NOV '89

GLEANINGS IN BEE CULTURE

Dr. Norman Gary

A candid conversation with this California Scientist, Teacher . . . and Actor

PLUS

ROGER MORSE
POLLINATION EFFICIENCY

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BIOLOGICAL CONTROL

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And Don't Miss

The Inner Cover
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Honey Report
Richard Taylor
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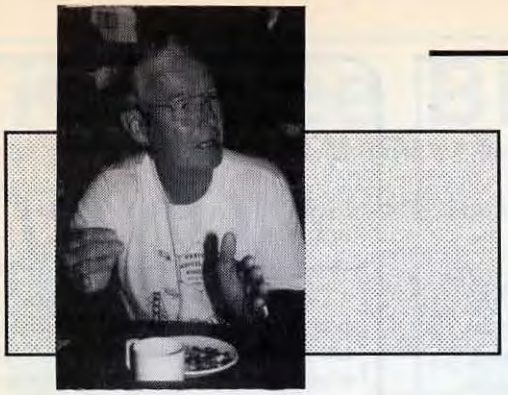
Columns

Departments

COVER... Dr. Norman Gary, University of California, Davis, is a researcher, teacher and actor. He is also the subject of this month's cover article. Find out what makes this scientist and showman tick. *Staff Photo*



NOVEMBER '89

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(ISSN 0017-114X) Vol. 117, No. 11

116 Years Continuous Publication by the Same Organization

Features

THE INNER COVER

McDonalds' Syndrome

There seems to be a drive-in for nearly every kind of service these days. Certainly banks are prominent, but they are followed closely by dry cleaners, beverage outlets and even funeral homes.

None rival the scope of instant food though. Without even unbuckling your seatbelt (except to remove your wallet) you can order up a meal for you and the kids instantly. It comes ready-to-eat, complete with straws, napkins and plastic forks if you've braved the salad. Even grocery stores have fast-lane check-outs (although it's amazing how many people can't count to 10).

This access to instant nearly-everything has been studied by some psychologists. They claim it occurs because parents were lax in teaching the virtues of delayed gratification to their children.

Others claim the phenomena has come about because so many households have two working parents, and eating out solves the I-need-at-least-an-hour-to-get-dinner-ready problem. Hungry people can eat "instantly" at the nearest drive-through restaurant.

Still other experts say it is a function of time (not enough) and money (too much). The marketplace simply, and completely fills the wants of the consumer then, once established, strives to increase demand, and hence sales, by advertising.

I tend to favor the last theory, but it's probably some combination of all of these. Nevertheless, as the disposable income of most Americans continues to increase, the marketplace will fill these I-want-it-right-now demands.

And, I feel, this is a significant reason agriculture in general, and beekeeping in particular has changed.

Agriculture is, at best, a gamble. Put seeds in the ground and in 100 or so days (longer or shorter depending on location) you'll harvest a crop. Technology and research have increased the odds through hybrid plants; fertilizer, insect and disease control; harvest, storage and packaging improvement; and marketing assistance. But even big ticket items, like irrigation and frost protection cannot guarantee a crop. Floods and drought, hot and cold, plagues and hordes of grasshoppers — all are still larger than anyone can completely control. Like it or not Mother Nature still bats last.

And some don't like it. Waiting a 100 days to see if an investment is going to pay off is not a particularly profitable way to make a living, or so say investment counselors. Take $1000.00 and put it in a 4 month CD and you can count your money the day you deposit it. Take that same $1000.00 and put it in agriculture and, well, you know the saying — Don't count your chickens... . It's understandable why more people, and money, aren't jumping into commercial food and fiber production.

But the McDonalds' Syndrome affects not only large scale commercial farming — it touches backyard beekeepers too.

The concepts are the same. Start with a package of bees in the spring, and maybe, just maybe 100 days later you'll have a harvest. Of course maybe not. And there is no way to hurry the process. Eggs take three days to hatch — period. Workers, queens and drones each have their own calendar and though not quite carved in stone, scheduling flexibility is rare.

Continued on Page 644

DON'T FORGET!

The closing date for our Good Neighbor Contest is fast approaching. Be sure to enter and share your good neighbor hints and helpers. Protecting our own will be vitally important in the near future and being well prepared will make us look a lot better!

NEXT MONTH

December is the month nearly everything goes on hold. The bees are at their slowest, no matter where you are, so we can turn our attention to other things.

This is a good time to reflect on what went wrong, and what went right, this year and plan on some changes for next season.

Poor crop — maybe moving your apiary is in order. Carsten Ahrens gives an introspective and historical background to this laborious, but often profitable, task. You may decide that moving is better than losing.

Lewis Dabb, who hails from Utah, describes the results of a management scheme he picked up from the book by Ormond and Harry Aebi. Using a single chamber brood nest, Lewis increased his honey crop and nearly eliminated spring swarming — another thought-provoking tale to read next month.

Stuck inside? How about bleaching some old and (nearly) worthless beeswax. Using the method Wayne Robinson illustrates you really can make vanilla out of chocolate — and increase the value of your wax and candles!

Dewey Caron has spent quite a bit of time in Panama over the years, and has watched the invasion of AHB. He relates the changes — in both beekeeping and beekeepers — a lesson to be learned.

For the politically minded, the 1990 Farm Bill is now under consideration, and one of the things being considered is the report prepared by Fred Hoff and Jane Phillips of the USDA Economic Research Service. We'll review the relevant issues and give you an idea of what's coming — and why.

Finally, Buzz Phillips has spent most of the summer sneaking around beeyards all over the country. He's back, and relates some harrowing tales of apiary management (or as he calls it — Beeyard Boo-boo's). Don't miss Buzz — Next Month! □

MAILBOX

■ Recording The Record

An interesting article might be how the Aebi Brothers got the "World's Record" honey production from one beehive.

Ed Ritterhousen
Polson, MT

■ Kudos (with a caution)

I've had two (sometimes more) hives now for over five years and I continue to enjoy learning the "art" of beekeeping.

I look forward to reading my copy of *Gleanings* each month. The publication, from cover to cover, is most interesting and I find it very informative. I think your publication (even considering the occasional error), is first rate! Keep up the good work"

Ed Trausneck
Decatur, GA

■ No Comment...

I have the feeling that your "Mailbox" page has become quite popular with readers, understandably.

But I have a suggestion ... purely negative letters, intended to diminish another person, should perhaps be omitted. I have in mind one from a correspondent concerning "The Old Timer" saying... "Hemingway he ain't." I really see no reason for saying something like that. I enjoy the Old Timer's pieces, as I'm sure many do, and whether or not he is a Hemingway is quite beside the point. A letters section is not the place to put someone down.

Richard Taylor
Trumansburg, NY

Editor's Note: While it is not our policy to intentionally publish derogatory comments, on occasion, differences of opinion need to be aired. Because we cover all areas of beekeeping — from hard science to fiction — we occasionally offer material some of our readers don't like. This doesn't infer that we will cease publishing hard science, fiction or any other aspect of beekeeping, because each of these segments has loyal and even rabid followers. But if you don't like something, or, if you like it a lot, it is helpful to know there are others who feel as you do. A magazine's readers are certainly more alike than not, but like any family, there are always differences. To hide them is a mistake.

■ Comment

Letters to the editor in the September issue were interesting. Correspondent Neiburg is correct. Thomas Crapper did indeed invent or develop the toilet. Correspondent Marshall can be branded a nitpicker. If he writes very much he will misspell, but I doubt that many will take exception or even notice. Correspondent Ugles should have some patience.

A question: When discussing supply and demand from you article *The Big Picture* (Sept. '89), the discussions never mention that foreign honey will fill the demand. Recently one correspondent advised me that the promotional program will eventually create a world shortage. Then the producer's price would increase, but he gave no idea when this shortage would develop.

Glenn Gibson
Minco, OK

■ Yet More Words

After I had read *The Final Word* (Letters, Sept. *Gleanings*), I reread Mr. Fred Deer's letter of July; because there was something that had tickled my funny bone the first time around. Sure enough, I chuckled again. The humor in the last paragraph must have escaped most of its readers.

"I hope my letter was not so abrasive as to make you excessively angry but atrocious misuse of words scratch my eyeballs when I see them in print!"

The English language is a wonderful medium for communication, but it is fraught with double-entendre. Take for instance this heading, from page B1 of *The Wall Street Journal* of Monday, July 31, 1989: "Enticing Teen Moviegoers With 900 Numbers."

There's a gem with at least three interpretations. And a warning too, as one instructor put it, keep your meaning clear. Didn't anyone else see Mr. Deer's eyeballs in print? It might have been better, and more accurate, as: "I hope my letter was not so abrasive as to make you excessively angry, but, atrocious misuse of words, when I see them in print, scratches my eyeballs!

I'm hardly an expert with the English language (or any other, for that matter), so someone might find fault with my version. However, I do believe mine is less ambiguous.

L. Edwin Rybak
Morrisville, VT

■ Pollen Problems?

The Bee Specialist (Page 442) is concerned about the failure of colonies to store pollen for fall and winter. We could trap excess pollen and smear it into combs, but fortunately our bees fill entire combs with pollen on their own initiative. In our location there are seasons when our bees produce sufficient honey for overwintering but none for us. However, as a source of pollen, our location might be ideal since there are blooms throughout the entire season. In spring, on a day warm enough to fly, our bees find their first pollen in a small cluster of snowdrops that bloom

Reader Assistance

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11/89

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MAILBOX

in early March before the snow is gone. The frenzied search continues all season until the bees cluster for winter.

We observed the "single-mindedness" with which bees collect pollen when we maintained some small nuclei during the winter in a greenhouse. Whenever there were blooms of any kind, the bees visited them regularly to scrub the stamens clean of any pollen grains. We recorded on film the attraction of bees for pollen offered along with extracts of pollen. None of the fractions elicited any interest by the bees, but they moved irresistibly towards the pollen.

If there are no flowers in the fall, or too few for the number of colonies in the area, then a shortage of stored pollen is understandable. But if a few hives surrounded by blooms for miles around do not contain even a single cell of pollen, that is something else. One knowledgeable beekeeper experienced such an absolute dearth of pollen in the combs. Weather conditions, ground moisture, sunlight, and blooms were normal except for a shortened willow and fireweed bloom. Even though pollen was available from many sources, the bees neglected to gather it. The only reasonable explanation under these circumstances would be the bees have lost their inherited behavior mechanisms that dispose them to continue collecting pollen, even when the brood which provided the initial stimulus is absent or decreasing?

Toga Johansson
East Berne, NY

■ Picture Framed

I've read "The Big Picture" article in the Sept. 1989, issue. The article and the honey report are well written. The honey give away by the Federal Government is supposed to be to low income and poor families that could not pay the price of honey, so I don't think it would affect the honey price by more than 1% or .01¢.

From the taxpayers stance the honey loan with buy-back has a fault. The honey is not always bought back and is costly to store. The government is then put in a position to have to sell or put it where it will do the most good.

George J. Masciarelli, Sr.
Nashua, NH

NOVEMBER Honey Report

November 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	45.00	38.50	36.00	41.00	45.00	41.00	39.00	36.50	32.10-50.00	40.25	39.73
60 lbs. (per can) Amber	44.00	35.00	34.25	36.15	44.00	38.50	36.00	32.25	25.25-48.00	37.58	36.18
55 gal. drum/lb. White	.57	.37	.39	.41	.40	.51	.49	.50	.31-60	.46	.50
55 gal. drum/lb. Amber	.55	.33	.35	.37	.39	.49	.45	.45	.27-.55	.42	.45
Case lots — Wholesale											
1 lb. jar (case of 24)	29.50	28.25	26.15	22.90	25.15	24.00	26.70	29.50	20.51-38.00	26.52	26.42
2 lb. jar (case of 12)	28.75	26.75	19.90	21.90	24.00	23.50	28.25	28.00	19.90-40.10	25.13	25.28
5 lb. jar (case of 6)	30.25	31.00	25.85	27.25	27.85	25.90	26.25	26.00	23.10-40.00	27.54	27.40
Retail Honey Prices											
1/2 lb.	.95	.90	.91	1.10	.90	.90	.98	.99	.81-1.30	.95	.95
12 oz. Squeeze Bottle	1.60	1.35	1.35	1.39	1.25	1.20	1.50	1.45	1.00-1.60	1.39	1.35
1 lb.	1.65	1.60	1.39	1.59	1.39	1.59	1.60	1.65	1.39-2.00	1.56	1.55
2 lb.	2.85	2.89	2.45	3.25	2.39	2.50	2.91	3.15	2.29-3.91	2.80	2.77
2-1/2 lb.	3.90	3.95	3.15	4.10	3.25	3.20	3.85	3.39	3.00-4.50	3.60	3.68
3 lb.	4.25	4.39	3.99	3.41	3.59	3.60	3.69	3.70	3.41-5.70	3.83	3.87
4 lb.	5.25	5.70	4.90	4.19	4.91	4.40	4.75	—	3.95-6.90	4.26	4.85
5 lb.	6.75	6.38	5.75	6.15	6.00	5.25	6.25	5.90	4.80-7.25	6.05	6.06
1 lb. Creamed	2.00	1.19	1.29	1.75	1.79	1.65	1.79	1.75	1.19-2.00	1.65	1.64
1 lb. Comb	3.00	1.95	2.00	3.00	2.55	1.95	2.75	3.45	1.75-3.45	2.58	2.37
Round Plastic Comb	2.00	2.25	2.10	1.95	1.79	1.79	1.89	2.75	.95-2.75	2.07	2.05
Beeswax (Light)	1.10	.95	1.00	1.05	1.00	.95	.95	1.00	.95-1.10	1.00	1.05
Beeswax (Dark)	.95	.95	.90	1.00	.91	.90	.85	.95	.85-1.00	.93	.92
Pollination (Avg/Col)	35.00	20.00	22.00	20.00	20.00	21.00	27.00	27.00	20.00-35.00	24.29	24.20

MARKET SHARE

This is the 'iffy' month. Prices haven't stabalized because demand is still unpredictable. Seasonal increases in demand tend to be a reflection of the weather, and promotion. The Honey Board, and winter will help everybody. On another note, corn support prices may drop, which will put corn syrup producers (and users) in a pinch. Watch the USDA reports, and be prepared.

Region 1

Price Index 1.00. Prices average for season, demand steady and seasonal. Crop good to great - mostly on the light colored side, so prices should be even a bit higher this year.

Region 2

Price Index .91. Prices steady to rising a bit, and demand seasonal, but a bit stronger than last year. Fall crop good and perhaps a surplus in some areas.

Region 3

Price Index .81. Prices steady, but demand on hold. Wintering uncertain in many areas due to weather problems. Fall crop also uncertain, so watch for feeding.

Region 4

Price Index .85. Prices up a bit as seasonal demand begins to pick up. Cooler weather early has helped. Freezing weather well timed and late crops look good for the most part.

Region 5

Price Index .92. Prices dropping as the full impact of this summer's drought and pesticide kills become apparent. The double whammy was devastating in some areas, but others, not affected by both problems, will fare better.

Region 6

Price Index .86. Prices and demand remain relatively unchanged. Cooler weather not yet a factor. Fall crops about normal and weather cooperating generally.

Region 7

Price Index .89. Prices steady, demand about normal. Season's crop lower than expected, which was disappointing after a great spring. Drought continues in some parts.

Region 8

Price Index .86. Prices steady and demand seasonal in most areas. Late rains have helped in parts of CA, enabling colonies to build up a bit before winter.

Interested in becoming a "Honey Reporter"? Contact the Editor today!

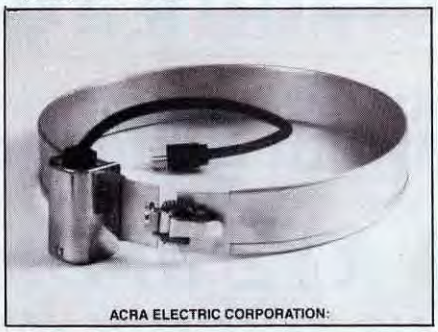
Great Ideas!

Pail Heater Warms Up

Acra Electric Corporation, Schiller Park, Illinois, has introduced its BEE-5 Economy Band Five-Gallon Pail Heater, designed for light-duty heating tasks such as easing the handling of viscous materials or keeping water from freezing. The band temperature in conduction is approximately 12% which allows the BEE-5 to be used on polyethylene plastic and metal pails.

The heater is constructed of heavy-duty aluminized steel, yet weighs only three pounds and is easily affixed to the pail. Other features include a six-foot power cord, three-pin plug and a stainless steel junction box which covers the electrical connection of the power cord and the heater. The BEE-5 is power rated at 168 watts/120 volts AC single phase.

For further information on the BEE-5 Economy Band Plastic Pail Heater — or for information on the broad line of quality engineered drum heaters and custom heating elements from Acra Electric Corporation — call or write: Customer Sales Department, Acra Electric Corporation, 3801 N. 25th Avenue, Schiller Park, IL 60176. (312) 678-8870, FAX (312) 678-8889.



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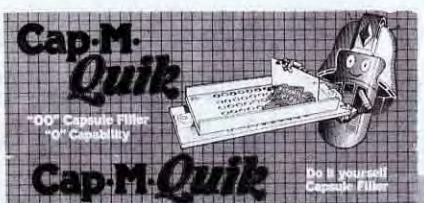

The New "0" Capsule Filler is now available from Star Products. If you are using the "00" filler you know what a time and money saver it is. The new "0" filler is made of FDA approved sturdy plastic and will last indefinitely. It comes with a money back guarantee if not 100% satisfied. The price for the new "0" filler is only $9.95 plus $2.00 shipping. We have bulk "0" capsules available for $8.50 per thousand plus $2.00 shipping. For more information contact Star Products, 511 Simpson Rd., Berry Creek, CA 95916 or call (916) 589-3062.

Reflective Wisdom

Richard Taylor on Issues that Matter
edited by John Donnelly

This new book explores the fertile mind of one of America's controversial intellectuals.

"The world and life are far less simple than even the best philosophers portray them as being, and, equally to the point, they are less simple than religious zealots would have us believe." With this simple, yet profound remark, Richard Taylor sets the stage for what devotees of his work have come to expect, namely, well-reasoned, thoughtful discussions of important problems presented with refreshing candor. For more than three decades, Taylor has been one of America's most important, controversial, and certainly one of its most anthologized living philosophers. He has dedicated his academic life to making sense of *real* problems facing ordinary people, not just his academic colleagues.

