, for example, and the loss of ten dead cows. "The impact of 50 dead cows (roughly the equivalent of five dead apiaries or, the value of approximately 1,000 dead colonies) would cause people from across the country to rush to the kill site demanding an explanation and action to correct the cause" said Wilson. "With bee kills this simply does not happen," he said. Dr.



G.D. Hieronymus of Somerset, Kentucky won the best of show with his creamed honey entry. He also won first place in the chunk honey category.

Officers of the Honey Industry Council are pictured after their election. Left to right, Dr. Jonathon White former USDA research chemist who developed the sophisticated analytical methods for detecting invert sugars in adulterated honey, will serve as secretary treasurer, second term president and vice president Don Schmidt and Chuck Adams and Robert Rubenstein legal counsel.

Wilson called for better pesticide advice from agricultural consultants, better controls on pesticide applicators and more cooperation between beekeepers and pesticide users. He acknowledges that pesticides are necessary but says that the beekeeper cannot be expected to assume full responsiblility for avoiding bee kills.

Speaking for his Michigan Department of Agriculture Disease Inspection Service, John Dreeves said all restricted pesticide use in Michigan must be reported. Although evidence of microencapsulated pesticides has not been found in food samples by the food inspection service he warned that the encapsulated pesticides used on cherries are now being used on apples as well, and greater discretion by applicators is needed as encapsulated pesticide use increases.

On a less serious note, the queen competition was between state honey queens from Tennessee, North Carolina, California, Michigan, Pennsylvania, Kansas, South Dakota, Minnesota, Texas, North Dakota, Ohio and Nebraska. Miss Frances Bean of Texas was chosen 1980 American Honey Queen. Sheila Sasser of North Carolina was picked American Honey Princess and Kathy Stark of Michigan was runner-up in the queen contest.

Not nearly as universal a problem as adulteration and pesticides, bear damage to apiaries nevertheless constitutes a concern to beekeepers who operate apiaries in remote areas. Dr. Clarence Collison of Pennsylvania State University showed slides taken of bear-damaged apiaries and described several plans for protecting apiaries by electric fencing. "Bear damage may increase due to beekeepers being forced into bear-populated areas" said Dr. Collison. "We must learn about bear behavior" he said, and proceeded to give listeners a detailed description of the black bear and its behavior. Compensation is paid by some states and provinces of Canada but in Pennsylvania it is ruled the hives must be within 300 yards of the beekeeper's residence in order to be eligible for compensation, said Collison.

The latest development in the apiary inspection service, according to Eugene Killion, State Apiarist of Illinois, is the adaption of a standard inspection certificate.

Mr. Killion announced that the honeybee stamp first day cover issue has been scheduled for Paris, Illinois in October. Paris is the hometown of Eugene Killion whose late father, Carl had worked for a number of years on having a stamp issued honoring the honeybee.

The need for cooperative action by beekeepers received attention from several speakers. Binford Weaver, Vice President of the Federation said every Congressman has a beekeeper in his district and it is up to the beekeeper to take the initiative in writing to his Congressman about current needs and problems of the industry. Courteous letters, to the point, will have a great impact, was the message passed on to the convention audience by Mr. Weaver.

Dr. Gordon Guyer of the Michigan State University Cooperative Extension Service said help is available for beekeepers but they need to pull together. Help can come by way of government agencies by political representation, from land grant universities, by way of industry spokesmen and through educational information.

Factors in bee nutrition, particularly relating to finding an acceptable pollen substitute was the subject of a report by Dr. Elton Herbert of the Beltsville Laboratory of the U.S.D.A. "Natural pollens vary in nutritional content" said Dr. Herbert; "all the way from about 10% to 40% protein." The difference depends upon the flower source, soil and other factors. The best protein feeding content has been found to be about 23%. Wheast, no longer available, gave the best results in brood rearing tests on caged bees. Yeaco was next best and soybean flour the least effective of the three protein sources. A satisfactory pollen substitute may be announced in 1981 or 1982, predicted Dr. Herbert.

Beekeepers can and must "get the word out" said Dr. Malcom T. Sanford, Cooperative Extension Apiculturist of The Ohio State University. Beekeepers have the opportunity to use the uniqueness of swarms, for example, during the spring months and "bee calls" from concerned people during the summer to publicize and identify the value of honeybees to society through TV, radio, newspapers and at special events. Appearances on television shows usually involves less than two minutes and the groundwork can begin by submitting a short "scenerio" in writing to your local TV station.

"The honeybee queen has changed in the last one hundred years," said Charles Mraz, beekeeper and queen breeder from Vermont. "Natural selection was ruthless," said Mraz, "but the variation that is a part of natural selection allowed adaptations which grafting and artificial insemination hinders," he said. Modern queen rearing is built on a narrow gentic base and both good and bad characteristics are increased, was the assessment of Mraz. He cited several ex-

amples in history where bee stock overcame disease outbreaks or survived concentrated exposures to disease by the survival of the most resistant strains. "We have lost forever many of the most resistant bee breeding stocks," said Mraz.

Richard L. Adee of Bruce, South Dakota reduces winter loss and requeens his colonies by moving about 60% of his colonies to Mississippi from his northern locations and splitting them in the spring. He makes five nucs from each colony, introduces queens and then returns them to the North in the spring. They are loaded twelve per pallet into large semi-trailer trucks. It takes two hours to load, wet the load with water, net the load and tie it down for the trip north. "A tight schedule is maintained," said Adee. "The six dollars per colony cost of migrating bees is getting close to a cost/profit squeeze," said Adee. "We must be thinking about getting 60¢ per pound for honey in 1980 in anticipation of costs continuing to rise," he said.

W. A. Stephen, former apiculturist at The Ohio State University credited Langstroth with developing the idea of upward ventilation as well as bee spacing in his beehive. Failure to heed this need has cost today's beekeepers much unneeded loss during the winter, he said.

Dr. Orley Taylor, of the University of Kansas, speaking of his experiences in Venezuela reviewed the current status of the African/Brazilian hybrid bee to an attentive audience. The news was not good. The African hybrids are continuing to move northward, causing problems among the citizens of the countries which they invade and among the beekeepers who find them difficult to manage. Contrary to some reports the hybrids are not superior producers nor have the aggressive traits been eliminated by crossing with the European bees. "The African/Brazilian bee problem will not be solved by the Latin Americans," Dr. Taylor said, leaving the prospect of encountering them in the southern United States a possiblity in eight to ten years. The only positive development is that investigators are learning more about the behavior of our European bees as a result of studying the so-called "killer" bees in South America.

Canada's beekeeping industry was well represented both on the program and among the delegates. Professor Gordon Townsend said, "We are seeing vast changes in the beekeeping industry. Some of these changes are for the good but many have serious complications. The major honey producing areas of the world are now the Peoples' Republic of China, the Soviet Union, the United States, Mexico, Canada, Australia and Argentina, more or less in that order. The large importers of honey are found in the temperate zones and consist mainly of the German Federal Republic, Japan, the United Kingdom, the German Democratic Republic and the United States, and I would not be surprised to see Canada enter into this area in the not too distant future".

Bill and Wilma Ruhl of Portland Oregon are really in the silver these days having won 5 silver trays in the National Honey Show. Bill won first place ribbons in extra white, white, extra white amber and amber honey. Also first in sun bleached beeswax classes.

Dr. M. V. Smith, of the University of Guelph said queen breeders invest a great deal of time and effort in setting up and maintaining queen rearing nuclei. As a rule, each nucleus produces one mated queen every 12-14 days. By modifying the queen introduction schedule, they were able to obtain much improved production. Newly emerged queens are caged and introduced directly into a nuclei with a laying queen. When the old queen is removed the virgin is released from her cage. Acceptance is excellent and they will be looking at how the queens manage from there.

Tom Taylor, president of the Canadian Honey Council addressed the meeting to discuss wintering experiments in Canada. They have used one story hives packed with about 65 lbs. of honey and with four or six in a pack. Fiberglass insulation (R 30) is packed on sides and on top. Hives opened at -20°F. showed the bees to be moving around, not clustered. Some questions remain as to how 65 lbs. of honey and bees can be packed in a single story colony and why there appears to be no moisture condensation problems.

Dr. Tom Rinderer of the U.S.D.A.Laboratory in Baton Rouge presented his conclusions from experiments in Louisiana. They found that bees can be stimulated by adding extra comb space when the honey flow starts after first crowding them in the brood chamber. Colonies with extra supers tend to store more nectar during the honey flow.

Dr. Walter Rothenbuhler of The Ohio State University said research at O.S.U. showed that disappearing disease is not confined to certain genetic stock (at least those tested). Disappearing disease still remains an abberation, he said, and could be caused by a number of things. He gave a history of the disorder called variously, the disease of 1868, autumn collapse, spring dwindling, etc.

Many more events of interest to beekeepers rounded out the convention activities. The American Honey Show drew entries from across the country as did the exhibits of beekeeping equipment manufacturers. Tours took convention

visitors to other places of interest in the Detroit area.

The Womens' Auxillary program on Thursday began at 9:30 AM and concluded with a luncheon at 12:30 PM. Altogether, the five-day event was well planned and proceeded smoothly thanks largely to the efforts of the American Beekeeping Federation officers, the ABF executive committee and especially the host Michigan State Beekeepers' Association members who handled registration, promotion, programs, the honey show, exhibits, tours and a thousand other details which made the convention a success.

The host State of Michigan is the home state of keynote speakers, Lee Hubbard and Dr. "Bert" Martin. Their inspirational speeches opened the convention program on Tuesday. "The future of beekeeping is in the individual start at home" said Mr. Hubbard. His concern for the bee industry would begin only when "fear of loss (is) greater than the prospect of profit".

Dr. "Bert" Martin, recently retired from the United States Department of Agriculture, reviewed the early history of the Agricultural Cooperative Extension Service. "We do not need information on bees as much as we need information on the problems and on the importance of bees and beekeeping to general agriculture," he said. "We must fill important positions, now vacant, in the Federal Research and Extension Service with apiculturists," Dr. Martin said.

The 1981 ABF convention will be held in Seattle, Washington.

Resolutions

Resolutions of the ABF included proposals on such issues as prosecution of honey adulteration cases and the importation of pollen. An issue of rather recent concern has been the importation of pollen. It was resolved that the ABF request the USDA-APHIS ban the importation of pollen that is not certified to be free of pests that are harmful to the beekeeping industry. Along the same line it was resolved to ask a ban on the importation of Varroa jacobsoni for scientific study.

The U.S.D.A. is being urged to restore the printing of the Honey Production Report, Congress urged to issue supplementary funding and continue the bee indemnity program and expedite the appointment of an apicultural specialist to head up beekeeping research and extension in the U.S.D.A.

Congress is asked to amend the Farm Labor Contractor Act of 1963 to exclude beekeepers who employ labor for use solely in their operations. This would include amending the definition of "migrant labor" as it relates to beekeeping.

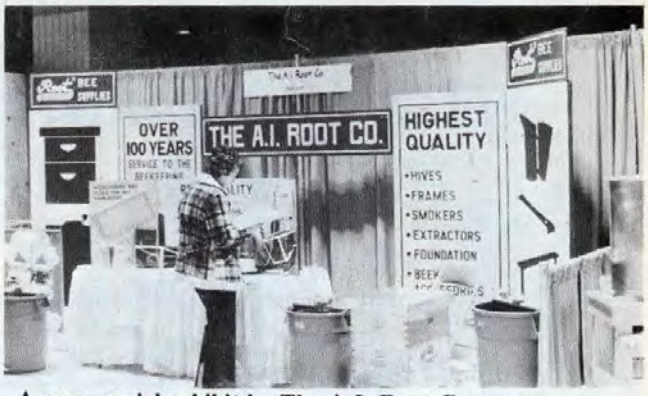
A resolution requests the EPA to ban the use of microencapsulate pesticides.

A financial report showed total income up in 1979 over the previous year but expenses were up considerably in 1979 over 1978. This resulted in a much lower income from American Beekeeping operations in 1979. Membership and honey promotion expenditures exceeded the budget in 1979.

The exhibits were extensive.

Ray Montague of Ovid, Michigan is interviewed for TV news.

Robert Holloway of Percy, Illinois exhibits comb honey produced on reclaimed strip mine land.



A commercial exhibit by The A.I. Root Company.

Steven Dilley, right, talks to Richard Adee of Bruce, S.D.

Canadians at the meeting are (L to R) Tom Taylor, Nipawin, Sask., president of the Canadian Honey Council; Jack Grossman, president of Billy Bee Honey, Toronto.

The Honey Show and trophy case.

W.A. Stephen (center) and Roger Hoopingarner judge honey.

Spring Awakens the Beeyard

By JOHN BOLF
Lake Oswego, Oregon

"The slanting sun is making a higher arc across the southern sky and the days are growing pleasantly longer."

SPRING BRINGS BLOSSOMS, bees and longer days. The sun embraces the hives with a radiant warmth and the blossoms are full of nectar. The hives are a dynamo of activity.

The waiting, like the winter, is of the past.

The trees and shrubs that were naked to the winter chills are now fully clothed in green and decorated in vibrant colors, daintily perfumed, in greetings of the new season. This is a time of the awakening of life everywhere; in the plants, in the wild things, even in the air itself. There is a sense of an irresistible urgency of putting into our individual preferences or convictions in the things that we had planned during the winter months, or experimenting in new directions.

February was a month of many rains. But all the days were not wet. There is a saying here west of the Cascades that in February we have fourteen days of sunny weather, and in checking back over the records I find that this holds quite true. There are exceptions, of course, but it appears to fit pretty well into the general pattern.

It was on one of these February days that I walked out into the beeyard and was elated to observe the awakening of the colonies after the wet winter months of confinement. But then, it was a sunny 54 F., and this kind of weather brings out the bees at any time of the year. The willow and hazel catkins were in their prime with pollen, though the willows are also a source of some nectar. They lost no time working them.

In preparing my colonies for winter in the previous years I placed a wood sliver ¼" thick in the two front corners under the inner cover for an upper ventilation. As an experiment I decided to cut a slot ¾ inch wide into the rim of one of the inner covers at the front corners and reversed it as the slots would serve as vents for an upper ventilation. **Gleanings** carried a story of similar procedure in the October 1977 issue. I am very pleased with the results, and by all appearances the bees are as well. This reversible inner cover simplifies matters in that no wood wedges are needed. All one has to do is to reverse the cover so the slot will permit free air movement from above the brood nest.

The slanting sun is making a higher arc across the southern sky and the days are growing pleasantly longer. The emerging month of spring is a month of many moods. It can bring showers and rains, blustering winds and pelting hail, and I don't have to think back too far to remember the outlying hills awakening from their night's sleep dappled with snow when the cherry blossoms were in bloom. But, too, the sun may come, in all its beauty and splendor so we find ourselves strolling into the woods in short sleeve shirts.

The call of mourning doves echoes through the woods in the early mornings. Humming birds make dashing flights to the Oregon grape, the quince, and to the feeder my wife keeps faithfully filled. Spring is a season of nest building, of blossoms bursting in ever greater numbers, of chipmunks begging for peanuts at the front door. It is a season of life, new and exciting.

The meadows across the road where cattle graze are abundantly sprinkled with dandelions and they look like gold coins glimmering in the sun. These are the first sources of nectar of consequence in the spring. Wild apple trees grow along the roadside in front of the house. Their dome-shaped tops are a solid mass of pinkish white blossoms. Here the bees, as in the meadows, are a song on tiny wings milling about the myriads of blossoms from dawn until the curtains of dusk are drawn.

Vine maple flowerets begin to open the later part of April. When I walk through the back woods where their lanky green-gray limbs arch away from under the canopies of fir trees, I hear them there, too. I look up and gaze at the honey insects vying for tiny droplets of nectar with the same excitement. The air is alive with bees in their hurried hop-flights from flower to flower. Spring's exuberance is magnetic.

Each day in this rush season a thousand bees emerge from the cells, a thousand bees that fly out into the fields, never to return. These numbers are figurative, of course, and will vary from time to time.

In the days of nectar flowers the bees will be hurrying about their outside work of foraging. In her expeditious trips a bee may succumb while about her duty outside, for so long as her fragile wings will carry her tiny body she will give her utmost to her calling of providing for the colony. Maybe darkness and chill will come upon her in her eagerness for another milligram of nectar before she turns homeward. Or perhaps her frayed wings, worn jagged by so many urgent flights, will, on one final trip, give out and leave her helpless and alone in the fields above which she had made so many safe journeys before.

I saw a bee come out of the hive. Her fluttering wings could no longer lift her dynamic form. She crept down the alighting board with the innate compulsion to lose herself in the sod. I picked her up and placed her back to the entrance, but she quickly turned away. Two or three times I repeated this gesture, but she responded like a spring toy that would always turn in precisely the same manner. Of her own free will she became lost in the turf of the beeyard. Some dissuasive voice forbade that she spend the last moments of her brief life in the peacefulness of the home to which she had given her whole self.

A bee that can no longer use her wings cannot revert to some useful duty within the hive. Instead, her gainful days are of the past. The shadows of finality close upon her. Without tribute, without honors, without dignity, she must accept the grim fate of uselessness. She crawls away into the land of the forgotten. She is never missed. She is but a discarded cell, replaced by a vigorous one. Her only purpose in life was that of the furtherance of the species, the perpetuation of the order of nature.

