GLEANINGS IN BEE CULTURE JUNE '89

BEE CULTURE

- Rare Resources
- The Queen Is Dead
- Eight-Frame Equipment

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Features

THE INNER COVER

Is Anybody Out There?

One recent evening with friends and coffee I listened to a discussion about industry leadership. The debate, for that is what it quickly became, was heated, and several opinions demanded attention. The spirited discussion did little to convince those present that in fact a recognized royalty rules our small but noteworthy trade.

But try they did, and with such rabid parochialism that it was very soon evident I was in a room of players, a group of real-world power brokers in what is often thought of as a nearly powerless industry.

Oh, don't misunderstand me. Each of these players, each side of this multifaceted argument, commands their own tiny piece of turf. Each monarchy is run like the city-states of old — complete with feudal lords, feudal servants, and feudal fees.

Each, too, is independent of the rest; helping neighbors when the occasion is profitable, but as likely to strike out at the same neighbor for the same profit.

No one was excluded or excused. Each had defenders who were in turn pounced upon by all the rest in their respective defenses.

The discussion warmed rapidly. Defenders of the two national groups were the fastest and the loudest and probably the most experienced at this sort of thing. Both claimed saintly reputations, and goodwill towards all men (and women!). But their detractors were equally loud, and almost as fast. There were claims of self-serving political ambitions, and selective deafness to anyone with less than a six-figure income.

The feds had their backers too. But there weren't very many of them, and they weren't very loud. Their strongest argument was that, for the most part they weren't hurting anybody, and anyway, didn't they just lose that raise? Besides, it wasn't their job to be leaders but researchers, finders of knowledge and disseminators of carefully refereed information. The timing was all wrong for Fed defenders though, because the other side just kept whispering . . . A-P-H-I-S . . . it wasn't even a contest.

At the other end of the table somebody said something about the suppliers of bees, and bee things. It wasn't so much an argument as it was a question. It didn't get answered though. It didn't need answering. If anything, this group tends to be the most dependant on the rest, thus the least likely to rock anyone's boat. In a word — safe.

One timid voice dared speak of some of the stronger state groups, and even a couple of the regional associations. The voice was ignored though, and the silence was deafening. Monarchies all, leaders none.

Then finally, the Fourth Estate. Being the center of attention is as uncomfortable as you've imagined. With essentially no supporters (I was still neutral, and wasn't about to change now), there was essentially no argument. Of the three — one political, one scientific, and one to enjoy — there are no leaders to speak of on any page.

The discussion, or argument if you will, had no winners and no losers. But it did resolve one thing, at least in my mind — there is no royalty. No recognized leaders can be counted on with confidence. A vacuum exists, and nature accepts it.

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The question is then, who will take command? Or a more basic query — why would anybody bother?

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COVER . . . Alsike Clover, once an abundant hay crop, has, like many of its clover cousins, been reduced to near extinction as far as a forage crop is concerned. It remains, however, a beautiful plant that produces excellent honey where abundant.

Photo by Charles Hofmann, Janesville, MN

NEXT MONTH

JULY — Usually hot, but maybe not, but always something to do. Harvest time is on the top of the list, and separating bees from their honey is always [Circle one: Scary, challenging, just plain hard work, the best of all beekeeping].

We have 2 great removal articles next month to help you heal those harvest headaches and make this summer job the best of all beekeeping.

One of these is a profile of a fantastic family operation right here in Ohio. And, when you sample a bit of 'Tonn's Honey', you'll have a taste of a well run operation.

'Robbing Bees', though somewhat ancient in image, is the act we all get caught at annually. This picturesque story shows all — about robbing bees — and removing honey.

If you've ever been to one of the larger meetings in the U. S. or another country, you have no doubt seen the display produced by the B. J. Sherriff Company. Creators of coveralls of all designs, Brian and Pat Sherriff are rapidly becoming English institutions in American beekeeping. Next month — an autobiographical exposé of another of England's contributions to the U. S.

July — lot's to do — but even more to enjoy, between picnics and fireworks, meeting and such, *Bee Culture*!Δ

MAILBOX

Slatted Rack Saves Comb, Bees

In your attempt to provide articles of interest to all beekeepers — beginning hobbyist to the most experienced commercial operators alike — you sometimes publish conflicting opinions. In the April '89 issue of *Gleanings*, "Koover's Korner" relates to the advantages of extra space under the brood chamber which can be provided by installing Killion bottom boards or slatted racks. On the other hand, "The Bee Specialist" advises steering clear of slatted racks.

My interest in slatted racks began many years ago. I had always been disappointed at the way bees tend to round off the lower edges of the bottom combs. Since using slatted racks I have never had this problem.

However, the primary reason I bought them was to prevent the bees from clustering out on hot summer evenings. We have what is called the "monsoon season" here. During this time we experience violent late afternoon or early evening thunderstorms with an accompanying deluge of rain. These last but a few minutes; but the bees which are clustered out are often swept away and the following morning there are piles of drowned bees in front of the hives. The additional space provided by the slatted racks permits most of the bees to get in out of the weather.

From my own experience, slatted racks are a benefit. However, if I were a commercial operator, I would no doubt forego buying them because of the additional cost.

Demorest B. Howard
McNeal, AZ

Forest, Pollination, Draw Comment

Diana Sammataro's article *May the Forest Be With You* certainly deserves more than a casual glance. I have read and reread it several times. I have made a copy for my friend, The Honorable Manuel Lujan, the newly appointed Secretary of Interior. As you know, his agency controls a great percent of our public lands. A sister agency, the Forest Service, USDA, is another bureau that manages additional public lands. I am pleased that someone has discussed the honey bee's role in the forest ecosystem.

Full recognition of the honey bee's role in our everyday life is in the future (10 to 100 years?). However, I regret that this awareness will come too late for nitwits like Conte and Jesse Helms. Conte pushes "Ducks Unlimited", but fails to note the value of pollinators.

The Cornell project (Pollination Parameters, March '89) is an ambitious piece of work, but I am concerned about the microscopic attention it will receive in the "ivory-towered" halls of Congress and the mind-setters in the Administration. Making copies of the research to congressional offices without any strong push will net very little. It seems strange to me that most silent majority beekeepers feel that quoting an expert should net immediate attention. Extension people tell me that a point needs to be repeated *7 times* before any sound degree of comprehension is realized. I have doubts that we will be any more successful in telling the pollination story this year than we have in the past.

Glenn Gibson
Minco, OK

Insurance Request

Is there an insurance company which sells a product liability policy that makes economic sense for a hobby beekeeper who only sells two to three hundred pounds of honey a year? Any that I have contacted charge a premium that exceeds my gross dollar sales!

Even though I use no medications

MAILBOX

on my bees, am scrupulously careful in packaging my honey, and have been inspected (at my request) and licensed by our state's Dept. of Agriculture, I'm apprehensive about selling honey without liability coverage. In our litigious society one never knows when a rip-off artist will claim a personal injury from ingesting some foreign object or substance allegedly found in the honey.

Am I being overly cautious? What has been the history of product liability suits against small, non-commercial honey producers?

James L. Tabor
Naples, ME 04055

Drone Traps

I was sorry to see that "The Bee Specialist" would like to get drone traps outlawed (pg. 212). G. P. Beyleveld considered them absolutely indispensable for trapping drones in undesirable colonies during the mating of queens. His elegant improved design was published in *Farming in South Africa* March 1938.

We started such selective trapping 25 years ago and now have colonies adapted to the marginal conditions of our apiary in the helderbergs (1500 ft.) and suited to our management style. Our drones dominate the mating of neighboring virgins because we permit our colonies to produce drones freely (6-10%) and saturate the area.

Although our nectar flows are slow and drawn out, we do not use queen excluders. The queens move down as the supers fill with honey, and gradually reduce their egg laying in the fall without monitoring comb space. It would be frustrating to have bees with the propensity of adding to the U.S. honey surplus in the best nectar areas, but in a marginal area needing constant attention to prevent swarming or starvation. We have selected for bees responsive to the vagaries of the local nectar and pollen supply.

Toge Johansson
East Berne, NY

Keep On Truckin'

It has started already. Migrators from the south are attempting to take local pollination contracts from local

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Reader Assistance

• *Gleanings in Bee Culture* is available on microfilm from: University Microfilms, Inc., 300 N. Zeeb Rd., Ann Arbor, MI 48103. Second Class Postage Paid at Medina, OH and additional offices.

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• We encourage letters to the editor on any subject whether appearing in the magazine or not. Direct your letters to: Editor, P. O. Box 706, Medina, OH 44258. We reserve the right to edit letters for content and length, but will avoid this if possible.

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MAILBOX

beekeepers. States with tracheal mite quarantines may have an edge though, since many migratory operations are rife with this internal mite.

A tip to migrators moving through — know the local laws *before* entering a state. It's not that we don't want migrators, we just don't want the critters they come with!

When, and if, we become contaminated, this may change — until then we must practice self-defense.