The vast body of Taylor's work has been carefully combed by Professor John Donnelly, who has selected just those essays and articles that make Taylor's thought, vision, and insight leap from the page. This wide-ranging collection conveys Taylor's views on a full spectrum of issues: the search for wisdom, the meaning of life, the mysterious relation of self and world, liberty and the nature of government, the evidence for various religious claims, hedonism, the concepts of human rights and justice, the nature of ethics, virtue and the search for personal happiness, love and friendship, marriage, materialism, and fatalism.

Throughout this volume, Taylor seeks to illuminate the perennial questions about human existence. He offers a vision of philosophy as wonder and insight, along with conceptual analysis. Meaningful human existence is ultimately located in human creativity, where persons aspire to create their own lives as works of art, as veritable novelists of their own existence.

- *John Donnelly is professor of philosophy at the Univ. of San Diego.*
- *Richard Taylor is adjunct Levitt-Spencer Professor of Philosophy at Union College, Schenectady, NY and a contributor to* Gleanings in Bee Culture.
- *290 pages *ISBN 0-87975-522-9 Cloth, $27.95.*

Low Cost Personalized Cookbooks are now being offered to Farm Groups as a unique way to raise money.

Fundcraft Publishing Co., Collierville, TN, now offers a unique personalized cookbook fund raising program that features local recipes from members of the Farm Group. Personalized cookbooks are not only fun, but also very profitable because they sell to friends, relatives and neighbors. Farm Groups can easily double their money.

The cookbooks can be custom designed featuring a personalized front cover, special local information pages at the front and local recipes with donors names printed with each recipe. The books cost as little as $1.55 for quantities of 1,000 books. The minimum order is 200 cookbooks.

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Fundcraft, the largest personalized cookbook publisher in the United States, guarantees a quality product at the lowest possible price.

A FREE sample cookbook and FREE information kit is being offered to the Farm Support Groups. The kit can be ordered by calling toll free 1-800-351-7822 or writing: Fundcraft Co., P. O. Box 340, Collierville, TN 38017.

Second Generation Swarm Trap Available

An improved swarm trap, designed to be easier to handle and more versatile for beekeepers than the original cone-style trap, is now being sold by **Scentry Inc.**

The new rectangular design allows beekeepers to insert up to five standard-size foundation frames so it can be used as both a swarm trap and nuc box. Additionally, the box-like shape makes it easier to stack and transport.

When used as a swarm trap the frames of foundation help bees get settled quickly and makes transferring swarms simple. In cases where a trap can only be monitored occasionally, frames preserve comb building so transfers can be made without loss.

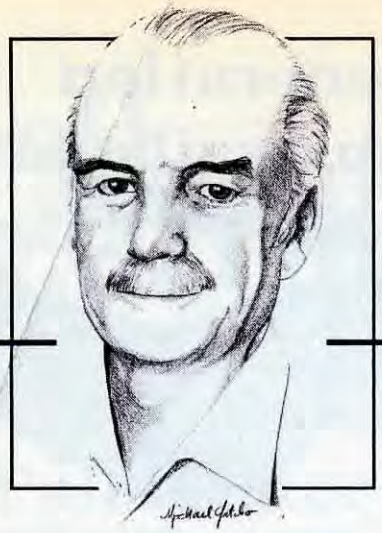
The design also makes the container practical for use as a nuc box when the swarming season is over. Beekeepers should find the double duty of this new model an advantage.

Constructed out of special wood pulp material that is water-resistant and termite proof, it's durability has been proven in the jungles of Central America and lasts several years.

The original cone style trap will continue to be offered by Scentry Inc., however, they warn that United Parcel Service (UPS) will *not* amend it's policy of charging expensive oversize shipping rates on that model. The shape of the new model avoids those high shipping charges.

Pheromone lure capsules, manufactured by Scentry, complete the swarm attracting system. Lures for attracting either European honey bees or Africanized swarms are available. Individually packaged, each capsule contains enough pheromone to last a season.

Traps and lures can be ordered as kits or separately (lures in packs of five) by calling toll free 1-800-548-6531 or writing: Scentry Inc., P. O. Box 426, Buckeye, AZ 85326.



THE BEE SPECIALIST

ELBERT R. JAYCOX

6100 Shadow Hills Road • Las Cruces, NM 88001

"Will Europe's Free Market Give Free Access to England's Varroa-Free Bees?"

Beekeepers in Great Britain have a lot to think about and worry about these days. Only the narrow English Channel separates them from countries that have lots of honey bees and a healthy population of Varroa mites. They are also concerned that Varroa could have been introduced to the country on queens imported from the United States while Varroa populations were increasing here but not yet detected. In spite of these dual threats, British beekeepers have not done a very good job of sampling the trash from hive floorboards to give them a chance of detecting Varroa before it becomes widespread.

There are other concerns. Greenhouses in Great Britain are now using bumble bees to pollinate tomato plants, presumably because fewer and less toxic pesticides are being used in the houses. In the past, the pollination has been done routinely by using a mechanical vibrator on the flowers to move the pollen to the stigmas. Although this is effective, it is a costly and tedious job. Bumble bee colonies in boxes are being imported from Belgium to take over the work. Since Varroa mites have been found on bumble bees in Florida, British beekeepers are wondering if the Belgian bees could also be infested. This should not be the case if they are reared and maintained indoors, but according to the *Hertfordshire County News,* July, 1989, more information is needed about the entire operation.

The free market of the European Economic Community is scheduled to begin operation in 1992, causing British beekeepers to have many questions about its effect on their beekeeping, but with no answers yet provided. Among the questions are the following: 1) Will European beekeepers be allowed to bring their Varroa-infested colonies into the United Kingdom for pollination contracts?; 2) Will British beekeepers be allowed to take their colonies into Europe and bring them back to the UK?; 3) Will British bee regulations still be in effect?; and 4) With the Channel Tunnel ending, in effect, at Waterloo Station, where there will be no customs checks, will anyone from the European continent be allowed to bring honey bees into the U.K.?

These questions, without answers, were posed in *The Scottish Beekeeper,* July, 1989, and you can bet that there are many others that could affect the beekeepers and other segments of agriculture in Great Britain.

■

As some beekeeping "experts" get older, they love to make outlandish statements about bee management, bee breeding, and any other topic that can provide some response by their readers. Since many of the readers have only a modest amount of beekeeping experience, they may be misled by the wild statements. The latest one would have you believe that the idea of breeding bees for resistance to tracheal mites is something new. Only a cursory look at the beekeeping literature will show that this is not the case. Awareness of resistance to tracheal mites, and breeding for it, probably goes back to Brother Adam's early days when he found that his yellow-bodied bees were not damaged by "Isle of Wight disease" and made good crops of honey when the dark-bodied bees were seriously hurt.

In 1957, Beowulf A. Cooper, of Great Britain, wrote an interesting paper on "Breeding for Acarine Resistance." Acarine, of course, is the early name for tracheal mite infestation. In the paper, he reported observations about the effects of tracheal mites on bees, which need to be confirmed so that we can make better progress than we will by routinely fumigating our bees with menthol or some other pesticide.

Cooper noted that his whole breeding system revolved around having his colonies tested for mite infestation every winter. All infested colonies but one were routinely killed and their stores distributed to those needing more reserve food. The infested colony served to inoculate the others in the spring. Cooper bred new queens only from the resistant stock he developed over time. He was opposed to medicating and propagating less-resistant stock. At the time he wrote the article, he was convinced after 15 years experience with his program, that mite resistance is inherited.

Cooper maintained that bees moderately infested with tracheal mites eat more food in winter than healthy colonies and they suffer losses by taking cleansing flights when the workers should be inactive. The result is greater winter losses among infested colonies, which exerts strong selective pressure toward resistance. This is more pronounced among colonies wintered in single boxes, a practice fairly

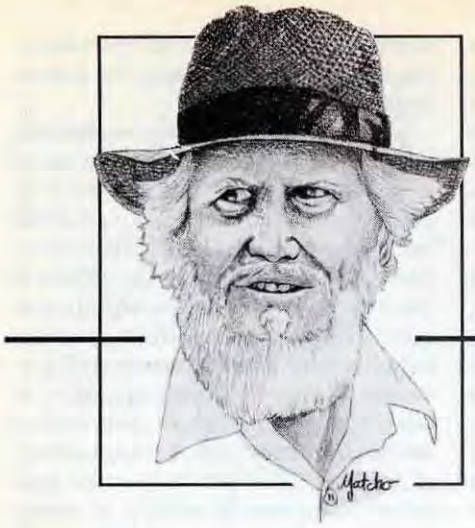
common in Great Britain. The extra food in a 2-story hive saves infested colonies that would otherwise die, according to Cooper.

In summer, selection is exerted in the opposite direction, favoring the *infested* colonies. Cooper says that these bees swarm earlier, swarm more, and may swarm twice in a season. Many beekeepers fill their empty hives with such early swarms, perpetuating the susceptible stock. It is the moderately-infested colonies that do the early swarming; heavily-infested ones develop more slowly and if they build up to the point of swarming, will do so later than the less-infested colonies.

Cooper believed that few if any lines of bees would become completely immune. However, he routinely dequeened infested colonies to unite them with others he knew were resistant. Twelve months later no mites could be detected. Whenever he kept lightly-infested colonies, they invariably were infested also in subsequent years. He believed that infested colonies often became increasingly ill-tempered, although he realized that the mites did not make all colonies that way.

In his book, *The Honey Bees of the British Isles,* published after his death, Beowulf Cooper noted that it was not generally realized that resistance to tracheal mites is widespread in "these Islands" at present. There are also very susceptible lines as well. He believed that several resistance-conferring mechanisms exist but did not know their nature. In the 1957 paper, Cooper suggested that selection for mite resistance should be in two phases: 1) The elimination of infested colonies in winter and 2) some degree of selection in summer for infrequent or late swarming, along with other desirable characteristics.

Important advances in beekeeping have been made in the past because of close observations of their bees by people who often lacked any scientific background or training. This is what we need now in relation to the effects of tracheal mites on our bees and hints on how to control them without resorting to indiscriminate treatments with pesticides. We need someone to confirm or reject Cooper's ideas and observations and to go on from there. I am not certain of their validity but they make good sense. We must be willing to accept more losses to arrive at a point where tracheal mites are no longer a problem. Beowulf Cooper warned about "perpetuation of the less fit." He believed that "such bees are better dead." □



Genetic Engineering

STEVE TABER of Honey Bee Genetics

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"They're already improving our craft at the molecular level."

A recent issue of *Science*, published by the Amer. Assn. for the Advancement of Science, had as its cover a drawing of a tree rising out of a test tube containing strands of DNA. On the tree a cow, pig, mouse, strawberries, tomatoe, butterfly and oranges were growing. The issue contained seven remarkable articles about the subject being developed by molecular biologists called "genetic engineering". What is it, how is it done and will it do us any good with our bees? Read on.

First, let me tell you just a little about the process. Deoxyribonucleic acid, commonly called DNA occurs, with few exceptions in the nucleus of each cell. It is usually associated with the genetic material called chromosomes. The DNA strand is a relatively long, chain-like structure comprised of different nucleic acids which together form a protein molecule. Portions of the DNA molecule contain various amino acids — pieces of the chain that occur in a very precise order. Often, these are called "genes", and genetic engineers have learned how to carefully remove or add pieces of amino acids to the DNA molecule. This is called "gene transfer".

One of the articles discussed how a gene transfer worked. First, a portion of the genetic material, previously removed from the bacteria *Escherichia coli*, is introduced to the DNA chain of a destructive plant pathogen called *Agrobacterium tumefaciens*. This transfer, from one individual to another, will prevent the pathogen from causing plant tumors. In the next step a portion of one of the genes from the *Agrobacterium tumefaciens* bacteria are introduced into the DNA strand of a particular plant species.

Some of the plants that have been aided and are of interest to beekeepers include sunflower, oilseed rape (or canola as many of the growers prefer calling it), cotton, soybean, alfalfa and apples. As you see, genetic engineering will effect beekeeping in your area.

Many of these experimental plants are still grown only in greenhouses, and as far as I know none are yet being grown in controlled facilities. But it won't be long, because already research is being directed at plant resistance to herbicides, and resistance to many insects and diseases. I am certain that these new generation plant breeders will very shortly be working on important beekeeping plants that will be tolerant of heat, drought, salty soils, and even shorter growing seasons.

One of these is the common garden plant *Nerium oleander*, which grows across the southern states and in California and Hawaii. It is commonly called Oleander. This plant can grow and even thrive in extremely unfavorable conditions with little or no care. Though a native of southern Europe it grew well in my yard in Tucson, AZ where summer temperatures frequently were above 110°F, with an average rainfall of about 10 inches. However, it also grows well in Baton Rouge, LA where it's not as hot, but they have about 60 inches of rain a year. Too, the soil is completely different.

Because of Oleander's ability to grow so well in such environmental extremes, scientists know that valuable genetic material is contained somewhere in the plants DNA which can be extracted. This material is valuable because some genes allow the plant to survive hot/dry conditions while others allow cool/moist survival. If these hot/dry genes were placed in corn, for example, we could grow it in AZ or similar dry and hot places without nearly as much water required.

Many plants, like alfalfa, don't do well in wet climates like LA, because of mildew diseases and other factors. If you weren't aware of it, alfalfa is the most important forage crop in the world, and there will never be enough of it grown to satisfy demand. As you can see, a common ornamental like Oleander may well be an important key to feeding the world when the population doubles in the next few decades.

You may have also read about similar projects done with other bacteria to alter it's make-up. One project was to create a bacteria that helped plants during frost stress. Two years ago there were two such trials here in CA. One was on strawberries, the other on potatoes. When these treated plants were transplanted into field plots for outdoor testing a small group of people tried to sabotage the trials.

Personally I don't know what all the fuss was about, since people have been altering plants and animals to suit

their needs for thousands of years. This process was rather slow for the first thousands of years, but it has been rapidly changing during the last few. The plant which has been altered the most by man and no longer even has a seed dispersal system is our beloved corn, *Zea maize*. Why do I call it beloved? Because it developed in our own Southwest, and has been accepted over the entire world as an important crop with many uses. Have you ever figured out how many different uses there are for corn? Try it some time.

Transferring genes to animals is apparently more difficult, but has been successfully accomplished in mice, pigs and sheep. Even though the transgenic efficiency was very low in pigs, (about 6%), the results, after only two generations, showed improvements in daily weight gain, a reduction in subcutaneous fat, and an improvement in feed efficiency. That sounds great doesn't it? But these gains were accompanied by a general decline in the health of the experimental animals, with a higher incidence of ulcers, arthritis, dermatitis and other diseases. The researchers think these bad effects can be overcome by using a different genetic background or a modified animal husbandry regimen. It's coming. □

For reprints of the articles discussed write: Genetically engineering plants for crop improvement. Dr. C.S. Gasser, Monsanto Co., 700 Chesterfield Village Parkway, St. Louis, MO 63198.

Genetic Engineering of livestock. Dr. R.L. Brinster, Laboratory of Reproductive Physiology, School of Vet. Medicine, Univ. of Penn. Philadelphia, PA 19104.

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RESEARCH REVIEW

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"Efficient management will improve pollination and production."

Managing Honey Bees For Pollination

The chief concern of honey bees in an unattended, natural colony is to obtain the approximately 45 pounds of pollen and the 130 pounds of honey needed for normal growth and survival during the year. To collect this food the bees must take advantage of the best sources available. They do so through an efficient system of scouting and recruiting that is integrated with the activities of the foragers.

Man's goals may be different from those of the bees. "To exploit fully the honey bee's powers of pollination we need to understand the social organization that underlies this insect's foraging activities", writes Dr. T.D. Seeley in the paper cited below.

The beehive is an information center where no one bee, or group of bees, make the decisions. Bees depend on an impressive and efficient group of scouts that search a vast area that may include patches of flowers as much as six miles from the hive. Decisions are also made as a result of "thousands of foragers collecting, processing and sharing information" about what they are collecting.

If we are to use honey bees efficiently as pollinators we must understand the social organization of a colony. We have not, and probably will not, be successful in altering basic bee behavior. However, Seeley states that there are several things we can do to encourage the pollination of certain crops that work with, not against, "the honey bee's highly organized system of social foraging" as follows:

"Reduce competition between crop blossoms and nearby wildflowers, for example by mowing the dandelions in apple orchards during apple bloom;

"Keep colonies hungry, and thus less choosey about their food sources, by removing honey to keep their food reserves low;

"Force a colony's foragers to work all available food sources, not just the richest, by creating a high density of colonies in the area, and

"Maximize the profitability of crop blossoms to bees by placing the hives as near as possible to the crop of interest."

I think the first of these four points is well-known. Here in the east we observe that many apple growers mow their orchards during bloom. However, much less has been said and written about the second and third points. The data Seeley and others have gathered show clearly that bees will not forage if they do not have the space to store what they collect. Bees can be forced to visit flowers with a low sugar concentration in the nectar, such as pears, by using a greater number of colonies in the area. The fourth point, like the first, is understood by most growers and many insist that colonies be placed inside the groves or orchards, not along the edge.

Seeley, T.D.; *Social organization of foraging by honey bees.* New York's Food and Life Sciences Quarterly 19: 27-30. 1989.

Changes in American Agriculture and Beekeeping

I participated in a beekeepers' meeting in Tennessee this spring. One of the speakers pointed out that ten percent of that state's land had been

reforested in the past ten years, which was affecting beekeeping there. In general, solid woodlands are not good beekeeping territory. I didn't think too much about those figures until I came across some data concerning the county where I live in central upstate New York. The following table is revealing:

Percentage of Land in Forest in Tompkins County, New York

Year	Percent Forest
1790	99.7
1900	19.4
1938	28.5
1980	50.7

In 1900 more honey was shipped out of Ithaca than out of any other city in the U.S. The honey was from buckwheat, which was grown on the wet, heavy, acid soils of our county. Buckwheat is a strong-flavored, dark honey but there was an excellent market for it in New York City (about 200 miles away). Today there is almost no agriculture in my county because of our poor soils and it is not an especially good place to keep bees; honey crops are usually mediocre.