(Continued on page 163)

Beekeeper Floyd W. Alt of Moscow, Pennsylvania in a small apiary protected by a baited bear-proof electric fence. Photo by G.L. Alt.

Bears, Beehives and Beekeepers

By GARY L. ALT
Wildlife Biologist
Pennsylvania Game Commission

BEARS, BEEHIVES, and beekeepers have been around for a long time but not necessarily to each others delight. The hatred of bears by beekeepers is evident in numerous articles in the literature and is not an attitude that has just been developed in recent years. For example, in the February 1924 issue of **The American Bee Journal**, J. W. Winson stated, "A mule in a egg exchange, a cow in a garden or a steer in a drawing room is only a mild diversion compared with a bear in a beeyard". One of the most respectable things stated about bears by Herbert H. Selwyn in his March 1947 article in **Gleanings In Bee Culture** was that "Bears are no respector of persons".

To say the least, when one experiences the destruction of bee equipment, bees and honey, by bears, it is hard to pass fair judgment on the bear. The bee stings received by the beekeeper while attempting to salvage bear damaged hives, of course, only adds insult to injury and doesn't help the bears image any.

The titles of some articles dealing with bears and bees which have appeared in the literature seem quite humorous and almost silly at a glance but were actually written in sincerity. G. F. Percy wrote an article which appeared in the November 1934 issue of the **The American Bee Journal** entitled, "Do Bears Really Like Honey?" and three and one-half years later another article appeared in the same magazine entitled, "Bears Do Like Honey".

"Our primary research objective is to evaluate the specifications of electric fences that are required to effectively repell bears from enclosures with emphasis on cost."

The fact of the matter is that the first article told of how bears were disassembling beehives, leaving the honey and selectively consuming brood. In the second article, the opposite was observed. This type of selective feeding has been documented in other animals and may be caused by dietary deficiencies. For example, when a bear is deficient in protein one would expect it to seek out and consume brood which is high in protein. If the bear is interested in consuming quantities of carbohydrate, then it would focus its attention on the honey.

Advice on how to control bear damage to apiaries has also been a topic in the literature over the years. Rowe (1948) indicated that apiaries in bear country should be placed near occupied dewellings where the people have dogs that "know and hate bear". Specifications of equipment and advice on installation of elaborate electric fences to protect apiaries from bears were discussed by Storer et al. (1939), Dacy (1939), and Doughty (1947). White (1948) stated "I

An empty hive body makes an excellent place to store the electric fence charger and battery to protect it from the elements. Photo by G.L. Alt.

wouldn't give two cents for an electric fence around one of our apiaries" and went on to explain how to poison, trap, and shoot bears. Reading White's article made one believe he enjoyed killing bears more than he did raising bees.

The placement of apiaries on top of elevated platforms is a popular technique used in some of the southern states to prevent bear damage. This practice is extremely expensive on a commercial level but works fine if you can keep the bear off the platform. If you can't, bruin will often play "king of the mountain" and what he doesn't destroy on the platform may often be destroyed when it hits the ground.

In Pennsylvania, as in many states and provinces, the bear-beekeeping conflict is a serious problem that must be contended with by the Game Commission. Accordingly, we have initiated research on finding ways to avert bear damage to apiaries. The relocation of nuisance bears has been a rather successful technique in Pennsylvania (Alt et al. 1977) but is time consuming, expensive, and has resulted in rather high road mortality of bears after relocation.

Presently we are testing the effectiveness of electric fences in protecting apiaries. Preliminary results suggest that they are extremely effective if constructed and maintained properly. During 1979 ten apiaries that had experienced bear damage were fenced. Many of them had a long history of bear damage several times annually. Subsequent to the construction of these fences no bear damage was recorded at any of the sites, yet bears were known to frequent the area and were observed within a few yards of three of the apiaries.

Our primary research objective is to evaluate the specifications of the electric fences that are required to effectivly repell bears from enclosures with emphasis on cost. In other words, anyone could build a bear-proof enclosure if money, materials and manpower were unlimited but few of us have these resources in unlimited supply and in general, the cheaper the more likely it will be used.

Described below are the specifications of an electric fence that is relatively inexpensive but has worked very well to protect bee yards from bears in Pennsylvania. Three strands of 12½ gauge, 4-point, barbed wire were strung on posts 10, 20, and 30 inches above the ground, respectively. (Bears are more likely to attempt to go under fences than over them.) Metal posts were placed roughly 10 feet apart and an effort was made to keep the wires as tight as possible. Wires were attached to metal posts using conventional insulators and wire clips.

Two wires come from the fence charger; one to the ground rod, the other to the barbed wire fence. Notice that a wire must connect all three strands to electrify them. (Note arrows). Photo by G.L. Alt.

Gate hooks should be installed on each of the wires at a convenient location to allow vehicles easy access into the fenced apiary. Photo by G.L. Alt.

At least one piece of suet or bacon rind was attached to each of the wires between each of the posts. This can be accomplished by wrapping it around the wire where the barbs are, or better still, to attach it using a short wire. Bait should be replaced

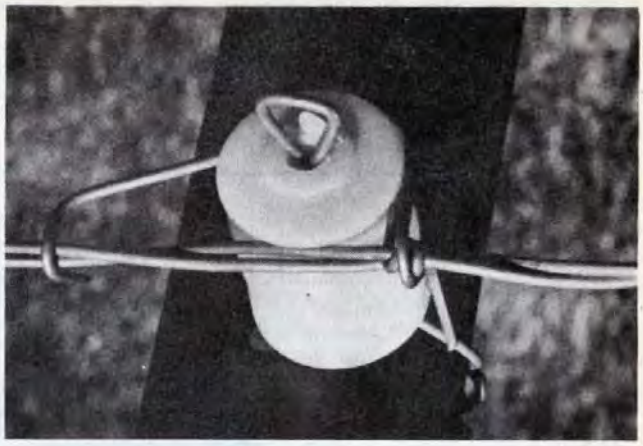
as needed. Bait, of course, directs the bears tongue, lips or nose to the electrified wire for the shock of its life. On one occasion we observed a bear to run headlong into a tree after being shocked!

Gate hooks were installed on each of the wires at a convenient location to allow vehicles easy access into the fenced apiary.

A 12-volt fence charger, powered by two 6-volt dry batteries connected in series, were placed in an empty hive body to protect them from the elements. A rechargeable car battery can also be used. Also, chargers can be purchased that run from direct current if electricity is available at the apiary. Two wires must run from the fence charger. One goes from the charger to the barbed wires and relays the electricity to the fence. The other is a ground wire that goes from the fence charger to a ground rod. We used a four foot copper rod as a ground. Nearly all of the supplies mentioned above are readily available at most farm supply stores along with instructions on installation and maintenance.

In terms of maintenance there are several things which are not worthy. Preventative measures should be taken to keep grasses, weeds or woody stems from growing up and shorting out the wire. Trimming with a weedcutter is effective but has the disadvantage of requiring an effort every few weeks. A more practical approach may be to apply a small amount of herbicide directly below the fence (check with local restrictions first) or place a narrow strip of felt paper, about twelve inches wide, on the ground below the fence. Also, it is strongly advisable to purchase an electric fence tester and routinely test the fence for electricity to make sure it is working. The fence itself poses very little in the way of a barrier for a bear. It is the electricity that makes it effective.

A list of materials and estimated cost for construction of an electric fence to protect apiaries in enclosures between 20 and 100 feet square are supplied in Table 1.



A closeup of the proper installation of barbed wire on a metal post using a regular insulator and a wire clip. Photo by G.L. Alt.

A closeup of the proper installation of barbed wire on a metal corner post using a corner insulator. Photo by G.L. Alt.

Three strands of barbed wire should be strung 10, 20 and 30 inches above the ground. Strips of suet or bacon rind should be tied to the strands with fine wire, or wrapped at a barbed location, between each post. Also, be sure to keep the hives at least three feet from the fence so that the bear cannot reach through and do damage without touching the fence. Photo by G.L. Alt.

TABLE 1. Material list and cost for construction of an electric fence to protect enclosures between 20 and 100 feet square.*

ENCLOSURE DIMENSIONS	NUMBER OF FENCE POSTS	FOOTAGE OF WIRE	NUMBER OF REGULAR INSULATORS	TOTAL COST
20' x 20'	8	240	12	$107
30' x 30'	12	360	24	$118
40' x 40'	16	480	36	$130
50' x 50'	20	600	48	$140
60' x 60'	24	720	60	$153
70' x 70'	28	840	72	$163
80' x 80'	32	960	84	$176
90' x 90'	36	1,080	96	$186
100' x 100'	40	1,200	108	$199

*The cost of materials was taken from Agway Inc. Syracuse, New York, 13221 based on June 1979 prices. Also included in the cost is one fence charger, 2 6-volt batteries, 3 gate hooks, 12 corner insulators and a ground rod.

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A Clear Day In March

By TAEDE VISSERMAN
Hazelton, BC Canada

WHAT HAPPENS ON a clear day in March? That question was raised in my mind the other day on seeing a satellite picture of North America's West Coast from Mexico to Alaska. The larger part of this huge area was clear of clouds and lay there reduced, defined in a tiny 2x2 inch square. It was, said the caption, taken by a weather satellite on a clear day in March.

Now a persons inclined to be awed by such a scene. The very thought of seeing it all in one picture is impressive enough; to have it reduced to a clear 2x2 photo is awesome. Think just of the compression of the land mass. All those millions of square miles. Never mind the millions of people basking in the March sun. From this distance all the hustle and bustle is stilled and all motion undetected. The mountains puny bumps, their ranges even, mere ripples. The occasional clouds, such as they are, apparently glued tight to the earth below. It is, I'm afraid, a humbling picture, almost a miracle if you forget for a moment that this view of ourselves, our world, is man-made too.

On that clear day in March the only thing I have in common with the rest of the area pictured is that we all basked in the March sun. A person in Alaska would, that day, have shivered even as the sun shone, while a man in Mexico might have sweated in the coolest corner of his home. That beekeepers in California — and I think of bees on clear days in March — were getting geared up to shake packages, hurrying them along while in the Peace River country, where they would end up, only southern slopes are bare of snow. It seems we are, all of us, absorbed by our own micro pin-prick of space in the 2x2 square.

We have had the vast distance of the winter to travel through and no matter how many clear days there have been, clear days in March seem wonderous and full of light. They come as a surprise — not as a promise — and the only sure thing about them is that most every March we do have some. It's never certain though, when they may come, or how many. March keeps us in suspense. If they come late we set to thinking winter will never end. If early, that spring has already come — til a cold snap clamps that notion down again: Solidly.

On a clear day in March crows sit in the cottonwoods, wobbling in the breezes and caw in calls as sharp and stark as the limbs they sit on. Will they even cast a glance at the bee which is scraping and tugging at the pitch on the bud right next to them? Oh, I think so. Come summer and a mass of leaves muffles the clear edge on their voices. Now it is harsh, arrogant even, but so clear it's easy to forgive them their faults.

Chickens out for the first or second time in months take one look and fly. Fly crazily, as though having lost their heads and, coming to land on snow, stretch their necks and stand frozen, their eyes glazed with the brilliance all around. Those are the young ones, the old biddies single file across the muddy yard, remembering grain spilled by the barn last fall and, finding it gone, hurry past each other to peck at the grass tips shooting out along the walls. The old rooster jumps with hardly a

flap until he lands on his favorite rail and, challenging all creation, flaps hard and crows. A cautious, nosy bee enters the henhouse and finding nothing, zooms for the window where, when summer comes she will still be, mummified.

On clear days in March houseflys come from their crevices and cling on the sides of the barn like blue spring steel. Pass by and they spring away. Watch them and they make occassional quick arcs like sparks between points along the wall. Or hang idly absorbing the sun, regaining life and readying to breed with casual abandon.

On the yard the first robin might be hopping among the ice mounds and mud. She will stand, tilt her head and listen and hop on. She will do that a hundred times until she jumps to grab a housefly that has become too playful. The robin will keep hopping. For her these are the hard times, the barren welcome at the end of the thousand mile journey from the lower corner of that 2x2 photo. She doesn't seem to notice the bees or care.

But the cat, lounging in the sun, notices her. She slinks on the southern window sill, her hair all loosened up to let every ray reach in as far as possible. She is intent on that and watches the robin with only one eye and it only half opened. Her face is a grin of satisfaction.

Cows stand sideways to the sun on clear days in March and chew their cuds with half opened eyes. The black and browns of their hides become warm, even hot, while the white stays cool. Or they go exploring, in leisurely cow-fashion, testing the boundaries of the pasture again for the first time in months, tasting the wild rose bushes and hazel shrubs and eyeing the apple tree just beyond the barbed wire. They leave huge tufts of hair where some convenient snag reaches out to scratch for them. Calves, new born and frisky, trot in awkward circles, tails up. Or get stuck in snow they know nothing of and, bawling, raise a panic in their mothers who come running and chase away the innocent dog who creeps beyond the fence and gives her an evil eye before dozing off again. A bee standing on all six legs on the snow, notices only a shadow and keeps brushing her antennas.

On a clear day in March the roofs cry, as though they will miss the winter's weight. The warmer the day the greater their tears. I see roofs in March as mountains, with mountain freshlets in their eaves and great glaciers above. And oh, the bees are happy about this! They gather by these streams and trickles as though they were running honey. Great hordes of them exploring every shingle, tasting for the best. The purest? They soar back and forth to the hives where, at the entrance, they seem part of the shimmer of heat rising from the southern faces. They're so busy, so happy. There's something, finally, coming in!

Even in the darkness of the hives they sense the warmth about. The cleanup crews are busy tugging and gnawing at the mouldering mass their sisters left behind when death claimed them. The corpses come out with wings stiffly stuck out, catching at every obstacle, two or more survivors tugging at odds to keep it moving. Others roll little barrels of spoiled pollen out the door. Bits of waste wax, clamped tight between mandibles are carried out to the blue yonder. Cleanup is not yet in full swing, but it has begun. They've no faith in the keeper and his scraper whom, instinct tells them, will not come to do his job when he unpacks them in a month.

And so, on clear days in March where else might a person's glance stop? Where might his mind wonder as the sun shines kindly on him? The day will go down with the sun. There is no promise for tomorrow. Only a hope and if it doesn't pan out, a dream. A dream of spring, of other days, clear days in March.

Beekeeper Builds Innovative Equipment

By PATRICIA R. YUNKES
Hiram, Ohio

HAVE YOU ever been working your bees, and discovered you're missing a piece of equipment, or you've run out of fuel? It means a trip back to the house, retrieving the required object, then back to the apiary and starting anew. By this time the hive you were working is getting rather testy and the result can be disaster.

Gene Miller, a member of the Geauga County Bee Association, from Munson, Ohio, has solved this problem by building a combination work box and swarm retrieving box. Built to the dimensions of a small hive, the box holds all his tools and has room for six deep or shallow frames. Made of light weight plywood, the box has two tubular aluminum handles that swing together for easy carrying.

Each tool has it's place and Gene can tell at a glance if one is missing. Hung from hooks at one end are a standard and a specialized hive tool, while a smoker slides into its special place. The other end has an attached can with extra fuel and frame grippers. One side holds a bee brush and the other side a specialized nine frame spacer, cut from heavy aluminum.

The top of the box is a vetilated hinged cover, while a sliding bottom allows for easy removal of swarms.

The inside is like a six frame hive, with spacers on each end so the frames can't sway and bump each other. Gene stresses the importance of this as he may place brood in the box and doesn't want it disturbed.

Basically a box used in working hives, Gene thinks it's a great tool to have for

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Strictly Backlot

By CARL CALLENBACH
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Elizabethtown, PA 17022

IN MY OCTOBER 1979 "Strictly Backlot" column, in answer to a letter bemoaning the lack of bravado in contemporary swarm catching, I wrote: "Hiving a swarm isn't what it used to be . . . But it is time something is done about it. That's why I'm today initiating the first annual **How I (Heroically) Caught a Swarm Contest**." (The prize, as you may recall only too well, was to be a can of baby talcum powder.)

Never has a summons for innocent bluster, indomitable grandiloquence or, if you will, plain lying, fallen on so many deaf ears. Perhaps backlotters who hive swarms as part of their avocation don't care, like some fishermen I know, to distinguish between fact and fiction. Or if they do, maybe lying, they feel, loses something in print, is better done in the oral tradition. (For the second annual contest I am planning to accept cassette tapes on which swarming tall tales may be embellished with proper pauses, appropriate moderation of voice, and sound effects.)

There **were** a number of entries. And although some lacked the tall tale qualities of say, Mike Fink and Paul Bunyon stories, or a 1980 political campaign promise, all received careful consideration. After several months of intensive contemplation, inexorable pondering, not to mention procrastination, may I present the winner of the first **How I (Heroically) Caught a Swarm Contest:**

J. J. Bryant
13107 Locke Road
Lockeford, California

Here is his story:

"This spring I received a phone call from a Mister Huddleson. Would I take a swarm of bees from a tree in his garden?

I said at my age — 82 — I don't climb trees. Could I cut the limb? He said O.K. I took a saw and beehive to his garden.

He said, How will you get them in the box?

How will I get them in the box? Oh, I will talk to them!

