GLEANINGS IN BEE CULTURE

OCT '89

INSIDE:

The USDA and the AHB

The HARBO SYRINGE

BRYANT HONEY

BEAUTY & THE BEES

THE GREAT *GOOD NEIGHBOR* CONTEST

Microwaves, Honey and Wax

ROOT PUBLISHING

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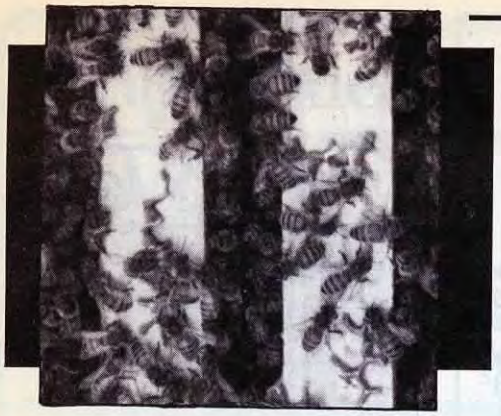
Columns

Departments

COVER . . . This is the time of year that guard bees really want to know what's going on when the cover comes off. This line-up is ready to go if they decide a defense is needed. Otherwise, it's just a friendly warning.
Photo by Flottum



OCTOBER '89

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(ISSN 0017-114X) Vol. 117, No. 10

116 Years Continuous Publication by the Same Organization

Features

THE INNER COVER

Where's the Members?

Group Dynamics

Successful groups, whether gardeners, Lions or beekeepers, all have three important things in common. These are the lures, the rewards, and the hooks that keep members just that — members.

These components have been studied in detail by sociologists over the years, and the dynamics of all small groups are pretty much the same. Small groups are everywhere — cliques at work, a few neighbors who play poker on weekends, or a bunch of beekeepers who chat over coffee and cookies.

All small groups have leaders and people who aren't leaders. As elementary as that sounds it is very, very important. Sometimes there are several leaders — program directors are leaders of a sort, so are secretaries. But in strong groups it's a central figure who gets people to work together and gets things done. To be successful, the whole must be greater than the sum of the parts. Leaders are one of the parts.

Another necessary component is a cohesive group of people who aren't leaders. Their enthusiasm runs the gamut from barely interested to nearly rabid. But they'll stay that way only as long as they get what they want from the group.

Most of us are followers of someone or something. At work we get paid, have friends and accomplish personal goals. Without these a new job becomes attractive. Similar examples are abundant if you think about it.

The third component, the one both leaders and followers find most important is effective communication. Leaders must be able to clearly express their ideas and certainly must have access to ideas and comments from members. The vehicle to accomplish this, of course, is the association's newsletter.

More needs to be said about these "keep in touch" tools. But before you offer a hundred excuses — can't afford it, already good enough, nobody reads it — answer this very simple question — Where are YOUR members?

A good organization needs a reason to be, a reason to continue, and the necessary tools to do it with. Leaders and followers are tools, and a newsletter is, too.

Nowhere is it carved in stone that for a group to be strong, all the members need to be together in the same room once a month. Next time we'll see why.

•

Season's End

Once again the capricious nature of nature did in the garden plans on the Ohio Estate*. The breaks between rainstorms this spring were measured in hours, not days or weeks. And, since our part of Ohio comes equipped with some of the slimiest, most awful clay soil imaginable, our garden wasn't dry until sometime in July. Which means, of course, that our shiny red roto-tiller sat idle until then; that the plants started earlier under lights grew rapidly and then expired, still in their pots; and that nothing was done on time.

This business of no garden is beginning to grate just a bit. Last year the drought stopped everything cold, and this year nothing was even started.

The farmers affected by this foul mess have had it bad twice now. There was corn across the road that was knee high on the first of September — it won't even make good silage, I'm told. Crop insurance and subsidies take on a whole new meaning when considering these problems. I doubt the decision makers in Washington ever had to make the choice between cattle feed and

Continued on Page 587

NEXT MONTH

November is the month we relax just a bit and dig out the workbench from under the summer mess and begin to think of winter projects.

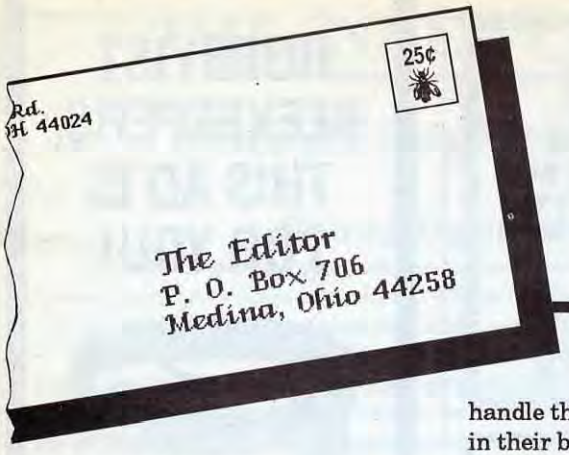
And next month we have a bunch. Get out your hammer and nails, screwdrivers and saws, routers and sawhorses. We have a whole winter's worth of things to make and things to use — that can be done in your spare time when the snow flies or the rain falls.

But for those who want to put their feet up and enjoy an easier time, we have an exclusive and entertaining interview with Dr. Norm Gary from Davis, California. Certainly one of the most visible beekeepers in this country, his science and teaching skills have only added to his entertainment skills. Find out what makes this educator/actor/researcher tick — right here next month.

Pesticides have been a serious problem for many this past season and though not always possible, biological control of crop pests has been a boon to beekeepers over the years. The practice of biological control is 100 this year and here's a look at this concept.

Another bee, *Apis florea*, has been making news in other parts of the world as it moves into and occupies new areas. Here is a first hand account of how this tiny, but beautiful, bee is changing parts of Africa.

And, of course, there's more on honey plants, more of our regulars, more of the best reading in beekeeping — right here — in November. □



MAILBOX

■ Encore!

Could you give us some articles from former editor Lawrence Goltz? They were always interesting. I especially enjoyed those about nectar plants. There is such a broad range of species in the various regions, blossoming over plains and mountains, in gardens and fields and roadsides. They are an integral part of beekeeping and inspire one to the endless study of nature's mysteries.

I thoroughly enjoy each issue of *Gleanings*. Thank you.

John Bolf
Lake Oswego, OR

■ Canadian Beekeeper has Africanized Bees!

Yes, it's true; but I have them in Mexico, not in Canada. I have kept and studied bees for 20 years; 12 years in Canada and 8 years here in southern Mexico.

I live in the Isthmus of Tehuantepec area, and half of my colonies are now africanized. The very first africanized swarms were detected here a year and a half ago. I'm quite excited about it; the invasion really is an awesome event to witness.

It now seems certain that many readers will one day soon find the AHB in their apiaries. How many would recognize them if they saw them?

They should be prepared! And to be prepared they should be informed. Your magazine does a good job of providing the latest interesting information. I have been a subscriber for almost 20 years and look forward to each issue.

The AHB has advantages as well as disadvantages. I am working with the AHB and plan not only to stay in business, but to expand!

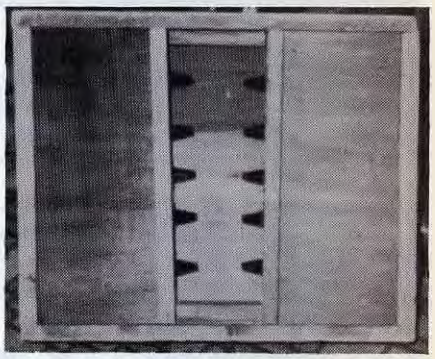
I am sure there are readers who would like to be able to work with and handle the AHB before they have them in their backyards. My wife and I have a couple of extra bedrooms, and we would welcome visits from fellow beekeepers. We work the bees all year round here. Visitors would be able to see first-hand, what the AHB is really like to work with, without spending a fortune going to Central or South America. Room and board would be very economical. Anyone interested can write to me for more details.

If any readers have a "pet theory" about working with or managing the AHB, write to me and I will try it out if I can. However, I must ask that if they want a personal reply to please enclose a dollar bill. We are on a tight budget down here in Mexico.

A. W. Armour
Apartado Postal 307
Salina Cruz, Oaxaca, Mexico

■ A Better Escape!

Today the August edition of *Gleanings* in Bee Culture arrived. I found the article about how to kill a honey bee very informative and will try this system the next time I must kill some honey bees. I also noticed an advertisement for the conical escape board.



I make my own conical escape boards the opposite way from any pictured in the supply catalogs. I feel my way is superior as it stands to reason more bees have access to the two wide portions of the board and when an empty shallow super is placed beneath the escape board all the bees clear out of the section super in two days.

Harry R. Crissman
Natrona Hgts., PA

■ Pollen Trap Trap

I read with interest the letter from Shelley Davidson, in the July *Speedy*

MAILBOX

Bee. I, too, have been troubled by statements made by C. C. Pollen over the years. Let me begin by explaining that my wife and I support ourselves with beekeeping, maintaining about 400 hives. Approximately 50% of our income is from the sale of Bee Pollen, so I feel as if I know a little bit about it. I've had several articles and letters published in the various journals but I've never written about pollen traps, til now. That's because I used to figure that the fewer beekeepers trapping pollen, the better.

What really riled me up, though, was when one of our customers told us that they were considering buying C. C. Pollen, in spite of its higher price because the company told them that C. C. Pollen was gathered in Eastern Arizona, and therefore was "smog-free"! Our pollen, on the other hand, being from Southern California, was probably contaminated by smog. As ridiculous and unfounded as this idea is, the fact of the matter is that C.C. Pollen buys pollen from beekeepers all over the country, so the pollen isn't even from just their area!

I could go on, but let me just tell you a few facts about pollen traps. Number one, they don't prevent the queens from coming and going as queens do in regular hives. If they did, our hives would shortly all become queenless, because they would be unable to carry out normal supercedure. Of course, even if the trap had harmful effects, the increased income from the sale of pollen would still make it worthwhile to use them. Fact is, friends, we leave the traps on year round, and still average 120 lbs. of honey per colony, with no increase in queen failure.

C. C. Pollen's latest claim that africanized queens would be kept out by their traps is absurd. In the first place, pollen traps must have drone escapes or bees may suffocate when dead drones trapped in the screen block the air flow. Queen bees, however, can pass through the screens, which are made far less accurately than queen excluders.

Preventing africanization of hives will never be as simple as installing some device on the hive, or even through systematic requeening. Believe me, these tricks have been tried and they don't work.

Since I have broken my silence about pollen traps, I feel I owe it to my beekeeping friends to offer a couple of tips. The big problem we have with pollen traps is that the hives leak; i.e., the bees find other ways to get in and out besides through the trap. What we do is to nail strips of redwood lath over the large cracks, fill small cracks and holes with exterior grade spackle, and (I hate this one) nail the lids down if they are "leaking". It is tempting to want to build traps without drone escapes but don't do it. If the bees use the escapes too much, just push a stick in the hole.

Peter van Borst
Rancho Santa Fe, CA

■ Whoops!

In recent months, there has been considerable discussion and confusions regarding the National Honey Board's assessments and refunds. In the September issue of *Gleanings*, you published a chart which showed the assessments and refunds from the National Honey Board for 1987 and 1988. The chart noted that foreign refunds were $500,000 in 1987. The figure is in error. 1987 refunds to importers totaled just under $500.00. 1988 refunds to importers totaled $33,725.00.

The National Honey Board operates on a modified cash basis of accounting and not an accrual basis. On a cash basis, 1987 domestic refunds were $126,069 or 5.5% of total domestic assessments paid. 1988 domestic refunds were $207,011 or 10.3%. On an accrual basis, however, where refunds requested but not yet paid, are taken into account 1987 domestic refunds paid or requested were $215,069 or 9.5%. 1988 domestic refunds paid or requested were $400,139 or 19.9% of domestic assessments.

In the same article you referenced the Honey Board's price survey. The Honey Board did not conduct such a survey and did not provide this data.

The National Honey Board is committed to keeping the beekeeping industry informed about its program and policies. I appreciate *Gleanings* sup-

MAILBOX

port and willingness to publish articles about the Board's work.

Dan W. Hall
National Honey Board

Editor's Note: Yes, indeed, the number printed was in error. I guess my zero generator got carried away. The survey mentioned was a consumption survey, measuring per capita honey consumption, not prices.

■ Producers Respond

I read with great interest your editorial in the August issue. A beekeeper made comments to a reporter saying "Some honey is adulterated by packers". This is an extremely serious charge. As a producer and packer, my family's financial survival depends on honey being accepted as a "pure and natural" product. For someone to make such a comment hurts the entire honey industry whether producer or packer.

Such statements are sincerely believed by a small portion of our consuming public. I have had a number of people tell me they never buy honey in grocery stores because it isn't "real".

The point is, the National Honey Packers and Dealers Association is actively engaged in looking for and policing adulteration in the honey industry. It begins with honey purchased from the producers that is checked for adulteration at that level. Be assured that legitimate packers are actively policing all honey on store shelves that could be adulterated. To allow a competitor to adulterate honey with cheap corn syrup would be giving him an unfair advantage. Not one packer I know would tolerate a competitor taking such an unfair advantage.

To everyone interested in the survival and improvement of the honey industry, I urge careful consideration when making remarks to the media. Never cast doubt on the purity of honey. Be ever vigilant for suspicious honey that is priced too low to reflect the realities of the market place.

Most important, if you find suspect honey, purchase it and send it to: The National Honey Packers and Dealers Association, 177 Main Street, P. O. Box 776, Matawan, NJ 07747. Tell when and exactly where it was purchased and any other details beneficial in locating the producer. Be assured that policing the market place is not a passive program. Action will be taken on samples you send in. The National Honey Packers and Dealers stand behind that statement.

Neil J. Miller
Blackfoot, ID

Editor's Note: We are fortunate to have not only this group, but the American Beekeeping Federation on the lookout for unscrupulous and unethical producers and merchants. Aid and assist these groups whenever you suspect honey for sale to be adulterated.

■ Cover Angle

Everything is wrong with the August '89 cover photograph! Turn it 90° to the left and it pleases the eye!

Hans Kuerschgen
Cahokia, IL

MAILBOX

■ Make Do

During my visit in Africa I found that a number of beekeepers outside South Africa have severe problems with obtaining wire for doing frames. The reason is that often there are no local producers of the wire and because of the shortage of foreign currency its import is hindered.

...so have we... I used to answer, adding that they can use an ordinary nylon fishing line 0.6 - 0.7 thick or something similar which can be embedded into foundation with the aid of a spur wire embedder. Beekeeping on a shoestring — that is the problem.

Piotr Jurga
Poland

■ Botulism Query

I have read a couple of publications discussing honey and it's use in infant feeding. The comments range from "it's the best thing for infants" to "it could be fatal of fed to infants". I would appreciate a response and possibly you could do a future article on the subject of honey in infant feeding. What is the truth?

Jack Gaines
Westminster, CA

Reader Assistance

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OCTOBER Honey Report

October 1, 1989

REPORT FEATURES
Summary: R=Range of all prices.
A=Average prices across all regions.
L=Last month's average.
Comments: Price Index is a ranking system comparing a region's prices to other regions.

	Reporting Regions								Summary		
	1	2	3	4	5	6	7	8	R	A	L
Sales of extracted, unprocessed honey to Packers, F.O.B. Producer.											
Containers Exchanged											
60 lbs. (per can) White	43.00	38.69	36.00	40.00	52.00	41.33	38.63	36.57	31.20-55.00	39.73	37.27
60 lbs. (per can) Amber	43.00	33.71	34.00	36.00	49.00	38.58	36.00	32.23	25.20-50.00	36.18	32.90
55 gal. drum/lb. White	.55	.35	.38	.41	.40	.61	.57	.55	.30-.63	.50	.52
55 gal. drum/lb. Amber	.54	.30	.34	.37	.38	.55	.53	.46	.28-.56	.45	.47
Case lots — Wholesale											
1 lb. jar (case of 24)	29.50	28.14	26.12	22.88	25.25	23.92	26.25	29.63	20.40-38.40	26.42	26.47
2 lb. jar (case of 12)	28.50	26.84	20.00	22.50	23.85	23.42	28.25	27.60	20.00-46.50	25.28	26.29
5 lb. jar (case of 6)	30.00	30.50	24.18	25.18	29.75	25.58	26.15	26.10	23.04-46.50	27.40	27.50
Retail Honey Prices											
1/2 lb.	.90	.91	.89	1.15	.91	.88	.98	.99	.79-1.50	.95	.94
12 oz. Squeeze Bottle	1.60	1.38	1.35	1.37	1.21	1.10	1.50	1.42	1.05-1.69	1.35	1.38
1 lb.	1.60	1.61	1.28	1.58	1.36	1.59	1.57	1.65	1.28-2.00	1.55	1.57
2 lb.	2.85	2.88	2.20	3.18	2.35	2.48	2.89	3.00	2.29-4.00	2.77	3.04
2-1/2 lb.	3.95	4.08	2.89	4.17	2.90	3.20	3.83	3.38	2.89-4.50	3.68	3.35
3 lb.	4.30	4.45	3.50	3.49	3.54	3.65	3.72	3.69	3.45-5.70	3.87	3.94
4 lb.	5.50	5.75	4.25	4.10	4.86	4.10	4.67	--	3.95-7.60	4.85	4.61
5 lb.	6.75	6.41	5.75	6.18	5.59	5.23	6.27	5.95	4.75-9.50	6.06	5.79
1 lb. Creamed	2.00	1.19	1.29	1.63	1.60	1.65	1.79	1.73	1.19-2.00	1.64	1.61
1 lb. Comb	2.50	1.94	2.00	3.00	2.49	1.93	2.77	3.40	1.75-4.50	2.37	2.28
Round Plastic Comb	1.75	2.19	2.00	2.00	1.75	1.77	1.85	2.72	1.75-3.45	2.05	2.00
Beeswax (Light)	1.10	1.07	1.00	1.07	1.50	.93	.95	1.10	.85-1.25	1.05	1.10
Beeswax (Dark)	.95	.96	.90	1.00	.90	.86	.85	1.00	.85-1.10	.92	.91
Pollination (Avg/Col)	32.50	16.50	22.00	27.75	19.00	21.50	27.00	26.50	16.50-32.50	24.20	24.90

MARKET SHARE

America's health and fitness kick has played a large role in the recent rejuvination of the cereal industry. Cereals with healthy ingredients such as bran, honey, vitamins and even oat bran, have been getting increased marketing support.