Many years ago my father and I kept bees in northern Delaware County in the Catskill Mountains in New York State. We had apiaries there with 50 and 60 colonies. Paul Ballard, a commercial beekeeper from that area, told me recently that whereas apiary locations he and his father had in that county once supported 60 to 80 colonies each, they would now support only six to eight colonies each. Delaware county was once an important dairying county in the state and supplied vast quantities of milk, cheese and butter for New York City. The chief honey plant in Delaware county was wild thyme that produced nectar that was made into a strong-flavored, reddish honey that was also in good demand in the city. So long as there were cows to eat all of the other plants that grew in the pastures the wild thyme would thrive; the cows didn't care to eat the thyme. As in many other areas in the northeastern U.S., agriculture has been largely abandoned there.

The conclusion from all this is that if you want to keep bees, produce honey and make money, move to an area where honey plants are common. That has always been an absolute requirement and that simple fact alone will continue to pose a hardship for many beekeepers.

Marks, P. L. and B. E. Smith *Changes in the landscape: a 200-year history of forest clearing in Tompkins County*. New York's Food and Life Sciences Quarterly 19: 11-14. 1989.

LIVE AID!

Maryann Tomasko

A typical Apis florea *colony that was found in Khartoum, Sudan. This one has been removed from its original location and taken to a beekeepers locale.*

Medical researchers were recently asked to name the ten most important medical discoveries in recent history. They did, and it turns out that four of the ten discoveries were completely unrelated to the objective of the original research. And so it goes. Many of the most important scientific discoveries and inventions that have shaped our modern existence have happened completely by accident. Perhaps the recent, accidental introduction of the tiny honey bee *Apis florea* into the African country of Sudan will also help to improve the living conditions of the Sudanese people. It many even have something to offer an entire continent.

During 1984-1985, East Africa suffered a severe drought that resulted in a devastating famine. Food, medical supplies, blankets and clothing from all over the world poured into Sudan, much of it arriving at the country's international airport in Khartoum. In November of 1985, a colony of *strange looking bees* was discovered very near the airport. The bees were later identified as *Apis florea* or the tiny honey bee, a native of Asia.

The colony was large and healthy and had several open queen cells indicating that a portion of the bees had split off (swarmed) and established themselves elsewhere as new colonies. Within the next month three additional colonies were found, all within a mile radius of the airport.

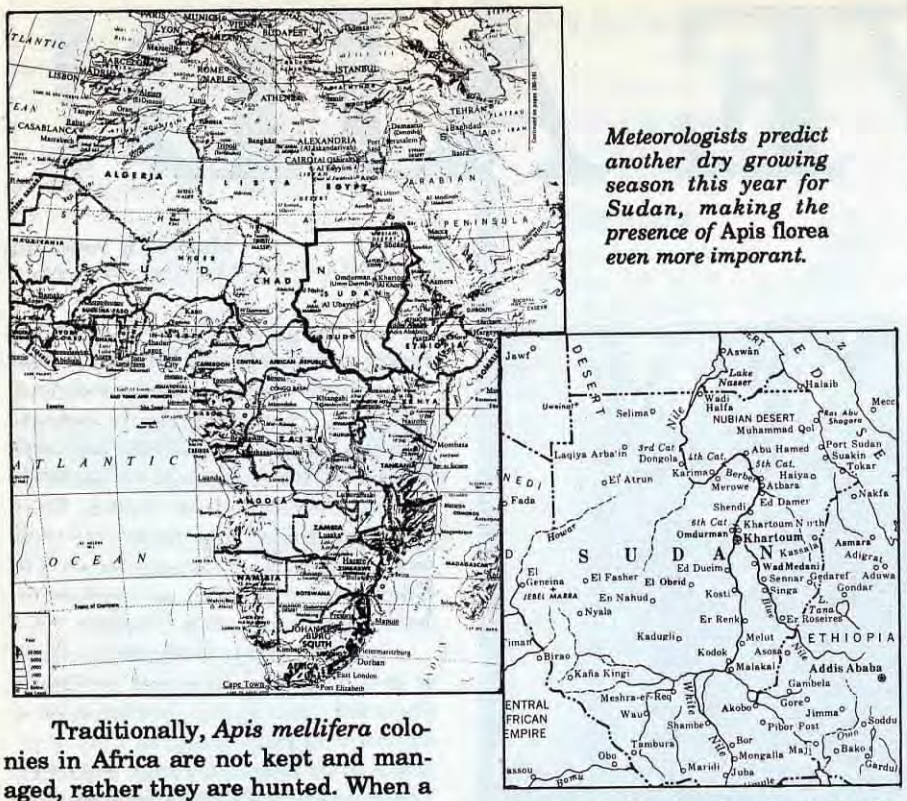
Previously, the distribution of the tiny honey bee ranged from Oman and Iran in the west, through the Indian subcontinent to Indonesia in the east. It is absent north of the Himalayan Mountains. In 1987, Jacob Mogga, a Sudanese graduate student, traveled to the Institute fur Bienenkunde Oberursel, at the University of Frankfurt in Germany where he analyzed research data collected in Sudan. While there, Jacob worked with Dr. Friedrich Ruttner to morphometrically compare samples of the Khartoum *A. florea* with samples of the same species from Sri Lanka, Pakistan, Iran, Oman, Thailand and India. The results of their work suggest the *A. florea* population in Khartoum originated somewhere in western Asia, probably Pakistan.

It seems highly likely that a colony or swarm of *Apis florea* was accidently imported into Sudan, perhaps on a shipment of relief supplies that originated in or passed through Pakistan. The colony probably arrived sometime early in '85, established itself, and swarmed several times after the rainy season in August or September.

I arrived in Africa shortly after *Apis florea* made its debut. Unlike the tiny honey bee, my appearance was preplanned. The Near East Foundation (a small, privately funded, American development organization) and the Sudanese Government were co-sponsoring a project aimed at introducing honey bee management techniques to the country's small farmers and honey hunters. As the project's beekeeping specialist, I was to implement the project.

Most beekeeping of economic importance throughout the world is done with the species of honey bee known as *Apis mellifera*. This bee is native to Africa and Europe but has been spread over most of the world. It is the bee we "keep" in the United States and it is a hybrid race of this species that is known as the African bee in South and Central America.

"Unlike the tiny honey bee, my arrival was planned."



Meteorologists predict another dry growing season this year for Sudan, making the presence of Apis florea *even more imporant.*

Traditionally, *Apis mellifera* colonies in Africa are not kept and managed, rather they are hunted. When a colony of bees is discovered, native honey hunters kill the bees or drive them from the combs with smoke and then harvest all — honey, brood and wax. Traditional honey hunting has been going on for thousands of years and weak and gentle colonies have perished easily at the hands of the honey hunters. Only the most aggressive colonies have survived and multiplied. This and a host of harsh environmental conditions have lead to the not-so-natural selection of a notoriously defensive race of *Apis mellifera* in Africa. Management of this bee for honey production is possible but difficult.

Observing the delicate, brightly banded *florea* was a pleasant distraction from our work with the fierce African bee. Unlike *mellifera*, which builds a multiple comb nest, *florea* builds a nest consisting of a single comb. Also, the native *A. mellifera* prefers to build its nest concealed in some sort of cavity, such as a hollow tree or the space between the walls of man-made structures. *A. florea*, on the other hand, is normally considered an open nesting species, however, it occasionally builds its nest in caves and, in fact, we found one colony nesting inside a mud house. In most cases however, *A. florea* typically suspend their single comb nest from large twigs or small branches of trees or shrubs. A thick crest of comb, made up of elongated cells is built around the supporting twig or branch. Honey is stored in this crest. The remainder of the comb extends below the crest and contains pollen and brood. Drone brood is found on the outer edges of the brood comb, usually near the bottom. Elongated queen cells, when present, are usually found on the very fringe of the comb, protruding downward as if they were dripping from the comb. The supporting branch on either side of the nest is coated with a band of sticky material. This is probably done to protect the colony from ants and perhaps other insect pests and predators.

In addition to their unique biology, *Apis florea* exhibits some intriguing behaviors. Most interesting is the living shroud of bees that covers the entire colony. The bees band in a tight, military-like formation, acting as a curtain to conceal all colony activities. My first encounter with the tiny bees fascinated me. Not knowing what to expect and unprotected by the suit of armor I normally donned when working the native *A. mellifera*, my approach was cautious. The bees seemed uninterested in my presence. I became braver, and moved in closer; still no response. I was determined to find out just how tolerant the little bee was. They suckered me in. Slowly, I raised my unprotected hand, closer and closer until I could almost touch the bees, only then came their response. To my great surprise they did not attempt to sting, instead, the entire shroud of bees shimmered in unison. The shimmer began at the top of the nest and worked its way down the length of the comb, much like the "wave" created by fans at a football game, but happening much faster. This tactic worked well — I immediately withdrew my hand. I learned later that this behavior is a defense mechanism commonly used against carnivorous predators such as hornets and wasps, who attack *florea* nests and carry off the tiny bees as food for their young. It took considerable agitation on my part be-

A typical Apis florea *comb. Note the honey cells on top, drone cells along the side and brood in the center. The white band has been added to increase stability during transportation.*

fore the little bees would leave their nest with the intent to sting. Even then only a small number would fly from the comb and they seemed reluctant to sting.

On another occasion while observing a colony of *A. florea* a large wayward bumble bee flew into the nest. The bees immediately surrounded it, forming a ball that rolled down the shroud and ultimately dripped off the end of the comb onto the ground!

In the country of Oman, where the honey of *Apis florea* is highly regarded, these bees are kept and managed, to some extent, by local farmers. Wild colonies are collected and hived in small artificial caves of rock built by the beekeeper. When a colony is collected, the thick honey crest is removed. The remaining brood comb is sandwiched between the halves of a split date palm leaf stock, which is then tied together at both ends, clamping the comb tightly. The colony is then transported to its new rock home where it is left until the next harvest. Honey is harvested twice a year. Yields are miniscule compared to *A. mellifera* harvests; only 1/4 to 1/2 pound per harvest. But the honey, renowned for its high quality, as well as its medical and mystical properties, brings a good price.

What significance, if any, could this tiny bee have on a country cursed with harsh environmental conditions, plagued by economic and political instability, and fractured by religious and cultural differences? Like so many African countries, Sudan is struggling for economic stability and self-reliance. Having an agriculture-based economy, the Sudanese, as well as many outside observers, view agricultural development as the key to the country's future economic independence. Unfortunately, in order to produce agricultural products of the quality and quantity that will compete in a highly competitive world market, expensive agriculture inputs, such as hybridized seed, pesticides, herbicides and chemical fertilizers are often necessary. These inputs are not available in Sudan and must be purchased outside the country with precious hard currency. In an effort to reduce hard currency expenditures on these inputs, the Sudanese government is encouraging the local production of hybridized seed for crops such as sunflowers and alfalfa. Both of these crops are highly dependent on bee pollination. While the native *Apis mellifera* does pollinate sunflowers and alfalfa, it is an inefficient pollinator of the later mainly due to the bees large size.

Many fruits, vegetables and spices grown in the country also require or benefit from honey bee pollination. These food crops are sometimes grown during the dry season under irrigation. However, because of excessive honey hunting and the migratory behavior of *Apis mellifera* during dearth periods, it is often absent from irrigated production areas once the major nectar and pollen sources dry up. Because of its small physical size *A. florea* can work many plant species that *A. mellifera* can not or at best is reluctant to work. *Florea's* small, single comb nest and colony size means smaller nectar and pollen requirements. For these reasons, *A. florea* is able to thrive year round in areas where *A. mellifera* is present only part of the year or perhaps not able to survive at all.

"This accident may prove extremely valuable not only to Sudan, but to the rest of Africa as well."

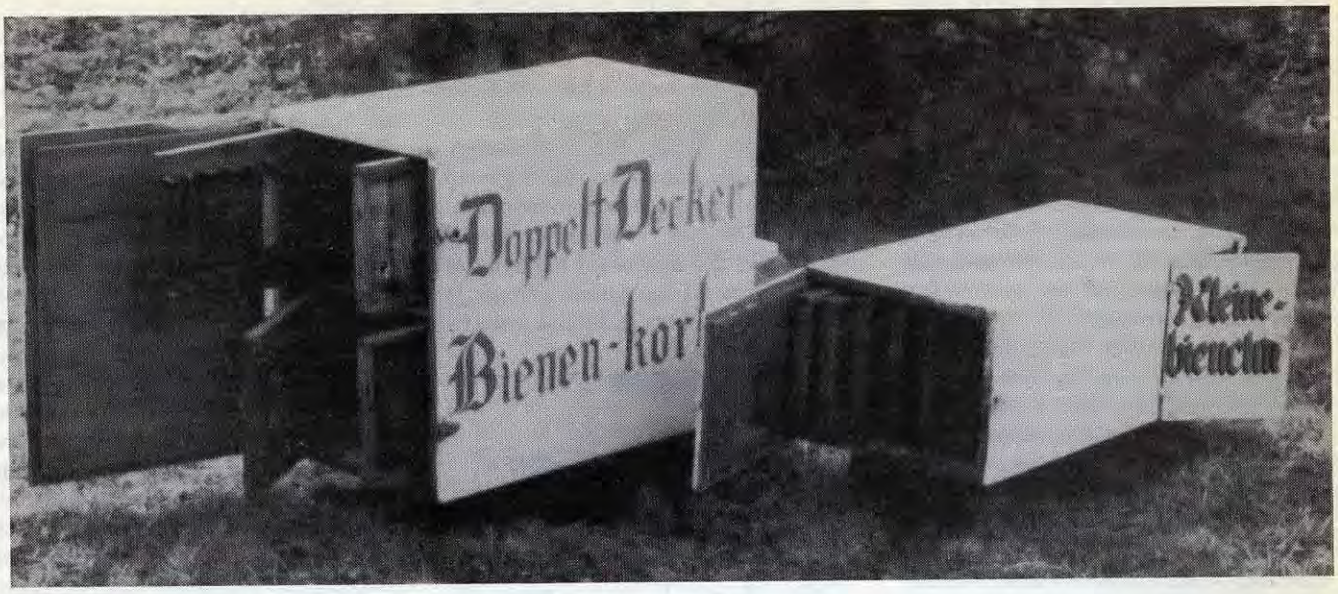
In addition to alfalfa, *Apis florea* is known to be a valuable pollinator of beans, cotton and sunflowers. Cotton is Sudan's primary export crop. While this tiny new immigrant may provide a source of much prized and sought after honey, it is possible that it may play a far more significant role in the production of some important seed and food crops, for domestic consumption as well as export.

The introduction of *A. florea* into Africa is not without potential hazards. The new species may compete with the native *A. mellifera* for limited sources of nectar and pollen in some areas. Also, new species sometimes carry parasites and diseases that they themselves are resistant to, but may prove devastating to native species that lack such resistance.

Samples of adult bees from the three originally discovered colonies were checked for the presence of parasites. Brood combs were also examined for signs of brood diseases, but none were found. By the time I left Sudan in May of 1988, the number of *A. florea* colonies reported had increased to well over a hundred. The population had crossed the Nile River, entered Khartoum North and colonies were being found as far as 12 miles from the Khartoum Airport. For better or worse, *A. florea* has clearly established a home for itself in Africa.

The impact of this new pollinator on agricultural production needs to be carefully assessed. If it proves to be beneficial in increasing the quantity and quality of agriculture products in Sudan, introducing the bee as a pollinator in other marginal production areas within Sudan, as well as other countries in Africa's Sahalian zone, should be considered.

It might be that Sudan has accidentally received a small dose of unexpected live aid. Aid that may not provide immediate relief from natural disasters, such as famine and drought, but a kind that will lay a significant role in Sudan's long term goal of agricultural development. A kind that may make a country, and perhaps even a continent a little less vulnerable to the natural disasters that necessitate the importation of massive amounts of emergency food and relief aid. □



Those Curious German Hives

Roger Bossley

Sometime during the mid 1970's I answered an ad for bees that had been placed in the local newspaper. I phoned ahead to make arrangements and planned to meet with the owner on the next Saturday.

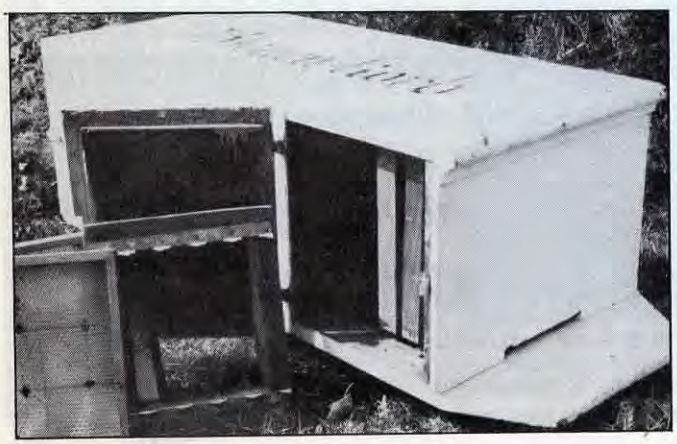
I drove out and found the rural route address on the mailbox and steered my old Opel station wagon up the steep drive. It was a very odd little place, and I stood looking around while I waited for a response to my knock. An elderly man with a thick accent finally opened the door. I told him I had come about the bees, so he got his coat and boots and made a sweeping gesture with his arm. I supposed he meant for me to follow him — so I did.

He shuffled out past a small barn where chickens scampered out of our way and scythe-cut bundles of hay lie in the loft with some unbundled still in the orchard. I also noticed quite a number of hand-hewn wooden tools, shiny from constant use, that were hanging in the lower part of the barn.

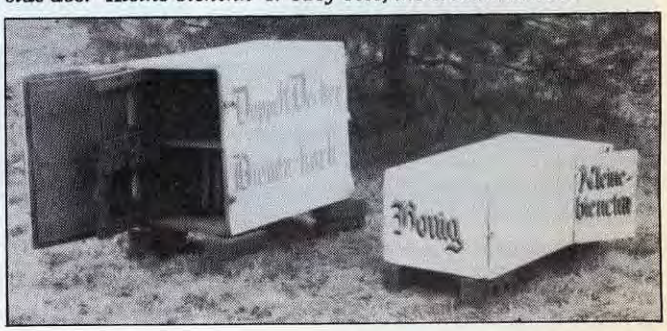
We walked over a small bridge and came to what looked like a miniature village of cottages in a row, built to 1/3 scale that appeared — in every sense — to be a German settlement.