I cut the limb, picked it up and threw it over the fence. With my foot I kicked in the dust to see which way the wind was blowing and placed the hive so the air would blow from the hive to the bees.

I picked up a handful of bees and said, Now girls, I brought you a new hive, all new and wooden. Go in and look it over!

I waited until they came out, lowered their heads and started fanning with their wings. Then I started talking again: Come to your new home. It has passed inspection. Come march in. Then I said to the Huddlesons, Come close so you can see! I saw Mrs. Huddleson shake her head. In a few minutes they were all in the hive."

Mr. Bryant concludes his fine letter with: "In regard to that bottle of baby powder to be awarded to the winner, my granddaughter is expecting a baby. I hope it arrives on my 83rd birthday, January 12, 1980."

Happy Birthday, Mr. Bryant! (I met a fine gentleman, eighty years old, at a solar energy workshop last weekend. He was interested in the life span of fiber glass compared with the longevity of regular glass often used on solar collectors. He was building three collectors and didn't want to be bothered with replacing the covers. The workshop leader informed us that the fiber glass used for solar collectors was of high quality and should last for 10 to 12 years. The gentleman looked at me, winked and said he thought he'd have to go with regular glass!)

Neither age nor sex appears to affect (or effect!) the quality of swarm-catching heroics. Here are bits and pieces of two runners-up. Neither mentioned anything about great grandchildern, but they will also receive baby talcum powder trophies. What they do with the cans of talcum powder is their own business.

Mrs. Sylvia Inoue of Falmouth, Massachusetts, in the midst of her heart rendering of valor, writes:

"Mr. X phoned us about a swarm in his tree. I put a box in the car and my ladder and some rope. When I arrived, I found a fine, big cluster about 50 feet up. I lassoed the branch, shinnied up the remaining forty feet beyond the reach of the 10-foot ladder, carrying a box, snipped the branch which fell into the box and with no hands free, fell into a providentially provided springy yew hedge."

That surely is the stuff, the medium for tall tales. Then Mrs. Inoue becomes philosophical. She asks several questions worth consideration by all backlotters, fanatic or lunatic. She asks: "Why are bees up my husband's pants hilarious, but bees inside my veil not?"

Or, "Is a bee in his shoe funnier than one in my blouse midriff?"

These are difficult questions. I suggest she be glad, at least in this instance, that her husband is wearing the pants in her family. The answer to her second question is, quite frankly, "No."

Todd Planten (age 11) of Hawthorne, New Jersey, sets the stage for his personal heroics when he writes:

"It was Sunday May 6, 1979. I was working with my father and all of a sudden there was this loud hum and then a roar and they were off. My father said, Let's see where they're going! We chased them through the woods. I got scared when they were about 15 feet above my head . . . Finally they landed on a tree that was covered with extremely strong vines. I was left there to watch them as my Mom and Dad had to go out for a little while."

Pretty scary stuff. Todd handles the situation with aplomb:

"My Mom brought up a chair and I sat down to keep an eye on them until they calmed down. Two hours later my sister Kim brought my lunch and my tape player."

Sounds too easy. But wait!

"Three hours later there was a lot of activity and the next thing I knew they were swarming again."

(Question: What were you playing on your tape player, Todd? My bees like **Chicago** but, for example, swarm when they hear anything by John Denver.)

"I got up and followed them. While I was walking through a yard two dogs got up and scared me. I stood still. Soon a lady came out and quieted them down. I said 'Thank you', and caught up with the swarm.

"To make a tall tale shorter, Todd got his bees: We hived them. My father said I could have the hive if I wanted. It would be my first very own hive so I said, 'Yes'!

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Siftings

By CHARLES MRAZ
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IF YOU DO NOT already know it, the next Apimondia International Beekeepers meeting is going to be held in Acapulco, Mexico. Having visited many beekeepers in Mexico over the past 25 years or so, and lived with many Mexican families during that time I must advise all beekeepers, great and small, to make every effort to attend this meeting. Beekeeping is big business in Mexico and it will be a rare opportunity for many of you to visit this beautiful land of history and honey.

I have no idea what tours will be arranged but many tours can be arranged by individuals to see many of the interesting parts of the country. No doubt there will be tours to visit the beekeeping establishments of Miel Carlota, in Cuernavaca, Vera Miel in Veracruz, The Yucatan Beekeepers' packing plant in Merida, Yucatan, the beekeeping operation in Acapulco, and many others. Many United States beekeepers accustomed to large beekeeping operations will be surprised to see beekeeping on just as large a scale in Mexico.

Then, of course, many of you will want to see some of the fascinating "tourist attractions" of which there are many. And while you are in Mexico City do not fail to see the beautiful subway system. The trains are almost as quiet as a Rolls Royce, clean as a hospital and each subway station beautiful as an Aztec Palace. I was born and raised in New York City with the New York City subway system. The only comparison I can make is that the N.Y. system runs through hell and in Mexico City it runs through heaven. I know I'll be shot for saying this, but that is the way it looks to me.

Later, when it gets towards meeting time next year perhaps I can give some advice to those going to Mexico for the first time, advice that will perhaps help you to understand the people and conditions better and make your trip much more enjoyable. Having lived and worked with many of these people over the years and with a little knowledge of Spanish, I was able to learn many things about this beautiful country that may also help you to better understand. Right now, start learning some Spanish, even if it is nothing more than "gracias" and "por favor". The first of course is thank you and the second is used when you ask a favor. Literally, it means "by your favor", but used more as we do when we ask "Please, can you tell me....?" For instance, you ask "Where is the subway, por favor?", usually at the end of the request. It is but a small thing, but these small things sometimes mean so much to people you visit. Even if your Spanish is not good, use it; they appreciate the fact you at least are making an effort and will generate more respect and interest. There are many such little things one can learn.

Along these lines is the announcement in the **Ohio Beekeeping News Letter** of the need for beekeepers to go to Guatamala to help teach beekeeping in that country. I do not know much about Guatamala as a honey producing country but it is next to Mexico's Yucatan, noted for its honey production, so it should be good, I have heard this from all reports. As in any other country, the honey production will vary greatly in different regions such as coastal areas, east and west and mountain areas as well as the wet and dry areas. These all influence the kind and amount of honey produced. What the honeys are like can only be determined by trying a location for several years.

Normally a person cannot become wealthy in the honey production business but Central America, I believe, is an exception as you will see when you visit Miel Carlota in Mexico. A young fellow who knows his business could become a millionaire from honey production in Guatamala in a good producing area within 15 years. However, there are many "ifs", "buts" and "ands". First, you must have at least 5 years of good commercial honey production experience with several big outfits in the U.S., and have the knack of running a business. Next, you must learn Spanish and you must be single. An American on his own wouldn't stand a chance in the honey business in Central America. You must marry a beautiful daughter of a native family. You then become a native when you become a member of the family, with equal legal and "political" rights. This is important.

There are also many other problems such as "borrowing" a part of your honey crop by the "campasenos" or country people. Since you have more honey than you need, they see nothing wrong in taking some for their own use. In some cases it might be necessary to be handy with firearms and diplomacy of all kinds. Learning to live with people in another country is an entirely new ball game. If you do go "native" in Central America and make a fortune in the honey business, you are surely going to have to earn it; it will not come easy. So any of you young fellows, that want to make a fortune in the honey business don't say I didn't warn you.

Going to Guatamala on the Peace Corps program is one of the best ways to "case the country"; to learn just how you can fit in if you are interested in a new life. If you do go, you must have a few years of commercial experience and you must have some knowledge of Spanish. Most people you will work with do not speak English, nor can you expect them to. This program is indeed a wonderful opportunity to learn something about beekeeping south of the border. Bien suerta y muy buenos cosechas.

Fairview College Beekeeping Course

NOVEMBER 8th, 1979, saw the completion of the first season's course in beekeeping in Canada. The course, first of its kind in Canada, consisted of six weeks classroom instruction followed by a six month salaried training period under the guidance of a commercial beekeeper. A four week wrap-up period in the fall, in which the students combined theory learned in the classroom with the practical experience gained during the summer months, finished the course.

For more information contact: Mr. Steve Pawlak or Ms. Sandy Mckenna, Fairview College, Box 3000, Fairview, Alberta, Canada T0H 1L0. Ph. 403-835-2213. The course is open to men and women from all of Canada. (Information from Canadian Beekeeping).

Bee Talk

By DR. RICHARD TAYLOR
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Trumansburg, NY 14886

LAST SUMMER a friend stopped by to say he'd buy all the comb honey I wanted to sell him, right then and there. Well, I had two or three hundred round sections on hand, so I said he could have those for ninety cents each. That price seems low to me now, but it seemed okay at the time, since it would clear out what I had and make room for about fifty or sixty more supers that I was about ready to harvest. So off he went with the honey, and that evening he brought me a check — he had turned around and sold the whole lot to another friend of mine across the lake. I didn't ask him what he got for it; that was his business. But a week later I learned that the same round sections, with my label on them, had found their way to the supermarkets up in Rochester, eighty miles away. The price there? Two dollars and ninety-nine cents each! That sort of got me thinking. I read not long ago that farmers get only a third of what supermarkets take in, and that about corresponds with my experience. But it also got me wondering about the dollar and a quarter I've been charging for round sections at my house.

A round section is about eight or nine ounces. So if I get about a dollar for one of those, wholesale, that is four times what I'd get for extracted honey, which sells wholesale for less than fifty cents a pound. Or putting the whole thing another way, you would gross about the same amount raising comb honey as you would raising extracted honey, even if you got only a fourth as large a crop. And as a matter of fact, my comb honey crops are, per colony, almost as good as the extracted crops I used to get. So it seems to me I'm way ahead raising comb honey. But you do have to get out and find the market for it. Extracted honey you can store away in sixties and forget it, until the time is ripe, but comb honey you have got to get sold fairly promptly.

Last time I was explaining how to have the strong colonies you need for raising comb honey, and at the same time keep them from swarming with relatively simple procedures. Now let's suppose you have managed that. Let's suppose it's spring, the dandelions are in full bloom, your colonies are strong, the swarming has been brought under control, and you've got at least one, maybe two, comb honey supers on each hive. From now on it is the bees who will be doing most of the work. All you have to do is keep an eye on your scale hive, note when any new honey flow starts, add supers as needed, then harvest them when they fill up.

I didn't say anything about using bait sections in those other "Bee Talks", so I'd better now. Bait sections are just partially finished sections left over from the year before used to entice the bees up into the supers. But they shouldn't have any honey in them. What I do in the fall is, from time to time stack up a dozen or two comb honey supers in the back yard, where the bees clean them up dry as a bone in less then an hour. That's the best way to get your round section frames and supers all dry and free of stickiness. Any partially finished sections that were in the supers get cleaned out too, and those are what I use for bait sections.

Now I put a bait section in each super, at least to the extent that I have bait sections on hand. This means that the first supers to go on all have a bait section in them. It doesn't matter much where it goes in the super — somewhere more or less near the center. And one per super is enough. But you've got to have a way of spotting those bait sections when you harvest the honey, because they are apt to be inferior, and you may want to keep them separate. I do this by marking the side of each bait section with a felt "magic marker" when it goes into the super. That way you can spot it instantly when you harvest the honey.

Actually, those bait sections are sometimes just as nice as the others. The only times they are not is when the bees made a ring of propolis around the edge of the foundation the preceding season, or when the bait section gets filled and capped so much earlier than the rest of the sections that it gets badly darkened with travel stain. But that doesn't always happen. In fact, I have had entire supers only half finished at the end of the season. That doesn't happen any more, since I now get my comb honey supers off before the fall flows, but it used to happen sometimes. And I have put those entire supers of bait sections back on the hives in the spring, and gotten perfectly good comb honey from them. In fact, I once won the silver bowl for comb honey at the E.A.S. honey show for the round sections that had been taken from just such a super!

One last thing I should talk about this time is getting set up for raising round sections. The round section supers are not quite as deep as regular comb honey supers — only four and a half inches. So you can rip regular hive bodies in two, preferably before they are assembled, and get two round comb honey supers, with a bit left over, which you can use to make a double screen. Or you can take regular comb honey supers and cut them down, with a table saw or electric hand saw, watching out for the nails. I did this with a whole lot of old comb honey supers years ago. I didn't do a very good job of it, so some of those old supers are sort of junky by now, but I still raise lots of beautiful round comb honey in them. And of course I've added lots more supers to the stack in the meantime. But the very best way to get started is to buy a sample super all assembled, with frames and rings installed, ready to put in the foundation and set it on the hive. That way you see exactly how the super is put together, and you have more than paid for it as soon as the bees have filled it once. Anyone wanting to know where such sample supers can be purchased by mail can just send me a self-addressed post card, and I'll be happy to oblige.

Bee Sting Allergy

IMMUNOTHERAPY (desensitization with pure bee venom, not the whole bee extract) is a long term but the most effective treatment for bee sting allergy. During the desensitization process, the body of the allergic individual can be stimulated by the pure bee venom to produce protective immunoglobins(IgB) which can block the IgE from creating a severe reaction following a sting.

Desensitization of patients using whole bee extract has proven to be unsatisfactory.

Skin tests using whole bee extract does not give a valid diagnosis of sensitivity of bee stings. Because of the high potency of pure bee venom, skin tests with pure bee venom would be too risky. Other new, sensitive methods, such as RAST (radio-allergosorbent) and histamine release techniques which require blood samples only have been applied in diagnosis of bee sting allergies.

Research Review

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

Plant Competition For Bees

GROWERS WHO RENT bees hope the bees they pay for will work their crops. Sometimes they do but often they don't. What bees forage on depends upon how the nectar and pollen of the target crop compare with those of the other flowering plants in the vicinity.

In a series of studies in Michigan pollen was trapped from colonies which had been moved near flowering apples, strawberries, blueberries, or cucumbers to determine how well these plants competed with other plants in the vicinity.

In the case of bees placed near apples 48 per cent of the pollen collected was from apple. However, willow (22 per cent), yellow rocket (15 per cent), dandelion (7 per cent) and others attracted many bees away from the apples. Colonies next to the strawberry fields collected 43 per cent of their pollen from that crop; however, black cherry, sweet cherry, apple, dandelion and yellow rocket were all strong competitors.

Blueberries fared less well. Only 9 per cent of the pollen loads from colonies placed in a nearly ten-acre field collected blueberry pollen. Dogwood, cherry and willow were the strongest competitors. In the case of cucumbers no pollen was collected from the target plant; clovers, goldenrod, teasel, Queen Anne's lace and some other weeds were all more attractive.

The figures quoted here will not be the same in every part of the country. Also, these data do not tell us anything about the attractiveness of the nectar from these plants. However, we know that, in general, pollen collectors are better pollinators than are nectar collectors since they must come into contact with the plants' sexual parts and therefore cannot avoid transferring pollen on each flower visit.

These data emphasize the importance of weed control in areas where pollination is critical. Eliminating weeds is not a beekeeper's job, it is the job of the grower. However, a beekeeper can point out to anyone who rents his bees that competition does exist. Those who mow, cut or otherwise remove competing plants will fare better. In areas where weed control is not practiced, the only recourse is to rent more bees per acre.

Olsen, L.G., R. Hoopingarner and E.C. Martin. Pollen preference of honeybees sited on four cultivated crops. **Journal of Apicultural Research** 18: 196-200. 1979.

Cancer and Bee Venom

"FOLKLORE HAS popularized the notion that cancers are uncommon among beekeepers, perhaps because of the salutory effects of repeated bee stings". The death certificates of 580 American beekeepers whose obituaries had been published in U.S. beekeeping journals between 1949 and 1978 were analyzed statistically to determine if they suffered any less from cancer than did the U.S. population as a whole. The conclusion of the study was that there were "neither adverse nor beneficial effects of intense exposure to bee stings." Compared to all Americans, there was a lower death rate from lung cancer among beekeepers, but this may indicate only that a smaller proportion of beekeepers were cigarette smokers.

McDonald, J.A., F.P. Li and C.R. Mehta. Cancer mortality among beekeepers. **Journal of Occupational Medicine** 21: 811-813. 1979.

Cleptolecty

CLEPTOLECTY is a curiosity, in fact so curious and little studied a phenomenon that the term was coined only recently. It means theft (clepto) of collected pollen (lecty).

The authors of the paper below observed honeybees stealing pollen from the pollen baskets of some species of solitary bees (not from other honeybees). A year earlier another paper had recorded honeybees removing (collecting) pollen from the bodies of male bumblebees.

Perhaps we should not be surprised by this finding. We have long been aware that honeybees are very adept at finding and exploiting good sources of food. Apparently once a worker bee learns to steal pollen from another (usually smaller) bee, she may do so repeatedly. However, this activity is probably quite uncommon, otherwise it would have been reported earlier.

Thorp, R.W. and D.L. Briggs. Bees collecting pollen from other bees. **Journal of the Kansas Entomological Society** 53: 166-170. 1979.

TV Series "Snackers" Features Honey

A TV SERIES based on the book **Kick The Junk Food Habit With Snackers** by Maureen and Jim Wallace (Madrona Publishers, Inc., Seattle, Washington) was aired on KOAP TV, Portland, Oregon (Channel 10) beginning January 7th, Mondays and Wednesdays at 3:30 PM with reports on Saturdays at 12:00 noon and 12:30 PM. It will also be shown on KOAC, Channel 7, Corvallis and KTVR, Channel 13, La Grande.