Norm Farmer
Bristol, CT

Wooden Wit

I found Elbert Jaycox's April column on equipment catalogs to be right on the money with regard to the caution that must be taken in reading descriptions of woodenware. I have always been intrigued by the advertisements from suppliers such as Brushy Mountain, Dadant, and Kelley for hive bodies with *dovetailed* corners. These ads are accompanied by pictures of a hive assembled with *finger/box joints*.

One must suppose that this inconsistency can be explained by the fact that the "standard" beekeeping enthusiast is quite a prankster. But why limit the humor to hive bodies? A supplier could, for instance, refer to a dado frame rest or bottom boards utilizing mortise and tenon construction. A related problem is that this humor needs to be "standardized". Some manufacturers, such as Root and Strauser, do not describe the corner joints of their hive bodies and Betterbee even has the audacity to *correctly* refer to box joints. Hasn't anyone let them in on the joke?

When I first started keeping bees, I could never understand why some manufacturers called a box joint a dovetail joint. I knew from my woodworking experience that while a dovetail is thought to be more decorative it is actually not as strong as a box joint. With time and involvement I now understand that supplier catalogs must be read with more than a little dose of "standard" beekeepers wit.

Bill Paris
Cleburne, TX

JUNE Honey Report

June 1, 1989

These figures represent current prices from our contributors. They are based on reports from many states and averaged for each region. Where insufficient information is received, no price is shown.

Wholesale Extracted	Reporting Regions								Summary		
Sales of extracted, unprocessed honey to Packers, F.O.B. Producer. Containers Exchanged	1	2	3	4	5	6	7	8	R	A	L
60 lbs. (per can) White	44.50	39.41	24.17	28.50	36.78	35.00	38.63	39.10	24.00-45.00	36.87	38.19
60 lbs. (per can) Amber	42.00	33.89	29.90	25.80	33.00	32.13	36.00	36.00	21.60-42.00	33.70	35.27
55 gal. drum/lb. White	.51	.32	.41	.40	.40	.59	.57	.53	.32-.62	.50	.55
55 gal. drum/lb. Amber	.47	.30	.37	.36	.36	.53	.52	.48	.30-.56	.46	.48
Case lots — Wholesale											
1 lb. jar (case of 24)	28.55	27.20	25.52	25.46	23.52	23.75	26.25	29.70	22.80-35.04	26.63	26.06
2 lb. jar (case of 12)	27.15	26.05	25.50	22.75	22.20	25.25	28.33	27.91	21.00-33.00	25.89	25.56
5 lb. jar (case of 6)	30.45	26.12	23.47	25.74	25.25	26.00	26.15	25.80	23.04-30.90	26.28	25.31
Retail Honey Prices											
1/2 lb.	.92	.95	.84	.93	.83	.88	.92	.95	.79-1.00	.91	1.00
12 oz. Squeeze Bottle	1.50	1.47	1.34	1.42	1.13	1.09	1.15	1.50	1.01-1.89	1.34	1.34
1 lb.	1.57	1.58	1.47	1.84	1.36	1.55	1.54	1.54	1.25-1.99	1.56	1.73
2 lb.	2.82	2.84	2.38	3.20	2.52	2.57	2.57	2.60	1.97-4.00	2.74	2.94
2-1/2 lb.	3.50	3.89	2.89	3.35	3.49	3.20	3.71	—	3.10-4.85	3.53	3.87
3 lb.	4.17	3.93	3.49	3.35	3.89	3.62	3.51	3.82	3.09-4.20	3.74	3.81
4 lb.	5.20	4.85	3.99	4.56	4.79	4.40	4.68	4.59	3.99-5.20	4.65	5.14
5 lb.	6.53	5.67	6.01	6.68	6.18	5.43	5.38	5.99	4.59-7.00	5.88	5.98
1 lb. Creamed	2.00	1.25	1.35	1.59	1.62	1.63	1.64	1.75	1.00-2.00	1.63	1.59
1 lb. Comb	2.73	1.93	2.47	2.39	2.98	1.90	2.60	2.25	1.70-3.00	2.67	2.45
Round Plastic Comb	2.00	2.49	2.00	1.89	1.79	1.83	1.92	1.85	1.75-2.49	1.97	2.12
Beeswax (Light)	1.13	1.03	1.00	1.00	1.00	.90	.97	1.05	.85-1.25	1.00	.99
Beeswax (Dark)	1.03	.94	.91	.90	.90	.81	.87	.95	.69-1.15	.91	.89
Pollination (Avg/Col)	30.00	16.50	21.00	26.00	—	20.00	28.50	23.25	16.50-30.00	24.34	24.36

Honey Report *Features*

Summary Column: There are 3 parts. **R** — Range of *all* prices reported for the month, lowest and highest. **A** — Average price for each commodity across all regions. **L** — Average price of each commodity listed *last* month.

Comments Section. Price Index — A descriptive statistic that takes into consideration *all* commodity prices, and compares each region to the others. The region with 1.00 has the highest overall prices for the month. A region with Price Index .90 has prices, overall, at 90% those of the region with 1.00.

Region 1.

Price Index 1.00. Prices steady to increasing a bit, and sales strong. Outlook good for continued strong sales if exposure continues. Bees in good shape from mild winter and recent rains promise strong summer flows.

Region 2.

Price Index .80. Sales steady and prices average for this time of year. Specialty crops taking up much smaller share of the market. Spring build-up generally strong and some early harvesting already taking place. Swarming about normal.

Region 3.

Price Index .76. Prices dropping and sales slowing as season warms. Bees seem in fairly good shape with early flows appearing near normal. Varroa still causing much concern and some problems. Orange crop not good this year.

Region 4.

Price Index .78. Sales and prices steady but not frantic. Pollination fees increasing a bit this year. Varroa causing problems but population strong and beekeepers optimistic about crop.

Region 5.

Price Index .83. Sales and prices steady but not increasing. Spring build-up steady, but some areas still experiencing drought-like conditions. Outlook good but caution is in the wind.

Region 6.

Price Index .83. Sales steady to slowing some but prices moving up a bit. Spring build-up normal and outlook for early crops promising. Swarming normal to a bit less but be careful.

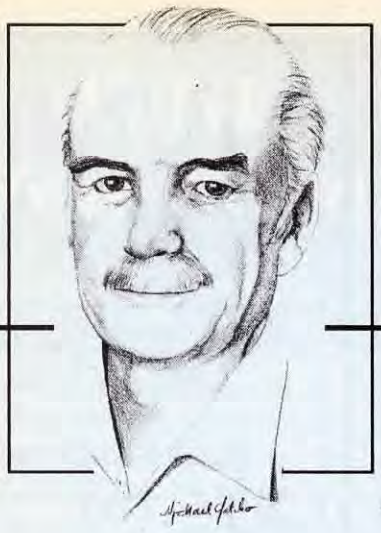
Region 7.

Price Index .90. Sales steady to slowing just a bit but prices inching upwards — a good sign. Some areas have had delayed crops because of cool, wet weather, but accompanying moisture welcome. Other areas a bit early to normal with good build-up.

Region 8.

Price Index .90. Sales steady but prices increasing just a little. Far north areas deluged with rain and cold, delaying early blooms. Mid-north areas affected but not as much. N. CA having excellent conditions, finally, after rains relieved drought conditions. S. CA areas have average to bad crops because of heat and drought.

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



THE BEE SPECIALIST

ELBERT R. JAYCOX

5775 Jornada Road North • Las Cruces, NM 88001

"We need bees resistant to mites and diseases, NOT more pesticides."

In case you haven't noticed, there are internal problems plaguing the beekeeping industry and they seem to be getting worse rather than better. We have two national organizations, the result of a split many years ago over differences in outlook between honey producers and the rest of the groups in the industry, including honey packers, dealers, queen breeders, etc. Some recent attempts to get the two groups together were of great value, but shots can still be heard from both sides.

A new and equally serious breakdown in beekeepers' relations can be seen in the split between interstate migratory beekeepers and non-migratory beekeepers or, at least, *in-state* beekeepers. It is almost a case of the white hats against the black hats, with migratory beekeepers being looked upon as outlaws and renegades while performing vital pollination service and attempting also to make some honey at one or both ends of their long journeys. Both groups have the same problems with pesticide losses, diseases, mite pests, loss of bee pasture, regulations, and drought. Yet only the migrators are usually looked upon as trouble makers. Also, they are assessed high fees for inspection for varroa mites while in-state beekeepers generally do not have such expense.

Unfortunately, there are a few beekeepers in each group that play fast and loose with the conventions of beekeeping. Migrators sometimes drop loads of bees on top of, or in sight of, established apiaries. And I'll always remember the in-state beekeeper who was known to put out his wet supers close to a competitor's apiary and, when they were full of bees, to put on lids and take them away. It didn't help any that he had more than his share of American foulbrood disease.