The cereal industry has gone a long way to bring healthy food to America's mornings but watch out for breakfast with "Barbi".

Region 1

Price Index 1.00. Prices and demand starting seasonal increase, and this fall looks good for increased honey sales. Fall crop looks good but spotty. Watch for hungry colonies.

Region 2

Price Index .90. Prices and sales steady to decreasing just a bit. Production still down and some problems with too much dark honey being produced. Late crops look good for wintering. Specialty crops generally disappointing.

Region 3

Price Index .81. Prices and demand still depressed in most areas. Production spotty and feeding may be necessary in many places.

Region 4

Price Index ,.6. Prices increasing a very little, demand steady. Crop spotty with some areas producing lots of light, while others making not nearly enough. Fall flows looking better for overwintering, especially in central states.

Region 5

Price Index 1.00. Prices up considerably in most areas as the full extent of the drought comes to light. Anywhere from half to two-thirds reduction in crop. Grasshopper sprays crating incredible havoc with many producers.

Region 6

Price Index .87. Prices increasing just a bit. Seasonal demand not started yet. Atypical rain patterns have caused stress in the east and abundance in the west.

Region 7

Price Index .90. Prices and demand steady to increasing a bit. Sales increasing seasonally. Rainfall in most areas increased and helped production. Many areas having best year in several. Northern areas still dry, though.

Region 8

Price Index .87. Prices steady, demand mixed. Sales strong in northern areas, while production steady to increasing. Spotty though, so watch feeding. Southern areas mixed due to drought and poor crops.

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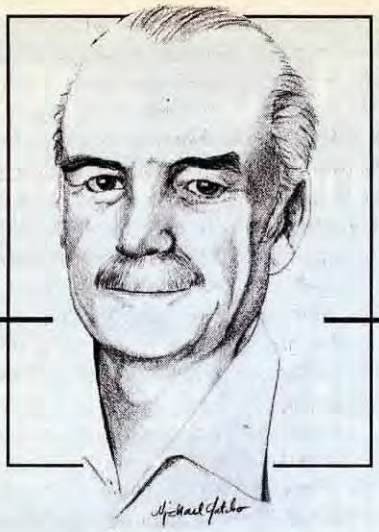
Contact the Editor today!



THE BEE SPECIALIST

ELBERT R. JAYCOX

6100 Shadow Hills Road • Las Cruces, NM 88001

"Integrated Pest Management programs are the only way beekeepers can deal with varroa mites effectively and safely. Here's one such program."

Since the 1950's, pest control specialists and many farmers have been aware that a single-method approach to crop protection is not the answer to their problems. Runaway pest control, with classic examples from cotton production, is expensive, ineffective, and dangerous for the environment. For example, control of cotton pests has required as many as 16 insecticide applications per season. When the concept of integrated pest management or control evolved (IPM, IPC), control of many pest species became more rational and, within one or two seasons, returned to normalcy.

The Food and Agriculture Organization (FAO) of the United Nations defines integrated pest control as follows: "Integrated pest control is a pest management system that, in the context of the associated environment and the population dynamics of the pest species, utilizes all suitable techniques and methods in as compatible a manner as possible and maintains the pest populations at levels below those causing economic injury." IPC or IPM requires the establishment of *economic damage thresholds*, the number of pests or percentage of infestation above which we know damage to the host plant or animal will be evident. There has been no agreement on, or use of, such a threshold number for Varroa mites in the U.S.

The effectiveness of IPM is hampered by lack of effective extension agents to carry the information to those who need it. It is also handicapped by the common mistaken belief that controls must begin as soon as pests are present — even at low levels. About 1969, the first IPM system for mites was established in the state of Washington where both pest and beneficial mites became resistant to acaricides.

With this introduction, I want to point out how closely the present situation in beekeeping parallels earlier problems with crop pests, especially in cotton. We are using and misusing a single pesticide in the U. S. both for detection and control of Varroa mites. We are headed down the same road as France, Japan, Israel and others where the number of treatments increased as the kill of mites decreased. It is a certainty that residues and honey and wax contamination increased in each case as mites developed resistance to the chemical compound being relied upon.

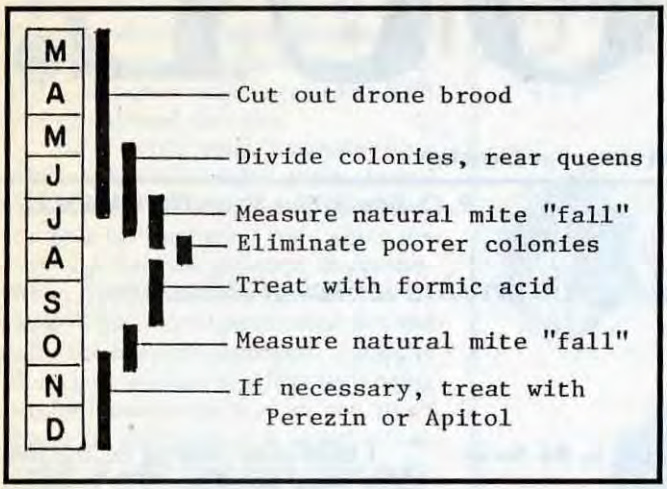
As mentioned, integrated pest management, which we must begin to use for mite control, requires an effective extension service using educational materials and demonstrations to make it work. Most states have no such services for beekeepers and nothing has been forthcoming from federal sources. The apiary inspection service, often forced into the role of extension, is not strong enough in most states to foster an IPM system that will allow beekeepers to understand and put into practice a more effective management program for Varroa control.

As an example of what can be done, we can look to Switzerland, where in March, 1989, it was estimated tat 70% of the colonies were infested with Varroa mites. The Swiss control program is designed for beekeepers with an average of 12 colonies and with the willingness and ability to follow a rigorous management program to keep their bees ahead of the mites. I am not suggesting it is suitable for all U. S. beekeepers, even those with only a few colonies. But the program shows us the direction we must head, with emphasis on biological and genetic control aided by judicious and *timely* use of several chemical controls, none of which are yet approved in the U.S. It is noteworthy that neither Switzerland nor West Germany approves the use of fluvalinate, our only chemical control. The Swiss program is closely tied to the bee inspectors who help with treatments and are the source of the chemicals used.

In articles published in the Swiss magazine, *Schweizerische Bienen-Zeitung*, the staff of the federal beekeeping laboratory at Liebefeld has given Swiss beekeepers clear details of why Varroa mites are such serious pests and how an integrated control system will allow beekeeping to survive

while also improving it continually. They point out that Swiss management contributes to serious Varroa infestations by such actions as not killing weak, infested colonies.

The general integrated management plan for Varroa control begins with the selection in the spring of only the strongest and most productive colonies from which to make new, young colonies. Weaker and less-productive ones are not divided, thus providing the first annual selection for resistance and production. Other direct management measures include providing new queens, utilizing a period with no brood to hinder mite reproduction, and providing drone combs which are rendered or emptied when the brood is sealed. Mites are attracted to drone brood.



Integrated Varroa Control — the yearly measures used for the control of Varroa mites in Switzerland. After Anton Imdorf, 1989.

The new colonies produced each spring are a vital part of maintaining production and reducing mite populations. They are made up with brood and bees or package bees taken only from the best colonies in the apiary. The brood must be unsealed, because it does not harbor mites, and each new colony is treated. Formic acid is best for bees with brood; Folbex VA (bromopropylate) is applied twice to package bees before their installation on combs. All such new colonies must be moved to new, isolated apiary sites to prevent reinfestation from the old colonies and neighboring ones. They should be left in place until the onset of cold weather or until the following spring.

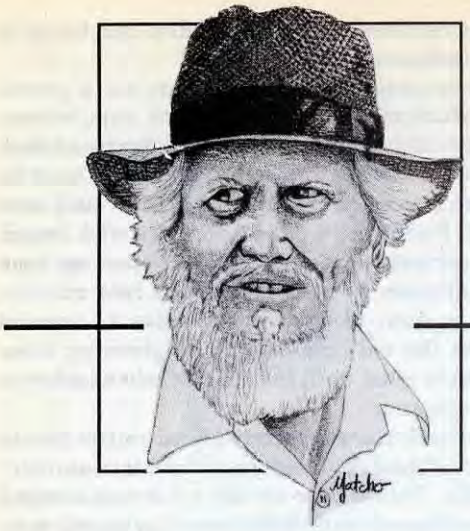
An important task in the integrated mite control plan is the determination of the daily death rate of mites in as many colonies as possible. This is done by using a screen-covered sticky sheet on the floor of the hive and counting the mites on it twice at intervals of two weeks in July. Counts are made easier by using sheets marked with a 2-inch grid. These counts tell the status of colonies in relation to the damage threshold from the mites. German research has suggested that a critical limit is 10 mites/day/colony on the sheets. This roughly corresponds to a mite population of 1000 to 1500 mites per colony. Swiss experience now sets the threshold value at 3 to 5 mites/day.

These counts, colony condition, and honey production determine which colony to save and which to kill in August/September. Up to half the colonies are killed in this second selection for resistance and productivity. Several formic acid treatments are applied to the survivors and counts are made of the number of mites it kills/colony/application. If those numbers remain higher than 50 mites/treatment, a chemical treatment of Perezin (coumaphos) or Apitol (cymiazol) is given in October/November depending on the temperatures and freedom from sealed brood in the colonies. The timing and nature of the integrated plan can be seen in the illustration.

The Swiss show their concerns for residues and the environment even when sampling for mites and killing bees. They shake a composite bee sample into a screened cage and treat it with Folbex VA to detect the presence of mites in an apiary. When killing bees, they shake them into hot water (60-70°C, 1440-159°F) or shake the bees into a screened container and immerse it in the hot water. These techniques leave nothing on the combs or in the air and kill the bees rapidly and humanely.

None of the individual procedures of the integrated plan will hold mite populations below the damage threshold. Together, they are highly effective and may ultimately provide resistant bees with little need for chemical treatments. We need approval of additional treatments in the U. S., particularly formic acid, a natural constituent of honey. It can be used effectively and safely at a modest cost. Used in late summer after extraction, formic acid initially leaves high residues but these drop to normal by spring. Treatments may cause some loss of queens but these are offset in part by their kill of mites in sealed cells, not possible with any other treatment.□

My thanks to Peter Fluri, Leader, and his colleagues at the Swiss Beekeeping Laboratory, Liebefeld, for providing me with their many fine publications on the integrated control of Varroa mites.



FOUL!

STEVE TABER of Honey Bee Genetics

P. O. Box 1672 • Vacaville, CA 95688

"Some thoughts on this worst of diseases."

Brood that is. Prior to W. W. II, when an inspection turned up bees infected with American Foulbrood (AFB), they were usually burned — but not always. One treatment, called the "shaking method", was done occasionally. In fact, I assisted in such a treatment back in 1941, my first year of commercial bee work. This treatment, usually done late in the afternoon, consisted of shaking and brushing all the bees from all the combs onto clean new frames containing foundation. However, there was one drawn comb placed in the center of the box. Bees with honey, supposedly infected with foulbrood spores, would place it in that one comb. This infected comb was removed the following day and burned with the entire stack of combs and boxes the bees were originally on.

If the colony was not too badly infected, this treatment usually worked because AFB spores can't infect eggs, old larvae or pupae. Only just-hatched larva are susceptible. Actually, it takes quite a few spores to infect even a single larva.

People seldom use the term "foul" to describe a colony infected with American foulbrood anymore.

If you look in the old literature you'll see frequent references to the term "foul" because the disease causes the hive to stink. Today we have antibiotics for the disease which many beekeepers use either as a preventative or a treatment.

Actually, I disapprove of indiscriminately putting a powerful antibiotic in a bee hive. This, for two reasons: 1) no one has studied what effect the antibiotic has on the adult bees in the hive; and 2) the very great danger it poses as a contaminant to the honey crop.

The only AFB drug approved by the FDA at the present time is Terramycin (a formulation of Oxytetracycline). The usual method of applying this is to first mix one 6.4 oz. package of TM-25 with 2 pounds of powdered sugar, then apply this mixture as a dust on the tops of the frames, toward the rear of the brood chamber three or more times at four to five day intervals. Always use about an ounce of this at each application.

Bee clubs that maintain libraries for members (something all bee clubs should do) should obtain a book entitled *Honey Bee Pests, Predators and Diseases,* edited by Roger Morse. Also you should write H. Shimanuki, Beneficial Insects Lab., USDA-ARS, Beltsville, MD 20705, USA and ask for a copy of *Identification and control of honey bee diseases*.

I have been working for the past eight years breeding AFB resistant bees. Resistance is genetic, a fact known for at least 50 years. Walter Rothenbuhler, from Ohio State, worked many years on determining one aspect of behavioural genetics that makes bees resistant. He found that two factors, both recessive, would cause some bees to uncap the dead brood and then others to remove the decayed material that remained in the cell.

A quick and easy test has been developed that any beekeeper can use to identify bees that exhibit these factors. The test is as follows: Three to four square inches of healthy sealed brood is cut from a comb. Wrap these patches in plastic baggies and place them in a freezer for 24 hours. Then, remove them and immediately place inside the brood nest of your test colony by replacing a patch of healthy live sealed brood in the recipient colony with the one from the freezer. Use the removed patch for your next test.

It is important that all tests be done as nearly the same as possible, and brood samples should be thrown away if they are more than 24 hours old. Bees can tell the difference in samples kept in the freezer different lengths of time and will remove the dead brood faster from comb samples that have been in the freezer longer than 24 hours.

Naturally mated queens (that have mated with between 10 and 20 drones) will have a grand mixture of both resistant and susceptible offspring and should take no more than 48 hours to uncap and remove the dead brood. Artificially inseminated queens who have been mated with one or two

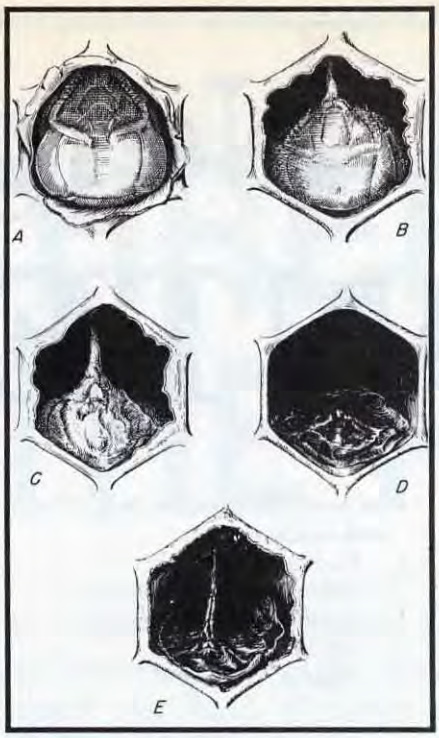
drones should only be allowed 24 hours to show their hygienic behaviour.

There is an important side benefit to be gained from using this test, especially when looking for breeder queens. Bees that show this good housekeeping trait, or hygienic behaviour as many call it, also show resistance to both EFB and chalkbrood diseases.

Bees with good housekeeping skills still occasionally show disease symptoms. This bothers many beekeepers because they want bees which are immune, not just resistant to disease. When your bees show one or two infected cells — don't panic, don't kill and burn the bees or equipment. Carefully clean your smoker and hive tool (using alcohol), mark the hive so you won't forget it, and inspect it again in two weeks. If your bees have some resistance, they may have cleaned up the disease by then and you won't be able to find any. Continue these inspections and if your bees are resistant you should find only one to four cells of disease through most of the season. This is the time I recommend treating with terramycin — and only then.

Terramycin mixed with water or sugar syrup deteriorates rapidly, in something like 48 hours. However, when mixed in with a pollen cake it remains active for a long time.

However, there are exceptions to every rule — and here's one. When I was working at the Tucson Bee Lab we received about 25 two-pound packages which were inadvertently placed on combs infected with AFB. Five weeks after installation we discovered that 20 of these colonies were heavily infected



Successive stages of AFB. (A-C) progressive stages of decay; (B,C and E) show tongue adhering to cell roof; (D and E) show scale. USDA.

with thousands of scales in each hive. The combs were as rotten as any I have ever seen.

I was given these hives for a clean-up experiment which I've never published — until now. The mesquite honey flow was just starting and all of these test colonies were in one standard 10-frame full-depth box.

Treatments were the same for all the colonies and involved three steps which were carefully coordinated. These were: 1) new one pound packages of bees were added to each hive every seven days; 2) to prevent honey accumulation, the colonies were moved about 100 yards with a dummy hive placed at the original location to catch all returning foragers. The hives were moved three times; 3) every day a sugar water solution of TM-25 was sprayed across the top bars in each hive.

At the end of 4 weeks not one cell of disease could be found in any of the hives. They were boiling over with bees and healthy brood, ready for anything. That's when I gave them back to the lab to be used for other experiments.