If you would like this story aired in your state or your town contact your local PBC — educational TV station and advise them of your interest.

This TV series is available for purchase or lease by individual shows or the entire series of 20 programs. Orders or inquiries should be directed to Steve Johnson, Coordinator, Campus Of The Air, KOAP TV, 2828 S.W. Front Ave., Portland, Oregon 97201. Phone 503-229-4847.

Show #5 of this series features an interview with Robert Zarvell, beekeeper, and examines the beneficial aspects of raw, unfiltered honey. Robert talks about the varieties of honey and gives a review of honey usage and chemical analysis.

Fundamentals for All

"A Part of Your Life to Yourself"

By W. A. STEPHEN
Professor Emeritus
The Ohio State University

I AM NOT a fisherman. In my boyhood days we were far from fishing grounds. Oh, we had small fishhooks and fishing lines and it was easy to cut a pole in our swamp. In my boyhood I may have caught as much as a pound of fish from the river not far away, but that doesn't qualify me as a fisherman any more than picking up a baseball qualifies a person for the Baseball Hall of Fame.

Work on the farm precluded the taking of time out for such unproductive expenditure of time and energy as fishing. Farm work occupied all my holidays when in school, both as student and teacher, and even for two full depression-remembered years. By the time I had reached post-college earning, I guess I was beyond the stage of inoculation with fishing fever. At any rate, fishing trips would have separated me still farther from my wife and son. Besides, I had been bitten by the "bee-bug" and beekeeping was bad enough.

I enjoyed the expression of a friend who said, "I'm going fishing this afternoon and I hope I don't catch any." This man, with heavy administrative responsibility, wanted to be alone with himself. This is what Dr. Johnson (Vol. 1 of **Boswell**) meant: "A man is to have part of his life to himself".

During my early years associated with the beekeeping profession at the Bee Division, Ottawa, Canada, my wife and I were fortunate in being able to obtain a cottage not far from the suburban street car line on the Ottawa River. My chief, the Dominion Apiarist, Mr. C. B. Gooderham, liked to fish. We had a canoe, so I would paddle while 'C.B.' fished, switching his pipe from one side of his mouth to the other, neither of us speaking. Each of us was having a part of his life to himself.

Fishing is one of the ways "to get away from it all", but, somehow, I feel that beekeeping is a better way. With fishing, you can let your mind wander until a tug on the line suddenly interrupts your thoughts. But there is nothing to keep you from re-hashing the problems with which you were concerned at work, or at home. With beekeeping your interests must be directed to what you are doing immediately when you come to the bee yard. From the lighting of the smoker until you put it out, your mind must be on what you are doing. I know of no other calling where lack of attention is more effectively and pointedly rebuked than in colony manipulation.

I mentioned putting out the smoker. It is easy to do. Well, maybe — if you put it out as you would a camp fire — by pouring water onto the smouldering contents until all is black. Beekeepers usually either plug their smokers, or tramp out the fire. Each of these techniques (if they can be dignified by such a term) has resulted in fire with me. In the one case, the smoker, lying near a tarpaulin in the back of the truck, set fire to the tarp. In the other case, we were only able to piece together the evidence later.

I had tramped out the smoker contents in the truck track leading to our apiary in a swamp. A week later, my uncle and his helper saw smoke rising from the area and a sudden burst of flame as fire flared upward through the branches to the top of a tall spruce. They rushed to the apiary and saw several piles of deep supers which we had unloaded for future supering, on fire. They were leaning towards the front row of hives. About a hundred supers were involved but the men were able, with poles, to push them over, away from the hives. Water had to be hauled to put out the fire in the muck. Later I remembered having tramped the smoker fuel into the truck track. I hadn't put it out. I had ignited the muck which smouldered, running under the sod, the tough grass turf, in the direction of the apiary. Fortunately, insurance covered part of the loss — and how fortunately! For income from that apiary had to pay the substantial costs of the college expenses of my brother and me the next year. Well, this has diverted me from the concentrations which I had hoped to picture in the bee yard.

The apiary actually belongs to the bees. It is their home. When the beekeeper arrives he is an intruder. His conduct in the apiary determines the extent of confusion among its inhabitants. Quick movements, jarring of hives, and rough handling of combs and supers incite the bees to retaliate against the great big creature causing the disturbance. Fortunately, thorough inspection of the colony is only necessary when there are comparatively few bees in the hive; that is , in spring and again in the fall. This means that there are many fewer bees to disturb when the greatest amount of manipulation is needed.

Early in the year the beekeeper's aim is to determine whether the colony is queenright; the amount of stores — honey and pollen — and the arrangement of the combs for maximum use by the bees — both present and future generations. Later examinations are concerned with amount of stores, brood-rearing space, and the broodnest arrangement. Then swarm control — hopefully prevention — by checking for swarm cells during the

(Continued on page 162)

Notes From the Straw Skep

By BESS CLARKE
Canton, PA

AT LONG LAST the beekeeping industry is going to be recognized by the postal service. A 15¢ embossed envelope with the honeybee theme will be issued during National Honey Week, October 12-18, 1980.

This decision by the Citizens' Stamp Advisory Committee is the culmination of years of effort by a great many people who have been interested in having the industry publicized on a commemorative stamp. Leaders in the effort are Carl and Gene Killion of Illinois. Carl, as first chairman of the American Beekeeping Federation's Commemorative Stamp Committee, laid the groundwork; his son, Gene, is the present committee chairman.

There will be a "First Day Ceremony" for those of you who collect first day covers. More information about obtaining them should be available as the time nears.

The Federation is asking each state organization to designate Oct. 12-18 as Honey Week to coincide with the national effort to inform and educate the public on the merits of honeybees.

When I asked at our post office about the envelopes the clerk showed me examples of the current supply which recognize Veterinary Medicine, and the Olympic Games. There are two sizes of each and they cost 18¢ apiece. I asked her to order a hundred honeybees for me. They'll be nice to use at Christmas time.

Our 8-year-old granddaughter has become interested in collecting stamps so we are checking our mail these days. Have you seen the 4¢ stamp with a grand piano pictured on it? It's used for bulk mailing.

We saved the numbered corners of commemorative stamps for a few years, but eventually sold them. The only effort I've made recently was to stash a sheet of the Bicentennial era stamps depicting the 50 state flags, and that was because I was interested in the flags. I offered them to Janine but her mother refused them, telling me that the sheet is worth $25 now. Guess I'll hang on to them for awhile.

There's an interesting story with these stamps. The flag of the state of Tennessee is backwards, an error made while the plates were being set up. It's a plain red field with 3 stars in a blue circle in the center and a blue band on the left side, except that on the stamp the band is on the right. Five million of the sheets were printed and distribution had begun before the error was discovered, so authorities let it go, as the lesser of two bad choices. Recalling them would have been terribly expensive if not impossible, and the fewer the number of the incorrect stamp, the greater the value for collectors.

In cold weather an oven meal makes good sense.

Baked Pork Chops; 4 chops, ¼ cup catsup, 2 tablespoons honey, 1 small onion chopped fine, ½ cup water. Place chops in single layer in shallow pan. Mix other ingredients and pour over chops. Cover with lid or foil. Bake in 325°F. oven for an hour and a half. The chops should be tender and moist. There is no need to brown them at first or to turn them during cooking. Baked squash is good with this. Wash the squash, insert a knife into the seed cavity to make a steam release valve, and bake uncovered until tender. At this point remove from oven, cut into pieces and drizzle a bit of honey over. A tossed salad and an apple crumb dessert completes the meal.

Questions and Answers

Q. We need to sterilize some beehives that may be contaminated with A.F.B.

Would boiling in plain water destroy the bacteria? How long should it be boiled?

I cannot use lye for health reasons. Your answer would be much appreciated, many thanks. — E. W., Texas.

A. Some beekeepers have used dishwasher detergent as a safer lye substitute but the only positive methods of sterilizing beehive equipment is to either burn the infected bees, comb, and honey and scorch the insides of the hives, or sterilize the equipment by using an ethyleneoxide sterilization chamber. If the gas sterilization chamber is not available, the only recourse is burning the infected equipment as above.

We would suggest consulting with your apiary inspection service, either at your county level or at the state level.

★★★★★

Q. I have five colonies of bees. I am going to have to move them about 200 yards. I have to move them from another man's over to my property. When is the best time of the year to move them? I am wondering if I should move them in cold weather as it would seem better than in warm weather when they would return to the same spot.

I have to move them this distance all at one time. What do you think? H.E.C., W.Va.

A. We would suggest waiting until spring to move your bees. Try to select a period when the bees will be relatively inactive, yet the temperatures will be in the high 40's or low 50's for a period of time. Moving bees in winter tends to disturb the

winter cluster and can be harmful to the bees, we have found.

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Q. I have three questions I hope you will answer.

1. I know this question has been brought up many times, but it never seems to be answered completely in any one article. Can Terramycin and Funidil-B be placed in the same syrup, if so, what ratio syrup, could they be fed in two separate pepper box feeders at the same time? Would the same bees go to the same feeders everytime? Would the honey with Terramycin and Funidil-B mixed in the same comb cell be any different then mixing them in the same syrup? This would simplify medicated feeding considerably if it could be done.

2. Can a brood frame with pollen stored in it be given back to the bees if it were stored with paradichlorobenzene, and if so, how long should it be aired?

3. Does crown vetch make good honeybee pasture? If it does what quality honey does it make? H.L.P., Maryland.

A. In answer to your first question: One publication, we noted, said that recent testing showed that Fumidil-B and Terramycin can be mixed together at the recommended doses without inactivation of either material; whereas, another source reported antagonism by Terramycin on the effect of Fumidil-B. When antibiotics or drugs are fed together there is a certain risk of toxicity involved. Terramycin breaks down quickly if exposed to ultra violet rays of sunshine and will become ineffective if fed in sugar syrup in an entrance feeder, for example, without covering the jar to exclude light. What the feeding habits of bees would be on separate offerings of TM and Fumidil would be, we cannot say. Terramycin is best fed in powdered sugar (1 level teaspoon of TM 25 in each ounce (about 5 teaspoons) of powdered sugar, or, 1 pound of antibiotic to five pounds of icing sugar. Apply one ounce (8 teaspoons) of the mixture to the top bars of the broodnest.

Fumidil-B should be fed in sugar syrup (one level teaspoon per colony in ½ gallon of sugar syrup made with 2 parts of granulated sugar to 1 part of water). Poor Nosema control may occur through uneven distribution of the Fumidil-B if it does not become properly suspended in the sugar syrup in which it is to be fed. To facilitate Fumidil-B entering suspension it may first be mixed into a quantity of water at 158 degrees F. (70 degrees C.) and then added to the sugar syrup. Usually three treatments are required at 4 to 5 day intervals.

Your second question can be answered with a qualified "yes". Pollen stored in a comb over winter may not be attractive to bees when placed in the colony in the spring, particularly if fresh pollen is available. We cannot be certain if pollen stored in paradichlorobenzene — treated combs is any less attractive to bees but do not believe it would be harmful to the bees if the combs are allowed to air for three or four days before being placed on the hives in the spring. We would suggest limiting the number of treated combs with pollen given to each colony until the effect, if any, can be observed.

Your third question is usually answered in the negative; crown vetch (*Coronilla varia*) is seldom credited as being a good nectar plant although we have heard of instances where bees work the blossoms, and possibly extra-floral nectaries, for nectar. Crown vetch is a common ground cover plant sowed along roadsides forming large masses of pink and white bloom. Purple vetch (*Vicia americana*) is a better honey plant for nectar. The honey is said to be white and of good quality and flavor.

The XXVIIth International Congress of Apiculture

By LEONORE M. BRAVO
San Francisco, CA

THE CONGRESS WHICH took place in Athens, Greece, September 14-20, 1979, was dominated by the golden pendant of Malia which was found near Malia on the Island of Crete. The archaeologists who found it thought that the insects were wasps. But the elongated bodies have been interpreted as artistic license to permit the round honeycomb, a royal gift that **the bees** are holding, to show up. This pendant, dated 3500 years before Christ is a treasure of human history as well as evidence of very early beekeeping.

On a side trip to Egypt we saw round hives made of reed covered with clay in which exactly the same kind of honeycomb was produced. Also shown in the museum of modern agriculture in Cairo were the tools for working such hives which the Egyptians have been using at least since 1450 B.C. according to wall paintings in tombs. At the present time there are two million of these hives in use in the country as well as one million Langstroth hives. Called "normal" hives they are still used in Crete and Sicily.

"I should say here that amateurs or hobbyists would feel far more comfortable at the International Beekeepers' Congress than at a state or national meeting in the U.S. ----".

From morning till night for four days, papers about bees and beekeeping were presented by investigators from all over the world. In the evenings we were treated to films about bees and beekeeping shown competitively. Simultaneous translation made it possible to benefit from all presentations.

The Hungarian Exhibit

The papers were grouped into the following interest areas: Beekeeping economy, bee biology, melliferous flora and pollination, bee pathology, beekeeping equipment and technology and apitherapy.

Beekeeping economy papers came from workers in developed countries of the temperate zones. They reflected problems encountered in trying to keep going in the face of advanced agricultural technology with loss of bee forage plants to new modes of agriculture. Use of pesticides and herbicides associated with such development and the search by farmers for self-fertile hybrids so as to be relieved of worrying about honeybee poisoning were common themes.

Tropical areas of the world offer great promise for beekeeping if they can develop techniques for dealing with what they describe as the "bad character" of their native bees. Their problem is to change over from bee hunting to beekeeping, developing the necessary skills and technology to make this possible.

Dr. Sellianakis of Greece, president of the Greek organizing committee of Apimondia pointed out that beekeeping is very important in rural areas of developing countries. Crop output increases due to pollination and people can sell their honey and buy products not available to them as well as improve their diets with honey and pollen.

Mr. Cabrera of Mexico made the same point. Sixty per cent of Mexico is "dry land". This land has a flora including opuntia cactus, several species of acacia, dalea, mimosa, bahia and other natives that are productive of nectar and pollen which could greatly enrich the diet of poor people there as well as give them some money to buy other things.

Dr Sellianakis listed the following in order to make exploitation of tropical bees possible: Investigation, books, manuals, cheap manufactured hives, consultants in tropical beekeeping. He cited a need for fellowships for students from developed countries and that Apimondia should participate in this effort.

Papers on bee biology were dominated by the Soviets who are busy proving the superiority of Carniolan, Caucasian, and Carpathian strains in the Soviet bloc countries. Such superiority is to be expected, those being native to the area. The only reason for using exotic bees as we do in the U.S. would be that we had no native bee producing honey in commercial amounts.

The crowd in the lobby of the Athens Hilton Hotel between sessions.

The Brazilian exhibit. Note the size of the smoker.

A study of length of tongue of the Caucasian bee showed that those living highest up the mountain have the longest tongues. There is a relation between length of tongue and rainfall; the drier and colder the climate, the shorter the tongue. Obviously, the real relationship would be the relation of size of flower parts to climatic conditions.

A morphological study from Brazil reported that the sting glands of some bees are bifurcated, others single, and that there may be variations in the sting acid. They are ambitous researchers and perhaps seek to learn more of the bee's stinger as a means of reducing the threat of the African hybrid if they can.

Foti of Romania reported a 30-year study of the supersedure character of selected Carpathian bees; queens selected originally for a tendency to supersede rather than swarm. Over this long time period these bees were observed to supersede their queen every three to four

years in July or August, the new and the old queen living together for about a month before she dies or is disposed of. This prevents swarming and increases honey production.

Radoev from Bulgaria reported that the grey Gaucasian mountain bee, imported from Russia, is better than the local bee, a Carniolan ecotype. They got good wintering, good honey production, weak swarming inclination, gentleness, and resistance to Nosema disease. From papers on bee pathology we learned that Nosema disease is the most **widespread** beekeeping problem in the temperate zones, north and south, so the most widespread beekeeping problem world-wide.

Mr. Kigatiira from Kenya described under bee biology the fast flight (directly into the hive instead of landing and walking in) of the African bee. He also described its excessive absconding and swarming, not necessarily for overcrowding, but, "for the least thing" as an African worker told us. The bees' seasonal migrations follow a lack of food and water. Here we seem to have the opposite of the Carpathian bees reported above which probably find staying more comfortable than leaving the hive. The African bees find fleeing a more favorable adaptation. But perhaps, as the African bee comes to be kept more in hives and hunted less, it will become more manageable.

He mentioned the great ability of the African bees to communicate alarm between colonies or hives. This is being dealt with in Brazil by wide spacing of hives and facing them in different directions.

Apis dorsata in Sir Lanka performs a regular annual migration. The colonies are spread throughout the coastal plain and the North Central region until June or July when they migrate to the "up country", which they leave again in October-November. They migrate in several daily stages with rests of several days on the way, following the migration dances of the lead bees.

Papers on melliferous flora and pollination came from countries with developed agriculture and beekeeping. One from Greece reported 419 species of plants having interest either for nectar or pollen or plant or animal honeydew. As a matter of fact, about 60% of honey production in Greece derives from the scale insect *Marchalina hellenica* which parasitizes the pine trees of the Eastern Mediterranean countries. These plant species belong to ninety-nine genera included in forty-two families.