We are not alone in having these problems. Dr. Harry Riches has discussed similar problems in Great Britain. In the *1988 Yearbook* of the Hampshire Beekeepers' Association, he noted that the several British associations will likely not become unified in his lifetime. Dr. Riches believes, as I do, that we need strong, unified representation for beekeepers' interests to the government, the agrochemical industry, conservation groups and others. This takes a competent staff and adequate funding. It also takes member backing of the organization; at present, both of our national groups are suffering from lack of members and funds, and the heavy load of supporting the industry is falling on too few devoted beekeepers. Dr. Riches quoted a colleague who said, ". . . if you ask a beekeeper to put his hand into his pocket for money, all he does is put his hand in and hangs onto every penny he's got".

Fruit growers in the United States are already having the problems that beekeeping is fast approaching: consumer reactions to a perceived safety threat from American fruit and fruit products. The Alar (daminozide) accusations are just the beginning, and honey may be next. In the March, 1989 *Fruit Grower*, Laurie Moses says that fruit growers, too, must get involved in communicating with all sides in the food safety issue. The fruit growers, however, have a somewhat different problem with pesticides; they must maintain their use to stay in a profit-making business while also convincing people that the end product, their fruit, is not contaminated to an unsafe degree. They do not have the alternatives available to beekeepers.

Some beekeepers are misusing pesticides in their hives while they and others are also being forced to use a compound unapproved by the EPA (10% Apistan strips) for which we have no useful residue data (as of April, 1989). When the honey hits the fan, it will contain measurable and unallowable residues of amitraz, fluvalinate, menthol, and perhaps others including malathion, coumaphos, bromopropylate, and sulfathiazole.

Richard Wiles of the National Research Council has suggested that the food safety issue results from a loss of credibility in the eyes of consumers. In the case of fruit growers, he says they must tell consumers exactly what is being applied to the produce, when, and how much. How do you think that should play in the case of honey, the *pure* food we all revere? It won't help us to say that the risk of smoking cigarettes is greater than that from the pesticides in our honey. Nor will it help to say honey in other countries is more contaminated than ours.

Consumer activist groups will probably become more active and more vocal, not less. Hobbyist and commercial beekeepers better unite, pay their fair share, and be prepared to face up to

such people when it becomes clear to consumers just what is happening in the production of honey. People will feel sorry for us when they hear about our mite problems; they will *not* feel any sorrow when many of them reject honey as they have rejected apples and apple juice. Only five percent of apple trees were treated recently with Alar. What percent of our colonies are being subjected to Apistan and other treatments?

When you join your state and national beekeeping organizations, work with the other members to remedy some of these problems as quickly as possible. We need mite-resistant bees, not more pesticides in bee hives. If the losses of bees experienced by beekeepers over the winter of 88/89 were actually caused by tracheal mites, they point out how easily we could remedy the situation by bringing in bees or bee semen from Europe. Dr. Leslie Bailey of the Rothamsted Experimental Station in England probably underestimated both the resistance of English bees and the susceptibility of U. S. strains to tracheal mites. In Switzerland, research with tracheal mites at the federal beekeeping laboratory in Liebefeld demonstrated ". . . that even strong acarine infestations in autumn, winter or spring cannot destroy the colonies". In this 1987 report, they emphasized the rapid changes in mite populations and the need to take at least 58 or, preferably, 89 bees per colony to evaluate the infestations properly. Their conclusions: "Unfortunately, the same errors as in acarine disease control are now made in varroa infestation control".

We need a national research committee backed by a large membership of beekeepers, to tell the research service of the U. S. Department of Agriculture and the various state researchers exactly where we want to go, and how, to control mites and reduce pesticide usage in honey bee colonies. Along the same line, we need to tell them we don't want such things as poisoned syrup used to kill African bees but, instead, to integrate the bees into our stock to gain resistance to varroa mites and to reduce pesticide usage. We seem posed to make the same errors (killing bees, etc.) for the third time!

Canada is implementing a bee breeding program to develop mite-resistant stock based on imported eggs or larvae and semen from several European locations. New Zealand has recently imported semen from 12 families of Italian bees in Western Australia. With appropriate precautions, we can, and must, do the same.

The research committee of the International Apple Institute picked as its highest, long-term priority ". . . research that will result in reduction of pesticides". The committee opted also for reduced chemical treatments after harvest. Their approach also recognizes increased consumer concerns about ground water contamination, farm worker safety, and pesticide threats to endangered species. Such concern will be more likely to gain research support than just the needs of the growers. Beekeepers should consider a similar approach to the degree that it is appropriate.

Let's work together or we may soon be up to our beekeeping belt buckles in honey no one wants to buy.Δ

RESEARCH REVIEW

DR. ROGER A. MORSE

Cornell University • Ithaca, NY 14853

"The ABC's of Pesticide Regulations."

Increasingly, the American beekeeping industry is using more pesticides and drugs, primarily because of 3 diseases new in the U.S. in the past 17 years. I thought it might be well to write about some of the rules and regulations governing the registration, labeling and use of pesticides and drugs.

The use of control agents to guard our own health, as well as that of the plants and animals we husband, is not new. We have been using pesticides and drugs for hundreds of years. What is new is that we are learning the importance of using these products in the right quantity and safely. In this vein there is very definitely a move to manufacture insecticides that closely resemble natural insecticides. Fluvalinate, the active ingredient in the Apistan strip used to control varroa mites, is such a material. It is patterned after the pyrethrins that humans have been using as insecticides for at least 300 years. Natural pyrethrins are found in the flower petals of certain chrysanthemums. Pyrethrins are selective insecticides, and have a low toxicity to humans and other mammals.

The development and manufacture of pesticides and drugs is, for the most part, in the hands of private industry. However, scientists at federal laboratories and state colleges undertake investigations into the mechanisms of toxicity, trying to find out why certain toxicants act as they do. They are concerned with how chemicals affect the physiology of target organisms (pests) and non-target ones. Recommendations for the use of specific pesticides on specific crops or animals come, for the most part, from the state colleges. They are concerned with which chemicals are most effective under conditions in that state and what dosage should be used.

There are two laws that govern the registration and use of pesticides and drugs in the U.S.; the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and the Federal Food, Drug and Cosmetic Act (FFDCA). FIFRA was first enacted in 1947 by Congress and has been amended periodically since then. FFDCA, passed in 1938, has also been amended several times. In 1962, Congress amended FFDCA to require that the Food and Drug Administration approve new drugs for effectiveness (efficacy) as well as safety.

In 1970, Congress created the Environmental Protection Agency (EPA). EPA is responsible, under FIFRA, for registering pesticides and, under FFDCA, for setting residue tolerances, while FDA does the same for drugs. The U. S. Department of Agriculture (USDA) and the Food and Drug Administration (FDA) both conduct and enforce monitoring and surveillance programs.

In addition to legislation and monitoring by the federal government, the states also pass judgment on the use of pesticides and drugs within their borders. States may set standards that are **stiffer** than those put forth by the federal government but they **may not relax** the federal legislation.

There are several sources of information for persons who wish to learn more about pesticides and their use. These include the EPA Public Information Center (Pm-212), 401 M Street, S.W., Washington, D.C. 20460; the National Telecommunication Network (1-800-858-7378); and the National Pesticide Information Retrieval System (NPIRS). The latter may be accessed through county agricultural extension agents, state and federal regulatory agencies, land grant colleges and other organizations that work with pesticides.

Basic Rules

It is important to cite some basic rules concerning the use of pesticides. For example: under FIFRA one may use a pesticide only as indicated on the label. A material that is approved for use on one plant or pest cannot be used for the treatment of another unless the other plant or pest is explicitly named on the label. For example: if an insecticide label states that it is for use on corn to control a particular insect pest, it cannot be used on any other crop, or even against a different insect pest on corn. This rule is very clear, but unfor-

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Research . . . Cont. from Page 326

tunately is sometimes violated. Pesticides must be used at the rate indicated on the label. There are also legal requirements for storing pesticides and for disposing of unused portions and empty containers.

The following are beekeeping-related chemicals and drugs which have been registered and approved for use in the U.S. at one time or another:

- **Repellents** for removing honey and driving bees: benzaldehyde and butryic anhydride (there are two formulations of butryic anhydride, one perfumed and one not, sold under the trade names *Honey Robber* and *Bee-Go*, respectively).
- **Drug** for the control of American and European foulbrood: oxytetracycline (sold under the trade name *Terramycin*).
- **Drug** for the control of nosema: fumagillin (sold under the trade name *Fumidil-B*).
- **Miticide** for the control of varroa mites: fluvalinate (sold under the trade name *Apistan* {subject to restrictions}) formulated three ways — for use in colonies, packages of bees, and queens in individual cages.
- **Fumigant** for the control of tracheal mites: menthol (sold as a natural crystal and a synthetic pellet).
- **Fumigant** for the control of insects that may infest stored comb: paradichlorobenzene (PDB) (sold under a variety of trade names for moth control).
- **Insecticide** to kill bees, wasps and hornets in their nests: resmethrin (sold under a variety of trade names usually as an aerosol spray).
- **Bacteria** to kill wax moths larva; *Bacillus thuringiensis* (sold under the trade name *Certan*).