No one in his right mind would clean up AFB infected hives this way, except a USDA scientist who had unlimited funds and unlimited time. That is the reason I never bothered to publish it, what good would it do? I tell it now to make a point: it's not necessary to destroy expensive bee equipment contaminated with AFB if you want to take the time and trouble to clean it up.

Actually, in most states that procedure is illegal and AFB infected colonies are destroyed. California is one of those states. I think it's a bad regulation which should be changed. I don't think destroying bees and burning bee equipment is a solution to any bee problem. What we need is a much improved bee education system to teach all of us the best way to solve beekeeper problems.

But remember — never feed drugs to your bees before or during a honey flow. The best times are very early in the spring, or after the crop has been removed in late summer or fall. □

Good Neighbor CONTEST

Are you a Good Neighbor? Are you a beekeeper who is careful with your craft, proud to be beekeeping?

We're looking for Good Neighbors — beekeepers who take care of their bees so they don't cause problems — good swarm management, proper screening, sunny-day working, water provision and all the rest of the good things beekeepers need to do to keep profiles low when keeping bees in an urban setting.

For the best Good Neighbor we find there is a $50 cash prize and a chance to help spread the word on being a Good Neighbor Beekeeper.

But we know there's lots of Good Neighbors out there, so we have three second place prizes of $25 each. And, for the next 10 best plans, we have a one year subscription to *Gleanings*.

Here's all you have to do to enter the Good Neighbor Contest.

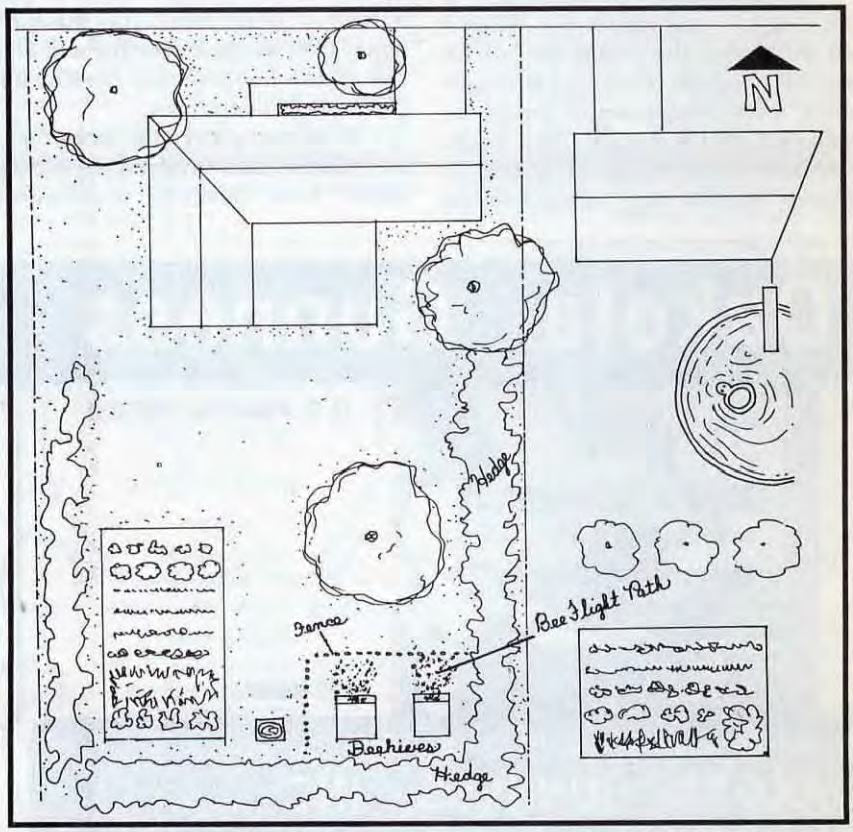
1. Send us 3 or 4 photos of your urban, suburban or even country apiary setting. If you have neighbors you qualify! They should show all the necessary requirements to be a good neighbor. Color or black and white prints are best. Try and avoid slides.
2. Send along a sketch showing the location of your apiary, your house and lot, and where these are in relation to your neighbors. Sort of like the drawing on this page. This doesn't have to be an architects drawing, but neatness does count.
3. Write up a short (about 2 pages typed double spaced or 3-4 pages handwritten) description of the activities you perform to be a Good Neighbor. This should include your management techniques and local public relations you do to improve or maintain the image of bees and beekeeping.
4. Send your entry to:
   Gleanings in Bee Culture:
   Good Neighbor Contest
   623 W. Liberty St.
   Medina, OH 44256.

That's all there is to it. Entries will be judged on adherence to standard Good Neighbor techniques, originality in solving unique problems, esthetics, practicality and success. Judges include Mr. John Root, publisher; Kim Flottum, Editor; Diana Sammataro, Equipment Editor; and Dr. James E. Tew, Extension Entomologist, ATI.

All winners will have their photos, layouts and stories published in *Gleanings*, plus receiving any cash or merchandise awards. We may redraw your lot diagram to highlight some area, or to allow for a better fit on a page.

All entries become the property of *Gleanings in Bee Culture* and none will be returned. In case of ties, duplicate prizes will be awarded. All decisions of the judges are final. All winners will be announced in the January, 1990 issue. Contest closes November 10, 1989.

Good Luck! □

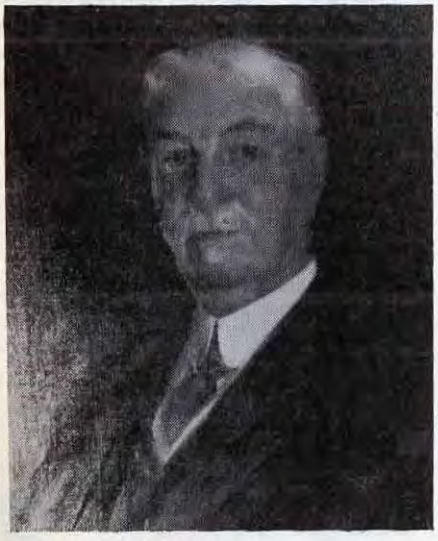


THREE FOR THE ROAD

When the country was young, beekeeping was done a bit differently. You couldn't order bees from a producer in the south nor have a pallet of equipment delivered to your door. Like most things, if you wanted it done, you did it yourself.

▼CALIFORNIA BOUND

When he was not yet thirteen, Elijah Robinson Kennedy went with his father, Leonard, his mother, an older brother and 200 swarms of bees, from Milwaukee, WI to Marysville, CA by way of Panama. The year was 1859. Lincoln was running for President, Commodore Vanderbilt was running a line of steamships and there were no wild bees in California.



ELIJAH KENNEDY

Continued on Page 562

▼FIRST ALSIKE

Valentine Hofmann didn't bring bees with him from his native Europe but he started the farm that his son, Emil continued. It was Emil who started with bees, over 90 years ago in Minnesota.

Charles, Emil's son, relates the history of the family business.

Valentine Hofmann emigrated to America in 1870. He came from a little village in the German-Austrian area of Bohemia. He was a miller by trade and immediately found work in the tiny town of Okaman, MN. A steam-powered flour mill had been constructed there at the head of Lake Elysian which is close to Mankato. This mill did a day and night business since it was the only mill in existence for a radius of 30 to 40 miles. However, after two and a half years, the long hours and dust affected his health and a doctor advised him to leave the mill work. That is when, in 1873, he purchased 40 acres of land. There was little more than a log cabin and 5 cleared acres but the purchase price was $13.50 per acre.

Twenty-five years later Valentine

Continued on Page 562

▼EVENTUALLY, IOWA

In 1872, James T. Fife moved to Adams County, IA, where he bought 240 undeveloped acres of farmland. This land, part of Section 25 in Jasper Township, is near the town of Corning.

Part of the development was building a beekeeping business and in the process, he developed the Fife Patent Bee hive.

This is the story of how James Fife came to Corning.

James Fife's great grandfather, John, was born in Ireland in 1721 and moved to Winchester, VA in 1756 and St. Clair, PA in 1766. He purchased 1000 acres of land and farmed until he died in 1800.

James' father, William, was the grandson of John. William and his wife, Mary, had 12 children. He left the family in 1835 which left Mary and the children financially strapped. All members of the family were now required to work.

James was only six at the time but when he was older, began work on a neighboring farm for $6.00 a day. In 1847 he entered college and in 1850

Continued on Page 563

First Alsike, Cont.

Hofmann died and his son, Emil took over the farm. Near the turn of the century a stray swarm of bees clustered on a small tree near the house and Emil, fascinated by the bees, fashioned a crude hive and succeeded in enticing the bees into it.

Unknowingly, he had planted the seeds of his life's work, because a few short years later discouraging pork prices led him to discontinue his chosen field of raising purebred hogs. Beekeeping became his business.

White clover and basswood were the primary nectar sources available at the time. Emil was anxious to supplement these with another crop and sowed the first 30 lbs. of alsike clover seed in the spring of 1906. Until then alsike clover was unknown in the area and it took a few years for seed production to catch on. But it soon became a cash and soil building crop of considerable importance. This continued until the mid-1930's when it tapered off because of the weed problem. Alsike clover is a perennial and fields could be left a second year with no attention except the harvest. It became a temptation to leave fields a third year and sometimes even a fourth. That's why the weeds finally won.

Early beekeeping conditions were a far cry from today. There were no paved or even gravel roads. What existed were narrow dirt roads that became impassable after a rain. Hauling extracting equipment to an outyard

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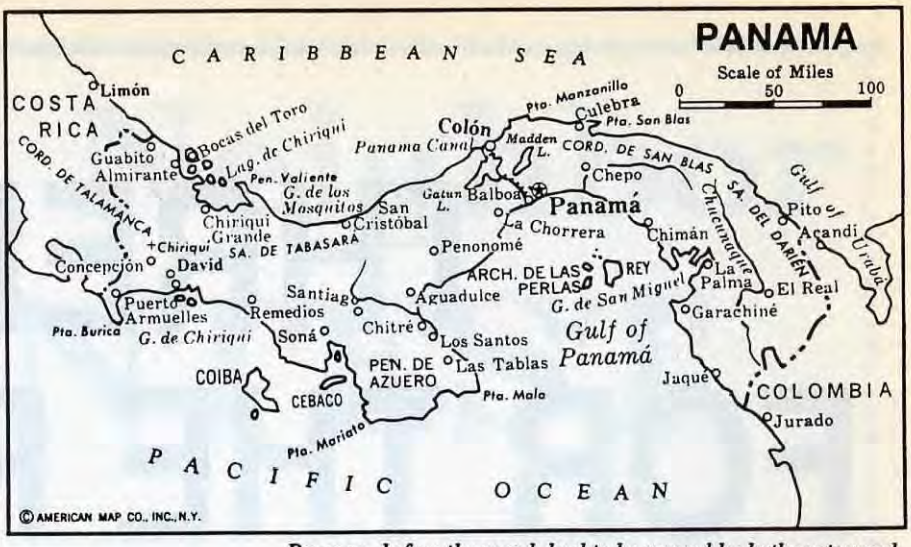


Panama, before the canal, had to be crossed by both water and truck. Boats to California were picked up on the Pacific Coast.

California Bound, Cont.

Sixty-seven years later he told his daughter, Susan Kennedy Tully, the story. This is the way it was.

Before the beginning of the Civil War, our family was represented in California by my two sisters, Miriam Chittle and Fannie Wardner. My father, Leonard Kennedy (1799-1879) was particularly fond of his two daughters and urged them to come east, if only for a visit. But my sisters said, "Why can't you come west?"

At that time there was a great interest in honey bees in California, since there were no wild bees in the state and very few had been taken there. My sisters knew that my father was much interested in bee culture, and urged him to make an excursion to the state, taking his bees with him. I suppose my father knew as much about bees as any man living at that time.

My father began his preparations a year before we started. He would not take his bees in hives that had been used long before we started. Thus he avoided taking hives full of comb, which would have endangered the safety of the swarms when going through the hot climate of Panama. He was one of the first in Wisconsin to use frames in his hives.

He decided to make as much of the trip as possible by water, so our first stop was at the wharf in Milwaukee. He had engaged passage for my mother, my brother Leonard, and myself, besides, of course, himself. We waited at Milwaukee all one day and then learned that the "Propeller" that started at Chicago was so overloaded that it could not take on more freight or more passengers at Milwaukee. This turned out to be a very fortunate delay. The propeller (it would now be called a screw steamer - most of the steamers were side-wheelers) was later overtaken by a gale and completely wrecked, no freight being saved and very few of the passengers.

While waiting in Milwaukee for another boat, my father made a speech for Lincoln, then running for the presidency. We took this trip about 1859, so I was 12 years old.

It was several days before we finally started, and the customary several days before we landed at Buffalo. There we transferred passengers and freight to a canal boat which landed us in Albany, New York. From Albany we came to New York City on one of the old-fashioned side wheel steam boats that was named "Hendrik Hudson".

In New York City my father had two cousins who sold paints and in their stores on Grand Street they had abun-

SUSAN TULLY

dant space for storing the bees until we could start our ocean voyage.

At that time there was the regular line of steamships destined for Colon, Panama, and an opposition line operated by "Commodore" Vanderbilt. The agent of this opposition line had been at boarding school in Connecticut with my oldest brother and he naturally persuaded us to engage passage on one of his steamers.

I went to the ship with my father, who found sufficient space and shelter from the sun for the bees. The First Officer said that the space he had chosen was always reserved for steerage passengers, so we went across West Street and told the agent that we could not go by his route. When the explanation was made the agent asked us whether we had seen the First Officer. When we told him we had had our conference with the First Officer, the agent said then there was no one living who could give us the space we needed. At the next moment, a well-dressed gentleman stepped out of an inner office and said, "Who says there is no one living who can grant what these gentlemen want?" My father replied and it led to quite a conversation. A clerk was called who figured up what the freight and passenger charges to San Francisco would be. The new arrival said to my father, "I will go over to the ship with you and see."

It was but a short walk and the First Officer met us. The fact that our bill for passengers and freight would amount to over $2,000 was explained by the gentleman who had accompanied us on our second call, and who promptly said to the First Officer (he was the man responsible for the proper loading of the ship), "Reserve this space for this gentleman's freight". I should explain that the staterooms we wanted were quite satisfactory and we had to engage passage for two steerage passengers to help in caring for the bees. The First Officer said to us, "That settles it. You will have just what you want".

It was then we learned that the addition to our force was none other than "Commodore" Vanderbilt himself. He walked back to the office with us and said to the agent of the line, "Give this gentleman exactly the space he needs for his bees." In a few days we were safely housed on the steamship *Northern Light* which was understood at that time to be Commodore Vanderbilt's favorite steamer.

In due course we landed at Colon, Panama, which is on the east coast. Then we were all transferred to passenger and freight cars to make our way across the tiny isthmus. When we undertook to carry our bees on board the steamer for San Francisco the First Officer there said we could not have the same space that we had on the *Northern Light*. It seems that the original steamer for which we were booked had broken her shaft. Facilities for repairing were not as ample as they are nowadays.

The First Officer was, however, very civil and said he would do anything he could but there was no such space on his ship as there was on the other. The discussion between the Captain and my brother Leonard grew rather hot and it is a serious thing on a steamship to dispute a question with the Captain. I would have had no fear of the consequences of a discussion between the Captain and my brother, but, when I saw the two of them confront each other and shake their fists in each other's face, I felt greatly relieved when the

Continued on Next Page

Eventually, Iowa, Cont.

moved to Salem, OH.

In Ohio, he purchased a piece of property from the Reverend A. G. Kirk for $800.00. He paid $50.00 cash, $100.00 in three months, $150.00 in six months and the balance in two equal yearly payments, with interest. He gave his mother free use of the property and with the help of an older sister, provided for her and the family.

In 1852 James married and moved to Seneca County, Ohio. There he bought 240 acres at $10.00 per acre. He developed and drained the land, and in eight years, sold it at between two and three times the original price.

Then he moved to Indiana. All this time, bees were not a part of his life apparently, since records make no mention of it.

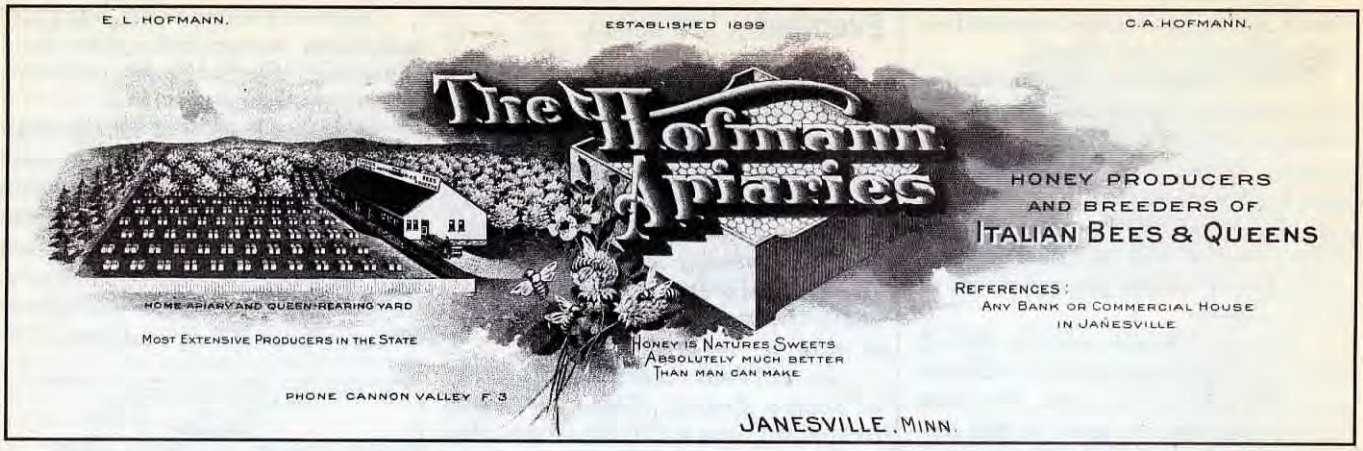
Between 1860 and 1872, he continued to farm, worked for the government as a law enforcement agent, and finally, in 1892, moved to Iowa.