Greece is famous for its thyme honey from Mt. Hymettus which was on display at the Greek exhibit. We bought some of it and found it to have a strong herbal flavor.

Note different sizes of hives in a Greek beeyard.

Of particular interest to me was a presentation of the distribution of melliferous plants from the "Extremadura" of Spain which, by their description was very similar to the California foothills and chaparral. Besides listing plants found there productive for beekeeping, it also showed the number of beehives which an acre would support with a view to getting government support for a beekeeping program.

A study with possible interest and even use to hobbyists was reported from Czechoslovakia stressing the extent to which soil and climatic conditions influence nectar production and pollen quality. M. Krezak reported that fertilizing plants with such microelements as copper, cobalt, boron, and molybdenum in a base solution increased the nectar secretion of red clover, horse bean, and field peas. Nectar of the sunflower was increased by fertilizing it with a solution containing magnesium, iron, manganese, zinc, copper, molybdenum, boron and cobalt.

Somewhere I read of the beneficial influence of calcium on nectar secretion and pollen quality.

In the Hungarian exhibit there was a large map showing the "acacia forests" of that country. But it turns out that this tree, a principal source of honey in Czechoslovakia as well, is *Robina pseudoacacia* it was brought into the country 30-40 years ago to bind the soil in areas of dry land and erosion and has proved useful in more ways than one.

Of twenty-two papers presented on bee pathology, Varroa was the main subject of seven and Nosema of four. Both enemies were the subject in part at least of all the rest of the papers. Varroa is the most severe problem because no cure has been found. The treatment for it in Russia is the same as here for American foulbrood; burn and bury. The Soviets claim that with discipline it can be controlled. However, some sophisticated methods of control are being tried, one of which involves taking away brood frames from an infected colony before the brood is sealed. Another from Greece, which is having a terrible time with Varroa, involves use of a plastic bag containing sulphur dust which can be put over the hive and which will damage the respiratory system of the mites but not of the bees. You have to keep this going for 25 minutes while there is brood activity in the hive.

As mentioned earler, Nosema is the most widespread disease world-wide causing dwindling and in extreme cases, deaths of colonies. The recommendation was to treat preventively with Fumidil-B which researchers showed to be the most effective means of control.

Under beekeeping technology and equipment came many practical suggestions. A worker from Argentina suggested that the ideal way to utilize the cheaper lumber now available to beekeepers is to use poplar wood sawdust and synthetic glue to fill cracks and weld knotholes in a most permanent fashion. An Australian said that immersing hives in a wax solution at 135° F. will sterilize them and preserve the wood. W.A. Stephens of the U.S.A. talked about the need for upper ventilation as a preventitive for such things as chalkbrood and Nosema.

From Romanian workers came the advice that amateurs and small apiarists need to select good queens and to do stimulative feeding spring and fall in order

to keep up colony strength which is important as a defense against disease.

Gnadinger of the Federal Republic of Germany talked about hobbyists who will keep bees irrespective of profit. He stated that 95% of the world's beekeepers are hobbyists; 99% in some countries. He said that they probably produce more honey than commercial beekeepers, using it at home or selling it to their neighbors. He talked about the need for these people to learn good beekeeping techniques. In Germany, they did not respond to offers of classes until they went through associations of beekeepers. Such organizations are very important.

I should say here that amateurs or hobbyists would feel far more comfortable at the International Beekeepers' Congress than at a State or National meeting in the U.S. because the latter are dominated by commercial beekeepers whereas research, cultural, artistic and humanitarian concerns are prominent at the World Congress. And there are many hobbyists and small beekeepers in attendance all eager to talk to one another.

Before leaving technology, a move was made by a member of the standing committee on beekeeping technology to standardize the **inside measurements** of the hive and its parts on a world-wide basis for largely commerical purposes, of course.

In a conversation with participants Thomas and Mary Kehoe, who run a bee supply shop in Dublin, we got a clear picture of the potential value of such standardization. Mr Kehoe told us that there are five different kinds of hives which are of different sizes used in his area. He says that people telephoning to order supplies never can describe just what kind of hive or super they are seeking equipment for causing trouble in filling orders. In addition it requires a larger inventory than if things were standardized. Last year he bought or made too many of one of the five kinds of hives which caused him considerable inventory trouble.

Workers from Yugoslavia and Romania and the Soviet bloc countries in general dominated research on apitherapy and presented some convincing cases for the effectiveness of pollen, propolis, and royal jelly in preventing and treating disease.

Iranov of Bulgaria presented a method for determining the iodine content of propolis and the use of preparations of propolis and royal jelly for treatment of plaque on teeth. A straight laboratory study in which agar cultures were inoculated

(L to R) Louis Debay, Stef Stefanakis and George Stefanakis having lunch on a field trip.

with various pathogens and then treated with propolis preparations showed positive results. Another study showed treatment of the cornea of a rabbit infected with herbes simplex which responded to injections of water and alcolol extracts of propolis combined with royal jelly. Another study from Yugoslavia demonstrated that propolis preparations were effective about 75% of the time in treating victims of tuberculosis in a sanitorium.

Romanian workers presented a very convincing paper on the antibacterial effects of honey as seen on innoculated agar cultures of various microorganisms. Results showed variation in effect between gram-positive and gram-negative organisms, the gram-positive being more sensitive to the antibacterial factors in honey. The more acid the honey, the more effective it is as a bactericide. Sunflower honey was the most effective antibiotic of those tried, with honeydew then lime (*Tillia*) next in order with acacia the least effective of those tried. They probably mean *Robina p.* by "acacia".

The exhibits were noteworthy for their beauty. Following the discussion just above, the Romanians exhibited the widest variety of bee products including beautifully packaged cosmetics and pharmaceuticals based in royal jelly, pollen, propolis and beeswax. In addition they displayed all kinds of honey, candles, honey wine and so on.

I greatly admired the spirit displayed in the Brazilian exhibit. One poster declared that they had problems which they were doing their best to solve and which invited everyones' cooperation. Another poster invited viewers to visit Brazil and meet its friendly beekeepers.

Dr. Gonzalves stated that *A. M. ligustica,* imported two centuries ago never produced much in that climate; that altogether, before importing *A. M. adansonii,* they produced only 1% of the

The golden pendant of Malia, the symbol of the 27th Congress of Apimondia.

world's honey. The result was that the country ordered a study which resulted in the importation of *A. M. adansonii* which resulted in production of enough honey to start exporting it in 1972. He describes the Brazilian hybrid as an outstandingly productive bee and characterized its negative press as the **FANTASTIC STORY** that is still circulating about it.

He stated that handling the bees is not a problem due to methods which they've developed which include: More space, locating hives away from people and animals and having all entrances facing different directions and painted different colors. Mating must be controlled by artificial insemination which has been used continually. They also have natural matings in the middle of sugarcane plantations. He reported that climate has a lot to do with agressiveness which is greatest in warm humid areas. They get strong support from the government and great enthusiasm from Brazilian beekeepers.

One day of the Congress was devoted to a field trip so that we could see the countryside and some beekeeping. We went by bus over the isthmus at Corinth to what is marked Pelopennesos in your atlas. We crossed it and then came back around the coast to where we began. We visited various antiquities, what seemed to be a temporary bee yard, and a cafe for lunch.

Much of the landscape was volcanic and hilly and reminded me of the wine growing country of California. There were grapes, olives, apricots and oranges growing principally in the interior and pines dominated the coast side. Roadside weeds where we stopped to look at the hives included a species of *Phacelia*, a small, fleshy, fennel-like plant and a small leafless yellow compositae.

The bees which were in 20-frame hives with a lot of honey to be extracted were very dark like Carniolans. They possibly were *Apis mellifica cecropia*, the "Greek bee" which was reported by M.D. Infantidis as probably belonging to the same group as the Carniolan. There was evidence of a previous wax moth infestation.

We travelled with a busload of Greek participants and henceforth found ourselves having lunch with Stef Stefanakis from the Island of Crete and his son George who learned English while training on a submarine on the east coast of the U.S. Through him we were able to learn that Stef has ten ten-frame double hives and he inherited his bees from his father. He moves them about to four different locations a year. He keeps his honey for three years before selling it, explaining that this improves the flavor. His honey has a great reputation where he lives and he is able to get the equivalent of five U.S. dollars a kilo or $2.50 a pound. In addition to keeping bees and selling honey, it seems that Stef works in a distillery.

It was through the influence of Louis Dubay, my beekeeping partner that I went to Apimondia and with whom I shared these experiences. Now I look forward to the next World Congress which will be in Acapulco, Mexico in 1981.

I Keep Bees — I Don't Exterminate Them

By SUE ANDERSON GROSS
St. Charles, IL

TOWARD LATE AUGUST, the phone calls average one a day. The caller begins by saying: "I hear you folks keep bees."

"That's right," I answer, smiling inwardly, thinking that I have a honey customer on the line.

"Well," the caller goes on, "I've got a swarm of bees here and I thought maybe you'd like to have them."

"Oh . . ." I answer. My heart sinks, because I'm sure I've got another extermination call on my hands. I know from experience that there are mighty few real bee swarms to be seen in late summer. What my caller has mistaken for a "swarm" is probably a going bee colony, a hornet's nest, a yellow jacket's nest, or even some pesky biting flies. And what he wants me to do is come take the troublesome "them" away or, barring that, to kill them. Neither of which I'm prepared to do.

Late summer is not a prime time for *real* swarms, which my husband Sidney and I collect gladly, but it is a time when bees and wasps become highly visible to the layman. Colonies are at the height of their strength, and that means that nests which have gone undetected all summer are suddely discovered — with ensuing panic. Most commonly, our hot, muggy midwestern weather has prompted bees living in cramped quarters to hang out. The homeowner setting up for a barbeque under the oak in his back yard will look up and see a sheet of bees spread out along a branch. He's never noticed bees flying in and out of the decayed knothole in that branch before, even though they've been doing it all summer, so now he thinks he's been invaded. Or, again, the same homeowner, mowing his lawn, will glance up at his house and spot a mass of bees covering the siding under his eaves. Suddenly he discovers that he has bees living in his house wall. In either case, his immediate reaction is "they've got to go;" and he calls a beekeeper.

"Why is it, I wonder as I hang up, that most people have only one response to insects — to want to see them dead."

Through trial and error, I have developed a technique for diagnosing bee problems over the phone. I always begin asking my caller to describe what his swarm looks like. I call it a swarm at this point to simplify matters, no matter what I suspect the real problem is. Bees that are hanging out do not have the characteristic grape-cluster shape of a swarm, which makes it easy to make an identification over the phone. When I'm positive from the caller's description that a going colony is involved, I generally counsel a policy of live and let live. But first I have to convince the caller that I *can't* just come and take the bees away, and this necessitates explaining the difference between a swarm and a colony of bees, or, in effect, giving a short course in entomology over the phone.

"Bees in a swarm are looking for a place to live," I explain, "which is why they will accept a beekeeper's box hive. But what you've got are bees which have already found a home. They won't leave willingly. To get rid of them would be difficult. The only sure-fire way is to kill the

colony with insecticide. Then, if it was living in your house wall, you'll have to take off the siding, clean out the comb, and then seal everything up tight or you'll just get more bees. Rather than go through all that, I'd recommend that if nobody's being stung you leave well enough alone." I then add that probably a third of the houses and nine tenths of the large trees in our area have bees living in them. The percentage figures may be an exaggeration, but it seems to console people to know that the bees haven't singled them out. Sometimes people ask me if the bees have "escaped" from somewhere, like animals from a zoo. One lady actually questioned whether the bees she saw might not have escaped from a hive belonging to a friend of hers in another town twenty miles away. I suppose secretly some of these people think their bees have "escaped" from one of our hives, but I've never had anybody come right out and say so.

If my caller is willing to listen to my counsel of live and let live, then I proceed to explain to them why the bees are hanging out. I use what I call the porch analogy. "What did people do to escape the heat in the days before air conditioning," I begin; "they sat on their front porch. And that's exactly what your bees are doing, sitting on *their* front porch because it's too hot inside their hive. When the weather cools off, they'll go back inside and you won't see them anymore."

Sometimes this ends the conversation, but all too often it sets off another, exasperating round of questioning.

Caller: "But won't they sting my kids?"

Me: "I doubt it, particularly if the opening where they're going in and out is twenty feet off the gound like you say." (In my experience, wild bees favor heights; except for one or two colonies under porches, I've encountered few wild colonies nesting close to the ground.)

Caller: "But can't I get rid of them somehow?"

Me : "Not easily. As I said, the only practical way to get rid of an established colony is to kill it with insecticide."

Caller: "Do you do that?"

Me: "No I don't." Frustration creeps into my voice, despite my best efforts to conceal it. "You'll have to call an exterminator. I'm a *beekeeper*. I keep bees because I like them; I don't want to get involved in killing them."

Why is it, I wonder as I hang up, that most people have only one response to insects — to want to see them dead. I'm convinced that if I wanted to go into the extermination business, I could make as much money killing bees as I do keeping them. But who wants that kind of money?

As often in late summer as I get calls about bees, I also get calls about wasps, and sometimes flies. "Well, they're yellow; they *look* like bees" is a refrain I hear all too often.

Not being a wasp or a fly expert, I can still recongize some common species from phone descriptions:

Caller: "They flew out from under the garbage can and stung me."

Me: "You've got yellow jackets, not bees. Honeybees don't build nests in the ground.

Caller: "It's a grey nest, hanging from a bush."

Me: "You've got hornets, not bees; bees don't build paper nests."

Caller: "They bit me."

Me: "You've got sweat bees, not honeybees. 'Sweat bees' are really flies, and that's why they bite; bees don't bite, they sting."

Toward wasps, if not flies, I also counsel charity. "They're beautiful insects," I say, which usually elicits a snort from the other end of the phone. "They won't overwinter anyway," I try again, continuing my pitch on a more practical level. "If you'll just leave them alone, they'll disappear by themselves when cold weather comes."

I'm, afraid, however, that it's even harder to convince people to live with wasps than it is with bees. It's all too easy to buy a spray can of insecticide and kill them from twelve feet away.

In a certain sense, the worst calls I get are those from people with harebrained schemes revolving around robbing honey or destroying bees nests. It makes me shudder to think how badly stung some of these people would get if they actually did what they talk about doing. My only consolation is the belief that, in most cases, they never get beyond talk. Nothing cools a layman's bravado quicker than an angry hive of bees!

A typical harebrained call came from a man who had bees living in the wall of his motorcycle repair shop. Of course the bees didn't bother *him*, he told me with macho swagger in his voice; it was his friends who were scared. I let that remark pass with a silent smile and went on with my usual explanations — how he had an extermination problem and should call in a professional. What about doing it himself, he asked?

I never recommend that a layman tackle the extermination of a bee colony on his own. I think both the bees and the poison could be dangerous in an amateur's hands. But, as is often the case, someone insists on knowing how to do it, I tell them to follow the directions in a leaflet prepared by our local Agricultural Extension Agency, which outlines procedures and lists approved insecticides. That way I can't be held responsible if anything goes wrong.

My caller did not cotton to my advice. "I don't want to kill them before I get a look at them," he insisted. "I want to see what's going on in the wall. Isn't there some way I can do that?"

"I wouldn't advise you to try." I ventured, imagining my caller and his buddies prying the siding off his garage to expose a full-strength colony of bees. "No I wouldn't advise you to try."

"But there's got to be some way I can get the honey out," he blurted.

So that was it! He had the old "bee-tree mentality." People of that sort, and I get calls from a lot of them, are so blinded by the lure of "free" honey that they never stop to think what it's going to cost them in stings and hard work to get at a few pounds of dirty comb mixed with insulation. And they wouldn't believe me if I told them they'd be far better off buying a five-pound jar from us. There's not much you can say to somebody with the bee-tree mentality.

"Do what you want; I can't help you," I murmured in this case into the phone.

Sensing my disapproval, my caller pushed on nevertheless. "What about this idea— what if I nail a piece of plastic over the hole so I can make the bees go in and out when I want them to."

"I'm sorry but I haven't got any more time to talk," I said, putting an end to that conversation by putting down the receiver.

One of my most memorable harebrained calls came from a man who had bees living in an empty cardboard carton stored in his unused outhouse. In this

(Continued on page 160)

Wood Preservatives For Beekeeping Equipment

By ROGER A. MORSE
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Summary

THE BEST AND cheapest wood preservative for hive stands and bottom boards is still **pentachlorophenol.** Pentachlorophenol may be purchased in concentrate form, and diluted with three parts of kerosene or fuel oil for use. On the Ithaca, N.Y. market we can buy concentrate for $6.00 to $7.00 a gallon; large drums of concentrate are still cheaper. A pine bottom board or hive stand soaked in a five per cent solution of pentachlorophenol for 24 to 48 hours will have a life of 20 to 30 years even when it is in direct contact with the ground.

Why Use Wood Preservatives?

Each year large quantities of valuable beekeeping equipment are needlessly left to the ravages of the weather and damaged by fungi, insects, and other organisms. The life of hive stands, bottom boards, and other equipment can be prolonged if they are treated with one of the relatively cheap wood preservatives.