There are some pesticides and drugs that were used several years ago for various purposes in beekeeping operations that are no longer approved for use. These include cyanide (to protect stored combs), sulfathiazole (to control American foulbrood) and carbolic acid (a bee repellent for harvesting honey and other purposes). Several other products are under examination and/or are being registered to aid in the control of tracheal and varroa mites. Changes in the area of pest control are taking place rapidly.Δ

Backyard Breeding

STEVE TABER of Honey Bee Genetics

P. O. Box 1672 • Vacaville, CA 95688

You can reduce, even eliminate, AFB and chalkbrood in YOUR hives. Here's how!"

There has been little interest in either the genetics of resistance, or in using available information to produce bees resistant to diseases. This should change though, because several diseases and parasitic infestations do not have approved chemical controls.

Genetic resistance can take many forms, including removal and cleansing behaviors by adult bees (protection), variation in development time of brood in sealed cells (isolation), and resistance of the larvae to the pathogen (physical). Adults of *Apis cerana* are aggressive groomers and remove *Varroa jacobsoni* from adults. Meanwhile, the development time of sealed brood is shorter than *mellifera* which prevents the build up of mite populations. *A. mellifera* also shows a range of grooming behaviors to remove mites and in their length-of-development time. Genetic resistance to American foulbrood, a disease caused by *Bacillus larvae*, was demonstrated over 50 years ago and is brought about primarily by adult bees which maintained a hygienic brood nest.

It has been said there is resistance to *Acarapis woodi* and *Nosema apis*, but no data exist to support these statements that I am aware of. However, I expect genetic resistance exists that only waits to be discovered. Nosema is particularly troublesome because the treatment drug has been found in honey, and now several countries have outlawed its use. Heavy infections of nosema in the spring prevent normal colony development and cause early queen supersedure — both good reasons to develop resistant stock.

With the increased use of artificial insemination (AI), it is surprising that so little has been discovered about resistance. But some things have been discovered, and I'd like to talk about work to breed bees resistant to American foulbrood (AFB) and chalkbrood (CB).

AFB Resistance Tests

Queens mate with many drones, some of which are resistant, and some of which are not. A test to identify bees as resistant to AFB is easy, and does not require genetic skill.

Place pieces of sealed brood comb, about 16 to 25 square centimeters each, in a freezer at -15°C for 24 hours to kill the brood. Place this piece of dead comb in a brood nest, replacing a like size piece of live sealed brood. Use this sample of live comb for the next day's test. Conduct a minimum of 10 tests (colonies) and examine the samples at 24, 48 and 72 hours. Workers from a queen inseminated with the sperm from only one drone must uncap, and remove, all dead brood within 24 hours to consider that queen a disease resistant *breeder*. Workers from a naturally mated queen should uncap, and remove, all dead brood within 48 hours to consider the queen a *breeder*. My experience is that about 1 in 20 colonies headed by naturally mated queens will uncap and remove dead brood in 48 hours or less. Use these colonies to produce virgin queens and drones for the next generation of bees which are tested exactly the same.

This test does not introduce disease organisms into the hive. If you want to test a colony's effectiveness against the disease, introduce small samples of comb with diseased larvae exactly as before. Colonies that remove diseased larvae in 24 hours or less will rarely show disease symptoms. Colonies that take 48 hours will usually have one to three cells of AFB any time the colony is inspected. If it takes five to seven days to remove the dead brood, the brood, along with the colony, die from the disease unless promptly treated with oxytetracycline.

Chalkbrood Resistance Tests

Larvae that have been killed by the chalkbrood (CB) fungus become either black or white mummies, depending on the amount of spore cysts present. If you are going to test, let's say, 30 units, collect 15 white and 15 black CB killed larvae. First, homogenize them, filter out the chunks and add what's left to a pollen paste made of approximately equal parts of sugar and pollen kneaded

with sufficient water so that the mixture sticks together. Don't add too much water because the mixture will drip between the frames and kill brood and bees. Small amounts of a drying material can be added to the mixture to prevent this. I use beer-brewing yeast. Place the pollen-sugar-CB mixture on the top bars immediately above the brood nest.

To measure resistance, remove one brood comb from the center of the brood nest and count all CB-killed larvae. Do this 5, 10 and 15 days after feeding the mixture. Colonies that have five or more CB-killed larvae should not be considered for a breeding program. The test is repeated a second time at least 20 days after the first test was started. The second test is made because you want to ensure that queens used as breeders are indeed resistant to the CB fungus.

Do not examine the brood nest before the test to see if any CB is present because this test will separate resistant from susceptible queens, and no CB-killed larvae will be in the brood nest of colonies headed by resistant queens.

I count CB-killed larvae in one brood comb only because I keep most test units in small, 3-comb colonies (nucs) that are uniform in size after the queen has been laying in them for 2 or more months. In these small units the queen moves all over the 3 combs. She keeps each cell filled, keeping larava to a minimum uniformity, unlike most larger colonies. Almost always the center comb in these 3 frame units contains brood of all ages which makes it suitable to use as the test comb. There are two other reasons why I use this test procedure: (1) it is fast — I can examine 50 nucs in two hours, and (2) if these nucs do happen to be much different in brood area and adult population, counting only one comb equalizes results.Δ

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PROVINCIAL POLLINATION

KIMBERLY BURNHAM

Canada, too, suffers occasional pollination myopia

Canada's Provinces

In Canada, crops pollinated by honey bees are valued at 1.2 billion Canadian dollars (roughly $1 billion U.S.) or 20 times the value of all the honey, beeswax and other products associated with beekeeping, which amount to about $60 million*, according to Dr. Cynthia Scott-Dupree, associate Professor Environmental Biology at the University of Guelph in Ontario. Although this figure is relatively small compared to the value of U.S. crops pollinated by honey bees, Scott-Dupree noted, "a grower can observe excellent horticultural practices — but without pollination there will be no crop."

Pollination will not improve production in a poorly managed crop but with proper care, the use of honey bees will result in rapid pollination and a uniform set, said Scott-Dupree. As well as hybrid vigor, or heterosis, in the crop, which usually increases yield and produces larger, more symmetrical fruit.

Primarily self-sufficient in honey bees, most Ontario beekeepers overwinter their bees, according to David VanderDussen. A commercial beekeeper, VanderDussen has been raising his own queens since 1983, several years before the U.S. - Canada border closing. In British Columbia, Quebec and the Maritime provinces, honey bees are traditionally overwintered and peak for early spring blossoming crops. The Prairie provinces of Alberta and Saskatchewan, where averages of 200 pounds of honey per colony are common, have been hardest hit by the border closure and are gradually shifting towards self-sufficiency, added VanderDussen. He noted that Western beekeepers are buying Ontario honey bees to replace those traditionally gassed-off in the winter.

Ontario

A director of the Ontario Beekeepers' Association (OBA), Dave MacMillan, estimated that without honey bee pollination of 14 major crops, Ontario growers would lose $51 million. Ontario Ministry of Agriculture and Food (OMAF) figures for 1987 indicate that the farm gate value of Ontario's apple crop was $43,060,900. According to OMAF estimates, honey bee contribution to apple pollination is 75% or in Ontario $32,295,000. With a canola crop valued at $5,980,000 and honey bee contribution estimated at 50%, the value of honey bee pollination for Ontario grown canola is $2,990,000.

On other Ontario crops, honey bee contribution is valued at $461,200 or 25% of blueberries; $9,301,000 or 50% of peaches; $1,428,950 or 50% of field cucumbers; and $3,298,500 or 50% of processing cucumbers. There are, of course, regional disparities, dependent on the presence of native bees, the size of the cultivated crop block and blossom period weather conditions.

**All values are in Canadian dollars.*

Among the many reasons modern agriculture has come to depend on honey bees, Scott-Dupree included their suitability to propagation and overwintering, economic feasibility, mobility, fidelity to a plant species, physical characteristics and, of course, knowledgeable beekeepers.

This, and much other information came at a "Pollination and Bees" seminar held at the 15th Annual Ontario Horticultural Crops Conference in Toronto.

Dr. Peter G. Kevan, professor of Environmental Biology at the University of Guelph feels that the future of pollination looks somewhat bleak for Canadian agriculture, especially if the challenges facing the beekeeping industry aren't seriously considered by researchers, beekeepers and growers. Among these are mite diseases and a decline in the number of beekeepers due to increases in time, labor, chemicals and money it takes to keep colonies healthy, coupled with low honey prices worldwide.

Ontario beekeepers average 90 pounds of honey per hive and get about $ .40 per pound wholesale, and $26 for 12 - 1 kilo (2.2 lb.) containers retail, noted John Overton, Schomberg area beekeeper. Hives rented out for pollination services go for between $15 and $40.