It was in Iowa that the bee business took off and, like many beekeepers before and since, Mr. Fife invented a better beehive. He was so successful that the Fife Bee-Hive became known nationally and the business prospered. He produced a catalog and had 'agents' in many states selling equipment. □

JAMES T. FIFE,
PATENTEE OF
Fife's Patent Bee Hives.
Agents Wanted in Every County in the United States.

Header of Fife's stationary printed in the 1870's.

Photo of James Fife's Iowa home. 20 Fife Hives can be seen, as can some of his family. Taken a year before the house burned.



Original letterhead of Hofmann's Apiaries, designed by Emil Hofmann.

First Alsike, Cont.

with a team of horses and a wagon and extracting in a little make-shift building or even in a tent was the norm. Can you imagine trying to keep robber bees out of a tent?

My introduction to bees came at a very early age, when, less than a year old and creeping, I was stung. I cried all night and my arm swelled almost to my shoulder. But my mother, Clara, said she could never recall my having swelled from bee stings after that.

My father died in 1934 and I carried on the business until selling out and retiring in 1986 after 61 years of being up-to-here in bees.

Beekeeping is hard work with lots of problems and rewards. But I think my fondest memory is simply to be in a well-located bee yard on a beautiful quiet spring day, just listening to the bees and smelling the fragrances of spring and fresh pollen — a moment of peace before getting to work. □

California Bound, Cont.

First Officer appeared and spoke to the Captain. What he said I have never known. There were those on board who said my brother made a Masonic sign. Others declared the First Officer must have told the Captain of the influence which our party had displayed in getting a satisfactory disposition of our freigh. The Captain and the First Officer walked off together and my brother waited. At last the First Officer rigged up spaces on the upper deck which he covered with canvas; thus, as far as possible, saving the bees from the tropical heat.

We reached San Francisco without event and our bees were transferred to a steamboat bound for Sacramento then transferred to another steamboat such as I had never seen before. It had a paddle wheel at the stern that went all the way across the boat.

The bees were then carried to my brother-in-law's garden in Marysville, about 40 miles north of Sacramento, safe and sound! Every hive was in as excellent condition as could have been desired and all the bees were hard at work the next morning. We had not lost a single swarm from the time we left Milwaukee, which was just over four weeks before. This certainly illustrates the difference between knowing how to do a thing and not knowing how to do it. We had started with 200 swarms and arrived with the same number. There was one other passenger who was taking bees along at the same time. He was afraid to let his bees fly at Panama. My father doubted whether he had a single swarm left which was strong enough to carry on the work of the hive.

The bee is an extremely cleanly insect. In New York, in Colon and in Marysville, the first thing my father attended to was to open the orifices which enabled the bees to pass in and out so that at each place named, the hives were thoroughly cleaned. Also, when the bees were traveling they were not confined in the usual space, but my father had hives made with porches nearly half the size of the hives to which they were attached, and when the outdoor temperature was sufficiently favorable, the bees left the inside of the hives and gathered in these porches.

There was no incident worth mentioning on the outward trip except that one evening there was a horrified shriek of "Fire! Fire!" I ran to the opening of the walking-beam and a saw that there was a blaze. I immediately took steps to make my mother and myself safe, but the officers of the steamer had anticipated us. It seems the steamer was notorious for catching fire and therefore extraordinary safeguards were always maintained.

A day or two after our arrival, several residents of Marysville appeared and wished to buy swarms of bees. However, as my father preferred to propagate rather than sell, he kept most of his swarms, but did sell a few at $100 each. They cost, in Milwaukee, about $2.50 each and the hive about the same amount.

There was a very silly story published some time after the bees were released in Marysville that they ceased to be as industrious as they are universally considered; but we were there three years and therefore qualified to correct such a false impression. All our bees were imported from the Italian government. My brother had gone to Italy personally to get the queens.

The bees were placed in the "bottom" lands around Marysville. Here the flowers came earlier and bloomed later than elsewhere. Then came spring floods, unusual ones, in the Marysville valley. Never before, and never since, has the river overflowed so greatly. Alas! my father's hives were washed away, which was a bitter disappointment! My father had expected to return east a rich man, but this was a great loss. However, he took such things very philosophically and after we returned to Hartford, CT, he again kept bees and did well with them. □

RESEARCH REVIEW

DR. ROGER A. MORSE

Cornell University • Ithaca, NY 14853

"This discovery could change the beekeeping world overnight."

Varroa jacobsoni, parasitic mites that attack honey bee larvae and adults and suck their blood, were first found in the U. S. in 1987. These mites, whose original home is Asia where they live on one of the Asian honey bees, devastate colonies of European honey bees that have no resistance to them. The mites are found in most countries in Europe where they were accidently introduced several decades ago. In Europe, they have been responsible for the death of thousands of colonies of honey bees.

It has been found in a French laboratory that varroa mites are attracted to some straight chain fatty acids. One of these, methyl palmitate, is said to be especially attractive. This compound is readily available from at least one chemical supply house and sells for only $3.90 a gram.

To demonstrate attractancy, researchers placed 300 drone larvae, collected two days before their cells were to be capped, in hexane for one hour. A small amount of this hexane containing the substances extracted from the larvae was then placed on a piece of glass microfiber filter. The hexane was allowed to evaporate.

To test the extracts, a chamber (olfactometer) with four arms was used. Air was forced to flow into each arm toward the star-shaped center where the air was removed. When pieces of glass filter containing the extract were placed in two opposite arms, the mites, which had been placed in the center of the arena, moved quickly in the direction of the arms with the extract. Both worker and drone larvae were extracted and while the same substances were extracted from both, the drone larvae contained much more of the attractive compounds. When synthetic methyl palmitate was used, 50% of the mites were attracted to the odorized fields within 30 seconds; this is certainly a strong attraction.

There had been no field testing of these attractive compounds at the time this report was written. If an attractive compound that would attract mites could be found, it might be used to develop an efficient method of varroa control. In a recent telephone interview with the French researchers, one reporter (S. Hart) was told that blotting paper impregnated with methyl palmitate attracted mites when placed on the bottom of a laboratory observation hive.

At the present time, the only methods available to control varroa mites involve the use of chemicals that could contaminate the hive and hive products if not used carefully. This research could open a new area of research. Studies such as this are certainly moving in the right direction. It would certainly be an advantage if we could find a simple chemical that was attractive to the mites. I have no doubt that methyl palmitate will soon be tested in the U.S. if that has not already been done here.

Le Conte, Y., G. Arnold, J. Trouiller, C. Masson, B. Chappe and G. Ourisson. *Attraction of the parasitic mite* Varroa *to the drone larvae of honey bees by simple aliphatic esters.* Science 245:638-639. 1989.

Hart, S. *Baby bee odor lures cradle-robbing mites.* Science News 136:103. 1989.

More on the Curious Mating Habits of Honey Bees

Mating in honey bees never takes place in the hive. Virgin queens and drones meet and mate at places we call

drone congregation areas that are often some distance from an apiary. The fact that such places exist was discovered by Dr. Cyprian Zmarlicki in 1962. We still do not know the physical forces that make drone congregation areas but we do know that they are in the same place year after year.

A new paper from Germany indicates that drones of different races fly at different heights above the ground in these areas. An experiment was designed so that equal numbers of drones from two races were in an apiary. Drones were subsequently captured at 4 and 20 meters (one meter is just a little longer than a yard). The yellow Italian drones were more common at a height of 4 meters while the dark Carniolan drones preferred to fly higher and were collected more frequently at 20 meters.

Virgin queens were allowed to mate in the area and their worker offspring were checked. (Queens mate as many as 15 to 17 times while they are very young.) An examination of the offspring ratios of single queens that mated in this same congregation area showed that there was a greater tendency for queens of each race to mate with drones from their own race. This indicates that queens too fly at different heights. This paper suggests that one way in which different races of honey bees may retain their identity is through such assortive mating.

I think it is obvious that this type of vertical flight behavior should be examined with regards to other races of honey bees, especially where one race appears to dominate another. □

Koeniger, G., N. Koeniger, H. Pechhacker, F. Ruttner and S. Berg. *Assortive mating in a mixed population of European honey bees,* Apis mellifera ligustica *and* Apis mellifera carnica. *Insectes Sociaux 36:129-138. 1989.*

Beekeeping in Bermuda

DR. DANIEL J. HILBURN

— A Short History —

Beekeeping in Bermuda has a long and colorful history, and today, there are about thirty part-time and one full-time apiarists. A new marketing strategy for local honey and a planned live bee exhibit at the Bermuda Aquarium, Museum, and Zoo are stimulating new interest, and should partially offset the detrimental effects of continued habitat destruction in the years to come.

Many people incorrectly consider Bermuda part of the Caribbean. In fact, it is 750 miles northeast of the Bahamas. The closest land is Cape Hatteras, North Carolina, 600 miles to the west-northwest. Seven main islands, now connected by bridges, form a fishhook-shaped cluster 20 miles long and 1 mile or less in width. The Gulf Stream passes near Bermuda and moderates the climate; temperatures rarely exceed 90°F or fall below 45°F. The islands were first colonized in 1609 when a hurricane forced settlers bound for Virginia to take refuge there. The first bees were imported seven years later.

A view of one of Bermuda's many bays. Development has gobbled up much of the agricultural and bee-forage land and there's no let-up in sight.

1616. A Mr. Robert Rich receives bees sent to him from England by his brother Sir Nathaniel Rich. He writes "the bees that you sent do prosper very well". Bees were not imported into the American colonies until six years later.

1622. Honey and beeswax were exported in small quantities from Bermuda to the West Indies and sometimes to the American colonies.

1850's. The invention of movable frame hives, wax-comb foundation, and centrifugal honey extractors revolutionized beekeeping around the world. In recent decades, virtually all Bermuda's honey bees have been kept in modern movable frame hives.

1875. A giant toad, *Bufo marinus*, was intentionally introduced to the colony from British Guiana in the hope that it would help reduce the number of cockroaches on the island. This toad, which grows to the size of a cantaloupe, is now abundant and has become a serious honey bee predator. They have a voracious appetite for bees, especially on warm nights in the summer when bees cluster outside the hive entrance. Mr. Jock Stewart, a former Government Bee Inspector, dissected toads from a bee yard and found dozens of stings embedded in their tongues, and stomachs distended to the size of a child's fist with a solid mass of bees. To minimize toad problems, beehives in Bermuda are elevated at least 20-24 inches above the ground.

1897. Mr. John Hurdis, in his writings on Bermuda's natural history, noted that honey bees are "frequent in sugar warehouses in the town". He also mentions that Bermuda honey was of good quality (it still is) and sold for two shillings per quart bottle.

1949. The Bermuda Beekeepers Association (BBA) was formed. Today, most of the island's beekeepers belong to BBA and 8-15 typically attend the bimonthly meetings.

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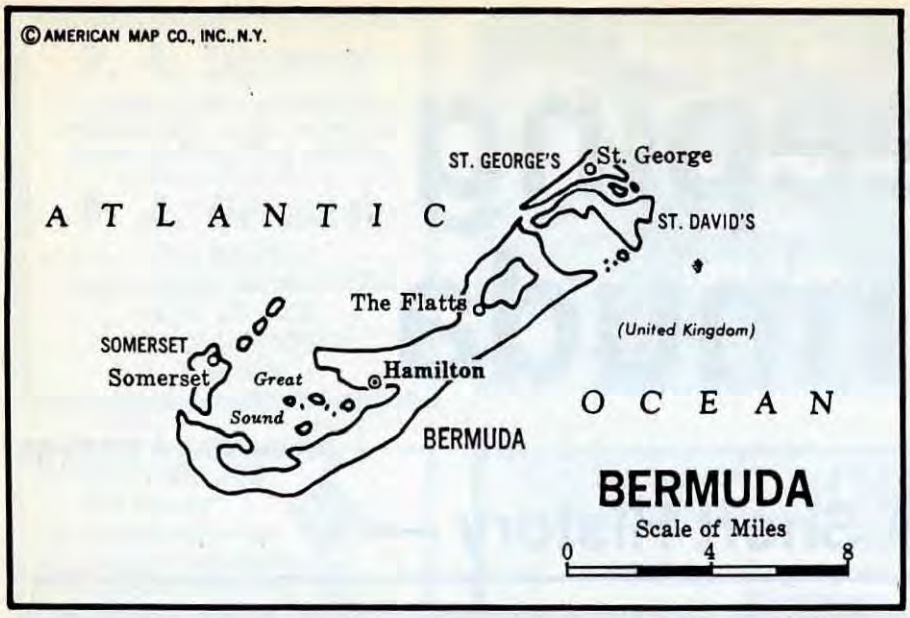


The Bermuda islands are a loose knit group, all connected by bridges.

1953. The Argentine ant, *Iridomyrmex humilis*, was accidentally introduced in imported nursery stock. This ant is now island-wide, though its distribution is patchy. Occasionally bee yards are seriously infested and colonies may suffer considerably from ant robbing. For a short time, beginning in 1953, the Department of Agriculture and Fisheries (DAF) bought honey wholesale (3 shillings/lb.) and resold it at the Government Marketing Center.

1956-7. A large bird, commonly known as the kiskadee, *Pitangus sulphuratus*, was introduced from Trinidad as a means of controlling lizards, *Anolis spp.*, which were themselves introduced to control Mediterranean fruit fly. Unfortunately, the birds have wide-ranging eating habits and include many honey bees in their diet.

1973. DAF offered a beginner beekeeping course taught by Dr. I. W. Hughes. Fifteen new beekeepers were initiated.

1975. American foulbrood was first detected in Bermuda and an annual inspection program was initiated by DAF. Mr. Jock Stewart held the position of Government Bee Inspector from 1975 to 1982. The infection rate is now 1-3%.

1986. A bee beard demonstration at the annual Agricultural Exhibition was enthusiastically received and generated considerable publicity. BBA has a display including an observation hive at this event whenever possible. For the first time in memory, there was a surplus of honey this year. An excellent crop averaging approximately 120 lbs. per hive combined with a widening differential between the price of imported honey ($1.75/lb.) and local honey ($3.00/lb.), led to a surplus of some 500 gallons in June when local stocks are normally gone. DAF began looking for alternative markets for local honey.

1987. Hurricane Emily swept over the island on September 24th with winds in excess of 100 mph. The fall honey flow (mainly Brazilian pepper tree, *Schinus sp.*) was interrupted and approximately 30% of the island's vegetation was destroyed. The 1987 honey crop was reduced by more than 50% from normal and the effects of the hurricane may linger for years while the vegetation recovers.

1988. With the assistance of DAF, Ms. Caroldey Douglas, a beekeeper herself, formed a new cottage industry bottling local honey in 9 oz. and 3 oz. jars to be sold as souvenirs to tourists. The initial response has been excellent. Several of the large resort hotels have expressed an interest in single-serving 1.5 oz. bottles to be used on their breakfast tables. Mr. Randolph Furbert, owner of 50% of Bermuda's total of 400 hives, opened a commercial-scale extracting facility — the first in Bermuda.

Caroldey Douglas has developed a new marketing strategy. Bermuda honey is packaged in 9 and 3 oz. jars to be sold to the tourist trade.

1989. A new Invertebrate House, scheduled to open in June at the Bermuda Aquarium, Museum and Zoo, features a large observation hive and educational information which should entertain and spark the interest of young Bermudians for many years to come.

In spite of these promising recent developments, the long-term future of beekeeping in Bermuda is not bright. Sixty thousand residents now crowd onto Bermuda's 20 square miles. Undeveloped land is quickly disappearing, as is cultivated land (down to just 300 acres, a 90% reduction from early this century). Unfortunately for the bees, nectar-producing plants are less abundant in our artificial landscapes. In addition, it is becoming more and more difficult for beekeepers to find suitable sites for their hives. Though their numbers may decline in the coming decades, I'm sure there will always be beekeepers in Bermuda; after all, the island is known for its beautiful flowers, and flowers and bees were made for each other. □

Daniel J. Hilburn was an Entomologist for the Bermuda Dept. of Agriculture and Fisheries until early 1989. He now resides in Maine.

THE HARBO SYRINGE

SUSAN COBEY

It is an interesting time in the history of beekeeping. We are faced with the biological and political problems brought about by the tracheal and Varroa mites, and the northward movement of the African bees. Like many things in life, it is often a crisis which stimulates change and the new era of beekeeping we are entering is focusing on breeding.

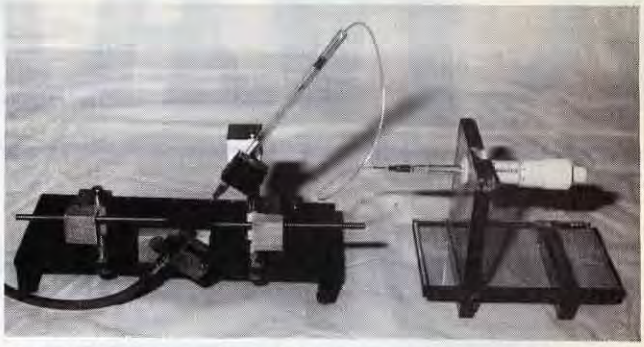
Breeding programs are increasingly becoming an integral part of commercial beekeeping and the study of bee genetics is a major focus among bee researchers. The goal of this renewed interest is to uncover basic selection methods needed by beekeepers to make significant progress in the bee yard. Instrumental insemination is universally recognized as the necessary tool to this end. The potential exists to breed a bee that is more productive, and less susceptible to (or more tolerant of) parasitic mites, and even one that can compete with a feral African bee population. These criteria are essential to ensure the continued health of the U. S. beekeeping industry.