The elderly Ukrainian gentleman led the way to the back of one of the small cottages and opened the hinged door of the little building. Inside was a white box, the back of which had two hinges to the left and two hasps to the right. He unlatched and opened this door, and two small screens separated

(Below Left) A close-up of the single story. The hive opens from the back (far end) and the side. The side door opens into the brood nest. Frames are held in place by 'spacers' on the top and bottom and by another that is part of the 'window'. The 'window' can be either glass for winter use or screen, used during the summer. Probably the most curious aspect of this hive is that the brood frames and honey frames sit at right angles.



(Below Right) The hives are labeled. The two story hive has 'Doppelr Decker' or two stories; and below it 'Bienen-Korb' or bee home or hive. The small hive has, on top 'Bienen-Korb' again; on the front door 'Honig' or honey, where the honey frames are kept; and on the rear side door 'Kleine-bienchn' or baby bees, the brood chamber.



us from the bees inside, which were working feverishly collecting and depositing apple blossom nectar. Some still had a glass "storm window" instead of the screen. These, he explained, were put in for the winter. He said that with these glass windows he could come out on the coldest winter day and check the hive without breaking the propolis seal.

Each little house was built very much like a dog house with a door in the front that could be closed. The houses broke the winter's cold blast but still permitted the early morning sun to shine in and get the bees working on a nice spring morning like this.

Though I did get some of his bees that day, they were housed in customary hives. It wasn't until about eight years later that I returned and bought all of the gentleman's hives, along with the German hives.

There were two different styles of this hive, one which had the capacity of five small frames of brood and eight frames of honey separated laterally with a queen excluder behind the brood section. This was a single-story hive and the brood was reached from a little door on the side, while the honey frames were accessible from a hinged rear door like the double story hive — both types had the same interchangeable screens and "storms". The larger, two-story hive had eight frames of brood on the lower level and eight frames of brood on the upper level, separated between with a queen excluder. It may have been possible to use these as a multiple queen unit.

The two story hive has recessed doors inside so the hive is only one frame deep. the doors (screens and windows) are interchangeable with the smaller hive.

The frames of all the sections slid in with 3/8" metal bars on the bottom and top of each section. They were spaced with aluminum spacers — one in the hive, and one on the inside of the screen or "storm".

I cleaned the hives and put a few swarms in them. I had always referred to them as "the German hives" because the elderly man and his wife had called them "German hives". But my curiosity got the best of me, and finally I had to know if they really were.

I went first to the University at Columbus, OH and talked with the Head of the Apiculture Dept. He said he had seen hives like the single story — where the bees worked from front to back — in Egypt, but they had been made from clay. He suggested I contact Dr. Eva Crane in England, a widely-known authority on such matters.

I sent a few slides taken of the hives to Dr. Crane. Her response was that these were probably the kind of hives used in the Black Forests of Germany.

I have found that Italian bees do not prefer these hives, but less aggressive bees can be managed in them if worked a little more frequently to keep some of the honey frames empty.

I've also found this style of hive is good during the harsh winters of the northern United States and Canada, and the single story is a very portable hive for pollination. Both styles have hinged landing boards which close over the hive entrance so it is easy to close the hive and put it in the trunk for transport. I suppose that is just how the German beekeepers used these hives.

Dr. Crane says that many of the German hives were opened from the back or side because in the settings of the Black Forest, the hives were worked while they were in trees, and they were much easier to work with the opening in the back □

Make Your Own

Ignacy Fryc

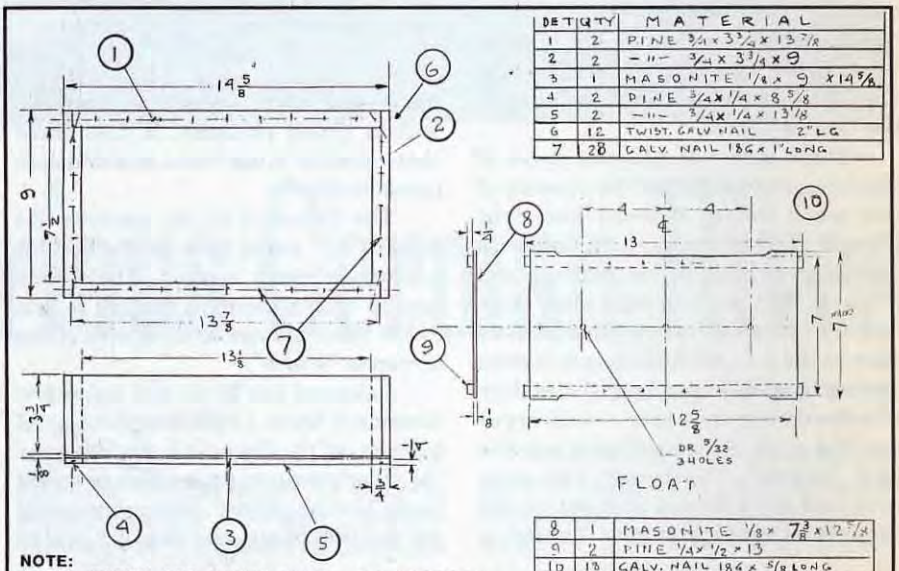
An Internal Feeder:

I have used a basic top feeder for years which was described in *Bee Culture* in the March, 1983, issue. I have had good results with it.

The major advantage of these feeders is that bees take syrup quickly because it is heated by the clustering bees below, and there is ample space for feeding bees. However, when fall feeding was over, I left the feeder on top of the hive. The problem with this is that the following spring, the walls of the feeder were always warped and needed to be fixed to avoid leaking when spring feeding started.

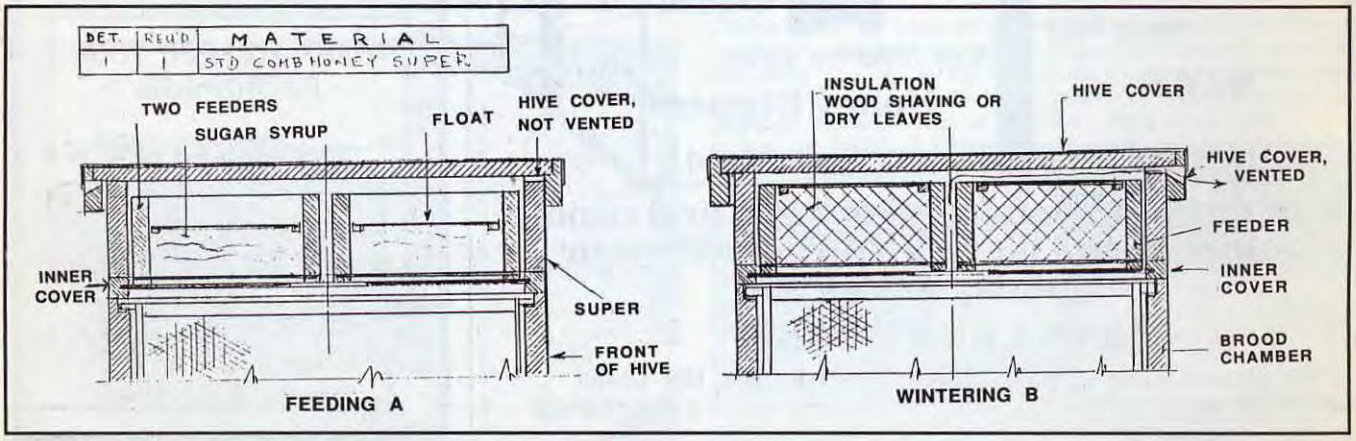
There was another disadvantage though, and that is the large surface area of syrup in the feeder. This dissipates the aroma of sugar syrup enticing bees to rob. To overcome these problems I redesigned my feeder. I made it in two parts, and placed it inside a standard comb honey super which is 4-3/8" high. I also redesigned the float to reduce the open area of syrup. (See drawing #1)

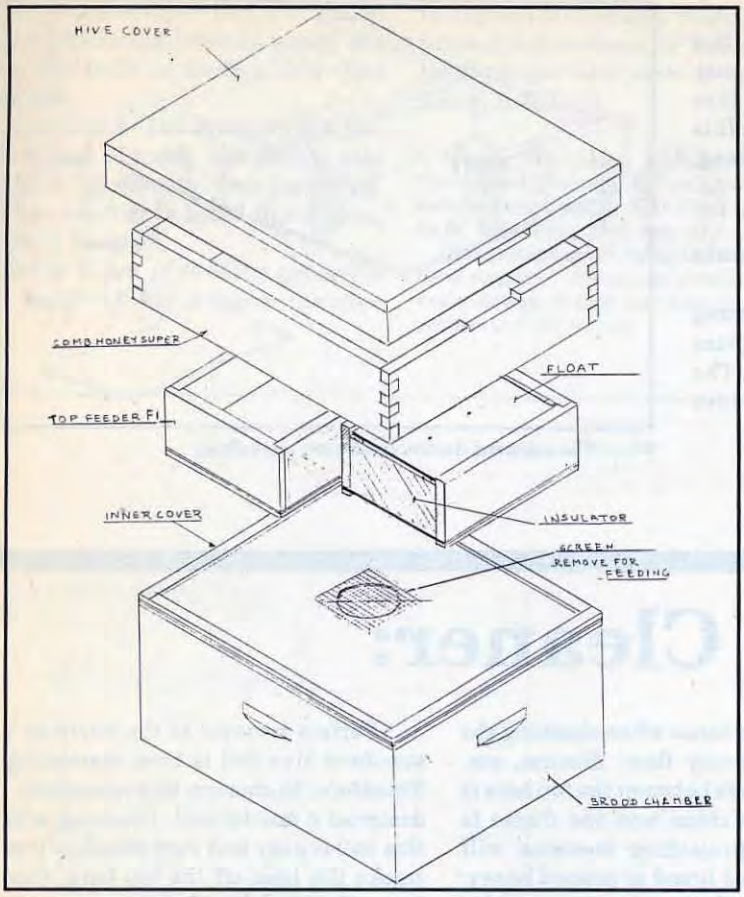
By placing the feeder inside the



#1 — Two single feeders are used on a colony. Materials include pine for sides and support and masonite for the bottom. The inside is coated with beeswax or a beeswax/paraffin mixture to make it waterproof. The advantages of this feeder are that it is inside a super, protecting if from the elements, and it can double as an insulator during the winter. As a feeder it has a capacity of a little over 5 quarts, for a total of nearly 3 gallons per colony.

#2 — The feeders/insulators in place. Drawing 'B' shows the correct set-up to use when wintering. The empty space is filled with an insulating material, such as wood shavings, hay, grass or Styrofoam. The outer cover is positioned so that venting is possible to accommodate proper ventilation. The insulator sits above the inner cover, directly above the brood chamber. The floats are placed on top of the insulating material to help keep it in place, and to facilitate the dead-air space in the feeder.





#3 — This shows how all the pieces fit together. The two separate feeders sit on top of the inner cover. The bees get to the feeder through the inner cover hole. A regular comb honey super fits around the feeders, and the outer cover sits directly over these. Feeding is easy. Simply lift the cover and add syrup without disturbing the bees.

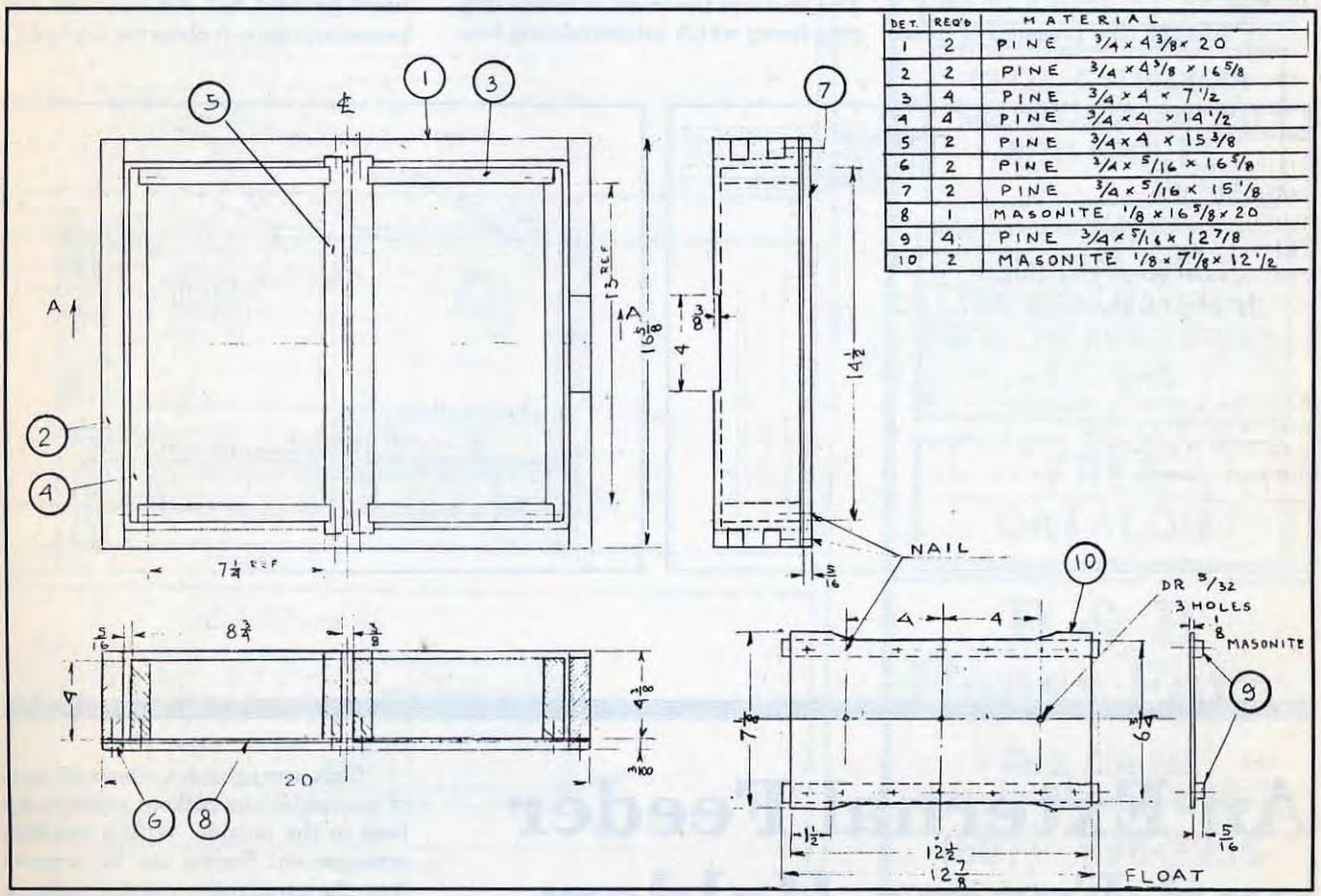
super, it is not exposed to weathering (rain, snow, frost) so it does not warp or leak, and lasts far longer. Another advantage is that there is some insulation value, and the syrup stays warmer, longer.

To reduce the open surface of syrup, I made a float from masonite that covers most of the surface, except for 1/4" between the float and the walls of the feeder. It is also simpler and cheaper to produce.

To Feed:

Place an inner cover with the hole open on top of the brood chamber. On top of the inner cover,

#4 — If you don't use inner covers, the feeder can be adapted to your operation. This variant essentially makes a super that surrounds the feeders, which are similar to those in the first picture. The difference is that a bottom is attached, acting as an inner cover. A 3/8" hole is drilled between the two feeders so bees have access. There are also slots so that ventilation is easy if these are used for insulation during the winter.



DET.	REQ'D	MATERIAL
1	2	PINE 3/4 × 4 3/8 × 20
2	2	PINE 3/4 × 4 3/8 × 16 5/8
3	4	PINE 3/4 × 4 × 7 1/2
4	4	PINE 3/4 × 4 × 14 1/2
5	2	PINE 3/4 × 4 × 15 3/8
6	2	PINE 3/4 × 5/16 × 16 5/8
7	2	PINE 3/4 × 5/16 × 15 1/8
8	1	MASONITE 1/8 × 16 5/8 × 20
9	4	PINE 3/4 × 5/16 × 12 7/8
10	2	MASONITE 1/8 × 7 1/8 × 12 1/2

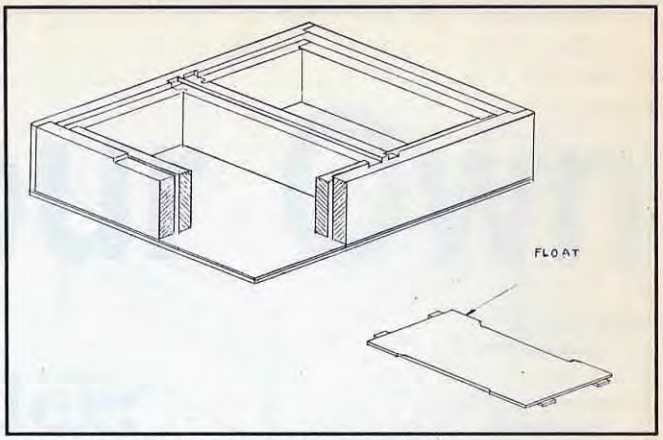
place a standard 4-3/8" super.

Then, put the two parts of the feeder into the super. (See #1 and #2). Remove the float and fill with syrup making sure to replace float on top when full. Cover the hive with the hive cover in a position to permit feeding. (See #2, Feeding). It is very important that the *vent hole* is *closed* to prevent robbing.

To Winter:

Cover the hole in the inner cover with a screen to prevent bees from getting into the insulating material.

Clean the feeder if necessary and fill it with insulating material — the best is styrofoam — and on top of this, place the float. Replace the hive cover. (See #2, wintering). The feeder with the insulating material may be left on the hive throughout the summer to protect it from overheating.