On the other hand, there isn't anything more important to the apple industry than dealing with a reputable beekeeper, according to grower Gary Cooper. Apple producers should arrange to have colonies placed in the orchard a little bit early to ensure king blossom pollination, which produces the most valuable fruit. If there is a placement delay the time lost can never be made up, said Rodger Congdon, who has 1,200 colonies and puts about 800 of them into fruit orchards. He noted that bees will come off dandelions and go to king blossoms if they are in the apple orchards a little early. Like many commercial beekeepers in Ontario, Congdon sometimes moves his hives 200 miles into fruit growing areas in May, then into prime foraging areas in central and northern Ontario. He overwinters his bees in western Ontario.

One of Congdon's clients, John MacWiggins, who has 150 acres of fruits and vegetables, suggested that growers remember bees are living entities. They need to consider wind breaks and clean water. Although the demand has not yet outstripped the supply of bees in Ontario, the time will come when growers will have to give beekeepers at least 2 days notice and help in moving the hives, predicted Georgian Bay fruit grower, Peter Hartman.

Beekeepers need to be more aggressive and more positive in selling their services, said David VanderDussen, noting that east of Toronto, many produce growers are still not using pollination services, yet the area grows 25% of Ontario's apples. By bringing in extra honey bees, apple growers can get 2 times the average crop despite an early freeze and as much as 6 times the average crop in a good year, explained VanderDussen, who has 250 to 300 hives strong enough for spring pollination services.

One way to develop a good rapport with growers is through involvement with fruit growers associations, said Graham Roberts, a northern Ontario beekeeper who observed that most of the Ontario beekeepers just have verbal contracts at present.

Paying less money and working with hobby beekeepers may work out fine, but Gary Cooper feels that growers paying $15 per hive may be getting shafted, while those paying $36 a hive are getting a bargain. All hives are not equal, said Cooper, who uses about 120 hives on his 100 acre apple and strawberry operation.

Quebec

Ontario and Quebec cater primarily to the fresh strawberry market and need large, good quality, visually appealing berries. This requires efficient pollination and effective pest control. If growers take both a threshold and phenological approach to pesticide spraying, they should be able to minimize losses and maximize yields, according to Dr. Charles Vincent with Agriculture Canada in Quebec.

Strawberries can be self-pollinated, said Vincent, quoting a study done in Quebec that estimated that 60% of insect visits to strawberry flowers were made by honey bees whose body size and behavior are ideal for strawberry pollination. Some insects are too small to do a good job, others are almost bald or are nectar robbers and don't touch both the male and female flower parts.

Foraging honey bees are affected directly by pesticides and pesticide bioaccumulation can lead to high mortality rates in the hive, said Vincent. Pesticides also cause irritation to bees visiting blossoms, thus decreasing the number and length of visits. Growers who use pesticides while honey bees are foraging also hurt themselves because reduced pollination decreases the ultimate size of a strawberry.

From left to right: David VanderDussen, Paul Montoux, and Dave MacMillan. Burnham photo.

Recommending an average of 1 hive with at least 10,000 bees for every 2.5 acres, Vincent noted several studies showing that the number of hives needed for strawberries depends on the type of cultivar. The Elvira cultivar, for example, was seen to be 3 times more attractive to bees than Catskill, the least visited cultivar.

Nova Scotia

Bumblebees are the best pollinators for blueberries but it is difficult to attract or control them, so Nova Scotia growers depend on honey bees, said Endel Karmo, retired N.S. Provincial Apiarist. He recommended one pollinator per square meter during the 1 to 3 week blueberry pollination period and noted that cross pollination is a must.

Nova Scotia's blueberry industry has steadily increased to 22.4 million pounds of blueberries from the 13,000 acres harvested in 1988, up from 2 million pounds in 1952, said Karmo. One of the biggest growers uses 1,200 hives of bees. By rotating and concentrating 4 or 5 colonies per acre during the bloom period, the blueberry grower is getting well over 50% fruit set.

N.S. has about 1,000 blueberry growers, only a quarter of whom are bringing in bees, or "buying crop insurance", said Karmo. About 50% of Nova Scotia's 2,500 to 3,000 colonies are rented for pollination, he added, stressing the need for education among growers and beekeepers. He noted that in this small Eastern province the demand for bees has already exceeded the supply. Berry growers should get a contract for the number of colonies they want at a set price, said Karmo, who has had problems with packaged bees in the past, which have been promised, then delayed or undelivered. A two pound package of New Zealand bees costs about $57 in N.S. He also noted that beekeepers are getting only 60 pounds of honey per colony and that the cost of maintaining a hive is higher than in Western Canada.

Karmo has 22 acres which produced 47 tons of blueberries in 1988. Considering the farm gate price of $ .55 per pound that he gets for his berries, he feels the rental fee for 60 hives is negligible when considering the benefits and overall profit. One N.S. blueberry grower uses bees on a regular basis and produced 12 tons of berries on 3.5 acres, or about 4,500 pounds per acre last year. These statistics need to be considered when beekeepers meet grower resistance to paying $45 or $50 per hive, said Karmo, noting that the cost of renting colonies adds only about 2 cents per pound to blueberry production costs.

New Brunswick

The New Brunswick Apiarist since 1983, Bruce Palmer feels that a hive of bees during the blossom period is the cheapest insurance a grower can buy. However, only 20% to 30% of N.B. apple growers rent hives. Those that use bees see bigger, more uniform fruit on their trees, said Palmer.

Annually, N.B. blueberry growers receive between $5 and $6 million dollars for their crop. Berry growers without bees are producing about 600 pounds of blueberries per acre while those renting colonies during the peak blossom period are seeing returns of 1,500 to 2,500 pounds per acre, said Palmer. Despite these statistics, only about 50% of the growers are renting hives. The reason for this, continued Palmer is that they are looking at the $45 per hive they have to put out and not considering the minimal cost per pound, although in a bad year, virtually all of the growers are looking for bees. Relative demand for colonies is very good in N.B. with blueberry growers sometimes picking up and dropping off the hives themselves.

Honey bees are also used for squash and cucumber crops in N.B. Growers have told Palmer that they can grow more cucumbers on 1 acre with a hive of bees than on 5 acres without them.

Looking at rental costs, growers sometimes feel they are doing beekeepers a favor by providing them with forage, without considering the other expenses related to preparing colonies for pollination services. Palmer, who has 120 colonies, loses about 15% of his queens when moving them to blueberries. His poorer colonies are left at home and they often produce one super of honey more than the strong colonies that go into the blueberry fields.

British Columbia

In British Columbia, the approximate value of crops directly benefitting from bee pollination for fruit and seed production is $109,875,000 according to Cynthia Scott-Dupree. "The majority of B. C. apple growers in the fruit lands of the Okanagan Valley are well trained in relation to pollination. They realize that without honey bees they would be getting neither the yield or quality they needed," according to Scott-Dupree. She noted that growers weren't as knowledgeable 18 years ago when the Okanagan Valley Pollination Association started.

By moving each colony for an average of 2.5 sets per year, the 25 association members are getting $90 to $100 per colony. Even so, Okanagan Valley growers are finding there are still not enough colonies to meet their pollination needs, even though 20,000 colonies are moved each year. Beekeepers are most involved with apples, pears and cherries, although other B.C. crops benefit from pollination, including melons, blueberries, raspberries, cranberries, legumes, white spine cucumbers and squash.

Growers pay a standard fee of $46 when renting 4 or less units from association members, while those using more than 4 units pay $36 per unit. An association study showed that considering the colonies left at home, moving costs, the cost of preparing for spring pollination, overwintering the bees and other expenses — the minimum in B.C. that a beekeeper can charge and still break even is $30 per colony. The standard price encourages beekeepers to put energy into educating growers. It also gives some stability to the business. "If beekeepers in the Okanagan Valley didn't have pollination contracts to depend on from year to year, there wouldn't be any beekeepers because honey production in the valley is low," said Scott-Dupree.