"Instrumental Insemination will be THE MOST important aspect in bee breeding. Good Equipment is essential for success."

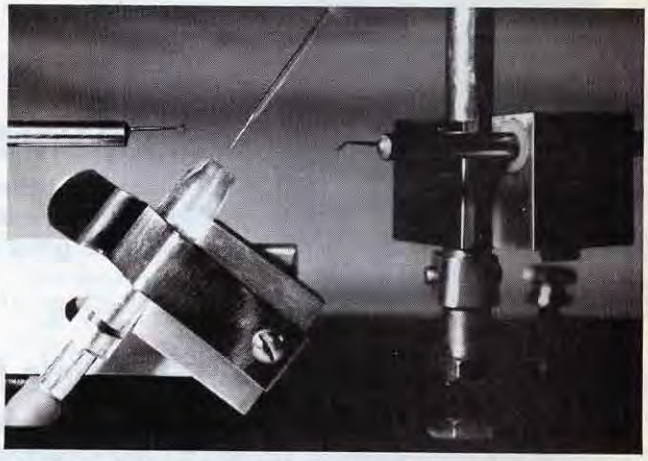
One critical aspect required from a successful instrumental insemination program is the collection, storage and delivery system of the semen collected from drone donors.

The Harbo Large Capacity syringe is an efficient tool for instrumental insemination of queen bees, providing capabilities for shipping and storing as well as ease in handling large quantities of semen. It is also excellent for homogenizing or diluting semen to specific ratios. The syringe was designed by Dr. John Harbo from the USDA Bee Lab in Baton Rouge, LA who developed this syringe to facilitate work with storage of honey bee semen. Because of its versatility and convenience, this syringe is popular for routine inseminations by beekeepers and bee researchers.

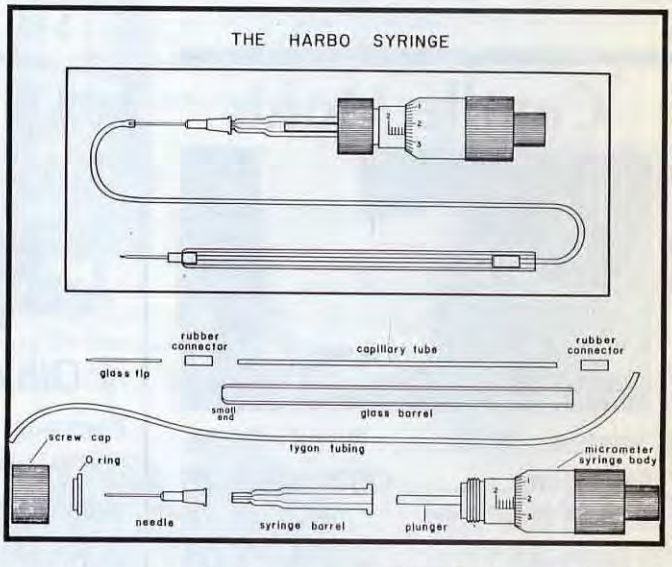
Semen is collected from drone honey bees in easily detachable capillary tubes which are especially useful for either storing or shipping the product. The Harbo Syringe system permits a breeder or researcher to separate the procedure of semen collection and insemination of queens by either time or action. And once semen is collected for inseminating a large number of queens it becomes a routine exercise. It also provides a practical means to homogenize semen



The Harbo Syringe, on the right, is being used in conjunction with a typical instrumental insemination device. Very accurate delivery plus a remote location make the syringe ideal for both research and mass production.



A close-up of this instrumental insemination device. The glass tipped syringe is inexpensive, easily cleaned and reduces or eliminates the need for a valve fold hook.



TOP: The complete Harbo syringe unit. BOTTOM: The individual component, including the capillary tube used for collecting and storing semen.

from a variety of drones.

The syringe micrometer permits very accurate and readable measurements of semen. It is especially convenient for specialized work such as diluting semen to specific ratios and inseminating queens with small amounts of semen. Semen is delivered from the tip of the syringe by turning the barrel handle of the unit. Precise measurements are easy. Each full turn of the barrel delivers 10 microliters while smaller amounts are measured on the vertical scale. Each vertical mark is equal to .02 microliters.

Glass tips are used with the Harbo syringe because they have a smaller outside diameter than plastic tips. This allows the inseminator to easily bypass the valve fold of the queen, thus eliminating the need of a valve fold probe. The glass tip is beveled to provide a larger surface area to collect semen, allowing efficient collection and separation of semen from the mucus. Glass tips are economical and easy to clean. A small piece of latex rubber tubing connects the glass tip to the capillary semen storage tube. This allows the glass tip to be easily detached. The flexibility of the latex connector also prevents breakage of the glass tip if bumped. Care must be taken when connecting these pieces, as air leaks into the system will cause measurement problems.

The syringe is housed in a plexiglass stand which holds the micrometer separate from the instrument. This separates control of the semen column from the instrument, reducing the chance of unwanted movement of the syringe tip once it is properly placed. The Harbo syringe is compatible with most insemination instruments on the market.

As demand for honey bees resistant to diseases and pests rises, coupled with the need to produce queens of known heritage, instrumental insemination will play a bigger role in production. Researchers and queen producers alike will need the equipment and skills required to accurately and efficiently accomplish these goals. The Harbo syringe is one of those tools. □

Sue Cobey is a queen breeder and II Instructor. She, and her husband Tim Lawrence, operate Vaca Valley Apiaries in Vaca Valley, CA. For further information on the Harbo syringe, contact Vaca Valley Apiaries.

DR. JOHN HARBO

Dr. John Harbo, inventor of the Harbo Large Capacity Syringe, received his PhD in Entomology at Cornell University, Ithaca, NY in 1971. He was a student under Dr. Roger Morse while at Cornell.

His work with the USDA began shortly after that, and he now works at the Baton Rouge Research Lab.

The initial step in developing the large capacity syringe was the need for a device to both collect and store large amounts of honey bee semen for later use in artificial insemination. Prior to this, drone honey bees were killed, semen immediately removed and used for insemination.

Dr. Harbo saw the advantage in harvesting large amounts of semen when drones were available and using it at a later (sometimes much later) date when virgin queens were available. At the same time, the need to precisely administer exact amounts of semen to a large number of queens from either a homogenized mix or a single source sample became apparent.

The marriage between a storage and distribution device was obvious to Dr. Harbo and the first prototypes appeared around 1975. By 1979 the instrument in use today was developed and continues to be a reliable research and production tool for inseminating queen honey bees. ■

Beauty and the Bees

B. A. STRINGER

Barberries are widely grown for their foliage, attractive spring flowers or fall fruits. They are medium sized shrubs which perform well as spiny barrier hedges or specimen bushes. Honey bees are attracted to the abundant nectar and pollen produced by the masses of flowers.

There are over 100 Berberis species, most of which are desirable for ornamental plantings. The shrubs may be deciduous or evergreen and most have spines. They tolerate a wide variety of soils and climates, and are adaptable to extreme growing conditions.

Darwin Barberry, *Berberis Darwinii*, is one of the most spectacular spring-blooming shrubs in cultivation. Masses of showy golden flowers are densely packed along its arching branches in April. Each raceme of flowers is constantly visited by honey bees and bumble bees for nectar and bright golden pollen. Later in the season, the abundant dark blue berries are popular with birds.

This evergreen bush is native to Chile and Argentina, and is hardy in the U.S. to about 10°F. It may reach 8' as a specimen bush or as a sheared hedge. The distinctive inch-long leaves, similar in shape to holly leaves, are shiny and edged with spines.

Another barberry worth consideration in landscaping is the Japanese Barberry, *B. thunbergii*. Deciduous, dense, and compact, this shrub makes an excellent hedge, barrier planting or specimen bush. It grows four to six feet tall with slender arching branches. Pale yellow flowers in spring, which are very attractive to bees, are followed by red berries in late summer. The deep green, spiny leaves are pale underneath and turn yellow, orange, then red before they drop in the fall.

Hardy to about -20°F, this shrub is, as indicated by its name, a native of Japan. Closely related, the Redleaf Japanese Barberry (*B. t. 'Atropurpurea'*) has characteristic maroon leaves. To develop best foliage color, this April-blooming shrub must be planted where it will receive full sun.

Barberries are attractive as an ornamental, as a nectar and pollen source for bees and as bird food in the fall. Armed with long, sharp spines, they also make good barriers or living fences. Pruned correctly, they make excellent screens for hives in urban areas since they are attractive and pose great difficulty to snoopy neighborhood children.

Barberries grow readily in moist, well-drained soil in sun to partial shade. The deciduous species can generally tolerate drier soils than can the evergreens.

To propagate barberries, you can separate seeds from the berry pulp and sow these in autumn. They will germinate the following spring. New plants can also be made from layers, cuttings and rooted suckers.

When the shrub has reached full size, its graceful form can be maintained by selective pruning. To do this, cut out entire branches of the oldest wood each year when flowering finishes. Avoid snipping or stubbing the branches, as this will lead to twiggy, thick growth.

The fruit, leaves and stems have been used as a source of yellow dyes. The name Berberis is the Latinised form of the Arabic name of the plant.

"Barberries add color, interest, and variety to any garden."

Some susceptible kinds of barberries host one stage of the black stem rust disease of wheat, oats, barley and rye. Many states have implemented programs to eradicate these barberries. Contact your Extension Service to find out if these regulations affect your area.

Barberries provide interest almost all year round with showy flowers, bright fruits and attractive foliage. □

The Rest of the Story

JOANNE OLSTROM

Ever feel alone? Ever wonder if there really are any other women out there doing bees and honey; and what they are up to?

When I first began keeping bees, I noticed in the beekeepers' newsletters that the Women's Aux. was apparently only for bringing the coffee and cookies — and cleaning up afterwards, too, most likely! Or at the conventions there was always a shopping trip planned for the women while the men discussed the issues: "To TM or not, which Queen is better and how to get more honey". Now-a-days that would include "How to murder the mites and not the bees or the beekeeper". I felt uneasy and so often did not attend; I wanted to hear the discussion but thought I was expected to be out shopping.

Articles written (by men) now suggest that "to keep peace in the family" you'd better get your own blender for mixing Rx's, or get a honey house instead of using the kitchen, and other appropriate suggestions. And they are right, too. However, I do honey-related activities in my kitchen at times. I originally extracted in the dining room (hardwood floors) as a hobby beekeeper, and I still borrow kitchen tools for use in the honey room. Things that would probably lead to mayhem if my husband were the "owner" of the bees and did it!

Although I've been known to fume and sputter and mutter under my breath, I am not a card-carrying flag-waving women's libber. I was raised with five other girls in a parsonage; we were expected to shovel snow or fill the stoker with coal, mow the yard as well as babysit, do dishes, cook or sew. And if some of us were inclined to go hunting or fishing or whatever, Dad took us along — for Dad and us this was more the excuse for an outing rather than the occasional pheasant or squirrel we brought home.

And you can bet your boots if some of us had been boys we'd have been scheduled in front of the dishpan, or pushing the vac when our turn came.

Recently I've read comments in the Mailbox — comments from men. "Do women only bring the cookies? Aren't there any women beekeepers?"

YES, there are! And most can probably bake cookies, too! There just aren't as many of us. In fact, someone suggested that 99.9% of all beekeepers were men. Beekeeping in our times has been more of a man's job. But as we all know now, nearly all jobs are "uni-sex". The sky and beyond is the limit, although according to most statistics, women will make less money doing the same job as men do.

In this column, which will appear on occasion, I would like to address some of the advantages and disadvantages, problems or bonuses women find in the field of beekeeping and honey production/sales. I'd like to hear, and share, the 'Rest of the Story'.

I will need your help so will pose some questions and ask for *women* to write to me with their comments and/or solutions.

Because I feel readers would be interested in a little biographical information of the respondents, I ask each writer to include:

1. Your name and address (anonymous if you wish, but at least include the part of the country you hail from).
2. The number of colonies you run and how many years in beekeeping.
3. How you started as a beekeeper and whether it is a hobby or business; your own or family-operated, or whatever.
4. Whatever other information you wish to share that's pertinent.
5. Your response to my question.

This information will make it more interesting to readers and will give them a feel for where the respondent "comes from".

Continued on Page 579

HOME HARMONY

ANN HARMAN
6511 Griffith Road • Laytonsville, MD 20879

It's Lunch Time! Lunches come on beautiful china plates or in a brown paper bag. Children sport brightly colored lunch boxes decorated with their favorite cartoon characters but adults seem to favor plain black.

Most people consider a sandwich to be traditional lunch food. A sandwich seems to range from whatever you can stick between two pieces of bread to the Dagwood type that is impossible to eat with dignity. Mothers of young children frequently just finish up what the children leave behind. Another lunch approach is to stand in front of the open refrigerator while searching for some choice leftover. If none appears, then many retreat to a can of soup. Fortunately, soups come in a huge assortment of flavors and types. But a soup needs something a bit substantial to accompany it. Cheese and crackers are traditional but an interesting bread, spread with butter or cream cheese, would make a nice change. You can bake several kinds and freeze some for use when you are in a rush or lunch has become boring.

Apple Bread With Cider

2 eggs
1/3 cup honey
1/2 cup melted butter, oil or a combination
1/2 cup apple cider
1/2 teaspoon vanilla
2 tablespoons applejack or calvados (optional). Important: if omitting, increase cider by 2 tablespoons.
1-1/2 cups finely chopped or grated tart apples, unpeeled
3/4 cup chopped walnuts or pecans
2-1/4 cups flour
2 teaspoons baking powder
1/2 teaspoon baking soda
1/2 teaspoon salt
1/2 teaspoon nutmeg
1 teaspoon cinnamon
1/4 teaspoon allspice

In a bowl, beat eggs until light or slightly thick. Add honey and beat, then the melted butter, apple cider, vanilla and applejack and beat once more. Stir in the apples and nuts. Sift the dry ingredients and spices together. Stir the flour mixture into the batter, mixing just until well combined. Pour into greased large loaf pan and bake at 325°F for 50 to 60 minutes or until the top feels springy. Let the loaf sit in the pan for 10 to 15 minutes before removing to cool on a rack.

The Garden Way Bread Book
Ellen Foscue Johnson

Now for a bowl of soup. This particular soup can be made just as quickly as opening a can of soup.

Pumpkin Soup

3-1/2 cups mashed, cooked pumpkin or canned pumpkin
2 10-1/2 ounce cans cream of chicken soup
2 tablespoons honey
1 teaspoon salt
2 teaspoons grated orange peel
1 teaspoon cinnamon
1/4 teaspoon ginger
1/4 teaspoon allspice
6 cups milk

Mix together all ingredients in a large saucepan, gradually adding milk. Heat to serving temperature while stirring.

Mama's Honey Jar Cookbook (Ideals)
Catharine P. Smith

Cookies or a fruit are a nice way to end lunch. This sauce is quickly made and will add a special finish to a lunch. This recipe also can be used for a mid-afternoon snack.

Delicious Grapes

1/3 cup honey
2 tablespoons brandy
2 tablespoons lemon juice
2 cups sour cream
1 pound seedless grapes

Mix honey, brandy and lemon juice with sour cream. Pour over grapes and stir well. Chill. Serve as a special light dessert or as an everyday treat.

A Honey of A Cookbook, Vol. II
Alberta Beekeepers' Association

So you are stuck with leftovers for lunch — a teaspoon of this, a bit of that and a dried-out chicken drumstick. You can cheer up this lunch with a delicious and nutritious milkshake.

Banana-Strawberry Shake

1/2 cup milk (skim milk works well)
1/2 very ripe medium banana
1/2 cup strawberries
1/2 teaspoon honey
1/4 teaspoon vanilla extract

Blend all ingredients. Chill in freezer for 30 minutes. Blend quickly again and pour into a chilled glass.

Honey Recipes
Lisa Rebuck, PA Honey Queen, 1989

It is perfectly all right to admit to being a peanut butter addict. Most of us are. I once took 6 large jars of peanut butter to a friend in Germany who was desperate for that particular brand of American peanut butter. My day is not complete without some peanut butter. I have known people to combine peanut butter with a remarkable assortment of foods. One man made peanut butter sandwiches with a large slice of Bermuda onion. Another likes his with mayonnaise on one piece of bread and peanut butter on the other. One friend fills celery stalks with peanut butter for a snack. Many other combinations must also exist. If you love peanut butter, try these spreads.

Honey-Peanut Butter Spread

1/2 cup peanut butter
2/3 cup shredded carrots
1/4 cup plain yogurt
2 tablespoons honey
8 slices whole wheat bread

Combine peanut butter, 1/3 cup shredded carrots, yogurt and honey; mix well. Spread about 1/4 cup mixture on 4 slices of bread to make 4 sandwiches. Cut each sandwich into 4 triangles. Dip cut edges lightly in remaining shredded carrots.

Nature's Golden Treasure Honey Cookbook
Joe M. Parkhill

Peanut Butter, Bacon and Honey Sandwich

For 2 sandwiches:
1 strip crisp bacon
2-3 tablespoons peanut butter
1/2 teaspoon honey

Crumble the bacon into the peanut butter and add the honey. Mix and spread on bread.