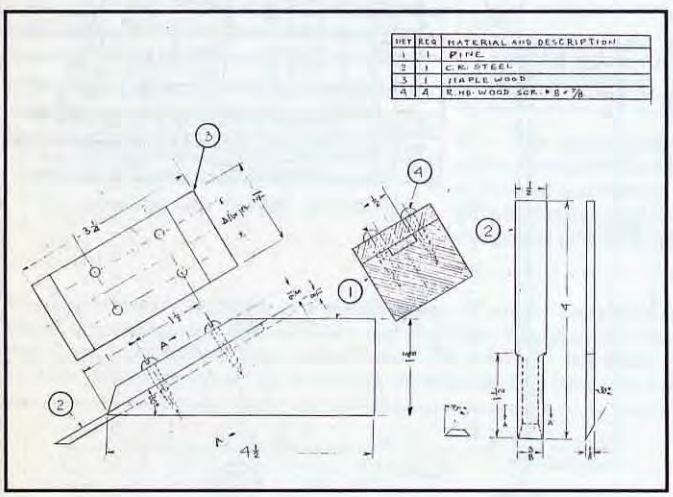
#5 — The adapted feeder / insulator, with float.

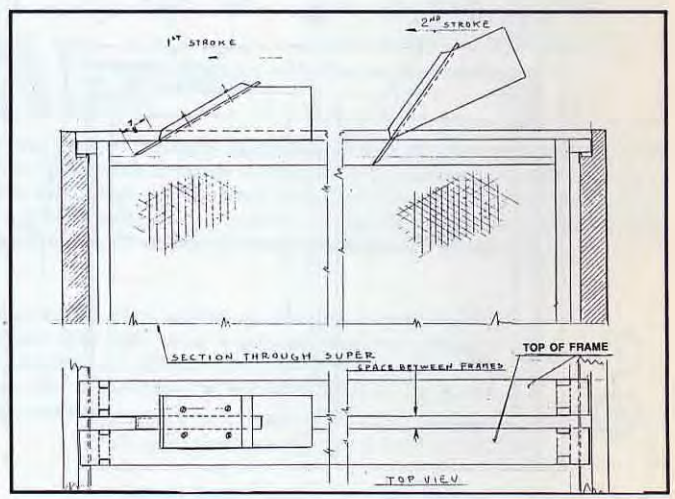
A Brace Comb Cleaner:

Brace and burr combs between the top bars are undesirable because they prevent free ventilation of the hive, particularly during the hot and sultry days in the summer. Therefore, they should be removed any time the colony is checked.

In addition, the presence of these combs is a nuisance when checking the colony for honey flow, disease, etc. When the space between the top bars is not perfectly clean and the frame is lifted, any projecting beeswax will scratch capped brood or capped honey. This destroys the brood or causes dripping honey which entices robbing bees.

Perfect removal of the burrs by a standard hive tool is time consuming. Therefore, to shorten this operation, I designed a special tool. Cleaning with this tool is easy and very simple. First, smoke the bees off the top bars, then insert beveled bar between the two frames and move it along the top bar. □





An External Feeder and Frame Holder:

This arrangement allows all sorts of manipulations without exposing the bees to the outside. With a two-high arrangement frames can be removed from the parent colony and set aside in the second box.

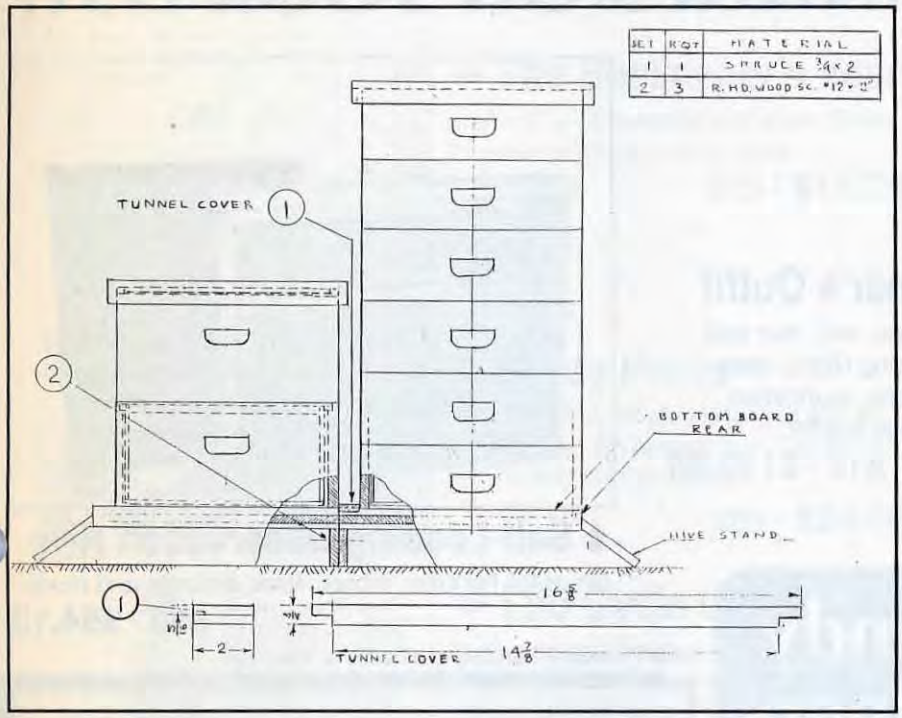
Using a single deep super, without frames, you can cover two, one gallon jars; or using a comb honey super, can house the built-in feeders described elsewhere.

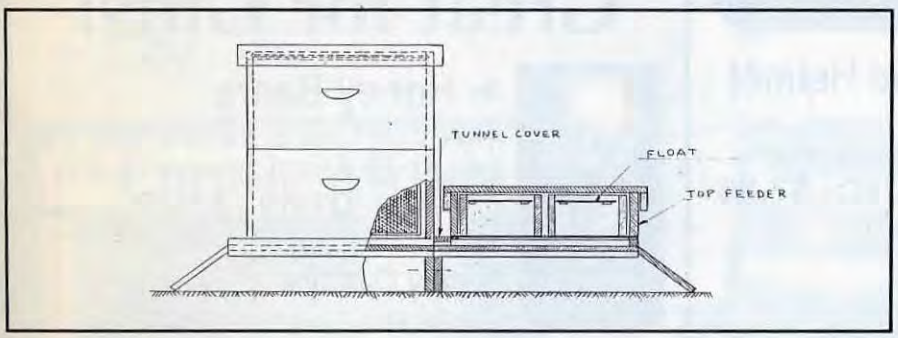
The tunnel that connects the two hives is easy to make, and simply acts as a cover between the two entrances, with the opening reduced to keep out predatory foragers.

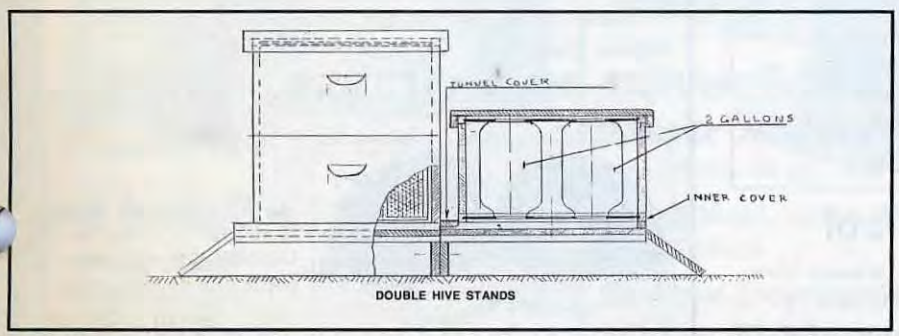
These types of feeders generally work better in the warmer climates than further north, especially for spring and fall feeding. When temperatures go below about 50°F, bees cannot break cluster and move to the second colony to feed. □

Ignacy Fryc lives, and invents in St. Catharines, Ontario. He has been in the bee business ever since he read ***The Life of Bees,*** *by M. Meterlink. That was 63 years ago.*

This past year, at the age of 87 he underwent surgery — his second double bypass — but continues to tend his hives, and solve the problems of the world.







DOUBLE HIVE STANDS

Norm Gary

Kim Flottum

"First and foremost, I'm a teacher, a researcher and a scientist. But life is to be lived. You've got to enjoy every minute of it."

Even though Norm Gary has appeared on a variety of TV programs and played significant and what appear to be dangerous roles in movies, he has never called in a double when it comes to his first love — teaching about and researching honey bees. In fact, during his professional career he has done any and every thing possible with bees.

"I've been a hobbyist, a commercial operator and an inspector. I've taught at several levels, been an Extension Agent, conducted research and acted with bees", he says.

"I've even been an expert witness for individuals, groups and the Legislature," he said, "but I've never been comfortable with the label 'Expert'."

When he was about 16 he discovered a bee tree while walking his dog in his home state of Florida. Initial curiosity lead to a consuming interest, and several years later he earned a bachelors degree in entomology from the University of Florida.

But his 'interest' kept pushing, and he went to Cornell University in Ithaca, NY to pursue a doctor's degree in Apiculture. After a three year post doctoral stint studying mating behavior at Cornell, in 1962 he accepted an assistant professorship at the University of California, Davis, where he still is.

During the mid-60's his primary focus was on teaching and research. He continued to study mating and reproductive behavior and biology. He was the first to identify the attractant odor queens release during a mating flight.

"He made a deduction from watching drone behavior during mating that had gone unnoticed before," says Dr. Roger Morse, Gary's Cornell connection. "It seems simple, even basic now," said Morse, "but Norm was at the right place at the right time to put two and two together."

After moving to Davis, Gary continued his research, but became involved in some extra-curricular activities. A San Francisco TV Station, producing an animal series for children entitled *Brother Buzz* needed footage and a narrator for their show about honey bees. They tapped Gary.

Since then he has been involved in numerous TV shows (among them *Merv Griffin, Little House on the Prairie, That's Incredible, How the West was Won, CHiPs, Amazing Animals* and two segments of *Newton's Apple)*, but his big break came in 1976 when he was hired as bee consultant for the movie *Savage Bees*.

The New Orleans based 'Killer Bee' movie went well and was shortly followed by *Terror From the Sky*, another 'Killer Bee' movie.

But his acting isn't limited to the down side of bees. In fact, he has performed Public Service Announcements (PSA's) on the value of pollination, done innumerable shows documenting the overall value of honey bees not only for pollination but the environment in general.

When asked about this seemingly dual role, he says, "As far as the movies are concerned, the director calls the shots. I simply do what they want. And, if it wasn't me, they'd just get someone else."

He feels that these kinds of movies are going to be made "...whether it's 'Killer Bees' or frogs, or aliens, people like to be frightened — in a theatre."

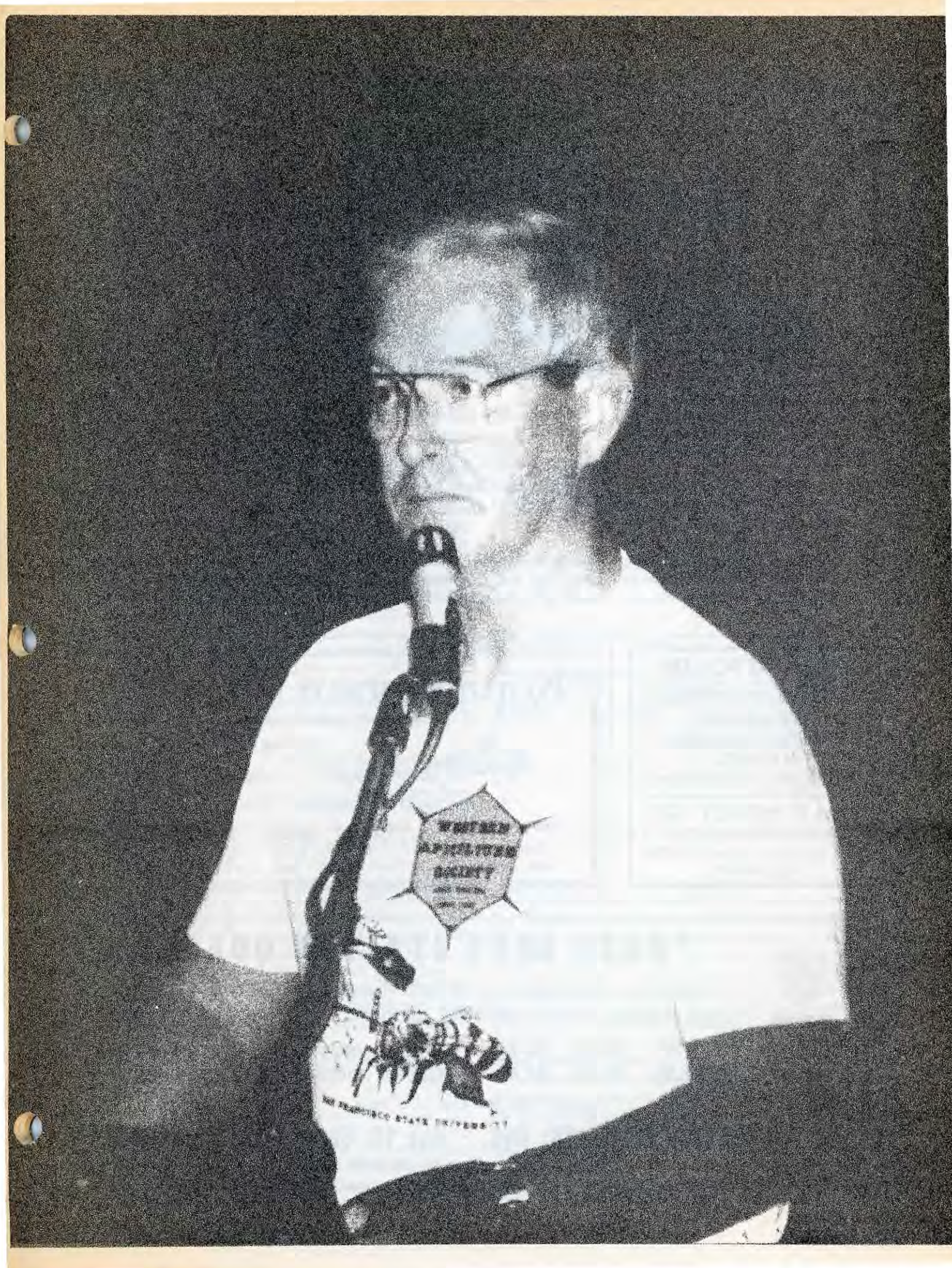
"So, as long as it's going to be done, and they (the movie people) want me to do it, why not? I can do the work and not endanger the other actors, and still make it look like the director wants.

"As far as the TV shows are concerned, there is a balance — I can spend a lot of quality time with 50 students and also spend a couple of good minutes with 50 million viewers. That kind of exposure is hard to come by.

"And speaking of exposure," he said, "there's something I want to say about bee beards. From one beekeeper to another, bee beards are O.K., I guess," says Gary.

"But I firmly believe that they should never be used just to get the media's attention. If it's attention you want, use bees on a pole or cross," he says.

He goes on that for the most part, when non-beekeepers see people displaying a bee beard, it only confirms their suspicion that beekeepers are



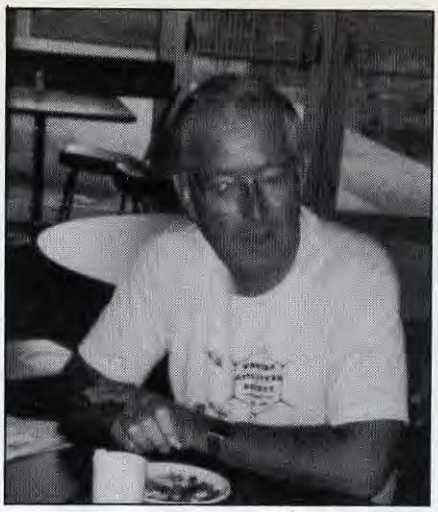
unaware of the dangers involved.

"What I do in the movies or on TV is not at all the same," he says. "I am a professional, working under carefully monitored conditions, with several other experts assisting me. Furthermore, the situation is such that there is very little likelihood of anyone else being stung. We have it under perfect control."

But the public life takes only a small part of Gary's time. He is still an active researcher, and current projects include work with anesthetizing queens using a carbon dioxide and oxygen mixture, instead of straight CO_2 during artificial insemination.

"We're beginning to feel that using straight CO_2 shortens the life expectancy of an AI queen," says Gary, "but not only that, it probably changes their behavior and may even enhance the chances of supercedure."

But bees don't consume all of Gary's time. His love of music, from even before starting with bees, has stayed strong. He plays clarinet, saxophone and piano and has had his own band ("and will again, when I have time", he says). He has played in the world's largest Jazz Festival in Sacramento and still finds time to play at weddings and wakes, and for kids and the elderly. He routinely entertains at the annual WAS meeting each year.



"Probably the greatest stunt I ever did was to cover six UC cheerleaders with a million bees for a TV show."

"It was in high school that I should have made a choice," he says, "but I just couldn't. I have two passions, and it will just have to stay that way."

What hasn't been said about Norm Gary? WAS was mentioned, which he was instrumental in starting. He has made a couple of trips to South America to study and report on the AHB. He was involved in the 1985 AHB finding in Lost Hills, CA and co-authored a 1988 report on their potential impact in his state.

But in spite of all this, he still has some goals to accomplish.

"I want to do two things yet", he says with a smile. "I want to produce and direct the *best* documentary ever done on honey bees but I haven't found the money for that yet," he concludes.

"But on the research side, I want to be able to bring the honey bee inside the lab — take it out of a field setting. Much like geneticists use the fruit fly to study inheritance."

"That's when we'll really begin to learn about honey bees," he says.

And he should know. □

Happy Birthday!

Biological Control ...100 & Counting!

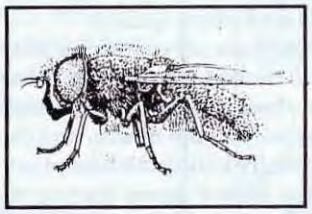
Dewey M. Caron

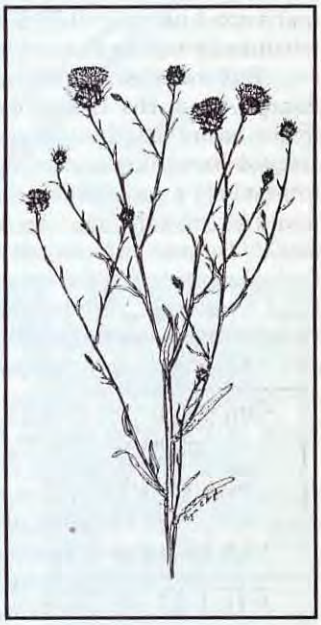
Biological Control is 100 years old! That is good news for beekeepers. Biological control of immigrant insects and weeds helps reduce pesticide use by keeping pest populations below economical injury levels. Immigrants only become pests because natural predators, parasites and pathogens are usually not brought with the pest species when they are accidentally introduced to the U.S.