Association members pay a yearly fee which helps pay for pamphlets explaining pollination services and benefits. The fees are also used to hire inspectors who inspect colonies for disease and adequate strength. The pollination unit of strength is set at 5-6 frames of brood in all stages of development, 10 frames of adults and two supers strapped, screened, and, like thousands of Canadian pollinators, ready to go.Δ

67 Years Keeping Bees Makes . . .

A Life of Honey

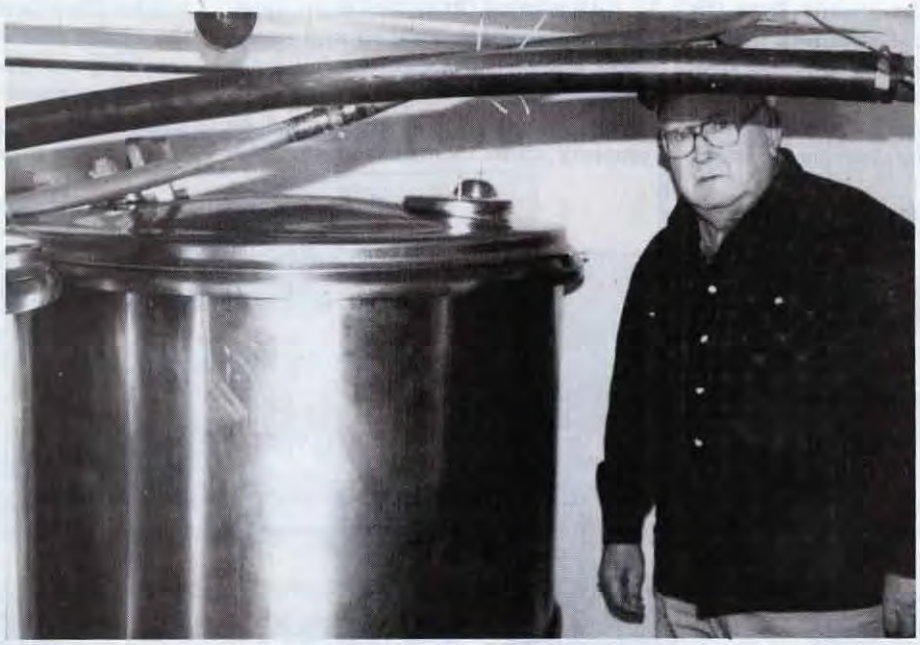
CURT WILLIAMS

In the small southern Ohio town of Minford, 79 year-old Carl Rase made preparations for the day's honey gathering. The silver-haired beekeeper assisted his two helpers loading empty supers filled with wet frames to replace the full ones they would bring home later in the day. Rase looked the sky over and frowned. "Cloudy days are bad for harvesting honey," he says. "The older bees are home and they get a little testy."

Rase's frown soon changed as he carried the veils and gloves to the cab of the truck. He grinned as he told of an incident years ago when the day was cloudy and a young helper made the mistake of yanking off his veil after a bee got inside. "Testy" bees had quickly put the helper on the run. After 67 years of beekeeping, Carl Rase has many such memories to share.

From boyhood to the present, Rase has concentrated most of his time in the business and study of beekeeping. As a teenager, he helped an uncle with his bees and honey. Then, in 1927, the lifelong Minford resident began formal studies by signing up for a correspondence course offered through Ohio State University by Dr. Winston Dunham. As his knowledge grew, so did his bee yards. Today, Rase manages 527 colonies with the help of Madalyn, his wife of 52 years, one full-time helper, and two part-time helpers.

When Rase first began his operation, honey was packed and sold to stores in the Portsmouth, Ohio area. Then a room was converted into a store, and sales began at home. While most of today's crop is sold in 55-gallon drums to a London, Ohio processor, they still maintain their home packing and sales.



One of two 150-gallon holding tanks located in Carl Rase's processing building.

"The retail strategies in honey have never been an emphasis," Rase says. "We don't advertise, yet we always run out of honey."

Rase sells to ten stores in his southern Ohio region and continues to operate the home store mainly for the steady customers and friends that have come to him for decades. "We have several people who have purchased honey from us for over 50 years," Rase noted.

When asked about managing the numerous colonies scattered over five surrounding counties, Rase related a tried and proven yearly routine that begins in March by checking and strengthening his hives. "My favorite method for strengthening a weak colony is to take two or three frames of bees from strong colonies and then shake them in with the weak ones." He added that nurse bees are accepted into weaker hives, which brings about the leveling of production and colony strength he is aiming for.

Rase spends March and April leveling the colonies' strength. By the time the first of July rolls around, he is ready to begin extraction. "We take honey off during the day and extract that night," Rase said. "This way we have wet, empty frames to put back the next day. The bees fill them more quickly this way."

Rase said the drought of 1988 cut down production to an average of 51 lbs. per hive and added that weather is always the big factor in a honey flow.

The extraction process that Rase follows takes place in the processing building just outside his kitchen door. The small, two-story building is built into a slight hill which enables Rase to back a truck load of filled frames right up to the doorway of the upper story

"We don't advertise, yet we always run out of honey."

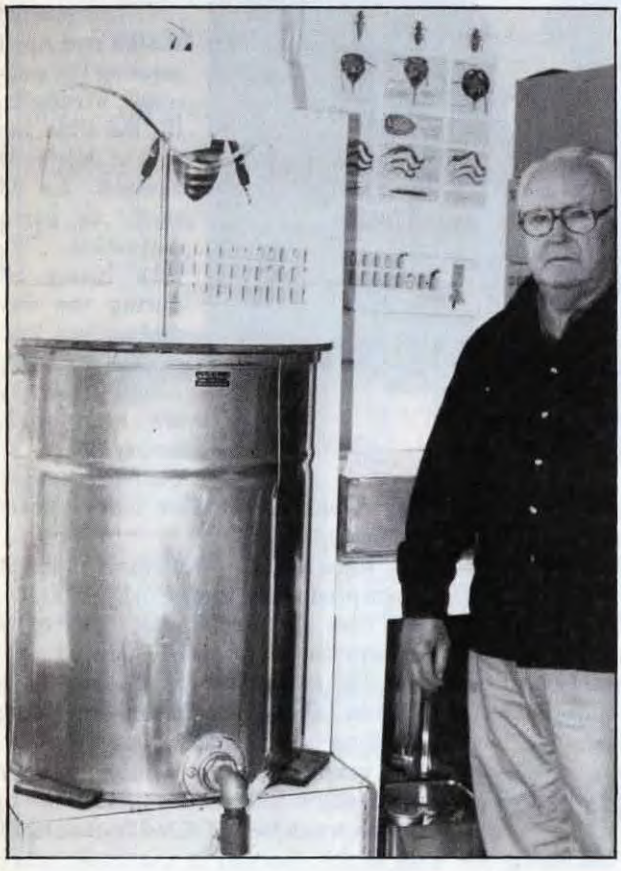
which houses the extractor. His radial extractor holds 50 frames and is quickly filled and put into operation.

Honey flows by gravity from the extractor through a straining system into the two, 150 gallon stainless steel tanks located in the basement. From the storage tanks, Rase pumps the honey into 55-gallon barrels for transporting, or pumps it out so it can be taken to the honey processing area located in the shop inside the house.

All totaled, Rase has eight small warehouses for processing and equipment storage. Three of the buildings are located close together near his home. The other five are located on property about two miles away. After extraction is over in October, Rase makes certain the colonies have plenty of honey stores to see them through the winter. Then he and his helpers spend the winter months in the warehouses repairing and cleaning equipment.

When asked what he enjoys most about the honey business Rase replied, "Being out in the open is one of the most

Carl stands beside the honey processor located in the Rase's home shop.



Carl demonstrates how an uncapping knife is used. Behind him is the 50 frame radial extractor used in his honey operation.

satisfying aspects. There are always different things to be done each day, new scenery to take in and new people to meet."

In talking with the Minford beekeeper, one quickly finds that one of his primary interests in the honey business is his fascination with the plants that make honey. Rase is always on the lookout for good feeding fields for his bees. He tells how he and Madalyn often drive around the area, with Madalyn at the wheel, looking for new fields of aster or clover, and stands of sourwood — which provide the ingredients for good honey production.

In earlier years, Rase was often called upon for speaking engagements at schools throughout the southern Ohio area. Rase was provided a booth at the local fairgrounds where he set up an observation hive and gave demonstrations on handling honey bees. In a newspaper clipping dated August 19, 1927, a man is pictured with his head covered with bees that Rase had placed on the fellow for a demonstration.

Anyone fortunate enough to spend a day with Carl Rase, will get caught up in the enthusiasm that this man has for all aspects of bees and beekeeping. His views on the collection of pollen, on raising queens and on the personal natures of the various colonies that he handles, are an education in themselves.

Rase has accumulated a lifetime of experience in his constant work with the honey bee. His knowledge and interest in the insect are seemingly endless, and his enthusiasm is contagious.Δ

Birds, Bees, and Butterflies

Make next winter less harsh for birds that don't migrate south by planting trees and shrubs now which will provide food and shelter. The bonus, of course, is that many of these plants attract bees and butterflies during the rest of the year, too.