Honey Recipes from Wisconsin
Ozaukee-Washington County Beekeepers Association of Wisconsin

My secret for spreading peanut butter without destroying the bread is simple. My bread is kept in the freezer and I put the peanut butter on while the bread is still frozen. After a few minutes the bread is thawed and the sandwich is ready to eat. My peanut butter sandwiches always are made with honey, too. Creamed honey spread on one piece of bread and peanut butter on the other makes a sandwich that does not drip honey, even after several hours of sitting in a warm room. Get out your peanut butter jars and join me! □

Rest of the Story, Cont.

In addition to the questions I suggest, I welcome and pass on questions from others. A respondent need not own the bees herself; many women have a major role in a family-owned operation. Some may be employed as queen raisers in someone else's business. Others will be sales reps or brokers, selling other people's honey or perhaps even pollination contracts.

Questions for Future Columns

1. Are we .1%, 10% or how many? Do you feel an interest in or need to find out what other women in the field are doing? Do you feel isolated? What are you doing?
2. What advantages do you have as a women in the field of beekeeping/honey production/sales? Do you look at bees/honey/marketing in a different way than male beekeepers? Are buyers more gentle/tough/condescending with you than with men in the same position? Cite examples. How do you react or feel?
3. What problems do you have in beekeeping and or honey sales because you are female? How do you handle them — or not handle them? Example: lifting problems — you weigh 125 and the super is 80 lbs.?
4. Is there a particular person you would like to hear about or an occupation within the field of beekeeping about which you would like more information?

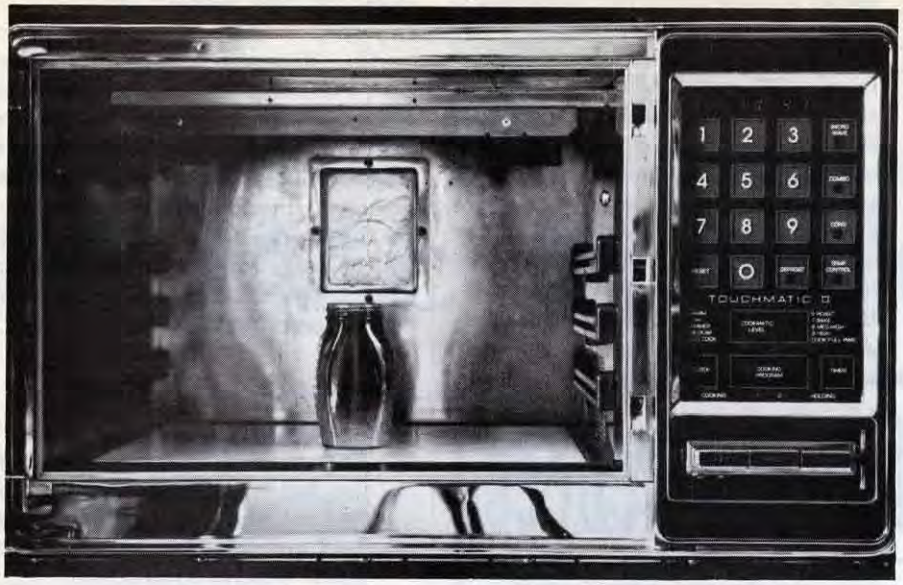
I'm looking forward to receiving answers and comments and even look forward to hearing from men on their reactions to the question and/or to women in beekeeping.

Bees and honey form quite a range of occupations and as members of this group we might consider that although honey lovers (should) stick together, "variety (and diversity) is the spice of life (and commerce).

Or to paraphrase: "Stick together or get stuck separately!" □

Send your comments and answers to:
Joann
3164 Maple Court
Reedsport, OR 97467

L. EDWIN RYBAK



Of Honey, Wax and Microwaves

"With just a little experimenting you can be melting wax or reliquifying honey this evening!"

Honey

Breakfast is almost ready and you are about to sit down, just in time to realize you're out of liquid honey for your cereal, toast, or pancakes. You go to the cabinet only to find, to your horror, that you've got several jars and a dozen or more honey bears full of honey — all nicely crystalized. But you need liquid honey, now! You know the instructions: set the jar or container into hot water or near some source of moderate heat and keep it there until the crystals have reliquified. But don't overdo the heat lest the honey darken and lose some of its flavor.

A precautionary measure must be taken to prevent any absorption of moisture by the honey. From a practical standpoint, this probably won't happen unless the container tips over, and besides, it can be prevented by keeping the lid on; but loosely lest the build-up of pressure burst the container.

But the most disconcerting part is the time it takes to do this, especially when you need liquid honey *right now*. Keeping crystalized honey warm enough for long enough to reliquify it tends to hone the keen edge off that delicate raw-honey flavor.

So what does one do? You can use sugar. Sugar? Heaven forfend! Well, let me make a suggestion: apply modern kitchen technology to the problem. What? How? By using the microwave oven, that's what and how.

I'm not sure just how much heat the plastic honey bears will stand, and I'm not about to push the experiment far enough to find out. But they will take enough heat for long enough to liquify the honey, if they are full. If you have several plastic honey bears, or glass jars of crystalized honey, remove the covers, especially any metal covers, and set the containers into the microwave oven. Then there are two ways to proceed.

If your microwave oven has a sensor probe, and the containers are all the same size, shape, etc., insert the probe into one container and set it directly under the pivotal point of the sensor cord. However, if the containers are *not* all the same, insert the probe into the *smallest* one. I'm assuming your oven has a turntable. But, even if it doesn't, this still applies. Touch up 135°F and turn the power on. The oven will soon do the rest without overheating the honey.

If your oven *does not* have a sensor, and this is an alternative method even if it does, or if you want faster results, simply set the containers, whatever number you wish at one time, into the oven, and touch up several minutes of time. I say several minutes because your oven's size and power, the number and size of the containers put in at one time, and the various degrees of crystallization of the honey will determine the number of minutes it takes. Err on the low side for time; not over five or six minutes for a start. If the job is not quite complete add another minute or two, or guess the additional time needed; again, err on the low side.

Presto! In a matter of minutes, instead of hours, you have liquid honey, no darkening, and without loss of that delicate flavor you want to retain.

I can liquify five or six honey bears, or a couple of 2-pound jars in about six minutes. The contents were completely crystalized, not rock solid, but enough so that the honey would not run out.

It is best if all containers and contents are approximately uniform, but various sizes can be processed at one time, keeping watch and removing the first ones to liquify; usually the smaller ones.

A bit of careful experimenting with your particular oven will give you the information, answers, and all the liquid honey you need.

Beeswax

The setup for most commercial beekeepers includes a wax melter of some type.

But beginners, hobbyists, and comb honey producers are faced with a different problem; how to process and handle the relatively little amounts of wax they harvest each season. They really have few choices. They can collect cappings, scrapings of burr and bridge comb, and bits of broken comb, and sell them to someone else. Or, they can buy or build a solar wax melter, a fairly large piece of equipment but one that is handy to have in any case, and should perhaps be part of any beekeepers' setup. Scraps of wax, as listed above, can be melted in a container set in a pot of hot water. And here I'll echo the warning — do not put the wax container directly onto the heat; it must be in a double-boiler type of arrangement.

The problem with the solar wax melter is that its use is generally limited to summertime; plus or minus some time at each end of the season. And it does not function well, nor is it conveniently located, on a rainy day. The hot water, double-boiler arrangement is a long process, to which I can attest. And here you are with all that wax you want to melt *now*.

What to do? Take heart. The best bet for the beginner or small operator, if he/she does not yet have a solar or other wax melter, is to forget it — that is if they already have a microwave oven, or plan to buy one in the near future.

The increasingly ubiquitous microwave oven, a relatively modern bit of kitchen technology, can be used to melt those bits, pieces and cakes of beeswax.

There are two important precautions to be observed when melting beeswax in a microwave oven. The container in which the wax is to be melted must be microwave safe. The other requirement depends on how the wax is to be handled; if the whole is cooled as a unit, as melted, then the wax must easily slip out of the container, or the container must be expendable so that it can be peeled from the wax cake.

I find both the one and two quart plasticized-paper milk cartons very satisfactory and the price is right. With a utility or other sharp knife, cut the top of the container off so it fits inside your oven. I cut mine about a half inch from the top and it still clears the top of the oven cavity nicely.

Put about two inches of water into the container, then add the wax scraps, cappings, and pieces to fill the container nearly full. Set it in the oven, touch up about five minutes at high heat and relax, but don't go away. At the end of the time period I check and add more wax as needed or wanted. Set up for another two to five minutes, depending on how much of the previous batch was melted and how much you added. And don't hurry. Beeswax is not highly ductile, so the slower pace of operations allows the added wax to preheat in what has already melted, thereby keeping the overall temperature down. You should be able to handle the carton with little or no discomfort, and this ensures that the wax is not being overheated.

Do not over-fill the container because it will be difficult to handle and pour without spilling some of the melted wax.

It is impossible to specify the exact time or heat for a specific melt of wax. Much depends on the size and power of your oven, and the amount of water and wax being heated at any one time.

At no time should the contents of the container reach the boiling point. If it does, you are rushing things. Add some water, or wax, or both, or pause between additional heat cycles, or reduce the heat level.

An alternate method of melting the wax requires an oven with a heat sensor; and the exact heat will depend on the particular oven; there seems to be a slight variation between even identical units. This system allows melting the wax without water, although some water might be desirable to allow settling of sediment to the bottom — unless you are remelting blocks of clean wax for pouring into smaller molds.

Fill the container with wax pieces and set it in the oven. Insert the heat sensor and punch in 135-150°F. Press the start button and the oven does the rest.

This method obviously takes longer than the first since the operating heat level is much lower. But it is offered for those who might wish to use it.

Whichever method is used, a fairly careful watch should be kept on the proceedings. When all, or nearly all of the wax has melted, turn the oven off if it has not already cycled automatically. If there is still some unmelted wax you can punch up another minute or two, or let it set for a bit and let the unmelted portion liquify from the pent up heat of the contents. The wax at this point will be quite warm but should not be hot.

At this point I pour the liquid through a piece of nylon stocking stretched in a dimple across the top of another topless milk carton to strain out any sediment. Then leave the container, into which the wax was poured, to cool slowly.

After the wax has cooled, peel the carton away, starting at the seam. Do this over a large pan or in the sink — remember, there's water in the bottom. Alternatively, you can cut off a lower corner with a sharp knife, or punch a hole near the bottom and let the water drain out, then peel the carton away.

Viola! A nice block of clean, pure beeswax with minimal fuss, and no added equipment. And so quick and easy. □

The Microwave Oven

The microwave oven is a tuned-cavity resonant circuit operating at about 2400 megahertz.

Now, whatever the heat source, the more material you are heating at one time, the longer it takes, because there is more material to absorb the heat and raise to the desired temperature. This is normal and natural.

But as regards the microwave oven, there is another factor; the loading of the resonant cavity. And the more you put into the oven at one time the more the cavity is loaded and detuned; yet it is not efficient to put in the very minimum amount at one time. Nor is it desirable, since a resonant circuit should not be operated without some load because maximum circuit voltages develop at resonance; and this excessive voltage can feed back to the magnetron with possible adverse consequences. So, like most things in life, there is a tradeoff. In general, unless one were to fill the cavity completely, it is nothing to worry about.

Within the normal range of practical probabilities, whether you are liquifying crystalized honey or melting some beeswax, use common sense and caution, and don't be afraid to experiment a bit. ■

The African Honey Bee, Integrated Pest Management And The United States Department of Agriculture

KIM FLOTTUM

Pest (pest) *n.*
A PERSON OR THING THAT CAUSES TROUBLE, ANNOYANCE, DISCOMFORT, ETC.; NUISANCE; SPECIFICALLY, ANY DESTRUCTIVE INSECT OR OTHER SMALL ANIMAL; VERMIN.

From the perspective of most beekeepers in the United States, the African honey bee could certainly be considered a pest. In light of this, Integrated Pest Management becomes practical for beekeepers. Though usually associated with controlling pests in agronomic crops, the concept of IPM transcends the relationship of worm or beetle eating alfalfa or apples.

Simply put, IPM uses a variety of techniques to efficiently control crop pests while reducing to a minimum the danger to resident beneficial insects and the rest of the environment. All things considered, IPM is good for agriculture, and all those agriculture affects.

The history of IPM development has its roots in USDA and other federally supported research. So it should come as no surprise that the basic components are being put in place to deal with beekeeping's greatest potential pest — the African Honey Bee.

To this end, the administrators of APHIS, ARS and ES in late 1987, formed a technical working group to keep each agency informed of their respective activities regarding the AHB. This past summer the CSRS (Coop. State Research Service) and the USDA's Office of Information (OI) joined them.

Combined, these groups have the capability to investigate and regulate nearly every aspect imaginable regarding the AHB and then transfer that information accurately and rapidly to the people who need it most.

To accomplish this seemingly impossible task, the USDA will draw what it needs from each of these groups and combine this information much like a chef making a complicated and delicate pastry, and finally (and continuously) serve an end product that highlights the strong points of each ingredient, but makes sure no one flavor overpowers the rest.

But to be able to predict the outcome, one needs to examine the individual components before they are mixed into the USDA pudding.

The ARS is the research arm of USDA and this group, primarily represented by the Honey Bee Research Labs, has been studying the AHB for years. Teams have been in Brazil, Mexico and other locations measuring biology, behavior and studying practical management. This work has provided the background of information essential for decision-making.

They have fairly well documented the differences between the AHB and the EHB relative to management in standard equipment, pollination, honey production and other traits. Their biggest drawback, of course, is the difficulty of studying behavior in a temperate climate (North America), when the insect is in the tropics.

For this and other reasons, they have had their critics who conclude that wrong deductions were made from the data obtained and that they have spent time and money gathering information that won't be needed.

Although honest (and in some cases, significant) differences of opinion exist, the sheer amount of applicable information gathered by ARS over the years will be both necessary and beneficial when it is needed in the U.S.

Another key ingredient in this recipe is the Federal Extension Service. Primarily, Extension is an information gathering and dissemination agency at the state and federal level. Their role is to get the necessary information about the AHB to state extension agents who then in turn make that information known to their county agents.

Until recently they were nearly invisible to the general public whose exposure to extension is usually limited to a county agent, 4-H leader or other assistance program. However, about a year ago they decided it was time to increase their exposure and created the position of Federal Extension Agent for African honey bees. Dr. James E. Tew, Ohio State University, was chosen for the job. Since starting in this position, Dr. Tew has been taking what information has become available from ARS and other sources and making it available to a wider variety of people than before who then in turn use it to inform an even greater number of people.

APHIS plays a dual role in this program. First, they have a monitoring program in place that keeps them informed of the AHB's movement through Mexico. Second, they have an acute monitoring program in place at every suspected port of entry in the U.S.

APHIS is a regulatory agency and their only official concern is making sure exotic pests do not enter the U.S. To accomplish this with the AHB they have swarm traps at all ports, routinely

search for errant swarms or colonies on ships and have trained their personnel in how to deal with them. To date they have intercepted hundreds of swarms of AHB's on ships, mostly in Florida but other ports as well. As the AHB gets closer to the U.S. these programs will intensify. However, once this natural migration through Mexico crosses the Texas border (their presumed first entry), the role of APHIS becomes much less clear.

The Office of Information is a new member of the TWG, but has been working on an overall plan of information dissemination for several months. This plan includes recorded phone messages, press releases, interviews, posters, videos and printed information (almost all of these in both English and Spanish) on a fairly big scale. Their intent is to reach the general public but also nearly everyone in agriculture who will come in contact with or be affected by the AHB.

If you notice some overlap of responsibility between the ES and OI you're not alone. They, too, have noticed it, but so far haven't precisely defined their respective roles. Duplication of services leads to waste in time, money and personnel. And it doesn't make either group look good, so a solution is being sought.

The CSRS (Cooperative State Research Service) tends to be invisible to most people. Their function in USDA could be described as middle management. They administrate and oversee several aspects of the USDA bureaucracy and their input is required to keep the machine running smoothly.

Now that the individual components have been examined the outcome of the final product should be better understood. Of course, the USDA isn't alone in studying this pest. University researchers not affiliated or funded by USDA have been making significant and, in some cases, contradictory contributions to our store of knowledge for years. State Departments of Agriculture have also been busy putting together programs and plans for their specific use. Many national and regional beekeeping groups have funded or organized information plans, too.

Because of the research already conducted, U.S. beekeepers and others will know what to expect, how to react and what the most efficient method of action should be. They'll know this because both the ES and OI have been busy cranking out loads of information for not only beekeepers, but farmers, firemen, city officials and the general public.

The USDA has a stated policy — we will not learn to live with the African honey bee. The agencies involved have a unified and integrated plan to control the impact the AHB will have, reducing it to a minimum, while at the same time spending limited (usually very limited) funds in the most efficient manner.

The USDA feels the AHB will not disrupt American Agriculture, or other aspects of public life outdoors. This doesn't mean some things won't change, and maybe some will change drastically.

In the final analysis, however, Federal funds and Federal dedication to agriculture at the highest levels will ultimately decide the success of IPM and the AHB. □

Bryant Honey:
Best in the Big Horn Basin

LA MAR BRYAN

One of the most important management aspects of beekeeping, whether you have a few colonies or several thousand, is caring for the bees from late fall through early spring. Preparing colonies for winter and building them up in early spring can be labor intensive work which shows few immediate benefits. But cutting corners in these areas may result in heavy losses in both bees and money.