An active U.S. Biological control program started in 1889. In that year, the USDA imported 129 vedalia beetles into the U.S. from Australia to fight cottony cushion scale attacking citrus trees in California. This beetle, a ladybird beetle family member, within months halted the outbreak of the scale insect. The fledgling citrus industry was saved and, of course, has been able to greatly expand. Remarkably, this scale insect has never again built up in numbers to cause economic injury. The program to find and import the Vedalia beetle cost $2000 in 1889.

It is estimated that over 600 species of potentially useful biological control agents have been released in the U.S.; 223 have become established. In the last 20 years over 13.5 million individual biological control insects, more that 145 species, have been released against 84 different insect pests. The USDA counts 8 programs as complete biological control successes in the last 25 years and estimates that the total annual savings of those 8 exceeds $286 million dollars. The USDA spends about $22 million annually on biological control.

Does it sound unwise to have the USDA purposefully importing insects into the U.S.? We know, for example, that the africanized bee, soon to arrive in the U.S., is an import (originally into Brazil). Two very serious pests, the gypsy moth and the Japanese beetle are also importations and we can easily think of others. Well it does make sense when done carefully and today there are adequate checks and balances to avoid a mistake according to the USDA. The serious pests are all "mistakes". They were not subjected to the normal procedure in use today for bringing in a biological control agent.





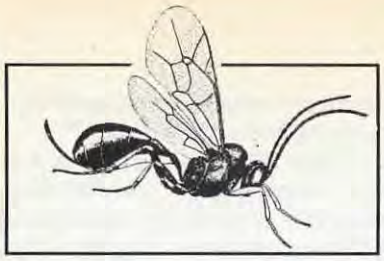
(Left) Seven-spotted lady beetle.

(Above) Cheilosia corydon, *star thistle predator.*

(Right) Western Star Thistle.

What are the predators used in biological control? Lady beetles are widely recognized insect predators. One foreign biological control import, the sevenspotted lady beetle, was firmly established in New Jersey in 1973. It is an efficient predator. A single seven-spot can consume as many as 5000 aphids. It is relied on in France to control aphids in vegetables, in Germany for control of aphids in alfalfa, it is used against fruit orchard aphids in England and even against cotton aphids in China.

Although it was already established, the seven-spot was spreading slowly in the U.S. Thus, in a program to aid its spread, the USDA, APHIS began actively collecting adults of the seven-spotted lady beetle along the East coast and distributing them further westward. This is apparently paying off as the beetle now is better established in the U.S. Studies are underway to document its effectiveness.



(Above) Alfalfa weevil predator, greatly enlarged.

(Right) Alfalfa weevil — small, brown and VERY destructive.

Weed Control

Beekeepers know weeds since they represent a portion of the flower smorgasbord available to honey bees. Musk thistle is a weed that honey bees visit for both nectar and pollen. Musk thistle has been declared a noxious weed in Maryland, however, since it spreads rapidly and chokes out grasses in pastures. Cattle or horses don't eat it as it has numerous spines and with a surface rosette of two feet and tall growth habit it severely limits other plant growth where it occurs. By law it must be controlled to halt its further spread.

A hairy yellow and red fly *Chellosia corydon* from Italy seems to be a promising biological control agent that is being imported into the U.S. to help check the spread of musk thistle. Adult flies lay eggs exclusively on the thistle, and the maggots bore into the stem, eventually killing the host plant. If this fly is a successful biological control agent the pay off would be tremendous. The MD Dept. of Highways spends $200,000 a year on herbicides alone for musk thistle control. Biological control of this weed will benefit beekeepers since some weeds will survive and there will be a weed species honey bees can exploit if the hoped for balance between weed and fly biological control agent can be achieved.

The Alfalfa Weevil Story

One of the biological control successes is our battle against the alfalfa weevil. A complex of six parasitic wasps, some that attack the larva, others attacking the adult, saved alfalfa growers $49 million dollars last year according to the USDA as they reduced their insecticide usage by 73%. Like many of our biological control efforts, alfalfa weevil control as been a 30 year effort with over three million parasitic wasps released annually during the highpoint of the program.

This past mild winter may result in some East coast alfalfa growers spraying early alfalfa for alfalfa weevil. But a spray only once every few years versus one or more sprays each year for alfalfa weevil is good for the environment, the grower, and beekeepers. Since alfalfa protein level is highest just before bloom, growers cut alfalfa for hay before honey bees have a chance to forage on it. But growers inevitably get behind and many let the last cutting go to flower to help maintain stand density. Bees quickly benefit from alfalfa with a couple of nice-weather days to forage the flowers.

The alfalfa weevil predators have done a good job in the Northeast but are less successful in the Western U.S. The effectiveness of the wasps on the western alfalfa weevil, a different strain of pest than in the East, has not yet been determined. Distribution of mass reared wasps was only begun in 1986 in the West. If the wasps are as successful in the west as in the East, insecticide sprays for alfalfa weevil should be reduced in number as the wasp populations can build rapidly and take over the job of alfalfa weevil control.

Other Organisms

Not just insects are used by biocontrol specialists in the battle against insect pests. The Japanese Beetle is routinely controlled by milky spore disease, *Bacillus popilliae*, a close relative to the AFB disease organism. In the west a *Nosema* species closely related to the protozoan that causes Nosema disease in honey bees is used to make grasshoppers sick and thereby eat less, move about less and produce fewer offspring. Both these biological control agents are very specific and never infect or harm honey bees, humans or non-target organisms.

Opportunities for biological control are nearly unlimited. The USDA maintains four foreign labs to look for and evaluate natural enemies of pests and to collect the most promising to send to the U.S. New biotechnology may eventually permit genetically engineered biological control organisms like viruses, bacteria and fungi to join in the battle. These all make sense to beekeepers and the environment. Each biological control success means less reliance on insecticides and the opportunity for better honey bee foraging and survival. Happy 100th Birthday B.C. !! □

THE HONEY HOUSE CAPER

Clay Tontz

It was nip and tuck that hot day as to whether we could qualify to buy a surplus barracks building dirt cheap for our honey house. Then the tough sergeant turned into a saint. "You qualify," he said. "You own livestock and so what if they happen to have wings."

As though he were aiming a rifle, the inordinately tall military clerk squinted down his long, sharp nose at me. The surplus military barracks, he haughtily informed me, were to be sold to ranchers with a sizable livestock and farming operation. "No," he said firmly to further questions, "beekeepers do not qualify."

He looked over my head to the next person in line. "Next," he snapped.

I left the office bowed but not broken, clutching the newspaper ad I had read that morning in the Riverside Daily Enterprise. The ad had appeared to be an answer to our prayers. Our business was growing; we were in desperate need of a large "honey house" — a building in which to extract the honey from the combs, to pack it in jars and cans. The enticing ad had been placed by March Air Force Base, listing 16 x 48-foot surplus barracks buildings at $110.00 each, cash and carry.

To torment myself, perhaps, I walked out of the office to examine the barracks building. The walls were panels of sheet-rock on two by four frames. The floor sections were heavy tongue and groove. The roof was the tormenting surprise: heavy plywood panels, 4 x 8-foot of the finest grade.

At home I stewed while going over the sheet of purchase requirements. A certain phrase caught my attention. It appeared we might have a chance, a slim one.

Back I went the next morning, taking my wife Jeanette with me, to confront the tall clerk. His thin smile was faintly patronizing.

"The bee rancher again, I believe. And what can I do for you this time?"

"We'd like to buy a barracks building," I said firmly.

"But I advised you yesterday that you didn't qualify. And today you still don't qualify. And tomorrow you won't qualify."

Already he was looking over my head at the next person in line. "Next."

"I read the eligibility requirement," I persisted, standing firm, "and we are engaged in an agricultural pursuit. And so I feel we are entitled to buy a building."

The clerk looked past me without answering for a few seconds. Then. "Step aside please."

"I'd like to speak to your supervisor, please," I said.

He studied me briefly. "He'll just tell you the same thing."

Again came the little dismissal wave of his hand.

Jeanette, standing by my side, said angrily.

"We're not moving until we speak to your superior."

A heavy sergeant approached the clerk with a sheaf of papers. "What's the problem here, corporal?"

"Well, Sarge, these people have a bee farm and I'm trying to tell them they don't qualify to buy a barracks building."

"Go take your coffee break," the sergeant said, "I'll hold the window down for awhile."

The sergeant seemed to wear a perpetual scowl. He had unblinking, gray eyes, one of them wall-eyed. He took us both in at the same time — one straight eye boring into me, the wall eye

fastened on Jeanette who had bought a new pink dress and new shoes with part of her small shop salary.

"How many hives of bees you got?" He had a rattling wheeze.

"Six hundred and we desperately need a building for a honey house."

"How many buildings you gonna need?"

"We'd be grateful for one."

"You got it," he said simply and started filling out a sales form.

Wanting to do everything by the book, I said. "Shouldn't I fill out one of the eligibility forms you have here?"

"No need," he said laconically. "You got a ranch, a little one, I'll admit; and you're engaged in an agricultural pursuit. You do own livestock and so what if they happen to have wings?"

The sergeant continued to write. "Sales are slow and I got orders to move these shacks out in six weeks and I aim to get the job done."

He paused, his pencil aloft. "Sure you can't use a couple of them?"

I turned to Jeanette. "What do you think?"

"Have we got enough money?"

"Just barely."

"Then go for it."

The sergeant, who I would have given odds had never once smiled in his lifetime, now parted heavy lips and showed friendly, white teeth.

We hurried out to the immense spread of huts; many of them had red sold tags on the door handle.

Jeanette pointed. "There's one." It had massive holes in the plasterboard walls.

"Probably a little disagreement between a couple of flyers," I remarked.

Down the row we found a nice, solid one. I fastened the red tag to the door handle. Then, coming across many huts unsold, we chose the second one quite fussily. Near this hut was a long, narrow building with a sign on it: "Target Building."

"Lots of good lumber there," I mused. "Wonder what they want for it."

"The target building," The sergeant said in answer to my query, "is a real steal. Take it," his voice was seductively low like that of a used-car salesman about to close, "take it away for $35.00."

"I'm afraid," I said, looking at my check balance, "I don't have quite enough to cover the check if I took it today."

"Will you have the money to cover it in a day or so?" the sergeant asked.

Our first highway honey stand on the east side of old highway 395 — the productive "going home" side for the residents of Los Angeles and environs. Our newly acquired honey house was located 300 feet back of our stand.

"Oh, for sure."

"Then go ahead, make it out. Sometimes I get real slow in making up my deposits."

The target building was six feet wide by 60 feet long. And it had lots of fine, white pine lumber.

Like a couple of fanatical termites, Guiseppe, a neighbor, and I tore into the first building early one morning with hammers and pry bars. First we removed the rotting roofing paper, laying bare the fancy plywood roof panels. Within two weeks we had dismantled the three buildings and hauled them home. Another three weeks and we had put one of the barracks back together. There it sat on its concrete piers, my prized honey house, 200 feet back of our little highway shop. The valuable plywood roof sections were not put back on the roof; instead we used cheaper material from the target building for the roof sheathing.

I ran a classified ad in the local weekly advertising the plywood panels. Right away a man came and bought the lot. I waved the check he'd given me ($384.00) at Jeanette.

"Not bad work if you can get it," I gloated. "This pays for the three buildings so we got them for free."

But I wasn't home free. As we drove out of the yard to celebrate with a dinner and a movie, the truck's headlights picked out the form of a big, yellow tabby waddling along with her built-in family. A "dumpee" from a city Sunday driver, she quickly ensconced herself in the crawl space beneath the pier-supported honey house. Soon we had a second generation of dumpees. Then a third. They may have caught a mouse or two, this exploding horde, but their chief proclivity was to "mine" the enticing sand of our new horseshoe court.

But that, as they say, is another story. □

Careful Carving

Steve Burt

A router can be used to identify and beautify your hives.

Most beekeepers feel very strongly about the role their craft plays in their lives. This commitment naturally gives rise to a desire to add a personal touch to one's beekeeping equipment. And given the monetary investment represented by good bees and sound equipment, adding your name or initials makes sense from a security standpoint, too.

The traditional method used to identify beehives is to burn your name or initials into the wood using a cattle-brand type of marker. These are heated directly in an open fire or bottled gas is used. Branding your equipment goes a long way toward proving ownership of equipment and bees, and makes theft and resale quite risky. Branding irons are occasionally advertised in the journals, and some bee supply houses catalog a few models, differing mostly in how they are heated.

However, there is an alternative method to permanently (and beautifully) identify hive bodies. An excellent technique is to use a woodworking router and chew (router) your name or initials into the wood. You can use either a curved or spear-shaped router bit. The spear-shaped bits, with their sharp tips, make a clean, crisp letter, but it would look sloppy if not cut perfectly the first time. A curved bit is far more forgiving of errors since misshapen letters can be touched up.

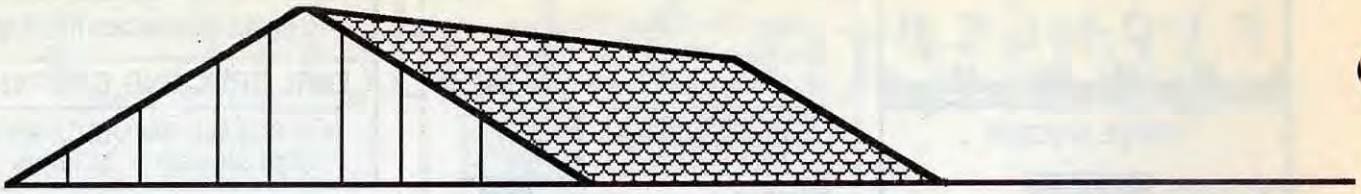
The lettering process begins by pencilling the desired letters usually underneath the hand hold, in simple, printed form. The router can be calibrated according to its own instructions, and should remove about three-sixteenths of an inch of wood. As you progress, the pencilled lines are replaced almost magically by beautifully carved letters as you guide the router. The process is both simple and fast since carving each letter requires but a few seconds. A prudent recommendation is to practice the technique on a few feet of scrap wood until you're confident enough to attack an expensive hive body.

This is my name routered into the side of one of my new supers. You can see that theft would be impossible and it certainly personalizes my equipment.

In addition to carving your name or initials, a router can just as easily be used to carve in serial numbers or other information. On my equipment each hive has my name on one side of every super while an inventory number identifying it is applied to the other side. Because of this I can inventory each super by number in my notebook, and I know exactly where it is at all times. Any theft would be immediately and describably obvious, and colony management is enhanced because I can reference an *exact* hive body discovered with queen cells, disease, capped honey, or whatever.

Perhaps the best reason for lettering beehives — both new or old beehives— is that it is just plain fun when done with a router. No matter whether your operation is large or small, you no doubt take the same pride in your efforts as any other independent business person. Show pride in your efforts and your business by putting your good name on the company property. □

Steve Burt keeps his bees, and marks his hives in Roseville, MI. He contributes to Bee Culture on an occasional basis, on a wide range of subjects.



HOME HARMONY

ANN HARMAN
6511 Griffith Road • Laytonsville, MD 20879

The Holiday Season from Thanksgiving through New Years' is one of festivity and tradition. The traditions of some, however, may be quite different from those usually expected. Certainly the idea of bouncing through a snowy landscape in a sleigh, "over the river and through the woods", for a hearty Thanksgiving dinner does not make much sense to families living in warm sunny climates. Perhaps zooming along in an open convertible to go to a beach picnic is more traditional.

Food traditions also differ. The Thanksgiving dinner of turkey and stuffing, sweet potatoes, pumpkin pie, plus assorted other goodies, may be an oppressively heavy meal for some. Also some traditional foods are simply disliked, but I have noticed that those people rarely admit it publicly. My next door neighbor once confided in me that their traditional Thanksgiving and Christmas dinner was a standing rib roast of beef, fluffy baked potatoes, peas with tiny pearl onions and chocolate layer cake for dessert. We had known each other for quite a few years before she gave the "family secret" away. It seems nobody in the family really liked turkey, the children hated pumpkin pie and the husband did not like cranberries. So their choices made sense. Why sit down to a festive meal that you don't want to eat.

Ham can be a good choice as an alternate meat for turkey, since a large ham can serve an incredible number of people. The usual decoration for ham is whole cloves or a combination of cloves and pineapple. Why not let the children and grandchildren decorate the ham with whole cranberries stuck on with toothpicks or a combination of orange sections and cranberries. The canned Mandarin oranges can make that project simple. Of course, a honey glaze will make every ham taste better.

•Orange Glaze

1 cup peach halves
1/2 cup peach syrup
2/3 cup honey
1/4 cup orange juice
2 Tbs. grated orange peel
1/4 cup white wine vinegar
1 tsp. whole cloves
1 tsp. cinnamon
1/2 tsp. dry mustard

Drain peach halves, reserving syrup. Combine 1/2 cup syrup with the rest of the ingredients in a saucepan. Bring to boiling, stirring, and boil gently for 10 minutes. Add peach halves and return to boil. Boil 5 minutes longer, stirring gently. Let fruit stand overnight, then drain. Serve fruit as a side dish with ham. Use syrup as ham glaze.

The Honey Kitchen
ed. by Dadant & Sons, Hamilton, IL

Although ham is frequently served without a sauce or gravy, you may wish to try this sauce instead of a glaze. This particular sauce is excellent with a strongly flavored honey, even buckwheat honey.

•Honey Mustard Sauce For Ham

1/2 cup chopped onion
1 Tbs. butter
1/2 cup honey
2 Tbs. coarse-grained prepared mustard
1 10-ounce can chicken broth, undiluted
2 Tbs. chopped chives
1 Tbs. cornstarch
1 Tbs. water

Saute onion in butter until soft. Add honey, mustard, chicken broth and chives. Simmer 10 minutes. Mix the cornstarch with the 1 Tbs. water. Then add to sauce while constantly stirring. Boil for 1 minute, stirring, until thickened. Serve over slices of ham.