Many common ornamentals produce seeds and fruits that attract birds while their flowers attract all manner of insects during blossom. They include:

- **Dogwood.** Takes variable forms that range from small shrubs to medium-sized trees. They flower in May or June. Dogwoods bear clusters or bunches of small red, blue or white fruit. The fruits ripen in August and can stay on the tree until February. Dogwood leaves turn red to bronze in fall. Dogwood fruit can attract up to 47 species of birds and several butterflies.
- **Crabapple.** Small to medium-sized trees with showy white to pink blooms. They bear red, purple, orange or yellow fruit. Crabapples bloom in April or May. The fruits ripen in September and can stay on the tree until next April. Crabapples attract up to 29 species of birds, and innumerable bees when in blossom.
- **Elderberry.** A tall shrub with flat clusters of white flowers. It bears red to purple-black fruit. Elderberry blooms anywhere from May to July. Its fruits ripen in July and can stay on the shrub through October. The blossoms are very attractive to butterflies, while the fruit attracts up to 50 species of birds.
- **Autumn-olive.** A large spreading shrub or small tree. Its fragrant, small, yellowish blooms become abundant red fruit. Autumn-olive blooms anywhere from May to July. Its fruit ripens in September and can stay on the tree until December. Autumn-olive attracts up to 15 species of birds, but the bees are the main attraction.
- **Hawthorn.** A medium to large shrub with thorns. Its white flowers become attractive orange or red fruits. Hawthorn blooms in June and is an excellent nectar source for both bees and butterflies. Its fruit ripens in September and can stay on the shrub until March. Hawthorns attract up to 17 species of birds.
- **American cranberry bush.** A tall, upright shrub with showy flat clusters of whitish flowers. American cranberry bush bears glossy scarlet fruit clusters. It blooms in May or June and both bees and butterflies benefit. It produces abundant fruit that ripen in September and can stay on the shrub until May. The fruits will often become dry and raisin-like. American cranberry bush attracts up to 28 species of birds.

You can attract a profusion of wildlife to your yard all year long.

Other common ornamental shrubs that attract birds include: chokeberry and varieties of cottoneaster, honeysuckle, euonymus and viburnum. Common ornamental trees that attract birds include: wild plum, hackberry, red oak, alder, cherry, birch and varieties of hollies and hawthorns. And,

almost all of these will help feed bees and attract butterflies when in bloom. They can be exciting to watch!

Although deciduous shrubs and trees provide good cover for birds during the growing season, evergreens offer year-round shelter. They include pine, spruce, fir, hemlock, juniper and yew. Several species of birds also feed on the seeds or berries of evergreens, and they make excellent screens and windbreaks for your colonies.

A mixed planting of trees and shrubs attracts the greatest variety of visitors. A well-landscaped garden offers a choice of where to feed, rest, hide, and for birds, to possibly nest. You may even want to add flowering vines, annuals, perennials and other flowering plants so you are sure to produce a variety of food for birds, bees and butterflies.

To make sure you plant the trees and shrubs in the right location, you might want to visit an arboretum or botanical garden. You can also study reference books, nursery catalogs or other materials.

Many nurseries, garden centers, botanical gardens and arboretums have knowledgeable staff that can help you design plantings. Your county extension office has information on landscape plants. The Soil Conservation Service, part of the U. S. Department of Agriculture, also has information on attracting a variety of wildlife as do most local conservation groups such as Audubon societies.Δ

For the Bees, Butterflies *and* Birds

Don't Forget the Garden

CONNIE KROCHMAL

A Gardener's Guide

A few years ago we lost a lot of our bees when they wandered off to an area that had been treated with insecticides. Hives entrances were littered with dead bees. Since then we have worked to keep them at home by using a wide range of plants around the house and in our gardens which offer a fairly steady supply of nectar, and some pollen. It seems to have worked well, on our back-yard scale, because we have not lost any of our bees since that time.

But we got a lot more than we planned for, because not only did our bees work the flowers, but in came large numbers of butterflies and hummingbirds each year. This was certainly a most unexpected and attractive landscape feature.

The planting scheme we present here offers us nearly a full season garden, which attracts birds, bees, and butterflies all year. We start with bulbs, which bloom through the snow here in North Carolina, then add annuals each year, along with the perennials we have.

The list we have assembled is certainly not the final word by any means, but does include generally available flowering plants we have found that have the widest appeal not only to our bees, but for hummingbirds, butterflies, and people as well. One of the highlights of our trials with these plants has been the opportunity to watch the occasional battle between hummingbird and butterfly over a particularly delectable nectar source. Many of these plants attract bumble bees, too, and we enjoy watching their very industrious approach.

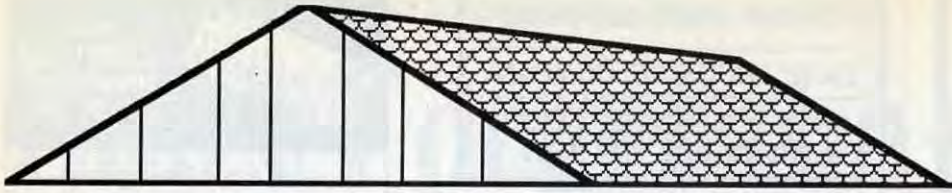
Obviously we use no pesticides in our garden studies, but we do resort to diatomaceous earth to control slugs and snails, and insecticidal soap for white-flies, aphids and caterpillars. Neither of these hurt our intended visitors in any way.

Our research studies have been encouraged and assisted by the Alfred G. Burnham Donor Fund.Δ

PLANT	TYPE	BLOOM	BEES	B'FLIES	BIRDS
alyssum	P	E,M	N,P	+	
anise hyssop	A	M,L	N		
aster	P	M	N,P	+	
bee-balm, *Monarda*	A	M,L	some N		+
Buddleia	S	M	N	+	+
buttonbush	S	M	N	+	
catnip	A	M	N	+	
ceanothus	S	M	some N	+	
clematis	Cl	E,L	N,P	+	+
columbine	P	M	some N		+
cornflower	P	L	N	+	+
cosmos	A/P	M,L	N	+	
dahlia	B	M	N,P	+	+
forget-me-not	P	M	N,P	+	
gladiolus	C	L	N		+
hollyhock	A	M,L	N,P		+
honeysuckle	Cl	M,L	N,P	+	+
hyssop	A	M,L	P	+	
lupine	P	M	N		
marjoram	A	M	N	+	
mignonette	A	M	N,P	+	
mint	P	M,L	N	+	
passion flower	Cl	M,L	N,P	+	
privet	S	M,L	N,P		
sage, scarlet	A	M,L	N	+	+
sneezeweed	P	M,L	N,P	+	
sunflower	A	M,L	N,P	+	
thyme	P	M,L	N	+	
verbena	P	M,L	N	+	

TYPE
P = Perennial
A = Annual
B = Bulb
C = Corm
S = Shrub
Cl = Climber

BLOOM
E = Early
M = Mid-season
L = Late
C = Continuous
N = Nectar
P = Pollen



HOME HARMONY

ANN HARMAN
6511 Griffith Road • Laytonsville, MD 20879

Gelatin dishes are the crown jewels of the dining table. No other cooking ingredient can give you such rich colors or display fruits and vegetables in such a regal manner. Gelatin could certainly be acclaimed as a cook's most useful ingredient. Plain gelatin is tasteless, colorless, and has only 25 calories per envelope. Yet it can be combined with fish and meats, vegetables and fruits. Gelatin dishes can be the main course, a salad or a dessert and can be as simple or as fancy as you choose: plain molds, decorative molds, layered ingredients, and even different colored layers. No other cooking ingredient gives you such versatility.

Gelatin dishes are kind to the cook too. You only have to remember a few cautions before you create your own salads or desserts. First, *never* mix fresh or frozen pineapple into a gelatin mixture — it will *not* solidify. You can use canned pineapple, though. A large quantity of sugar — in our case, honey — can decrease the gelling, making a slightly soupy result. And remember, one cup of honey contains water, not quite 1/4 cup.

Gelatin usually comes in an envelope, containing one tablespoon gelatin, which will stiffen about 2 cups of liquid. If you are using honey as a sweetener, remember to include that amount of water as part of the total liquid. Vegetables and fruits also contribute water to the gelatin mixture. Therefore, it is safer to reduce the amount of liquid in order to maintain a stiff enough gel. Don't worry if one of your mixtures turns out a bit more liquid than you might prefer. Just serve it in individual bowls and it will still be beautiful and taste delicious.

You have an endless choice of molds for your gelatin dishes. You can select ordinary items such as teacups, large or small bowls, glass baking dishes of all kinds. You can make individual servings, not to be unmolded, in green peppers, tomatoes, oranges, as well as in parfait glasses and brandy snifters. The kitchen sections of large stores have a good selection of fancy shapes: fish-shaped for tuna or salmon salads, hearts and stars for holidays, and tall fluted molds for a spectacular effect.

Preparing a mold is quite easy. The best way is to rinse out the mold with cold water, then pour your gelatin mixture in immediately. You can oil the mold but this will give you a blurry-looking surface after you unmold.

Now to unmold. If you have time, the plate or platter can be chilled. If you wet the plate with cold water, you can slide the mold around on the plate to center it. Dip the mold in warm, not hot, water up to the height of the gelatin. Count about 5 seconds, then remove from the warm water. Next, loosen the gelatin from the mold around the edge with the tip of a knife. Put the plate on top of the mold, hold onto both and invert. Shake the mold a bit to release the gelatin. If the gelatin refuses to come out, repeat the warm water process again, this time with a bit more courage. If the mold is large and you fear you just might unmold everything all over the floor, you can invert the mold onto the plate and cover it with a towel that has been soaked in hot water. After about 5 seconds, remove the towel and shake the mold. The gelatin should release.