Bryant Honey, Inc., a fourth-generation family business based in Worland, Wyoming, often faces extreme weather conditions both in the winter and early spring. The Big Horn Basin, where approximately half of the company's 3,000 colonies are based, can provide some of the nation's most severe winter conditions (outside of Alaska and Yellowstone National Park), with temperatures sometimes dropping to -25°F to -40°F at night. Spring also can be harsh because of a lack of rainfall to sprout early sources of nectar. The basin generally averages less than eight inches of moisture per year.

The Bryant company, now managed by brothers Bob and Don, starts preparing for winter in late September by making sure each hive has 60 to 80 pounds of stored honey for food. The hives are kept in the same yards the year around, are faced south, wrapped in black tar paper and tilted forward on a slight slant. The tar paper on the south-facing hives, even on the coldest winter days, generally is warmed enough by the sun to melt ice and snow off of the hives and warms the inside of the hive a bit.

"There are not many days in Wyoming when the sun doesn't shine in winter," Don Bryant says. "We keep the backs tilted up higher so water and condensation will melt and flow out the front of the hive. We lose less bees here by over-wintering them then our queen breeder does in California — and that's no joke. They just over-winter really good in this valley for some reason if you know what to do."

Bryant Honey workers Dennis Wheeler, Bob Bryant and Don Bryant.

The Bryants generally lose between 3 and 5 percent of their bees during a typical winter. Their management strategy depends on a brief break in the weather in late January or February to allow the cluster to move to a new source of honey inside. During the harsh winter of 1978-79, when the basin was gripped in an icy lock for 90 straight days of below-zero temperatures, the company lost 60% of its bees.

Depending on when the first spring-like conditions arrive, the Bryants began unpacking their hives in early to mid-March to start preparing for the summer honey season. Most of the bees are fed high-fructose corn syrup until the dandelions begin to bloom in May and are fed intermittently after that until the Russian olive trees, clover and alfalfa blossoms appear. The corn syrup is purchased from a local Pepsi plant at $1.40 per gallon, which weighs about 11.55 pounds.

"Instead of just giving them honey, we're trying to stimulate them more by giving them high-fructose corn syrup," Don Bryant says. "A lot of people use sugar water which isn't usually as strong. With this corn syrup, within a couple of weeks, the bees will be ready to go."

The Bryants also have developed a strategy for keeping their colonies as even as possible heading into the honey producing season. Each spring most beekeepers discover that some of their colonies are prospering, while others are "dinks" — a hive with maybe a queen and only a couple hundred bees.

"A lot of beekeepers just add brood and bees to it (the dink hive), but we don't," Bryant says. "We wait until mid-May and then we go into a yard and find the strongest colony in the yard. This one has the most bees and the most brood and honey. Then, we take one or two frames of brood out of it and we just change positions with one that doesn't have as much brood and bees.

"The next time you come back, you have two equal colonies. Instead of one really powerhouse colony that might swarm, you have a colony that's a little weaker now. But then the other colony is full because it got all of the field bees of the strong colony, plus a couple frames of brood. Boy, that will just wake that queen bee up and get her going."

The beekeeper acknowledges that switching frames from a strong colony to a weak one is more labor-intensive than "shaking" bees into the weak colony and adding brood. But he says shaking bees into a dink colony often is unsuccessful because a large number of the bees return to their old hive. The bees remaining in the weak colony then often cannot care for the new brood, die, get robbed out or produce little to no honey during the summer.

"The thing a beekeeper tries to do is make every colony in the yard about the same — that's hard to do," Don Bryant says. "You want every colony about the same strength. The reason why is when you start collecting honey you can come in and take a super or two of honey off of every colony in the yard."

The Big Horn Basin, with its harsh weather conditions and dependence on crops such as sugar beets and barley, may not provide the most desirable environment for raising bees. But Bryant Honey patterns its management to fit conditions in the basin and takes advantage of nectar sources from Russian olive trees, clover and alfalfa — producing a high-quality white honey that can be marketed to Sioux Honey of Iowa for a premium price. The trick is to extract the honey and prepare it for shipping without adding heat that will darken the color of the product and lower its value.

"One thing that we believe here is that we don't put any heat at all on our honey," Don Bryant says. "That's one of our management techniques. We have great pride in our white honey. Last year on a color scale starting at 0.0, our honey was the clearest grade of water-white honey."

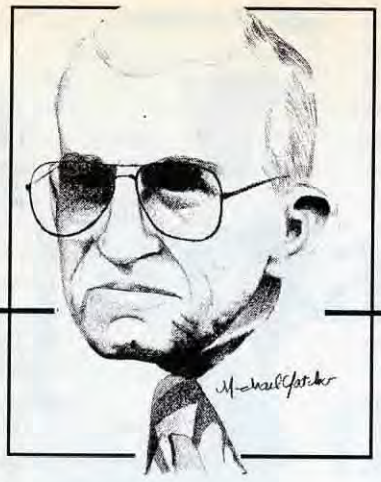
The Bryants process their honey using a 50-gallon hot water tank hooked to a recirculating pipe system that not only keeps heat away from the honey during the extraction process, but is cheaper to operate than a steam system.

Approximately 95% of the company's honey is sold to Sioux Honey, which blends it with darker-colored honey produced in other parts of the country. Their remaining 5% is sold in Big Horn Basin stores or marketed in Christmas packages as comb honey. The Bryants also are starting to sell honey sticks as a way to increase demand for their product.

"A lot of people don't care about producing white honey," Don Bryant says. "A cent or a cent and a half a pound doesn't matter to them, but it does to us. It all adds up." □

Exchanging frames. Giving a weak colony a full frame evens out the strengths of both and makes hargesting easier later in the season.

LaMar Bryan is a freelance writer living in the Basin area. He has another feature prepared on the Bryant Honey Company and the precautions they take to avoid pesticide poisoning — a very real problem in their area.



POLITICALLY SPEAKING

GLENN GIBSON

Minco, Oklahoma 73059

"Economics will have the final say in whether or not promotion refunds are eliminated."

It's fun to study the science of economics and its relationship to politics. However, while studying, exercise care when drawing conclusions from a cursory look at this most important social science. It is regrettable that our industry has given so little attention to economics as a science. Is it important for us to understand the basic principles of economics? Definitely, yes, if we want to see our producers succeed.

Whether we realize it or not, economics plays a central role in shaping the activities of the modern world since this science supplies the criteria of what is "economic" and "uneconomic". Leading economic experts say: "...there is no other set of criteria that exercises a greater influence over the actions of individuals and groups as well as over those of governments."

Few beekeepers will question this conclusion; neither will many give it a second thought, even though two of the industry's main projects (price support and promotion) are based on several economic and political assumptions. Failing to fully understand the justification for either of these important projects doesn't necessarily mean much either way except when our leadership attempts to make recommendations. In a number of cases they are passing on some words without an understanding of what they mean, and members are expected to accept them at face value. Educators refer to this acceptance as a process by which the contents of the textbook of the instructor are transferred to the note book of the student without passing through the heads of either party.

The science of economics is blessed with an intellectual consistency but has implications that extend far beyond the economic theory. It is, in short, also a political philosophy. The message of economics is further blessed because it can assume a mathematical form (graphs, charts, etc.). Using mathematical terms implies rigor and internal strength. A danger here is that sometimes the mathematical facility becomes more important than the understanding of the economy. Using numbers give the impression of rock-bound truth, but they may be puzzling to anyone not versed in mathematics, and in some cases, the message will be only a pack of lies.

Compton's Pictorial Encyclopedia, 1961 edition, tells us that all economic systems or models of whatever size are based on coercion (sticks) and incentives (carrots). With a little thought the carrots and sticks can easily be identified and herein lies a bit of a problem. When selling an idea, we tend to exaggerate the value of the carrots and ignore or down-play the sticks. This tendency seems to be acceptable except where it becomes evident that the promoters reasoning is flawed.

Good sound programs that are fully understood and widely supported by all parties concerned have little need for sticks. Full use of the carrot/stick reasoning will no doubt be used to a warm degree before the industry resolves the issue of eliminating honey promotion refunds. The American Beekeeping Federation, ABF, stoutly contends that more sticks are needed (eliminate refunds), or the promotional program will eventually die. A significant number of non-producer members of ABF are strong supporters of elimination even though they have no economic interest in the fate of the producer. On the other hand, the American Honey Producers Association, AHPA, representing producers only, wants to retain the refund provision and leave the program as is. The position is supported by members who are:

- Experiencing difficulties with a cash flow;
- Opposed to the entire program, but will not actively oppose it if refunds are available; and
- Supporters of the program, but object to more sticks.

Opponents of the honey promotional program have said very little about the program since its inception. On the other hand, proponents have not overlooked any opportunity to write and talk favorably about the big and tasty carrots. Some critics stoutly contend that the quality of the carrots has been exaggerated.

It is probably safe to assume that the changes in the promotional program and the honey industry's part in the new Farm Bill will be resolved during the 101st Congress. Our chances of success will be in direct relation to our understanding politics and economics. □

family feed. Sometimes I even wonder if they really make decisions at all or just sort of let things slide on by.

Our bees, on the other hand, seemed not to notice the rotten weather, or the mean temper of their keepers. They made lots of honey, more, in fact, than in many years. The usual nectar crops, those we keepers depend on, were washed away and the assumption was made (by the keepers, not the bees) that it would be a bust of a year. The bees weren't consulted though, as Charlie Koover so often claims, and they made honey anyway.

They made great comb honey early, and a huge extracted crop later. Both are unusual in flavor, but the taste is mild, the color light, and it doesn't seem to crystalize very fast. Our customers like it and, after all, that's what's important.

**The Ohio Estate, for those not enlightened, is the name of the Editor's grand domain. Complete with run down mansion, leaky garage, weedy and over-run garden and lawns and, of course, a bee yard. It also has chickens, cats and some fine neighbors — the Ohio Estate is home.*

•

Censor?

A state regulator sent me a letter about advertisers, bees and mites. Without specifics, he cited instances of advertisers making claims which he felt were, at best, exaggerated.

He suggested that the bee journals, this one included, begin to screen advertisements for content. Essentially, he asked that we police the businesses that advertise and shoulder the responsibility of making sure that bees sent to state A from state B are mite-free if the advertiser in state B says they are.

For years, many years, enforcement agencies of all sorts have been making this same request of the press. And for as many years the press has refused to do so. Let me tell you why.

First, whose laws would the journals use when practicing this subjective censorship? State A and State B are seldom the same (or do we have the authority to change these laws, too?)

Second, who is liable if the advertiser is in violation of, let's see, the rules from State A, or is it State B, or is it the new rules just made? Does the responsibility for refunding a consumer rest with the journal, the advertiser, or the regulator in state B? or state A?

Finally, what happened to the inspectors in states A and B (especially the state from which the letter came?). I don't mean to single out any one state, or even inspectors, but there is a fundamental law that goes, if I may paraphrase — 'a publisher has no duty to investigate the accuracy of advertisements placed with it that are directed to the general public'. And, more recently, a three judge federal appeals court stated that..."Given the pervasiveness of advertising in our society and the important role it plays, we decline to impose on publishers the obligation to reject all ambiguous advertisements for products or services that might pose a threat of harm".

Why? Simply, the courts have placed more value on the benefits of information available than on the rights of private persons who claim to have been harmed.

There are exceptions to this, but almost exclusively they pertain to personal injury, not pocketbook embarrasment. The courts are not quite as protective when the goods advertised are flagrantly illegal — drugs or the like. But a bee infested with mites, in and of itself, is not breaking any law. The trouble comes when somebody says it's not infested, and then only if it is done so willingly, with full knowledge.

If a seller of bees knowingly makes fraudulent claims about his product, it is the responsibility of the regulatory agencies in the sending or receiving state to stop the seller from making the claims. That's what regulatory agencies are paid to do. Of course *competitors* of that advertiser may use the Federal Lanham Act to stop the ads and may prosecute if they are not.

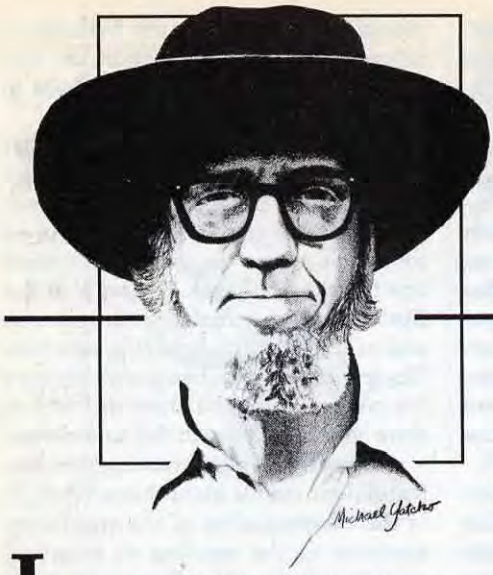
But there are always two sides to a question and often even more. If a magazine habitually runs ads for con-artists, crooks, fly-by-night businesses and other assorted villians, the 'court of readers' will certainly pass judgement on the credibility of the publishers. This is a responsibility all publications must uphold — whenever possible.

The key phrase here is 'whenever possible'. For instance, I would question an ad for a queen guaranteed to produce at least a 100 lb. surplus. Mainly because I doubt that a queen could be guaranteed, but more importantly, it is a claim that regulators can't check and it is a quality that can't be measured until the queen is sold.

I said I would question it — not necessarily censor it. And I go back to the findings of the court. Who am I to not let readers know if such a queen exists even if I find it difficult to believe?

If you know somebody is selling a defective product, tell the regulators, and then tell me. But let the regulators do their job.

Kim Flottum



BEE TALK

RICHARD TAYLOR

9374 Route 89, Trumansburg, NY 14886

"Successful beekeeping requires good management, not lots of fancy equipment. Stick to the basics and you won't be surprised, or disappointed."

I spent a week in fabled San Francisco in July, taking my wife, who competently and wonderfully organized the whole week for us, but leaving the kids with their grandparents. Sounds wonderful. But I had not been there an hour before I began thinking of home, of the children, of my bees, and the numberless other sources of happiness that I had briefly left behind. And I was reminded of something I have long known, but something many people, I think, never learn; and that is, that if you are ever going to find lasting happiness, then it will be in your own back yard and not in distant places.

People who must be constantly on the move, looking for novelty, those Plato called "the lovers of sights and sounds", have no chance of finding happiness, no matter how hot their pursuit of it. They find, at best, a temporary release from boredom, boredom that arises from within. The seeds of lasting happiness are already planted nearby ...one needs only to nourish them.

Experimental super with standard wood frames at the sides, burr comb on round-section frames.

I got home to find that the bees had not let me down. New honey flows had begun, and supers were filled or filling with snow white honey, mild and delectable. Maybe it came from the roadside sweet clover that had been blooming abundantly this summer, maybe from some alfalfa fields nearby. I can't tell the difference. But no matter, there was lots of it, and I have been busy ever since, trying to get my seemingly endless crop of comb honey harvested. With more supers I could have gotten more comb honey this year, but I don't know when I would have found time to deal with it all.

So much for the musings. Now I shall get down to something practical.

Early in the summer, a friend gave me a new comb honey super to try. It

Frame with end bars moved in to fit round-section super.

was an ordinary round-section super, except that the two outer frames had been replaced with regular wooden extracting frames having drawn combs. These he had redesigned somewhat so they would fit into a round-section super. Specifically, he had moved the end bars in a bit closer together. He wanted me to see whether the presence of the drawn combs would induce the bees to move up into the super faster and get to work on the round sections sooner.

Well, that super was filled up all right, but so were most of the others, which had no drawn combs in them. So, without any controls, I have no way of knowing whether this resulted from the presence of the drawn bait combs, or just the onset of a good honey flow.

In any case, I decided I do not care much for this idea. Not only does it require a pair of unorthodox frames, it

also requires having sufficient space above the frames to accommodate the thickness of the top bars of those frames. Result: you get a lot of burr comb plastered all over the tops of the round-section frames. When you separate the frames to harvest the comb honey you get a drizzly mess.

The experimental super my friend lent me was 5 inches deep. A round-section super is only 4-1/2 inches deep, at most. So this super had a whole half-inch of extra space on top! The plastic frame for round sections is 4-3/16 inches. So there was a space of more than three-quarters of an inch above the frames of the experimental super! My hands and everything else got covered with drizzling honey when I harvested it. No wonder! The law of the bee space says that bees will fill with burr comb any space in excess of three-eighths of an inch. And in a comb honey super, that burr comb gets filled with honey — quite a lot of it.

But what really got me upset about this whole business is that this super had been manufactured and sold *as a round section super* by one of the big bee supply companies. What they had apparently done was put round-section frames into their regular comb honey super, and called it a round-section super. Either that bee supply company has never heard of the law of the bee space, or the people in charge there just don't care. I wonder how many hundreds, or thousands, of beekeepers have ended up with a mess on their hands because of this kind of irresponsibility. Note well: Before you buy any round-section supers, make sure they are of the correct depth.

Getting back now to this idea of somehow having regular drawn combs at the sides of comb honey supers, to serve as bait combs, someone in our bee club made an interesting discovery. He found that a round-section frame will fit into a standard 5-3/8" extracting frame. So you can take a regular shallow extracting super, put two standard shallow combs in it, next to the sides, then fill the rest of the super with standard frames of the same size, each containing a plastic round-section frame fitted with rings and foundation. Pretty neat! I checked this, and a round-section frame does indeed fit into a standard wooden shallow extracting frame, though not very tight.

There are a couple of disadvantages to this, too. The biggest is the need for two frames — one wooden and one plastic — for each four round sections. That is wasteful. And the other is, those plastic frames are going to get stuck in the frames with lots of propolis.