A Honey Of A Cookbook, Vol II
Alberta Beekeepers Association

Perhaps you have chosen another meat for your festive dinner. In which case, a vegetable glaze would be more appropriate. This sauce has a nice tang and is suitable for many vegetables, as well as combinations of them.

•Vegetable Glaze

1/4 cup to 1/3 cup honey
1 Tbs. butter
1 Tbs. lemon juice
1 Tbs. Worcestershire sauce
1 tsp. vinegar
1/4 tsp. salt
1/8 tsp. pepper
3-4 cups cooked vegetables

Combine all ingredients except vegetables in a skillet. Stir and let boil for one minute. Add vegetables and simmer until heated through.

Cooking With Honey
Judy Powers

Hot, homemade biscuits or Parkerhouse rolls are an excellent bread to serve with a grand dinner. If you choose the Parkerhouse rolls, just use your favorite recipe and substitute honey for sugar, in equal measure.

One of the best ways to keep family and guests happy and satisfied until the Thanksgiving dinner is to serve a hearty breakfast. If anyone slept late, just call it brunch and serve breakfast anyway. These muffins are delicious — be sure to make plenty.

•Cider Muffins

2 cups flour
1-1/2 tsp. baking power
1 tsp. baking soda
1/2 tsp. salt
1 tsp. cinnamon
2/3 cup raisins
1 egg
3/4 cup fresh apple cider (not apple juice)
4 Tbs. melted butter
1/4 cup honey (use a flavorful one)
Cinnamon sugar mix:
3 Tbs. sugar or brown sugar mixed with 1 tsp. cinnamon

Sift together the dry ingredients. Toss in the raisins. In another bowl, beat the egg until light and slightly thickened. Add the cider, butter and honey and beat to mix. Add the flour mixture and blend gently, stopping just as the flour is incorporated and while the batter is still quite rough and lumpy. Spoon the batter into greased muffin tins, filling about 3/4 full. Bake 20 minutes at 400°F. Brush the tops with melted butter and sprinkle with cinnamon sugar. Serve hot. Makes about 12 muffins.

The Garden Way Bread Book
Ellen Foscue Johnson

Although the original recipe for this dessert calls for raspberries and papaya juice, I have made it with other berries and fruit juices. It takes a little extra time to prepare, but is worth it for a holiday meal.

•Raspberry Madness

Layer 1
1 package plain gelatin
1/2 cup cold water
1/2 Tbs. flavorful honey
1-1/2 cups raspberry juice
1 cup raspberries
1 cup chopped walnuts

Layer 2
1 package plain gelatin
1/2 cup cold water
2 Tbs. flavorful honey
1-1/2 cups papaya juice
8 ounces cream cheese or yogurt cheese

For Layer 1, combine the gelatin, water, and honey in saucepan and heat until gelatin is clear and dissolved. Remove pan from heat and stir in the juice and fruit. Sprinkle 1/2 the walnuts on the bottom of a lightly oiled gelatin mold and pour Layer 1 on top. Chill in the freezer for about 15 minutes to hasten setting.

Meanwhile, prepare Layer 2 by heating the gelatin, water and honey as before. In a blender, whirl together the gelatin mix, juice and cream cheese until creamy.

When Layer 1 has thickened a little, sprinkle the remaining walnuts on top. Next, pour Layer 2 on top of this. Chill in refrigerator until set. Loosen from mold by running water quickly over bottom of mold, then turn upside down over serving plate. Serves 8.

Honey & Spice
Lorena Laforest Bass

If you feel that time is running out and a fancy dessert will not get made in time, consider this pie recipe. It can be made with your choice of crusts and can be made well in advance.

•Jellied Apricot Pie

1 9-inch pie shell, baked
1 can (1 pound, 14 ounce) peeled apricots, pitted and halved
1/3 cup honey
1/4 cup sweet sherry wine
1-1/2 cups apricot juice and water
1 package (3 ounce) orange gelatin

Drain apricots, reserving liquid. Cover apricots with honey and wine. Set aside. In saucepan bring apricot juice and water to a boil. Add gelatin. Remove from heat and stir until dissolved. Carefully pour over apricot halves. Chill mixture until the consistency of unbeaten egg whites. Spoon into pastry shell. Chill several hours or until firm.

Treasured Honey Recipes
California Honey Advisory Board

Be sure to decorate the table with beeswax candles and have plenty of your honey available for table use.

When you sit down for your Thanksgiving dinner, whether traditional or not, be certain to give thanks to the honey bees who helped bring you all the delicious and nutritious foods. □

FOOD CHAMBER

Holiday meals, particularly Thanksgiving, are family affairs. Grandparents and great-grandparents, children and grandchildren congregate for this important meal. Generally everyone is happy. But mix in some children and a squabble will probably arise — usually around who's sitting next to whom at the dinner table. To keep the children out of the kitchen, let them make place cards and arrange the seating at the table. It may turn out mixed up by your standards, but the children will do an excellent job. If they are too young to print names, let them draw a "pretty picture" as a place card. It is a nice souvenir of a family occasion.■

SIFTINGS

CHARLES MRAZ

Box 127 • Middlebury, VT 05753-0127

"There's going to be a change in American beekeeping — so get ready."

Last winter's experience with Acarine mites was pretty devastating for beekeepers in many parts of the U.S. But what will happen next spring, since the mite continues to expand it's range and infestation? Winter losses from Acarine last year were as high as 80% in some areas. Eventually, it seems, all beekeepers will experience some infestation levels in their hives.

For over ten years we knew they were coming, but little was done about it. Many, including me, thought Acarine would not be a problem in the U.S. when they got here. How wrong we were.

The only obvious and natural solution to the problem is to develop and propogate strains of bees that are resistant to Acarine disease. To me, the obvious place to look for resistance is where bees have survived in the presence of this disease.

Some 75 years ago Acarine almost wiped out the native bees in England. Then, Brother Adam, who was very young, was running the bees at Buckfast Abbey. He noticed that certain strains of his bees — the old Italian, Carniolan, and Caucasian — appeared to suffer less from the disease. Using these lines as breeding stock, he was able to overcome this problem. Decendants of these bees have lived "happily ever after".

What amazes me is that with over 70 years of experience in breeding Acarine resistant bees, Brother Adam has been almost completely ignored in the U.S.

To date Prof. Roger Morse of Cornell is the only one I know of who is actually doing something, rather than just talking about the problem. Picking up a few dollars where he could, he went to England this past summer and brought back some British queens. I was asked to help with the project and have been able to get some grafting brood from these queens. In Vermont, raising queens in late summer is difficult, but I did manage to raise a few, and I hope they will survive the winter.

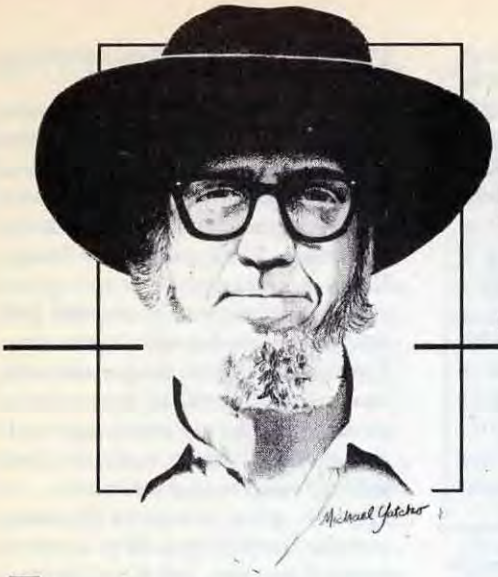
As far as I know, we do not have Acarine mites in any of our 800 plus colonies, but we do have it all around us. This offers a real-world opportunity to test these queens for resistance. But the next question is, if we find bees resistant to Acarine mites, are beekeepers in the U.S. ready to use them?

Recently Steve Tabor, who claims to have bred queens resistant to Acarine mites, advertised them for sale and claims he did not get a single request for one of these queens.

Most beekeepers won't become interested until their bees begin to die from the mites. Then there will be no choice — it will be either resistant bees, or no bees at all. Before U.S. beekeepers will consider raising resistant bees they will have to change their whole conception about bees. Why? In all probability resistant bees will not be the gentle, yellow bee most mistakenly call Pure Italian. The original Italians which came from Italy over 50 years ago, were dark bees. The yellow strains we now call Italian have come from intensive inbreeding for both the yellow color and gentleness.

The bees I see hatching from the British queens will not please the average beekeeper. But they have survived very well in Britain for the past 70 years and they should do well here. Time will tell, but beekeepers should be prepared to say "Goodbye" to the old standard American-Italian bees. Personally, I've never cared for this "Standard American" bee. For 60 years I've raised my own hardy, dark bees which I find better for production, good wintering and resistance to several diseases.

I believe Acarine resistant bees will be an improvement over the "Standard American Italian" bees we have today. So get ready for the big change in American bees and American beekeeping. □



BEE TALK

RICHARD TAYLOR

9374 Route 89, Trumansburg, NY 14886

"Too often people begin keeping bees because of the bees — and quit beekeeping because of the honey."

I shall reach the age of seventy this month, on the very day the youngest of my precious children turns two. My awareness of the former is an acute reminder of my mortality, while the latter gives me the opposite feeling of buoyant youth.

The tension between these two feelings was brought home to me the other day when I drove off with my kids to a barn sale I'd seen advertised. There I found a huge pile of old and torn burlap bags, offered at ten cents each, and useless, in their tattered condition, to anyone except a beekeeper. I was about to buy the entire pile, knowing how hard it is these days to find burlap, but my second thoughts reminded me that I perhaps do not really need a thirty-year supply of smoker fuel. So I ended up buying a dollar's worth, and that will last a good long time. Nature will have her way with me in the end, I know, but in the meantime my children, my bees, and, perhaps, my sometimes childish ways are going to nourish in me a never-fading sense of youth.

My interest in my apiaries goes into deep decline this time of year. I go around and get them ready for winter, more or less, but my heart is not in it. The world is too cold and grey to rouse my spirits. Each hive has plenty of stores, well-ventilated and protected from mice, and those are the things that count. Meanwhile, my job is to get the very last of my comb honey crop sold, then wait patiently for spring.

Maybe I should say something about that, about selling honey. That does seem to be the most common problem for back-lot beekeepers. People get into beekeeping because of its inherent fascination, but they do not know how to go about marketing the honey crops that inevitably follow. And the result is that they lose interest. Those, on the other hand, who know how to sell their honey, and who can record some kind of profit on their books, albeit perhaps a small one, have a very nice additional joy to give meaning to what they are doing.

The best place to sell honey is right at your house. Even if you are off the beaten path you can, over time, work up a modest trade there. You can display it on your porch with a price list and trust people, at least in most rural areas. It is my good luck to live on a highway travelled by tourists, so I have a honey stand right out in my front yard which produces a small but fairly constant cash flow. Thefts are extremely rare. On the contrary, I often find more money in the cash box than should be there. I think very few people would want to steal from me, even though it would be easy to do. A sign there reads, "Thou shalt not steal." That's a very good law, which even non-believers are inclined to honor. The cash box is labeled, on its top, "Honor Box." And nearby is a little note, signed by me, which reads: "Of the many visitors to my honey stand last summer, only two were thieves, who took advantage of my trust in them to steal from me, my wife and my children. Rejoice that you are not that kind of human being." That note really seems to rock people. Maybe that's why I sometimes find what seems to be a little extra money in the honor box. I don't think there were any thefts this summer. Once I thought there was a shortage, but then learned that my dear wife had emptied the box for me. Great relief. Another time I seemed to be three dollars short, but I'm not sure; it might have just been a error on my part. Otherwise, everything tallied out just right every time, except, as noted, when there seemed to be a bit too much there.

I think my honey stand is a large part of the fun I have at beekeeping. I know I make lots of friends there, friends I never see, for I am constantly finding appreciative notes on the little pad I leave there for customers to do their figuring on. And sometimes, when I hear people down at the stand, I step out to chat with them. Usually, though, they come and go without my knowing it, until I go check and see that some honey is gone, then compare this with what I find in the honor box. It is a wonderful system.

But of course, not everyone is in a

Continued on Page 645

INNER...Cont. from Page 604

Technology has helped beekeepers though — modern equipment, hybrid bees, medications and supplemental feed. The odds to harvest that crop have been improved, but there are still no guarantees. Is it any wonder that beekeeping pales when compared to such instant activities as racing model cars, careening down great water slides or remote control VCR's?

Instant gratification is easy to come by. You can simply buy it, in any form, for any taste, and within anyone's budget. No waiting, no disappointments — and, for a single instant — satisfaction guaranteed.

•

In Touch

Why have a newsletter? Tradition — not a good enough reason, but not to be overlooked either. Meeting Notices — certainly important; but don't stop there. More? Lots, lots, more!

Every group needs to stay in touch one way or another. Stay informed and in tune. But getting together once a month at the local extension office isn't the only way to stay together. Actually, getting a bunch of people to a meeting can be a fairly inefficient way to get information from point A to point B. Think of the travel time, gasoline, lights...and then, once you've arrived, there's always those two in the back who keep talking so you miss something important. Or one guy who keeps a 20 minute business meeting running more than an hour. The speaker is good, but at the end you don't get a chance to ask that one question you need answered (because of the two talkers), and when you finally get to the coffee table, all the honey cookies are gone.

Then there's the money-raising activities (auctions, raffles, whatever). Well-intentioned, but way too long. Finally, after you've spent two and a half hours (for a 30 minute talk) it's time to go home.

Now, don't get me wrong. Meetings are the backbone of *every* strong, vibrant group. But not everybody's a meeting freak. Some don't like crowds, some hate the business part, some hate the speakers, some don't like all the rest. If the part of the meeting these people like is *weaker* than the part they dislike — well, there's another one who won't be here tonight.

There's a cardinal rule to remember whenever you're selling something. And don't think for one minute you're not selling your meeting. It is in competition with TV, VCR's, the family, long hours on the job, yard work, house work, garage work, sleep... That rule is, 'Don't make it easy to not go.' If there is even one thing about your meeting a member doesn't like, it may be enough of a reason to stay home and watch a movie, fix the sink or play with the kids.

And, of course, that's the plug for a good newsletter. I mean a really good newsletter.

Every communication from the powers that be to the members should contain these basics ***every time.***

- Who's running the show, and how do you get in touch with them. This includes the officers, the Editor, state and local inspectors and officials and anybody else who counts, or even thinks they count. I am completely amazed at the number of newsletters I get that only have an editor's address. No phone number, no idea who's in charge.
- Some information on the business of business. What's happening with the funds, who's being elected, who's getting the work done (for those so inclined), what work needs to be done (in case anyone else is inclined), and what's going to happen next time. But for heavens sake, keep it brief. Bore people with this and you've lost them forever. Those that want to get involved will, and the rest won't. And another cardinal rule — Don't *ever* use guilt to motivate action. That's absolutely the best way there is to make an enemy!
- What's happening this time. Who's speaking or entertaining. What's the show about. And who's doing the entertaining. Don't for one second think that everyone will just show up because it's the second Tuesday of the month! You've got to do some good PR here. Advertise, advertise, advertise!
- For those who don't or can't make the meeting but belong because the group is a source of information, give some beekeeping information! Something seasonal for your locale, or timely for a particular chore. Hints and suggestions are good, especially if somewhat original. But don't let a lack of creativity stop you. Use articles from magazines and books that fill the bill. I've seen some pieces lifted nicely (with appropriate credit, I might mention) that inform, educate and entertain.
- Finally, give a schedule, every month. Don't forget. Give a year's worth if you can, but if not, give as much as you can. Remember — advertise, advertise, advertise.

Sound like a lot of work? It is. Every month, month after month after month. And if you dump all this on the editor, you'll kill the editor (unless you've been blessed with a one-in-a-million). All the officers need to contribute — the President, Secretary, Treasurer, Program Chairman and anybody else who wants to help. And they need to do it on time! *Every Month.*

An editor's role is to gather, repair and disseminate — not write, write, write. Remember, the editor has the added chores of labeling, mailing and the rest.

If a newsletter is able to routinely do most of these things, you won't have a membership problem. They still may not show up for meetings, especially if you haven't fixed those weak spots but they'll be paying dues, reading the newsletter, and, more or less, will all be heading in the same direction.

A newsletter is the foundation for a group in touch, but not necessarily touching.

Kim Flottum

BEE TALK... Continued from Page 643

position to have a honey stand. So there are other good marketing approaches for the back lot beekeeper. One of the best is to supply roadside markets. Honey moves well there, because people do not stop with grocery lists in their hands. They stop to see what is being offered, and attractive honey is hard to resist. The proprietor will usually expect about a one third markup; that, for every dollar he gives you he'll get a dollar and a half. That's fair enough. And you must guarantee his sales, either by agreeing to buy back any unsold honey or, better, leaving it with him on consignment. This is an absolutely no-risk arrangement for him, and no significant risk to you, either.

I never sell to stores. That is the market for the big commercial packers. Honey does not sell very fast from stores, in my experience — except, perhaps specialty stores of one kind or another.

If you can produce good honey, applying the highest standards for packing it, then you can sell it. All that is needed, really, is for people to find it. They will come back for more, and over time your little business will grow. You won't get rich, but the extra cash is a pleasant bonus, just the same. □

Questions and comments are welcomed. Please enclose a U.S. or Canadian stamp and envelope for a prompt reply, and use the Trumansburg address, above.

Extracting Thoughts

Gwen Eisenmann

We extracted honey today. On this remote Ozark hilltop we and the bees have a relationship unadulterated by commercial agricultural practices. A clearing in the forest, with an organic garden, provides livelihood for both of us. Our nearest neighbors, also organic gardeners, live at least a mile away as the bee flies, or two miles as the road goes.

Our bees are not medicated, fed, or threatened by agricultural chemicals. We have never re-queened or interfered with colony life except to replace hive parts as needed. The bees may vary from year to year, sometimes small, black and feisty, sometimes large, golden and more tractable, sometimes mixed.

When we extract honey, with a manual two-frame extractor, our basement is our honey house. Hot water run-off from a water distiller heats the homemade uncapping knife, and the uncapping table is a tray on the washing machine covered with newspapers. The basement is warm from wood stove heat.