The best wood preservatives for beekeeping equipment are those which, 1) remain in the wood for many years, 2) are most effective against decay and the attack of insects, 3) have the greatest penetrating properties, 4) are safe to handle, 5) are readily available and economical, 6) are harmless to wood and metal, 7) permit painting after treatment when desired, 8) are fire resistant, and 9) are free from objectionable color or odor. The effectiveness of a preservative depends on the depth to which it penetrates the wood.

Preservatives fall into three main groups: 1) toxic oils, like creosote, which are relatively insoluble in water; 2) toxic chemicals, such as pentachlorophenol and copper naphthenate, which are also insoluble in water; and 3) water-soluble salts, such as chromated zinc chloride.

Pentachlorophenol

Pentachlorophenol is a highly toxic, stable chemical that is effective against attack from fungi, bacteria, and insects that chew or consume wood. Good penetration is secured without heating the solution if dry wood is soaked in the preservative for 24 or more hours. A 24-hour cold soak is usually sufficient to give good penetration in wood up to one inch thick. The use of pentachlorophenol was researched by the Purdue Wood Research Laboratory, Department of Forestry and Natural Resources[1] and was found to be a highly effective material, surpassed only by wood preservatives used in a pressure-treated system; such systems are expensive and unnecessary for items such as bottom boards and hive stands.

The ideal concentration of pentachlorophenol in kerosene or fuel oil is five per cent. In most states pentachlorophenol is sold as a 20 per cent concentrate and the addition of three parts of kerosene or fuel oil is used to dilute the material. Not too many years ago one could buy an even more concentrated solution of pentachlorophenol, diluted with ten parts of kerosene. In some states, commercial users of pentachlorophenol may still buy the more concentrated solutions if they have the proper permits.

Precaution: Pentachlorophenol is not toxic to honeybees; however, kerosene or fuel oil fumes will kill bees. It is necessary to air-dry beehive parts soaked in these products for three to six months before they are used. Because of the toxicity of kerosene and fuel oil, some beekeepers use a mixture of half linseed oil and half mineral spirits, both of which are used in paints, to dilute the pentachlorophenol. The chief disadvantage of these materials is their cost; the advantages are that the equipment may be used as soon as the hive parts are dry. Also, the dried linseed oil

1. Perkins, R. H. and M. O. Hunt. Field service tests of cold soak preservative wood products. R. B. 939. Wood Research Laboratory, Department of Forestry and Natural Resources, Agricultural Experiment Station, Purdue University, April, 1977.

Polyethylene has been used to make a "tub" in which to cold soak this new bottom board. The wood preservative need not cover the bottom board to be thoroughly soaked into the wood. This bottom board absorbed nearly one-third of a gallon of a mixture of pentachlorophenol and kerosene. This is an expensive treatment but it is cheaper than any other method when one is treating a small number of items. This bottom board should have a life of 20 to 30 years. After soaking for twenty-four hours it will be air-dried for three to six months and then painted.

and mineral spirits form a hard, protective coat and painting is not necessary.

Other Preservatives

On our local market we found creosote oil selling for $4.95 a gallon. Creosote oil is probably as effective as pentachlorophenol as a wood preservative, but is much messier to use as it leaves an oily or greasy residue on the wood's surface which remains for many years. Also, the fact that the solution available is not diluted makes it more expensive.

Wood preservatives containing zinc naphthenate and copper naphthenate are available locally at about $10.00 per gallon. Both of these are good materials for treating bee equipment. They are not toxic to honeybees. As in the case of pentachlorophenol the cold soak method is best, but the high cost of these materials suggests they should not be used.

Bis (tributyltin oxide) is the active ingredient in one of the more popular wood preservatives I found in our local hardware stores. I cannot find much information on this tin-containing compound. The single paper I found on the wood preservatives with tin suggested tributyltin oxide is highly toxic to fungi and insects. So far as I can determine, its toxicity to honeybees has not been checked, though a related compound, cyhexatin, was said to be non-toxic to bees. Under the circumstances I suggest this wood preservative **not be used** for beekeeping equipment. The company that makes the product sold in our market did not answer my letter about their product; I presume they did not have any data on its toxicity to bees. The cost is again nearly $10.00 per gallon, making the use of this chemical questionable from that point of view, too.

Several beekeepers use a mixture of six parts of paraffin and four parts of rosin to treat bottom boards, especially in the southern states. Commercial grades of paraffin and rosin are available in ten and 25 pound bags, respectively, making their use impractical on a small scale. The mixture is heated outdoors, usually over a wood fire; the bottom boards are dipped for about one minute when the mixture reaches about 270°F. The flash point of the mixture is about 400°F. and there is danger if the fire is made too hot. Some beekeepers dip the corners of their supers in this mixture but not the whole super as they feel the mixture makes a water seal which is too tight. The cost of this treatment is thought to be 15 to 20 cents per bottom board but precise figures are not available. After the bottom boards have cooled, the paraffin-rosin forms a hard coating that does not rub off on one's clothing. There are no data on the life of bottom boards treated in this manner but those I have talked to believe it is as long as is wood treated with pentachlorophenol.

None of the water soluble wood preservatives are available on our local market; however, we do not advise their use anyway as the toxic substances will leach from the wood.

Chromated zinc chloride is one of the best water-soluble preservatives and is now used extensively in place of zinc chloride. It is fire resistant, relatively cheap, readily avaiable, and clean. The chief objection to the preservative is that it tends to leach out of the treated wood when in contact with moist earth or water. Treated wood should be piled outdoors and ventilated similar to wood treated with creosote or pentachlorophenol.

Methods of Applying Wood Preservatives

Brush or Spray Treatments: While it may be more convenient to apply a preservative by brush or spray, these methods are not as effective as the processes described below and are not recommended for wood that will be in contact with water or soil. If the brush or spray method is used, at least two heavy coats should be applied, as penetration rarely exceeds 1/16 of an inch with these methods. For rough lumber about ten gallons of preservative are required to cover 1,000 square feet of surface.

Dipping Process: This method is used with creosote and similar materials. The wood is dipped or allowed to stand in the preservative for a few minutes, and when the wood is removed the excess preserative is permitted to drain back into the tank. For best results the preservative should be heated to about 200°F. Care must be taken when heating any flammable materials. With this method, the preservative rarely penetrates the wood more than ¼ of an inch on the sides and two inches on the ends. From 10 to 15 gallons of preservative are normally required to treat 1,000 square feet of surface. The dipping process is usually more effective than brushing or spraying but it is not as effective as the cold-soaking or pressure methods.

Cold Soaking Process: This method is recommended for preservatives such as pentachlorophenol, chromated zinc chloride, and copper naphthenate. Simplicity and moderate cost are the chief advantages of this process. It is adaptable to solutions that cannot be heated safely. The wood is submerged in the preservative for a period usually ranging from 24 hours to a week or more. While shorter periods of time may be used, the effectiveness of the treatment will depend mainly on the length of time the wood soaks in the preservative. This process is not considered to be as effective as the pressure treatment.

Any water-tight tank of sufficient strength and size to submerge the wood to be treated in the solution is satisfactory. Weights or some device to keep the wood from floating above the surface of the preservative are necessary. An opening at the bottom of the tank to drain off the preservative before or after the wood is removed is desirable.

When treating only a few bottom boards or hive stands it is possible to make a tub or trough of polyethylene in which to soak the wood. When this technique is used one need not wholly immerse the bottom board but reverse it once or twice in the solution. It is best to wear some kind of gloves while handling the wood preservative.

Danger

In some parts of the country, especially the southern states, some manufacturers of wood preservatives add an insecticide to their wood preservative. It is important to read the label directions carefully to make certain that an insecticide has **not** been added to the solution, otherwise, bees may be killed*.

*In the spring of 1980 the U.S. Forest Service and the Science and Education Administration of the USDA, with some funding from the Environmental Protection Agency, is initiating a three-year study on the toxicity of the known wood preservatives to honeybees. It is interesting that despite the fact that several wood preservatives have been used for many years to treat beehive parts there are almost no data on any adverse effects these materials might have on bees. The study will be under the immediate direction of Mr. B.F. Detroy, agricultural engineer in the SEA laboratory in Madison, Wisconsin.

Honey Quality

GOOD HONEYS need to be fresh. As honeys age they change chemically. Some of these changes can be accurately measured in the laboratory. An acid called H.M.F. increases as honey ages, a condition used to judge honey imported into Europe.

Desirable enzymes derived from the flowers and from the bees' glandular secretions diminish as the honey ages. The speed of aging can be accelerated markedly by heat.

A Method of Determining AFB in Old Dried Out Honeycombs

By P. F. THURBER
Kirkland, WA

FOR YEARS I had a problem — people would offer me used equipment, often very good equipment, that "died during the winter" and I was afraid to buy it because I was always afraid the equipment might be diseased, and I was afraid of bee diseases. With ETO fumigation you can buy bargains, have them fumigated and perhaps be way ahead — IF you have ETO available but most of you haven't.

As a bee inspector I really go into the problem, and now as a former bee inspector I still am in it. People ask my opinion. They bring equipment to the house some of which has been dug out of barns or basements where it often has been hidden for years. Stuff with AFB stamps are no problem, but what do you do if you find dead-outs with dead brood all dried out complete with sunken cappings, perforations, and mold and no history? There is always the prudent solution of sending samples to the bee lab, but if you cut samples, you destroy the combs. Things get complicated because probably too you know dead brood, perforations and sunken cappings can occur in dried out dead-outs where the death was not caused by disease. Great, huh?

Well relax. By pure accident I discovered something. I have asked some authorities if they ever heard the like of and they had not, so maybe there is something new under the sun. It went like this. I had to make a display of AFB. I had what looked like a diseased comb, but I was not sure and it was very old, very dry and was covered with white mold. I thought that by dampening the comb the mold would go away. The comb looked better so I put it in the display box. Then I screwed on the glass top but when I did so I cracked the glass. Being too busy to immediately cut a new pane of glass I let the display sit but inadvertently I left it where the sun shone on it. Later I decided to cut a new pane of glass and when I removed the cracked piece I got a strong whiff of the typical AFB smell.

Next incident: Someone found hives abandoned and overturned. He thought they might be diseased. I asked him to smell the dead brood area. He reported there was no smell and the remains were too dry to open. I then said to put a frame of dead brood in a plastic trash bag, tie it up so my bees could not get into it, and bring it by the house. He did and while it was in the sack the sun shone on it, and since the humidity was and had been high for a few days, when we opened the sack we again got a strong typically AFB odor although we could not get the dead larva to rope. Rope or no rope obviously we had AFB and off the equipment went to be fumigated with ETO.

Now you may think I am belaboring the point, but I want you to talk to your local inspector about this matter. If he has not heard horror stories of people who wiped out their outfits by buying diseased equipment, I will be most surprised because every inspector I have talked to about this can relate incidents that will curl your hair. Tell him too to try adding a little mositure to the old dried out combs and putting them in trash plastic bags and warming them to about 90 degrees. If he has not read this article, he will thank you for it.

Now before I close — even if you are absolutely certain used equipment is not diseased, play it safe. Don't super your healthy hives with used equipment. Wait till next year then shake a package with a mated queen or a swarm into the used equipment. Start them out with a gallon of TM25 (¾ teaspoon of TM25 to a quart of syrup) in an overhead feeder and immediately place a antibiotic extender patty on top of the brood frames. You should also problably restrict the entrance to only an inch or two in width by taking two pieces of 2 inch wide window screen and tucking one on each side of the entrance until the colony is established and able to defend itself. Then when you find the equipment is disease free, cautiously use it. However, if you bought, say, 25 supers realize any one can contain AFB.

In closing I urge you to cut out the disease recognition chart printed with this article. I prepared it and it was first printed in the Puget Sound Beekeepers Newsletter about ten years ago. The chart is now printed in the Oregon, Idaho, and Washington Extension Service bulletin PNW #79 so it has stood the test of time.

IDENTIFICATION OF BROOD DISEASES

	American Foulbrood	European Foulbrood	Sacbrood	Atypical European Foulbrood
Causative organism	Bacillus larvae	Steptococcus pluton	Filterable virus	Bacillus alvei
Odor	Usually strong and foul	Slightly acid-sour	None to slightly sour	Slightly acid-sour
Amount of brood affected	Usually much	Usually much	Usually little	Usually much
Cappings	Often sunken and perforated	Affected brood mostly unsealed	Sunken caps less prominent than AFB, some with two holes	After sunken and perforated
Age of larvae	Usually die after capping	Usually die before capping	Usually die after capping	Many die after capping
Color of larvae	Become dark brown	Yellow, gray, brown	Become dark brown, head end darker	Become dark brown
Consistency of the larvae	Sticky, "roping" out 5/8" or more	Soft, breakable, sometimes slimy	Watery, granular, tough skin forms a sac	Slightly sticky rope. If any, less than ½"
Position of dead larvae in cells	Usually lengthwise. Soon become shapeless	Usually curled at bottom or on side-walls	Lengthwise, become mummified	Usually lengthwise soon become shapeless
Pupae	Sometimes affected. Tongue usually sticks up	Not affected	Rarely affected	Sometimes affected
Scales	Dark brown, stuck to floor of cell, brittle; fluoresce in ultraviolet light	Yellow to brown. Usually small, free, and at bottom of cell, tough and rubbery	Blackish, free, lengthwise along floor, brittle	Sometimes found but not stuck to floor of cell. Very hard. Can generally be removed

Delaware Valley College's Honey House.

NEWS and EVENTS

PENNSYLVANIA
Delaware Valley College Short Courses

Spring: Saturday, March 29 & Saturday & Sunday, April 12 & 13, 1980.

Summer: Friday, Saturday, and Sunday, June 20, 21, and 22, 1980.

Delaware Valley College will again be offering its spring and summer Beekeeping Short Courses. The courses are offered under the direction of Dr. Robert Berthold (Associate Professor, Biology) in cooperation with Mr. Jack Matthenius (New Jersey Supervisor of Bee Culture). The program will include a special talk by Mrs. Marnie Berthold on home honey uses. Instruction will take place on the Delaware Valley campus, with the college apiary and honey house being utilized.

Over 170 persons attended the 1979 courses. Included in this group were experienced beekeepers, novices and those considering taking up beekeeping as a hobby. There were also quite a few educators who were planning to use the information presented in their own classroom situation. Also, a number of people incorporated the course in their vacations.

Total cost for the three days of instruction is $21.00 ($16.00 for those 17 years of age or younger and those 65 years of age or older). Further information may be obtained by writing Dr. Berthold, Delaware Valley College, Doylestown, PA 18901, or by calling him at Area Code 215-345-1500.

There will be a beekeepers' meeting at the College featuring a guest speaker, Saturday, June 14, 1980; picnic lunch at noon (bring your own); speaker at 1:30; refreshments.

OHIO
Ohio State Beekeepers' Association

The Ohio State Beekeepers' Association will meet March 15th 1980 at Capital University, Columbus, Ohio. Registration begins at 8:30 A.M.

Eugene Killion, State Apiarist of Illinois will give the keynote address. Walter Rothenbuhler of O.S.U. will talk about "Disappearing Disease". A report will be given by Vic Thompson on E.A.S. activity and another report will be given on the American Beekeeping Federation meeting in Dearborn, Michigan. Gordon Rudloff will present the State Apiarist's report. Dr. Tom Sanford of O.S.U. will give an evaluation of **Beekeeping Notes** and Frank Eichen of O.S.U. will talk about longevity in adult honeybees.

KANSAS
Kansas State Beekeepers' Association

The spring meeting of the Kansas State Beekeepers' Association will be held at the Kansas Bible Camp, Route 3, Hutchinson, Kansas, on Friday and Saturday, March 28-29, 1980.

Registration for Friday's activities begins at 9:30 A. M. with a registration fee of $1.00 per person. A beekeeping school featuring classes on "Preparing for the Honey Flow", "Splits and Nucs". "Constructing Equipment", and "Uncapping and Extracting Honey" will begin at 10:30 A. M. Following the noon meal a field trip will be held to help participants gain further practical experience in beekeeping procedures. An evening "Get Together" and the Executive Board meeting will complete Friday's activities.

Registration for Saturday's activities begins at 8:30 A. M. with a registration fee of $1.00 per person. State Senator Burt Chaney will be a guest speaker, Marvin and Grace Regier will show slides on commercial beekeeping, a panel of commercial beekeepers will discuss issues relating to the industry, and there will be a presentation by Miss Diann McCallum, the 1980 Kansas Honey Queen. Also slated are the regular business meeting and an auction of beekeeping equipment. Adjournment is set for 4:30 P.M.

The members of the Kansas State Beekeepers Association invite all beekeepers from Kansas and the surrounding area to attend.

WISCONSIN
Wisconsin Honey Producers

Lynn Ludack of Centuria, Wisconsin has been chosen 1980 Wisconsin Honey Queen. She's the daughter of Eugene and Dorothy Ludack and a senior at Unity High School in Balsam Lake, Wisconsin. Ms. Ludack served as 1979 Polk-Burnett Counties Honey Queen and promoted the honey industry and beekeeping at county fairs, retail store promotions and through the media with radio and newspaper interviews.

She was chosen over seven other contestants during the annual convention of the Wisconsin Honey Producers Association in Eau Claire, Wisconsin.