I'll stick with my tried and true system of eight round-section frames per super, follower boards at the sides for ventilation, and not worry about any kind of bait sections. We get pretty good honey flows here, and my supers fill up all right without bait combs. Successful beekeeping just requires good management, I think, and not any fancy equipment. □

Questions and comments are welcomed. Please use Trumansburg address and enclose U. S. or Canadian stamped envelope for prompt response.

QUESTIONS?

THE LYE IS STILL THERE

Q. I have seen lye recommended for cleaning and sterilizing old frames, but hardware stores and bee equipment suppliers tell me it can no longer be purchased. Can you recommend something else?

Don Acorn
Vienna, ME

A. Lye is available in grocery stores. A twelve-ounce can here currently costs $1.49. It is a highly corrosive substance but not, so far as I know, in any way a controlled one.

Editor's Note: Household lye is commonly available. Most drain cleaners are pure lye which is called caustic soda, or sodium hydroxide.

TO PAINT OR NOT TO PAINT

Q. Should the inside of a hive be painted? If so, what color?

John Curtin
Gladstone, MD

A. I can see no point in painting the inside of a hive and know of no good beekeeper who does this. Sooner or later the inside gets coated with propolis.

HOW FAR WILL THEY GO?

Q. How far north do you think the Africanized bees will eventually get?

Michael Buccieri
Java Village, NY

A. Experts are uncertain about this, but my prediction is about to the Carolinas. That corresponds to the latitude beyond which they have not gone in the southern hemisphere.

EIGHT FRAME SUPERS

Q. What would be the advantage of using eight-frame comb honey supers?

Ed Rittershausen
Polson, MT

A. Many comb honey beekeepers used to use eight-frame equipment in producing square sections, believing that the smaller hives forced the bees up into the supers sooner. Standard eight-frame supers are not hard to find. For producing round sections, you can use either the full nine frames or, as I prefer, eight frames with follower boards on each side. This improves ventilation of the super and the corner sections get filled better.

COULD IT GET STICKY?

Q. If you set supers of sticky combs outside after extracting them so the bees can clean them off, won't this cause robbing in the apiary?

Jim Gearhart
Neuada, Ohio

A. In many years of doing this, I never saw it cause robbing. You should be sure your hives are free from American Foulbrood, however, for you could otherwise spread disease. □

Questions are welcomed. Address: Dr. Richard Taylor, 9374 Route 89, Trumansburg, NY 14886, enclosing U. S. or Canadian stamped envelope.

ANSWERS!

Richard Taylor

GLEANINGS GLOBE

OCTOBER, 1989 ALL THE NEWS THAT FITS

Speakers Galore

California's 100th

The California State Beekeepers Association Centennial Celebration and Annual Convention is guaranteed to be a special celebration and the one convention not to miss! The convention will be held at the beach front Catamaran Resort Hotel in San Diego, Nov. 6th through 10th, 1989. In celebration of this milestone in our history we are looking forward to a fun-filled convention. All beekeepers, commercial, sideliners and hobbyists, from around the country are invited and encouraged to attend.

DON STRACHAN, President, invites every beekeeper to this once in a life time event.

Speakers and events scheduled are: *Monday*, Apiary Board Meeting, BOD and Honey Advisory Board Meetings; *Tuesday*, Troy Fore (ABF), Kathleen Turner (Ag. Commissioner), Dr. Rob Page, and Dr. John Harbo; *Wednesday*, Kim Flottum (Editor, *Gleanings*), Troy Fore (Editor *Speedy Bee*), Dr. James Tew, Dr. Eric Mussen, Dr. Adrian Wenner, Dr. Norm Gary at Luncheon; *Thursday*, Sue Cobey, Phil Rossman and the Business meeting, Auction, Banquet and Costume Ball.

PHIL ROSSMAN will speak on having a positive attitude during challenging times.

If you are flying to the meeting CSBA has arranged with United Airlines for a discount program for convention goers. For information, contact United directly at 1-800-521-4041 and mention convention #444AG.

For more information, registration materials, etc., contact CSBA Secretary Carol Penner at (916) 527-0941, 19980 Pine Creed Red., Red Bluff, CA 96080.

Send your news to the Globe

Waxmoth Reprieve

CERTAN DISCONTINUED

Lou Buice, spokesman for Zoecon Corporation, announced on September 12, 1989, that Certan, Zoecon's biological control for wax moth, will be discontinued. Buice said that, "...as a result of an extensive re-registration program required by EPA, Zoecon cannot economically justify maintaining the Certan registration."

This means that another group must undertake the registration process, or Certan will not be available in the U.S. As a result, Paradichlorobenzene crystals will be the only legal wax moth control for U.S. beekeepers.

LOU BUICE

Mann Lake Supply Wins Award

JACK THOMAS

Jack and Betty Thomas, owners of Mann Lake Supply, Hackensack, MN, have been awarded the 1989 Governor of Minnesota Entrepreneurship Award. Jack, Betty, and the staff at Mann Lake were recognized for product innovation, creativity and teamwork. They have brought jobs to a small community, developed new markets for Minnesota products and have shown progressive ideas and vision in their product line and services. In the many newspaper and television interviews about the growth of Mann Lake Supply, Jack and Betty were also able to emphasize the importance of the honey bee to the general public.

At Summer Meeting

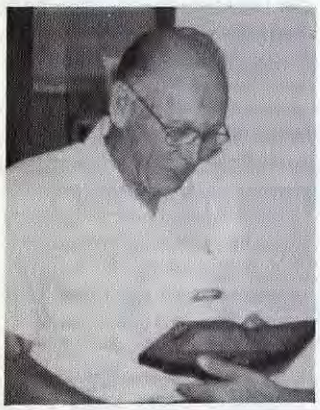
OHIO'S BEST

Steve Bartels, County Extension Agent for Butler County, was chosen as the first recipient of the Ohio State Beekeepers Association's L. L. Langstroth Award for outstanding service performed by a county agent. Steve is one of the primary leaders in the very successful Lakota Bee School, sponsored by Ohio Extension. Averaging over 100 participants each year, this event is one of Ohio's bright spots in beekeeping. Congratulations, Steve.

STEVE BARTELS

And...

Chosen as the Beekeeper of the Year, Don Cox, Sr. from Lima, OH, accepts the plaque and congratulations from John Grafton, President of the Ohio State Beekeepers Association. Mr. Cox was chosen because of his dedication to the Ohio beekeeping industry on a state and local level.



DON COX

Public TV Exposure

HONEY BEES ON TV

Dr. Norman Gary, apiculturist at the Department of Entomology, University of California at Davis, joins host David Heil to explain and demonstrate bee stings and to investigate the threat posed by the infamous "killer bee" on Newton's Apple, public television's Emmy-award winning family science series. Dr. Gary will explain why and how bees sting, in a manner that should help the public, especially children, understand bee stings. The program will contain spectacular close-up action of a sting, both real and simulated. Dr. Gary volunteered his index finger for the sting scene, not once, but 5 times!

Newton's Apple is a fast-paced, magazine-format, family science program which answers viewers' questions about science around us. It is known and respected by loyal viewers, science experts, teachers and students for its unique approach to science broadcasting.

Dr. Gary pointed out that, in producing this Newton's Apple program on bee stings, he was not consulted concerning the portion of the program concerning the Africanized, so-called killer bees. He hopes and expects that this subject will be treated fairly and objectively.

DR. GARY

If you wish to see this program you must call your local PBS station and ask when show #702 will be aired. In most of the country the program will be shown this fall, starting as early as the week of October 15.

ATI Hosts International Director

WOOSTER, OH - The National Director of Beekeeping for the country of Guinea-Bissau, West Africa, Djarga Seidi, was one of the participants in the International Beekeeping Seminar held annually at The Ohio State University Agricultural Technical Institute (OSU/ATI), Wooster. This is Seidi's second visit to OSU/ATI. He also attended the college's beekeeping seminar in 1987.

DJARGA SEIDI

Seidi, a world traveler, oversees the organization, training and programming of his country's 79,000 beekeepers. Beekeeping, according to Seidi, plays an important role in his country's economics. Seidi enlists help from organizations such as the United States Agency for International Development (AID) for financial support to attend seminars and conferences on beekeeping.

"There is always something to learn, new techniques to improve the quality and quantity of production," Seidi said.

INTERNATIONAL HONOR

DR. MORSE

Dr. Roger Morse, Prof. of Entomology at Cornell Univ., Ithaca, NY and a regular contributor to *Gleanings* has been chosen as the recipient of an Honorary Doctor of Entomology Degree from the Univ. of Warsaw in Poland, on Oct. 6, 1989.

This honor comes after many years of cooperative work between Dr. Morse and students from Poland who have studied with him at Ithaca.

Apple Crop Estimates Mixed

A large Northwest apple crop but a shorter Appalachian crop are reflected in the USDA's first estimate of 1989 U.S. apple production. The July 12 report showed a crop of 9.6 billion pounds, or about 230 million bushels. That compares with an actual 218 million bushels last year and 255 million bushels in 1987. Derl Derr, executive vice president of the International Apple Institute, said the report was on the high side of his expectations. "I was looking for a crop estimate between 215 million and 230 million bushels," he said July 12. Major producing states showing higher production include Washington, California, Idaho, Michigan, New York and Oregon. States with declines compared with last year included Pennsylvania, Virginia, North Carolina, Massachusetts, Maine and Connecticut. Meanwhile, IAI statistics reflected July 1 total holdings of 8.6 million bushels, 48% above last year and 52% greater than the five year average. Fresh holdings as of July 1 were 7.6 million bushels, 66% greater than a year ago, and 60% above the five year average.

Tucson Sunshine

Producers Head South in '90

RAY CHANCEY

Ray Chancey, Sec./Treas. of the American Honey Producers, has released the dates of the 1990 AHP Annual Convention, to be held in Tucson, AZ, January 9-14. The Ramada Inn Downtown will be the site, and a slate of over 30 speakers is lined up to inform, educate and entertain convention attendees. Further, several tours and trips are scheduled by the program committee (Jerry and Betty Cole, Ed and Dee Lusby).

Ray says that room rates are low, the weather will be great — and five days of bees, beekeeping and fun shouldn't be missed by anyone.

For more information, see *Bee Culture* in November for a full schedule of events and registration information!

Honey Needs More Attention

Inpulse Shoppers Increasing

Supermarket and other retail shoppers who arrive in stores as "clean slates" — without any written shopping lists — are making in-store display merchandising the hottest game in marketing. A new Howard Marlboro Group report, *Catching the Impulse Shopper's Eye*, makes the following findings:

- Impulse sales in supermarkets rose to 52.6% in 1986, the most recent year for which these figures are available. This was up from the 1977 figure of 46.8%
- Aside from one or two particular items which prompted them to make the shopping trip in the first place, shoppers don't have any fixed lists in their heads.
- Nine out of ten shoppers don't check the store's circulars for specials when they arrive.
- Four out of five shoppers don't bother with coupons.
- Sixty-eight percent of cosmetic sales are unplanned, as are 85% of candy, gum and greeting card sales and 75% of oral hygiene products. Other categories ranking high in the unplanned, impulse area include snacks and non-frozen dinners at 85% and salt/seasonings, pasta, crackers/cookies and frozen dinners at 82%. The Howard Marlboro report also finds soaps to be spur-of-the-moment purchases 61% of the time; laundry supplies and laundry aids 55% of the time; and household cleaning aids 66% of the time. The figures for alcoholic beverages and soft drinks are 44% and 45% respectively.

Meanwhile...

Changing Markets

Move over baby food and disposable diapers. Make room for laxatives and indigestion aids. By the year 2000, the typical supermarket shopping cart will contain products aimed at the middle-aged crowd. The reason: the aging of Baby Boomers, those 82 million born between 1946 and 1965. Even now, many are trading in their hair mousse for hair coloring.

Continued on Next Page

BITS -n- PIECES

WAX SNAX

"Anyone who enjoys the flavor of potato chips, corn puffs,or the like, would delight in the taste of fried wax moth larvae," say insectarian gourmets, Ronald Taylor and Barbara Carter. "They are thin-skinned, tender, and succulent...when dropped into hot vegetable oil, the larvae immediately swell, elongate, and then burst."

GREEN GREEN

Nowhere in the world are lawns as prized as in America. In little more than a century, we've rolled a green mantle of grass across the continent, with scarcely a thought to the local conditions or expense. American has more than 50,000 square miles of lawn under cultivation, on which we spend an estimated $30 billion a year — according to the Lawn Institute.

DAILY DOSE

Every 24 hours, U.S. citizens consume 2,240 head of cattle in the form of hamburger; 250,000 lobsters; 4 million pounds of bacon; 170 million eggs; 12 million chickens; 6.5 million gallons of popcorn; 90,000 bushels of fresh carrots; 1.7 million pounds of cheese; 19 million gallons of milk; 23 million gallons of soft drink and 11,465 miles of licorice twists.

HONEY BOARD ABROAD

The National Honey Board is eligible to receive $1 million in Targeted Export Assistance (TEA) allocations for fiscal 1990, the U.S. Department of Agriculture announced August 15. The agreement will be finalized after Congress completes its work on fiscal 1990 appropriations and the appropriations bill has been signed into law.

The National Honey Board, as well as 45 other nonprofit agricultural industry organizations, was approved as eligible to receive TEA funds to offset the adverse effects of unfair foreign trade practices on U.S. agricultural exports. The TEA program is administered by the USDA's Foreign Agricultural Service.

In 1989, the National Honey Board received $500,000 in TEA funding. These funds were used for market research studies, educational seminars, and to establish trade offices in West Germany, Saudi Arabia and Japan.

POTENTIAL POSITION

The APHIS Apicultural Position that has been discussed in recent issues of "Apicultural Awareness" is still developing. It is felt that a candidate selection will be made by the end of October.

Changing, Cont.

A special report by Mediamark Research Inc. estimates growth rates for over 300 product categories based on present usage patterns and Bureau of the Census population projections. A key finding is the decrease in the number of young adults under 35, those in the child-bearing years. Concurrently, members of the affluent 45 to 54 year age slot will swell by an astounding 55% by the year 2000.

Some of the categories where growth rates will show significant changes are: *Above-average growth rate*— artificial sweeteners, salt substitutes, diet colas, ground coffee, mouthwash and fresh fruit and vegetables. *Below-average growth rate*— baby oil, powder, shampoo, beer, wine & spirit coolers, hair conditioners, powdered fruit soft drinks and canned pasta.

A copy of the article *Looking Toward The 1990's — What's Heating Up, What's Cooling Off* is available by contacting Jerry Ohlsten at (212) 599-0444.

ANIMAL RIGHTS RITES

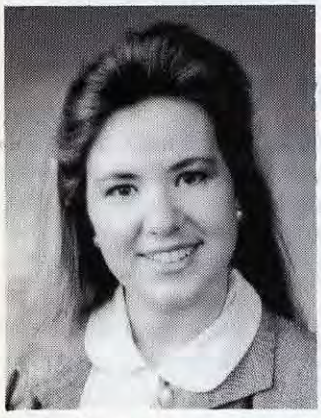
Fur Industry Rises

The Fur Industry Mobilization Fund (FIMF), an organization which unites three key elements of the American fur industry, has approved an aggressive nationwide program to strengthen the industry's image in the U.S.

One of the board's first formal actions was the adoption of policy calling for increased support of responsible animal welfare practices and sound wildlife management. The board also endorsed efforts to stop consumer harassment and protect the rights of individuals to choose their own lifestyles.

"The Fur Industry Mobilization Fund represents a major step forward for all of us in the fur industry," President Elliot Lippin said. "For the first time, we have a formalized structure which will permit us to deal with the animal rights movement in a unified and focused way. We look forward to the implementation of our joint programs, and to the identification of other urgent needs industry-wide, in the months ahead."

Shannon Nelson was crowned the 1989 Kansas Honey Queen. She is the daughter of Richard and Mikki Nelson and currently attends Cloud County Community College.



Lucie Campeau was recently named to the Canadian Honey Council. Her responsibilities will be primarily marketing honey.

Her background in marketing includes being a sales representative, coordinating companies' participations in trade shows, public relations, and working in the marketing consulting area.

Her office is based in Ottawa and trips to all provincial meetings are planned. You can reach her at (613) 744-7479. At a later date, the office will be equipped with a fax and an answering machine.

■ Special Notices

Not 100%
DROUGHT ASSISTANCE AVAILABLE

Legislative efforts by the beekeeping industry in the new disaster relief bill will enable beekeepers to recoup a portion of their losses due to drought.

A four step process is followed:

1. An 'average' production, based on 5 years average is found.
2. Losses must be greater than 50% of an average crop.
3. Price per pound paid will be based on a 5 year average.
4. Beekeepers will receive only 65% of the eligible loss, multiplied by the average price.

For more information, contact Mr. Raymond Chancey at (409) 258-3034.

Canada Stops Bees

The movement of bees into British Columbia from other Canadian provinces has been halted.

B. C. Honey Producers Association president, Colin Pullein, said the ban included B. C. bees going to the Prairies for last summer's honey crop and Prairie bees going to B. C. to overwinter.

"To protect ourselves from tracheal bee mites we decided no further bee movement into B.C. will be permitted," said Pullein, a Winfield, B.C. beekeeper.

Some infected hives have already been found in the Osoyoos and Kootenay regions of British Columbia.

Pullein said some 7,500 Prairie hives are usually sent to B.C. for the winter. Tests earlier this year showed that five of every 10 Prairie hives entering B.C. had the mite.

"It was a very low infestation, but it was there," Pullein said. "We decided there's no use fooling around with it."

Canada already has an embargo against U.S. bees — imposed after the mite was discovered in the U.S. two years ago.

Display Index