So much for the mechanics. The beauty of frames filled with honey, the gift of honey itself and renewed contemplation of bees, is the fun of extracting day. To me a beehive is an awesome miracle. We are privileged observers. Extracting day is a day apart, a unique harvest.

When I read of bees each month I am overwhelmed by the problems of commercial beekeeping. At the same time, I think of the exploitation of other farm animals — cows over-milked, calves snatched from their mothers, pigs who live their entire lives in a stanchion in a barn, and chickens packed into buildings, never to feel the earth or sunlight, never to scratch, or taste a live bug — and I am appalled at the greed of mankind and the glee we must give Ahrimanic powers. Are some of the problems of commercial beekeeping due to exploitation in extreme? Is it my perspective or our culture that has gone awry?

Writing is a method of defining ourselves, and of sharing — two necessities for health and happiness. When we read words from wise men, truths not before encountered, the impulse is to share. Recently a friend shared a book with me, *Earth and Man,* by Karl Koenig. Even before I had finished reading the introduction I realized that perhaps the lack of animal husbandry today is because people do not know the true relationship of all creatures to the Earth. Farmers and gardeners and beekeepers of long ago were not stupid. They were far wiser than we are now. From the introduction:

Many people today long for a new, truly experienced relationship to nature in their life and work.

And from the conclusion:

In our relation as man to the kingdoms of nature we are confronted with living substances and forces. As realities they live and work in creative harmony. But beyond this, they wish us to take them seriously, not only in the dead images they present to us in our laboratories, but through the art by which, as living forces in the kingdoms of nature on earth, they can and want to manifest themselves in co-operation with us. Whether as scientists, farmers, gardeners, or simply as human beings, we can learn to know and work with these 'laws'.

"I am overwhelmed by the simplicity of a frame of honey, and the complexitry of modern greed."

The lectures from the book are profoundly beautiful, and I am convinced that a true understanding of Earth's creatures and their complex relationship to each other and to the unseen life forces of creation would alter all animal husbandry in a wonderful way. It is time we read and heed the words of wise men.

But not without a chuckle. □

What is a bee?
He is a she,
usually.

What is a drone?
He bee on loan,
serving the throne.

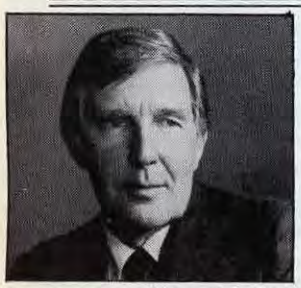
What is a queen?
Laying machine,
soon a has-been.

What is a hive?
House of bee jive,
honey dive.

GLEANINGS GLOBE

NOVEMBER, 1989 ALL THE NEWS THAT FITS

HONEY PRODUCERS HOST HEADLINERS IN TUCSON



Congressman Morris Udall, AZ, will be the key note speaker in January

The American Honey Producers Association will hold its 21st annual convention January 9-14, 1990, at the beautiful Ramada Inn Downtown, in Tucson, Arizona. The meeting will feature as the Keynote Speaker the Honorable Morris Udall, U.S. congressman from Arizona. Also featured will be nationally known speakers addressing many topics of current interest in the beekeeping community. There will also be many opportunities to take advantage of some of Tucson's many attractions such as the Desert Museum, Old

Ray Chancey, AHPA Program Chairman, has lined up a great slate of speakers and other entertainment

Fred Hoff will speak on the economics of the honey industry, and touch on the 1990 farm bill and the honey program

Tucson, the Greyhound Park, and the Pima Air Museum, just to name a few. Also scheduled will be a tour of the Carl Hayden Bee Research Center (USDA Tucson Bee Lab). The Ramada Inn Downtown is within walking distance of one of Tucson's best

Mary Humann will take a look at the highlights of the Honey Board's promotion programs, and give a hint as to what's in store for next year

Jane Phillips, USDA ERS will discuss the Honey Loan program

Dr. Al Dietz, from the Univ. GA, will discuss current research on mites and other areas of interest

known shopping districts.

Richard Adee, AHPA president, expects a large number of the nation's beekeepers in attendance at the Tucson meeting. "We expect this convention to be one of our largest ever, attendance wise, due in part to the many important issues that we will be discussing and making decisions on. Certainly, the Honey Loan Program and the 1990 Farm Bill will be two of the main topics of discussion, along with the recent Disaster Relief Bill, and the National Honey Board Legislation changes. So we expect that a large group will be there to take part in the discussions."

For more information concerning the AHPA convention, contact Ray Chancey, convention chairman, at (409) 258-3034.

Spotty data proves, finally

YELLOW RAIN NOT SOVIET WEAPON

"Yellow rain" — which the U.S. government once claimed was a Soviet biological weapon — is produced when thousands of Asian bees cool their nests by leaving them to defecate, scientists say.

By relieving themselves of hot feces equal to one-fifth of their body weight,the honey bees are able to cool their nests more efficiently and help their offspring grow, said researchers in *Nature*, a British science journal.

In a 1981 speech and 1982 report, then-Secretary of State Alexander Haig Jr. asserted that "yellow rain" was a Soviet biological weapon used to kill thousands of people in Cambodia, Laos and Afghanistan during the previous decade.

The claim later was discredited by scientists who proved the yellow deposits are bee droppings, although the State Department never retracted the claim, said biologist Peter G. Kevan.

The latest study found why the Asian honey bees make what scientists call "mass defecation flights," Kevan said, who is from the University of Guelph, in Ontario about 50 miles west of Toronto.

"It can be explained by the need to prevent the temperature of bees' nests becoming so hot as to endanger the larvae," wrote Kevan and Makhdzir Mardan, a biologist at the Agricultural University of Malaysia.

Mardan and Kevan took 306 bees from six nests in Asian tropical forests before and after the insects made mass flights. They killed the bees, weighed their gut contents and measured the amount of heat in the bee droppings.

The study determined that the Asian giant honey bees excrete large amounts of hot waste during the mass flights. "It's like somebody weighing 200 pounds suddenly losing 40 pounds," Kevan said, adding that a colony of 40,000 bees eliminates 1,850 calories of heat during a single flight.

This behavior doesn't directly cool the bees, but lets them cool their nests 35% more efficiently through a process known as "gobbetting," which also is used by European honey bees, Kevan said.

During gobbetting, a bee regurgitates some nectar so some of the liquid in it evaporates on their tongues. They then swallow the cooled nectar.

"It's like drinking cold water on a hot day," Kevan said.

The mass defecation flights mean the bees have less body weight to cool by gobbetting, allowing them to cool themselves and thus their nests more easily.

At temperatures much higher or lower than 92°F, bee larvae growth slows down and malformed bees are more likely, Kevan said.

Asian honey bees occupy combs that can measure up to 6' wide and 3' high and are suspended high in trees, on cliffs or other breezy spots.

Mardan and Kevan found 80% of the mass flights happened when the bee colonies were under the greatest heat stress: during mornings when temperatures rose most rapidly and during windless late afternoons.

Kevan said he doubted Nature would have published the study "if there hadn't been all the hoopla about it (yellow rain) being a biological agent."

FAXFAXFAX FACTS

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Looking for the yellow rose of Texas

AFRICAN HONEY BEE MOVING NORTH

On September 26, 1989, the ARS Beneficial Insects Laboratory, Beltsville, received honey bee specimens that originated in Gonzales, Mexico, from the ARS Honey Bee Research Unit, Weslaco. Both laboratories confirmed that these honey bees are Afrianized. The significance of this determination is that Gonzales, in the Sate of Tamaulipas, is the northernmost record of Africanized honey bee distribution, placing the advancing front only 204 miles from the United States-Mexico border.

Although Africanized honey bee range expansion had been relatively slow during the spring and summer months, it appears that significant advances have been made in the past couple of months. This advancing front is now considerably beyond the operational zones of the SARH/USDA Cooperative Program for the Control of the AHB on both the east and west coasts of Mexico.

If this new rate of migration continues, the first entry of Africanized honey bees into Texas might be anticipated in the fall of 1990.

Dr. Anita Collins, Research Leader of the Weslaco Lab, announces new finds

DUTCH GOLD GROWS

Dutch Gold Honey, Inc. of Lancaster, PA has introduced redesigned packaging for its line of natural honeys.

New, modified, glass containers have been developed with a lower center of gravity making them more stable and more pleasing to the eye.

Product labels have also been give a complete design upgrading. The predominantly yellow and gold labels now feature full color illustrations of the honey's floral source. Back labels describe the flavor and appropriate serving suggestions. Each flavor has its particular color coding. The classic bear-shaped squeeze table server joins the glass containers in receiving a new label format. The bear will be available in five natural honeys.

In addition to its line of branded honey, Dutch Gold also packs for a large number of private brands and serves all segments of the food industry including Food Service and Industrial.

Dutch Gold Honey, Inc. was established in 1946 by its founder, W. Ralph Gamber, and continues to operate as a family business.

Ralph Gamber, (file Photo)

A sure bet for every beekeeper

FEDERATION HEADS TO VEGAS

Troy Fore, AFB Secretary, invites everyone to Vegas

Tracheal mites, honey marketing, Africanized bees, beekeeping research, varroa mites, political action, pollination activities. . . All these subjects and more will be on the program when the American Beekeeping Federation meets, Jan. 15-19, at the Riviera Hotel in Las Vegas.

One of the features that the ABF will again have this year are the workshops on a whole variety of subjects. These sessions were very popular last year, and will be repeated, with several new topics added. Dr. Tom Sanford, Extensions Entomologist for FL will moderate the sessions, so there should be no lack of entertainment and education.

The general program will open on Monday afternoon, Jan. 15, and conclude at noon on Thursday, Jan. 19. The annual business meeting is set for Thursday afternoon. Meetings of the ABF Board of Directors and Executive Committee will be held both before and after the convention proper.

Pre-registration packets will be mailed to Federation members in November. Others and anyone who needs more information before that time should contact the American Beekeeping Federation, P.O. Box 1038, Jesup, GA 31545, ph. 912-427-8447.

Dan Hall, NHB Exec will address future plans

Just like Honey Board

POTATO COUNCIL HAS PROBLEMS

The National Potato Council supports proposed federal legislation that would permit assessments on imported potatoes and prevent growers from requesting refunds. A bill sponsored by Rep. Richard Stallings of Idaho would amend the Potato Research and Promotion Act of 1971, increasing the Council's revenues by more than $1 million. According to Council president Mike Cranney, some large producers who request a refund enjoy a "free ride" by benefitting from potato promotions funded by other producers. Current discussion centers around whether a grower referendum is needed to change the act.

Stay Competitive

What factors are most important to maintaining a long-term competitive advantage? According to a survey of 250 companies by David Aaker, professor of marketing strategy at the University of California at Berkeley, they are:

1) reputation for high quality
2) excellent customer service and product support
3) name recognition/high profile
4) good management
5) low-cost production
6) adequate financial resources
7) use of customer feedback/ market research
8) product variety
9) technical superiority
10) a core group of satisfied customers.

LEGAL BRIEFS

Expert Witness Insurance

Should you have to defend company actions in court, demonstrating that those actions were based on the "informed opinion" of expert advisers will usually strengthen your case. However, you must be able to show that the expert was given sufficient information to arrive at a reasonable opinion. Before relying on recommendations from an outside consultant, accountant, attorney, or other adviser:

- Find out if the expert has handled situations similar to yours, or done any teaching, writing, or research on the subject. Confirm this by contacting references.
- Make sure the expert is provided with detailed knowledge of your company's current, past, and future practices.
- Have the adviser take an active role in any investigations. For example, an attorney investigating a potential problem with the company's personnel manual should read the manual and talk with any grievants directly, instead of relying on second-hand information from management.
- Get fresh advice for each situation. Don't assume that just because a new situation appears similar to an earlier one, you don't need to consult an expert. Get advice for each case.
- Make sure advice is specific. Have the expert address the particulars of the situations, rather than making generalizations.
- Keep records of the time and nature of consultation. Document advice given, whether it was accepted or rejected, and reasons

Insure Against Liability

According to court rulings, if your product is incorrectly assembled by customers, and the product causes injury, death, or financial loss due to incorrect assembly, your company could be liable for financial restitution. Protect yourself from product liability suits by taking the following preventive measures:

- Ensure assembly directions are clear and complete.
- Examine product design. Determine whether design or assembly modifications can increase product safety.
- Make sure customers know about potential dangers if the product is used improperly. Use warning labels and have salespeople verbally explain these dangers whenever a sale is made.
- Conduct periodic field checks to make sure customers are assembling and using products properly. Have sales and customer representatives in the field watch for instances of product misuse that

Ray and Cheryl Markley of Mount Holly, NJ hosted the South Jersey Beekeepers at a splendid whole pig roast at their home on the bank of the Rancocas River, this past summer.

Tim Schuler, NJ State Apiary Inspector, is shown just before lunch

Trade Agreement Highlights

CANADA & U.S. TRADE

First of all, the FTA is a huge and complex document (it consists of more than 200 pages of text, divided into eight parts, with 21 chapters and schedules and annexes). Before it was signed, 80% of trade between the two countries already was free of tariffs and duties. So, the FTA covers only the remaining 20% of our trade with Canada.

It does, however, provide that the duties on goods between the countries be eliminated over a 10-year period. In general, it covers:

•Trade in goods, including meat, dairy products, fabric, vehicles, wines and spirits, energy, etc.

•Free trade in service—activities in each other's countries which include accounting, engineering, computer services, insurance, brokerage, etc. Cross-border services were previously limited to basic set-up operations (such as computer systems).

•Temporary entry. This is an important section for any business people who have been detained at a border crossing. The regulations were complicated. But, the Agreement eases these restrictions for a variety of job titles including: a) business visitor, b) professional, c) trader or investor and d) intra-company transferee.

Second there is a complex issue surrounding a product you may want to sell Canada. It is the issue of origin. If you have a widget to sell that is assembled in the United States from parts made in Taiwan and Mexico, how will it be handled?

The Agreement states that there will be no tariff if the widget has been changed sufficiently to receive a different classification from the original materials.

In essence, the 10-year phasing-in of the Agreement will require much work, negotiation and interpretation. Canadians realize they will have more competition to contend with.

American mailers still face the challenge of shipping their packages to Canada for mailing and fulfillment. For example, if you mail in Ontario, you have to pay sales tax. If you consider mailing from the U.S. you have to calculate the costs connected with that.

What will the FTA mean to us? For savvy marketers, it is an opportunity to carve out a solid new customer base. Take the time to meet and research your Canadian prospects. They're different from Americans. You'll like them!

Honey Fits Right In

PUBLIC ENVIRONMENTAL AWARENESS INCREASES

Instead of thinking prices, quality and durability, consumers are thinking the land, the water and the air, these days. Recent awareness campaigns about the threat of pollution to our environment are having an impact on consumer attitudes, according to results of a nationwide survey of 1,000 adults conducted by the Michael Peters Group, a new-product consultancy.

Some of the survey's findings are:

- The majority (89%) of Americans are concerned about the impact on the environment of the products they purchase.
- More than half of all Americans (53%) have declined to buy a product over the past year, out of concern for the effects the product or its packaging might have on the environment.
- Three-quarters of all Americans (77%) say their purchase decisions are affected by a company's reputation on environmental issues.
- Eight in 10 Americans (78%) are willing to pay extra for a product packaged with recyclable or biodegradable materials.

What does this all mean to direct marketers? "Clearly, it's the smart marketer who will choose to act *before* legislation makes change imperative," says Michael Peters, president.

THE GOV'T GIVES . . .

Thousands of government surplus items are available at only a fraction of their value from the Defense Reutilization and Marketing Service (DRMS). Items such as computers, copiers, and even vehicles sell for up to 90% below list price. The equipment, generally in good-working condition, is discarded by the military because it no longer meets its high performance standards.

To buy surplus, you must have your name added to the national bidders list. For an application, write Bidders Control Office, Box 1370, Battle Creek, Michigan 49016, or call (616) 961-7331. You will receive a list of goods for sale, as well as bidding instructions.

. . . AND TAKES

If congress needs to trim any more than $1.5 billion from the agricultural budget in the 1990 farm bill, farm programs will have to take a cut. Carl Zullauf, agricultural economist at Ohio State University, says several intangibles will help decide if, and how much, the agricultural budget gets cut. Congress' mood will be critical in any budget debate as will the state of the general economy. No matter how negative things get toward government spending on farm programs, Zulauf says not to underestimate farmers' political power. Despite being a small percentage of the general popoulation, farmers still have tremendous political clout. Whether it's enough to beat the budget cutters remains to be seen.

COMMITTEE HELPS ALBERTA

The Alberta government has established a six-member advisory committee to make recommendations to help the Canadian province's beekeeping industry.

It will also advise the government about the industry's long-term objectives on international and domestic markets.

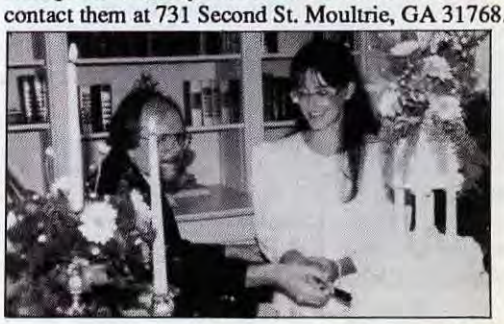
"The beekeeping industry in Alberta has experienced a number of setbacks in recent years," said Agriculture Minister Ernie Isley.

The committee is expected to make a preliminary report within a month followed six months later by a set of recommendations.

COUNCIL HELPS U.S. FARMERS

Assistant Secretary of Agriculture Charles Hess says the significance of a recent report by the National Research Council which endorsed alternative farming techniques that use fewer chemicals and show greater sensitivity to the environment is potentially "unparalleled." The report said commodity support programs often discourage environmentally sound agriculture. "Agriculture needs to be highly efficient and internationally competitive to be economically viable," Hess said. "On the other hand, it needs a system of production which is environmentally sensitive, sustainable and whose products are viewed as safe." Hess says he believes both goals are achievable.

Phillip Rossman, formerly of Rossman Apiaries and a long-time industry supporter, was married on August 26, 1989 in Moultrie, GA. Phillip and wife Krystal will reside in Moultrie and well-wishers can contact them at 731 Second St. Moultrie, GA 31768.



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