PENNSYLVANIA
Bucks County Beekeepers' Association

Mr. James Steinhauer, the Pennsylvania Supervisor of Bee Culture, will be the featured speaker at the March meeting of the Bucks County Beekeepers' Association. Mr. Steinhauer's illustrated talk will deal with the more common of the honeybee diseases, their recognition, and their treatment.

The meeting is being sponsored by the Bucks County Beekeepers' Association in cooperation with Delaware Valley College and the Delaware Valley College Student Beekeeping Club. The talk will be given at 8:00 P.M. on Thursday, March 27th, 1980 in the Mandell Hall Auditorium on the Delaware Valley College campus located about one mile west of Doylestown on Route 202. The meeting is open to the public, and anyone interested is cordially invited to attend.

CANADA
Fanshawe College Workshop

Fanshawe College in London, Ontario, Canada will hold a workshop on Saturday afternoons at monthly intervals starting April 19, 1980. Each three hour sessions will be held in abray of the instructor Harold Killins, BSA. Registration is at Fanshawe College, Department of Continuing Education, 520 1st. Street, London, Ontario, Canada or phone (519) 452-4425.

FLORIDA
Lee County Beekeepers' Association

The next meetings of the Lee County Beekeepers' Association are as follows: March 3, April 7, May 5, June 2, 1980. Meeting are from 7 to 9 P.M. at the Junior Museum located on Ortiz and Colonial Blvd., Fort Myers. Phone (813) 322-2206.

OHIO
Stark County Beekeepers' Association

The Stark County Beekeepers' Association will hold their Fifth Annual Bee School, Saturday, March 22nd from 9:00 A.M. to 4:00 P.M. at Kent State University, Stark County Branch on Frank Road in the Fine Arts Building Auditorium. The admission is $2.00 at the door or by pre-registration. Dr. Richard Taylor will be the featured speaker. Workshops will be held, geared to the needs of beginners and the more advanced beekeepers. For further information or pre-registration, call or write Ray Wilson, 6352 Easton St. N.E., Louisville, Ohio 44641. Phone 875-2505.

WEST VIRGINIA
West Virginia Beekeepers' Association

The West Virginia Beekeepers' Association will kick off the 1980 beekeeping season at the Holiday Inn, Rt. 50, Parkersburg, WV. on March 22. The Mid-Ohio Valley Beekeepers' Association will host this meeting.

Dr. James Amrine (West Virginia University) will speak on "Bee Venom". Dr. Clarence Collison (Penn State) will speak on "Early Spring Management and Factors Affecting Colony Build-up". Stanley Kozlowicz from The Happy Hive, Dearborn, Michigan, will speak on "Spring Feeding".

Displays will be set up by a local Dadant dealer and an A. I. Root dealer. Also displayed will be hive top feeders and Cobana equipment from The Happy Hive, Dearborn, Michigan.

There will be many door prizes awarded and a hybrid queen given away. The 150th registered guest will receive a Pierce wiring board, valued at $40.00.

Lunch will be served. Two coffee breaks and lunch is $7.50 per person, walk-ins — $4.00. For reservations, contact Mrs. Sarah Hutchinson, WVBA Secretary, Box 32, Webster Springs, WV. 26288. Come join us for this most interesting meeting!

The Mid-Ohio Valley Beekeepers Association will hold their regular meeting on March 21 at the Vienna Community Building, Vienna, WV (near Parkersburg). For persons arriving in Parkersburg on the evening of the 21st, feel welcome to attend this meeting. Dr. Clarence Collison (Penn State) will speak on "Swarm Control". There is no charge or reservation required for this meeting.

OREGON
Beekeeping Course

A beginning beekeeping class will be sponsored by Glorybee Honey and Supplies, 1001½ Terry Street, Eugene, OR 97402, Phone 503-485-1649 or 485-1761. It will be a one-day course on March 29, 1980, 8:00 A.M. — 5:30 P.M, held at River Road Park & Rec. Center. This course is designed to introduce the beginner to the basic principles and procedures of handling the honeybee colony. Topics include: Package bees, equipment, honey production, control of disease and processing of honey. An enrollment fee of $15.00 per couple or child and parent also includes beginning book on how to keep bees. To preregister send $5.00 to the above address. For further information contact Dick Turanski at Glorybee Honey and Supplies.

INDIANA
Indiana State Beekeepers' Association

The indiana State Beekeeper of the Year Award was presented to Don Bieber of Fort Wayne. The President of the Indiana State Beekeepers' Association, Tom Ott of Columbia City, made the presentation at a recent meeting of the Northeastern Indiana Beekeepers Association. The award selection is made annually for the state association by Claude Wade, State Entomologist and Chief Bee Inspector. Written recommendations of members of the state association form the basis of the selection. Don was especially recognized for advancing beekeeping by his close observation of honeybee habits and local honey plants. These observations have been freely shared with other beekeepers through the local association. Bieber is past president of the Northeastern Indiana Beekeepers' Association and is editor-publisher of the association's newsletter. He also teaches a beekeeping class at Indiana University — Purdue University at Fort Wayne.

(Left to right) Tom Ott of Columbia City, President of the Indiana State Beekeepers Association, and Don Bieber of Fort Wayne, Indiana State Beekeeper of the Year.

CALIFORNIA
U. C. Davis Beekeeping Courses

Bees and practical beekeeping are the subjects of three short seminars taught by UC Davis entomonlogy department faculty and staff here this spring. Open to the general public, the weekend programs range from the introductory seminar on bees to an advanced course in queen rearing.

Life of Bees and Beekeeping, held on Saturday and Sunday, April 19 and 20, is taught by Dr. Norm Gary, a UCD entomology professor. The program meets from 9 A.M. to 4 P.M. both days in the Conference Room of the Bee Biology Building on the Davis campus.

Beekeeping workshop, also taught by Gary, meets on Saturday, May 31. In this program, students practice methods of manipulating bee colonies. Gary covers diagnosis and treatment of disease, feeding, rearing, introducing queens, evaluating colony performance, methods of honey production and harvest, and provides instruction in the proper use of smoker, veil and other equipment. The seminar meets from 9 A.M. to 5 P.M. in the UCD Bee Biology Building.

Queen rearing is held on Saturday, May 17, from 9 A.M. to 5 P.M. In this seminar, Christine Peng, a UCD assistant professor of entomology, and Jerry Marston, a staff research associate, describe and review queen rearing principles and demonstrate practical techniques for queen rearing, including making cell cups, grafting, feeding, caging and preparing queens for a shipment. The program meets in the Bee Biology Building on campus.

For further information or enrollment in the programs contact University Extension, University of California, Davis, CA 95616; telephone (916) 752-0880.

CONNECTICUT
Beekeeping Short Course

A short course will be given at the White Memorial Conservation Center and Museum, Litchfield, Conn. The instructor will be Professor Al Avitabile of the University of Connecticut and co-author of the **Beekeeper's Handbook**.

The course will consist of three Saturday morning and afternoon sessions (bring a lunch). Sessions begin with lectures at 9:30 A.M. immediately followed by field trips to bee yards for demostrations. Demonstrations will include: How to hive package bees and swarms, How to rear your own queens, how to divide colonies, how to manage a two queen colony and many other demonstrations related to bee management.

The dates for the course will be March 29, April 5 and April 19. Cost will be $25.00 per person for entire course. For additional information contact the museum at 567-0015 or Al Avitabile at 757-1231, Ext. 38 (area code 203).

NEW YORK
Beekeeping Course

A course in practical beekeeping, taught by Dr. Richard Taylor, will be given this spring in Rochester, N.Y. Dates are evenings of April 17, 24, May 1, 8, plus a field trip May 10. For information write Office of Community Services, Monroe Community College, 1000 E. Henrietta Rd., Rochester, N.Y., 14623.

Obituaries

Hugh John Macleod.

HUGH JOHN MACLEOD

ONTARIO'S best-known hobby beekeeper, Hugh John Macleod, died suddenly at his home in Toronto on January 4th, 1980. He was 66.

"Hughie" bought 10 colonies of bees in 1963. That same year he and his wife, Doris, attended the Eastern Apicultural Society conference at Guelph, Ontario. They have been associated with the E.A.S. ever since. He became a director in 1969, president in 1974 and vice president again in 1979 for the Ottawa conference.

In addition, he founded the thriving Toronto District Beekeepers' Association in 1975 and served as its president in 1978.

After 35 years with Canadian Pacific Railways — he concluded his career in the control tower of the giant Toronto Marshalling Yard. Mr. Macleod retired to give virtually his full fime to beekeeping and beekeepers.

He was the superintendent of the Honey and Maple Syrup Exhibits at the national Royal Winter Fair and, together with Ed Dickey, established the first colonies of bees to be displayed at the Ontario Science Centre.

But most of all, Hugh Macleod will be remembered as the person who roamed the towns and villages of Ontario and northeastern United States visiting old beekeepers and teaching and encouraging new beekeepers. He was truly a man with thousands of friends.

He was a member of Transportation Lodge, A.F. & A.M., Toronto.

Mr. Macleod is survived by his wife, Doris, of 207 Oak Ridge Drive, Scarborough, Ontario, M1M 2B4, and daughters, Marilyn and Margaret. Our warm sympathy is extended to his family.

RAY R. REED

RAY REED'S interests were many and varied but beekeeping and that industry were of most importance in his life. He was a second generation beekeeper. His father was a hobbyist and at 8 years of age Ray started helping him with the bees. During the depression, this hobby became a business.

As Ray's business expanded and grew, so did Ray's interests in the beekeeping industry. He became a member of Sioux Honey Association serving as Director of District 10 for many years. Ray was vice president of the Sioux Honey Board of Directors, member and past president of the California State Beekeeper's Association, a vice president of the American

Beekeeping Federation for which he received his 35-year membership pin in 1979. In more recent years, Ray served as vice president of the Orange County Beekeeper's Association. He was a long time member of the Los Angeles County Beekeeper's Association. In the early 1950's Ray was one of the main organizers of the California Marketing Order for Honey then serving as chairman and member of the California Honey Advisory Board. For the past nine years, he was the superintendent of the Apiary Division at the Los Angeles County Fair. Ray also was a Mason and a member of the Whittier Sertoma Club.

Ray Reed passed away January 23, 1979 at Laguna Hills, California following hospitalization of several months. Survived by his loving wife, Mona Schafer Reed, stepson, Alan Schafer and his wife, Alice of Huntington Beach and sister, Mrs. Helen Williams of Laguna Hills.

EMERSON LONG

EMERSON LONG, long time commercial beekeeper in Ohio passed away January 19, 1980 at the age of 82. He resided in St. Paris, Ohio and operated bees throughout central and western Ohio.

Mr. Long has been active in the Ohio Beekeepers' Association for many years and has attended meetings regularly during this time. He was a former president of the Ohio Beekeepers' Association. At one time he operated several thousand colonies of bees.

Mr. Long is survived by 4 daughters and 1 son.

Book Reviews

British Bee Books A Bibliography 1500-1976, by The International Bee Research Assn., 1979, hardback, 270 pages, $30.00

British books dealing with bees and beekeeping are a national, and indeed a world heritage, and they constitute the richest collection of material on the subject in any single language. This exciting new publication by the International Bee Research Association records 830 printed books and 12 early manuscripts, which together span 1500 years.

The intriguing task of finding and recording all these books, annotating the entries and establishing which libraries possess copies, has taken 25 years. Thanks to the co-operation of 14 key libraries in Britain, Ireland, Canada and the USA, their holdings of all books up to 1926 are indicated.

There are 17 illustrations, reproduced from the books themselves.

For nearly two-thirds of the time-span of book printing, the heritage recorded in **British Bee Books** is also that of beekeepers in North America. the more recent wealth of bee books, those published there in the last two centuries, has been placed on record by Dr. T. S. K. and Mrs. M. P. Johansson in **Apicultural Literature Published in Canada and the United States** (1972).

British Bee Books is available direct from the International Bee Research Association, Hill House, Gerrards Cross, Bucks SL9 ONR, England, post free. A leaflet with further information, and showing two of the illustrations, will be sent free on request. **Apicultural Literature Published in Canada and the United States** can also be obtained direct from IBRA, price US $8.95, post free.

Bibliography of Tropical Apiculture, by Dr. Eva Crane, 380 pages, with 4,045 entries and 3 maps. 30 English pounds or US $68, post free by surface mail, 24 English pounds or US $54 to IBRA members and purchasers in developing countries.

There is an enormous unexploited beekeeping potential in tropical countries, which stand at the threshold of beekeeping expansion as important and far-reaching as that in the temperate zones 120 years ago, when movable-frame beekeeping was being spread from country to country. For example plant resources in India could support fifty million hives instead of the present half million. Ethiopia, with an especially rich beekeeping tradition, has three million hives already, but only thirty of the beekeepers use modern frame hives.

Beekeeping utilizes nectar and pollen resources that otherwise go to waste, and it needs little or no land. Until now, the greatest hindrance has been lack of coordinated knowledge that would make attempts at development maximally effective.

The **Bibliography of Tropical Apiculture** remedies this situation once and for all, and opens a new pathway to beekeeping as a source of food and income for people in half the world's inhabited land area. Funded by the International Development Research Center in Canada, and prepared at the International Bee Research Association in England, the Bibliography presents a compact key to several thousand publications which are themselves accessible through the IBRA Library. It gives information on 140 countries altogether. The Bibliography is divided conveniently into 24 subject parts, each with an informative introduction.

Bibliography of Tropical Apiculture is obtainable direct from the International Bee Research Association, Hill House, Gerrards Cross, Bucks SL9 ONR, England.

I KEEP BEES — I DON'T EXTERMINATE THEM

(Continued from page 153)

case, my husband and I went so far as to take a look at the carton, thinking that if the bees had just recently swarmed into it, we might be able to take it away. But the colony had been established for some time, and the box was old and damp, practically falling apart. We could see that to try to lift it was to invite getting badly stung. Furthermore, the bees were of no commercial value to us on their irregular combs, and so we told the owner of the outhouse that he would be best off either letting the bees alone or calling in an exterminator. Sensible advice, we thought. We had no more than arrived home, when the phone rang.

Caller: "About them bees; I hate to spend money to get rid of them. Since that outhouse ain't worth nothing anyway, what about if I take my 'Cat' and bulldoze it down?"

Me: "No! Don't do it unless you want to have the living daylights stung out of you."

Caller: "Well, what about if I *burn* it down?"

Me: (*!))* (My answer is best left to the imagination.)

As you have undoubtedly guessed, extemination calls aren't my favorites. I'drather have a honey customer on the line any time.

MONTHLY HONEY REPORT

(Continued from page 118)

were mild compared to last winter. Bees have had good cleansing flights and stores are adequate. Movement of honey from producers has been slow due to shortage of cash flow on part of buyers. Fair sized amounts of last year's honey still in hands of the producers. Weather varies between severe cold and moderate. Feeding may be necessary in some northern locations with average honey supplies. Still short on moisture in Montana but some moisture at higher elevations for irrigation supply. Local producers-packers conducting a price war on 5 lb. tins in Idaho.

Region 9

Price increase of honey reflects increased cost of containers, gas and packing costs. Honey prices up a few cents but honey movement is slow to moderate at wholesale, generally good in the Northwest at retail. A moderate winter to date in Washington and Oregon.

Almond bloom starting February 10-20th. Heavy amounts of rain and above normal temperatures in California has caused vigorous pasture growth and lead to earlier brood rearing. Business inventory tax repeal may stimulate packers to purchase additional bulk honey during slow buying period. Demand for honey at retail fair to good.

UNITED STATES-Honey production in 1979 totaled 237 million pounds, up 3% from the 1978 level of 230 million pounds. The number of colonies increased 2% to 4.15 million and yield per colony increased to 57.2 pounds from 56.5 in 1978. The 1979 average price for all wholesale and retail sales of 59.0 cents was 4.5 cents greater than the 1978 price. In mid-December producers reported 37.8 milion pounds of honey on hand compared with stocks of 31.9 million pounds in 1978 and 30.1 million pounds in 1977. Florida, North Dakota, California and Minnesota were the leading producing states.

SUPPORT YOUR LOCAL BEE ASSO-CIATION

FUNDAMENTAL FOR ALL

(Continued from page 146

period of maximum growth and minimum income. At the same time, and at following examinations, supering is the main concern until harvest.

There is no question that the use of bee escapes create the least colony disturbance, but the necessity for two visits, one to put on the escapes, the next, a day or so later to remove the honey makes a one-visit super removal preferable. The acid boards, of course, create much less distrubance than brushing the bees from the combs or using a blower.

At post-harvest the population will be long past its peak, the queen will be slowing down in her egg laying and this final examination for the year reveals queen-rightness and queen-fitness — whether she can be depended upon to go through the winter and produce a big population next spring.

All of these excursions into the realm of the honeybee have their special purpose, the aim of which is to provide a maximum reward for the beekeeper. Throughout it all, however, the beekeeper is the partner in production. It is this intimate relationship with the "harvesters of gold" that gets man away from civilization-begotten cares — that enables him to have a part of his life to himself.

BEARS, BEEHIVES AND BEEKEEPERS

(Continued from page 139)

Pearcey, G. F. 1934. Do bears really like honey? **American Bee Journal** 74:486

Rowe, I. J. 1948. Where to locate apiaries in bear country. **Gleanings In Bee Culture** 76:488

Selwyn, H. H. 1947. Bear and more bear. **Gleanings In Bee Culture** 75:133-135

Storer, T. I., G. H. Vahsell, and B. D. Moses. 1939. Protection of mountain apiaries from bears by use of electric fence. **J. Wildl. Manage.** 2(4): 172-178

White, L. 1947. Don't try to fence bear — trap them. **Gleanings In Bee Culture**. 75, 652-653

Wilder, J. J. 1938. Bears do like honey. **American Bee Journal** 78: 218-219

Winson, J. W. 1924. Bears in beeyard. **American Bee Journal** 64: 86

BEEKEEPER BUILDS INNOVATIVE EQUIPMENT

(Continued from page 141)

retrieving swarms. All he has to do is grab his box and he's ready to go. Now if he could build a folding ladder into it, he would truly be set!

STRICTLY BACKLOT

(Continued from page 142)

We found out three days later that it had come from one of my father's three hives on our property. I extracted 160 pounds of honey off the swarm two and one-half months later (with my Dad's help), and gave five pounds to the nice man who let us cut off the top of his evergreen. The rest I'll enjoy for a long time to come. I am now a full-fledged member of the New Jersey Apiculture and Pollination Society."

And you're a backlotter. We welcome you with a wink!

SPRING AWAKENS THE BEEYARD

(Continued from page 136)

During the winter we have entertained ideas of what we would do or put into practice with the inception of spring. Now, before the honeyflow comes full force which demands most of our time to the activities in the beeyard, those ideas can be put into reality. For one thing, my hives need a coat of paint. They won't be the conventional white, instead I have decided on something like stump gray to tie in less conspicuously to the setting against greedy eyes and undisciplined ambitions. No, I've lost no hives to bee rustlers, but youngsters with BB guns occasionally pass through the back woods. Also there are those who would resort to rocks and even upsetting the hives.

Other things which came to my mind was to increase the number of colonies. Too, there is always room for tidying up the beeyard for which the winter rains and winds hold no special favors. Being a hobbyist, I have more time for that than the professional.

There is a lot of pride and satisfaction in having idle moments to spend among the little creatures which are a part of one's life. They have well earned their keep.

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Call or Write for deliverd price by our truck. Small orders cash. Large orders $2.00 per pkg. Deposit. Balance 3 weeks before shipping date.

G. D. McCary & Son Bee Co.
P.O. Box 87 Buckatunna, MS 39322
Phone: 601-648-2747

ITALIAN
PACKAGE BEES AND QUEENS
NO DRONES

We ship pure worker bees by your truck, car, trailer or by parcel post. Prices are F.O.B. Funston, Ga.

With Queens	2 lbs.	3lbs.	4lbs.	5lbs.	Queens
1- 24	$18.50	$23.25	$28.25	$33.50	$6.25
25-100	$17.85	$22.60	$27.60	$32.85	$6.00
101-499	$17.35	$22.10	$27.10	$32.35	$5.75
500-up	$17.00	$21.75	$26.75	$32.00	$5.50

Clipping Queens 40¢ each — Marking 40¢ each
For queenless packages deduct $3.00 from above prices
Get worker bees only, don't pay for up to 20% Drones you usually get in your package bees.

Packages can be shipped only by parcel post or your transportation. Get away for a few days, pool your order with your neighbor, pick your bees up here and save the postage. Deduct $1.00 each if you bring your own usable cages. $3.00 deposit per package required to book your order — balance due 15 days prior to shipping date. For most desirable shipping dates book your order early.

We feed Fumidil-B in the fall and early spring
Prices subject to change without notice.
Thank you!
Shipping dates April 1st thru May 20th

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FUNSTON, GEORGIA 31753
Ph. 912-941-5522

CAUCASIAN QUEENS

1-10	$6.90
11-39	6.35
40-99	5.95
100-499	5.60
500-up	5.40

MIDNITE

$7.30
6.75
6.35
6.00
5.80

For clipping and or marking add 50¢ per queen.

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NO COLONY IS BETTER THAN ITS QUEEN

Italian queens bred for Honey Production

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Order 1 or 1,000
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Phone: (318) 466-5289

3-Frame Italian Nucs

Best Quality
$42 ea. Postpaid

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YORK'S--- Quality Bred

1 STARLINES
9 MIDNITES
8 ITALIANS
0

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Have you tried York's bees and service? Make 1980 your season to purchase your bees from a firm featuring both types of hybrid stock. New Starlines and Midnites continue to be the only privately developed strains of hybrids that consistently return more honey per colony. Be modern and use hybrid queens that produce vigorous workers which will extend your season and add to your total crop. Shipment made by parcel post, or your truck or station wagon. Information leaflets available on Starlines and Midnites; write us for your copy by return mail. Now booking for choice dates.

Bees & Queens

For Hobbyist — Honey Producer — Pollinator

ITALIANS

		1-3	4-25	26-99	100-up
2-lb. pkg.	w/q	$18.35	$17.95	$17.55	$17.20
3-lb. pkg.	w/q	23.20	22.80	22.40	22.00
4-lb.pkg.	w/q	35.35	34.60	34.10	33.60
Queens		6.10	5.90	5.75	5.60

STARLINE OR MIDNITE

		1-3	4-25	26-99	100-up
2-lb. pkg.	w/q	$18.75	$18.35	$17.95	$17.60
3-lb pkg.	w/q	23.60	23.20	22.80	22.40
5-lb. pkg.	w/q	35.75	35.00	34.50	34.00
Queens		6.50	6.30	6.15	6.00

Prices F.O.B. Jesup

Queenless packages — deduct $3.00 per pkg.

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Clipped and Marked 50¢ each.

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WRITE FOR FREE COPY OF SHIPPING RATES AND INFORMATION

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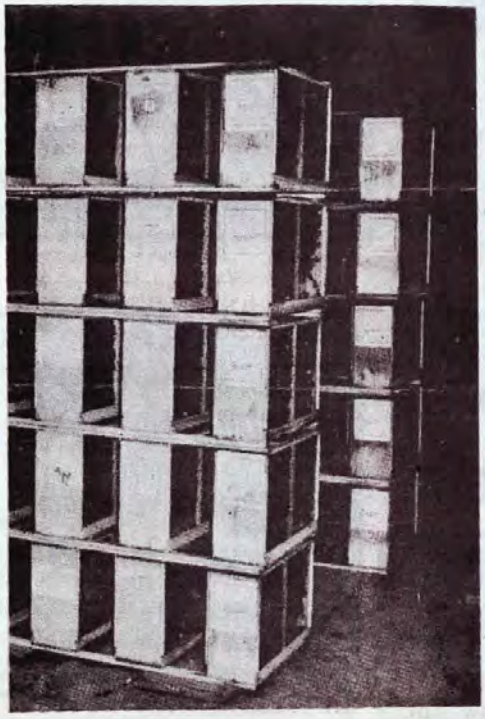

APRIL 1980

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

MAY 1980

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	0	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JUNE 1980

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

PLAN NOW on your shipping dates for the coming spring. Present indications are that shipments will have to be planned now for more difficult delivery schedules by parcel post. Now booking orders.

Particularly plan to use hybrids for the coming season. Our rate of production of hybrids continues to rise as modern, commercial beekeepers learn of increased benefits to them. BEE WISE — HYBRIDIZE.

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

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

INDIAN BEE JOURNAL Official Organ of the All India Beekeepers' Association, 817, Sadashiv Peth, Poona 411 030 India. The only bee journal of India Published in English, issued quarterly. Furnishes information on Indian honeybees and articles of interest to beekeepers and bee-scientists.

Annual subscription, postpaid for foreign countries U.S. 5.75 or its equivalent, to be received in advance by International M.O. or bank draft, payable in Poona or Bombay, India.

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. Englhardt, 1500 Maywood Avenue, Ann Arbor, MI 48103. IBRA PUBLISHES: **Bee World,** a quarterly journal for the progressive beekeeper. **Apicultrual Abstracts,** a survey of scientitic literature from all languages. **Journal of Apiculture Research,** for original bee research papers. Books and pamphlets on all beekeeping topics. Catalogues of publications and details of journals and membership $1. Specimen copy of **Bee World** $1.50; **Journal of Apicultural Research** $1.50; **Apicultural Abstracts** $2.00, from INTERNATIONAL BEE RESEARCH ASSOCIATION, Hill House, Gerrards Cross, Bucks. SL9 ONR, England.

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

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MEN AND WOMEN experienced in beekeeping. Write: The Family Honey Company, Box 455, McLennon, Alberta, Canada T0H 2L0.

Apprentice Beekeeper — Small (500) commerical migratory operator will **teach** all phases of bee operation. Must be in excellent physical shape. Room, board, and crop %. Available April 1. Send Resume: Michael Meyer, Rt. 1, Box 175, Monmouth, OR 97361, 503-745-5206.

PERSON WITH some beekeeping experience. Assist at queen rearing Louisiana and honey production South Dakota. For right person opportunity purchase 1000 colonies honey payment basis October 1980. HOPKINS HONEY FARMS, MARINGOUIN, LA 70757

WANTED

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

WANTED — A new or used system for melting down crystallized honey. Send information to Honey Butter Products Co., Inc., Box 186, Freeville, N.Y. 13068. Phone 607/844-9121.

WANTED, One of your honey labels, (any) for a collector beekeeper friend in the Netherlands. Gerbrand Van Dyk, Ridge Rd., Martinsville, NJ 08836.

FOUR HUNDRED single deep colonies complete. 2400 6⅝ supers; 9 or 10 frame, foundation or drawn. Write C. Egolf, P.O. Box 315, Newport, New York 13416.

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BOOKS

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SAVE Ormond & Harry Aebi's books THE ART & ADVENTURE OF BEEKEEPING, $4.60; MASTERING THE ART OF BEEKEEPING, $7.55; both $11.55 ppd. Sunlight Farm, RFD 2 Box 92A, Union, Maine 04862.

IMPORTANT collection of bee books, some rare and scarce. Public and mail order auction March 24th, 11:00 A.M. Samuel Yudkin and Assoc., 1125 Kings St. Alexandria, VA 22314, Phone 703-549-9330. Catalog $1.50.

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FRESH, PURE, Bee Pollen available in 1 pound lots, $6.50 per pound; 10 pound lots, $5.90 per pound. Large lots, ask for price. Hubbard Apiaries, Inc., Onsted, Mich. 49265.

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SUPER STRENGTH Royal Jelly capsules, 100 milligrams per bottle of 100, $12.50; five bottles, $60. Prairie View Honey, 12303 12th St., Detroit, MI 48206.

PURE FRESH Royal Jelly, 2 oz. bottle, $19 pp.; 1 lb. $120. Prairie View Honey, 12303 12th St., Detroit, MI 48206

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PROPOLIS U. S. A. Wants your HIVE SCRAPINGS! Now paying $2.00 a pound plus shipping costs for scrapings. You can't afford to throw them away or render them for wax. Just scrape them into a box, barrell or gunny sack — label them to PROPOLIS U.S.A., HAYWARD, WISCONSIN and send them collect by truck — send us the bill for postage or UPS. We don't want your wax, so if you want to float off the wax in cold water, dry off what sinks and send it on to us — we will pay you $4.00 a pound for the propolis. Sorry, if your bees are kept in open country, (with few or no trees) we will have to reject your scrapings (too much wax).

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HONEY PLANTS our specialty. Catalog on request. Pellett Gardens, Atlantic, Iowa 50022.

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

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CLOVER, ALFALFA, Wildflower any quantity drums or 60's. Glorybee Honey, 1001½ Terry St., Eugene, OR PH: 503-485-1649.

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PURE, CLEAN, liquid honey in 60 lb. plastic buckets, 1979 crop . Thompson's Honey Bee Acres, Rt. 1, Box 168, Brunswick, MO 65236, 816-272-4173.

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WANTED — HONEY, all grades. Send samples and price. M. R. Cary Corp., Box 818, Syracuse, N. Y. 13201.

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

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WANTED: All grades of honey in 60's or drums, truck or rail, car load lots. Send sample and price to DUTCH GOLD HONEY, INC., 2220 Dutch Gold Dr., Lancaster, PA 17601

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

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

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

WANTED — White Extracted or Comb Honey. Send sample. Millersport Honey Co., Millersport, Ohio, 614-862-8594.

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SLEEVES — 18" long and sting resistant. $1.25 pair. V & V Company, Box 101, Jamaica, NY 11435.

Plastic bag feeders, heavy duty, 3 qt. capacity, easily installed inside hive. 4 feeders $1.00 plus 50¢ shipping. VAILCO, INC., 6447 Yates Ct., Montgomery, Ala. 36117.

FOR SALE — 50 new 10-frame single story beehives, assembled except foundation $30.00 each. Also supers available For more information write to: Eli D. Yoder, 7500 Firestone Road, Spencer, Ohio 44275.

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FORTY — 10 frame hives mostly 2 story. Take all for $50.00 each. In Southern Calif. Ready anytime this spring. (213) 639-2046.

QUALITY SUPERS dovetailed: 9⅞ — $3.50, 7⅛ — $3.00, 6⅝ - 5¾ — $2.25. John Day Apiaries, IZEE Rt., Canyon City, OR 97820, (503) 575-0555.

REDUCE QUEEN loss and slow starting colonies this spring while using indirect method of queen introduction when installing package bees on foundation. Avoid errors and fumbling with our stainless steel queen cage holder. Three dollars per holder with instructions postpaid. Queen Cage Holder, P.O. Box 4591, Waterbury, Conn. 06704.

FOR SALE — **Nucs** in your boxes, frames exchanged, haul your boxes down in March, pick up good strong singles mid-May. Location — Palestine, Texas. Call Jerry Hutchison at 605-775-2383.

Approx. 400 hives in Michigan with most all equipment to go to 800 hives. Have other interest. Call 616-399-1930

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

PACKAGE Bees and Queens. Hives of bees with or without supers. Ramsey Jewelry, Pardeeville, WI 53954. 608-429-3045.

MICHIGAN beekeepers will be hauling package bees from Georgia again this spring. For prices, dates and information call Don Reimer, PH: 517-695-9031, Hemlock, Michigan.

PACKAGE BEES delivered to Wisconsin near Green Bay, Eau Claire and at my home. Ronald Hazard, Route 2, Poynette, Wis. 53955, phone: 414-992-3217.

MARYLAND BEEKEEPERS (and adjacent states): Package Italian bees for pickup April 12-13 near Frederick, MD (queens fed Fumadil-B). 2-lb. pkg. $20.25; 3-lb. $24.25 $3.00 per pkg. books order. Ernie's Apiaries, 9933 Kelly Rd., Walkersville, MD 21793. 301-898-9746.

NORTHERN BRED CARNIOLAN — queen bees. $5.00 each, Post paid. Now booking with shipment to start May 15, 1980. Glenmont Woods Honey Farm, John Caulk, 6137 Ely Road, Wooster, Ohio 44691.

NORTHERN CALIFORNIA Italian Queens, shipped airmail, postpaid and insured. April 1st to May 15th. 1-25 $5.00; 26-99 $4.75; 100 or more $4.50. After May 15th, 1-25 $4.50; 26-99 $4.25; 100 or more $4.00. Live delivery guaranteed. Ken Bachman (Bachman Apiaries), 1801 Calin Lane, Anderson, Calif. 96007. Phone: 916-365-4029.

Strong southern nucs delivered to West-Central Illinois last of April. 1980 laying queens. Richard Davis, RR #2, Dallas City, Ill. 62330, (217) 659-3342.

Italian bees, State inspected. Four frame nucs in your equipment frames exchanged. Pick up April. G.M.C. truck, new motor, Kelley loader, good condition. D.M. Brister, Rt. 1, Caddo, Okla. 74729, Ph: (405) 367-2570.

ITALIAN QUEENS and package bees. Shipment begins April 1st. QUEENS 1-5, $6.00; 6-24 $5.50; 25-99, $5.25; 100-499, $5.00; 500 or more $4.50. 20% discount on queens after May 15th. 2-lb. package w/q $15.00 plus package. RICKARD APIARIES, Rt. 1, Box 2241, ANDERSON, CA 96007 PHONE: (916) 365-5551 or (916) 365-6556.

NUCS and PACKAGES — Deposit w/order $24 to $44 F.O.B. "Bees" Fayette, MS 39069. Delivery available.

PACKAGE BEES. Now booking for April delivery. Contact R.J. Leu Apiaries, Box 173, RR 3, Hudson, Wisc. 54016, (715) 386-9162.

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

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Frame Capacity	24 D/44 Shal	44 D/60 Shal	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″
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Warranty	One Year Complete	One Year Complete	One Year Complete
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50	9⅝ Deep Bodies, 9⅛ Frame, Commercial Grade			280.00
100	9⅝ Deep Bodies, 9⅛ Frame, Commercial Grade			375.00
5	5¹¹⁄₁₆ Shallow Bodies, 5⅜, Commercial Grade			22.00
50	5¹¹⁄₁₆ Shallow Bodies, 5⅜, Commercial Grade			200.00
100	5¹¹⁄₁₆ Shallow Bodies, 5⅜, Commercial Grade			375.00
5	6⅝ Shallow Bodies, 6¼, Commercial Grade			22.00
50	6⅝ Shallow Bodies, 6¼, Commercial Grade			200.00
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