There are two basic recipes, one for desserts and one for salads. With these two, you can create endless dishes of your own, using whatever fresh or canned ingredients you have at hand.

Dessert Gelatin Mixture

1 envelope unflavored gelatin
2 to 4 T honey (depending on sweetness desired)
1-3/4 cups fruit juice or drink

Heat juice to boiling. Remove from heat. Add honey and gelatin. Stir until gelatin is completely dissolved. Cool and pour into mold. Chill until set.

To add fruit: Chill above gelatin mixture until the consistency of unbeaten egg white. Add 1-1/2 cups sliced or chopped fruit and fold in. Pour into 3-cup mold or individual dishes. Chill until set.

To make a fruit whip: Chill the basic mixture until almost set. It will be very lumpy. Pour it into large mixing bowl and beat at high speed until very frothy. It will be about triple in volume. Pieces

of fruit can be folded in gently at this time. Put into a 6-cup mold or into individual serving dishes. Chill until firm.

Salad Gelatin Mixture

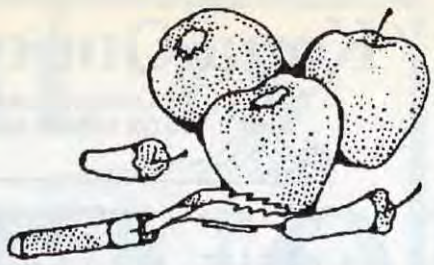
1 envelope unflavored gelatin
2 T honey
2 T vinegar or lemon juice
1-1/4 to 1-1/2 cups juice, broth, water, tomato juice, chicken or beef broth, clam juice, or vegetable juice

Heat liquid to boiling. In medium bowl, combine ingredients and stir until gelatin is completely dissolved. Cool and pour into mold. Chill until set.

To add meat and vegetables: Chill the above gelatin mixture until the consistency of unbeaten egg white. Add 1-1/2 cups sliced or chopped vegetables and/or cooked meat or fish, or any combination. Pour into a 3-cup mold or individual dishes. Chill until set.

Since summer is coming with its harvest of fresh fruits and vegetables, you will have an excellent opportunity to try out some new salad and dessert creations.

Here is a delicious gelatin salad that uses cider and apples. You can use a flavorful honey in this recipe.



Harvest Cider Salad

3 cups apple cider
2 envelopes unflavored gelatin
1/4 cup honey
1 can (6 oz.) frozen lemonade concentrate, thawed
2 large, red-skin apples, cored, diced
1/4 c. crsly. chpd. walnuts, or pecans

Combine 1 cup cider with gelatin in small saucepan. Let stand 5 minutes. Cook over very low heat and stir constantly until gelatin is dissolved. Remove from heat and stir in honey and remaining cider. Pour lemonade concentrate over diced apples and stir to coat all sides. Remove apples and set aside. Stir remaining lemonade into gelatin mixture. Refrigerate until the consistency of unbeaten egg whites. Stir in apples and nuts. Pour into 6-cup mold and chill until set.

Nebraska's Honey Cookbook
Nebraska State Honey Prod. Assn.

Gelatin is the basis for chiffon pies. Egg yolks are cooked with gelatin to make a custard base. Stiffly beaten egg whites are then added to make the fluffy mixture known as a chiffon.

Lemon Honey Chiffon Pie

1 envelope unflavored gelatin
1/4 cup cold water
3/4 cup honey
1/2 cup lemon juice
4 eggs, separated
1/2 t. salt
1 t. grated lemon rind
9-inch baked pie shell or crumb crust

Soften gelatin in the cold water and set aside. Beat egg yolks and combine with honey, salt and lemon juice and grated lemon rind. Cook mixture over hot water until thick, stirring constantly. Add gelatin and stir to dissolve. Remove from heat and cool. Beat egg whites until stiff, then fold into the custard mixture. Turn into shell. Chill until firm. This can be served with whipped cream or vanilla ice cream.

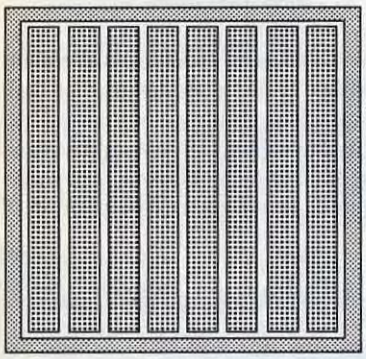
Honey Recipes from Wisconsin
Ozaukee-Washington Cty. Beekeepers Association of Wisconsin

If you create a wonderful gelatin dish this summer, let me know so that we can share the recipe with everyone.Δ

THE FOOD CHAMBER

Have you taken a good look at your measuring spoons and cups lately? Aluminum measuring spoons and cups can get easily bashed. Mangled measurers just may not be accurate any more. Severe dents decrease the amount to be measured. Although the exact amount may not be critical in many recipes, accurate measurement is essential for cakes and many other baked goods. Pyrex glass measuring cups can lose the markings after some years of use and dishwashing. It is difficult to guess exactly where 1/2 cup or 1/3 cup is. If your measuring equipment looks like it came from a children's sandbox, perhaps it is best to return it and treat yourself to something new.Δ

Eight *is* ENOUGH



MARSHALL DUNHAM

Easier! Lighter! Faster! But eight-frame hives are hardly ever seen in supply catalogues or how-to books. But some commercial beekeepers, and even some hobbyists, find them far superior to standard ten-frame boxes.

Undoubtedly, the greatest advantage of eight-frame equipment is ease of handling. A ten-frame deep super plugged with honey can weigh between 80 and 90 pounds. An eight-frame super, same depth, only weighs between 60 and 70 pounds. All this, according to Ancel Goolsbey, who runs a few thousand eight-frame hives in the Spokane, WA area and in his spare time, teaches classes in beekeeping.

Smaller supers are better for smaller operators. An eight-frame Western honey super weighs in at around 40 pounds, and a shallow, or comb-honey super weighs only about 30 pounds when plugged out with honey.

More Per Load

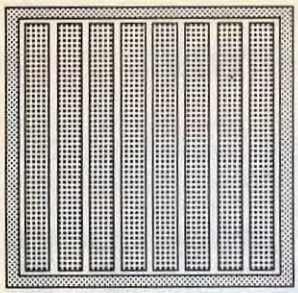
For commercial pollinators, narrower boxes mean more hives per truckload. David Braun, a top hand in the beekeeping business who has also worked African bees in Tanzania with the Peace Corps, says, "You can carry 80, eight-frame hives on a standard 12 foot, one ton truck bed, but you can carry only 64 ten-frame hives in the same space." An extra 16 colonies per load means an extra $100-$200 in pollination fees for each haul.

One of the largest commercial beekeepers in Washington, Joe Holt runs about 10,000 eight-frame hives. He puts six on a pallet which increases efficiency considerably. Other commercial operators using eight-frame equipment include Vince Vaza, Hermiston, and Gene Garner, Eugene, both in OR, and Rich Shubert, a CA queen breeder.

Continued on Next Page

Commercial crew working eight frame double deeps in the almonds, 1987 photo by B. A. Stringer.

This eight-frame single deep is being used as a queen bank. The special frame being held by David Braun contains rows of queen cages back to back. Banked queens are used in nucs and divides. Photo by Dunham.



Since pollination fees are based usually on a six-frame minimum, the rental fee for an eight-frame box is the same as for a ten-framer. Most strong, overwintered colonies only cover six to eight frames in the spring anyway, so eight-frame is a more appropriate size for pollinating units.

How it Works

Not only is eight-frame equipment easier to manipulate and more profitable to haul, but it is also better suited to the biology of the honey bee, at least in David Braun's opinion.

"Eight-frame is a more natural size for bees, more like a tree cavity they might find," he says. "In the wild, bees rarely spread out to ten combs wide. Bees seem to prefer nests six to eight combs wide, going up vertically."

Orvel Bassett calls the bees' tendency for vertical development 'stove-piping'. Bees sometimes are seen to move all their brood and stores toward the center of the nest, leaving the outer combs empty. This is more common in ten-frame than in eight-frame equipment.

Ancel Goolsbey explains this preference for vertical nests in terms of queen pheromones.

"Pheromones that control the bees' activities do not move through the hive sideways as easily as they do up. Up to three stories of standard 9-5/8" supers. This is the volume that determines your bee activities and the size of your honey crop. Eights are superior to tens in this respect. The old comb honey producers (Bradshaw, Powers, Gregs, Almquist, to name a few) knew this and always used eights for comb honey production. If they are better for comb honey, they are also better for extracted honey, if supered properly."

Orvel Bassett concurs that eights are better than tens for honey production because, "honey stores better upward than outward."

Brood Chamber

Both Orvel Bassett and David Braun have tried using a brood chamber consisting of a deep and a western and have found that they prefer a double deep. Ancel Goolsbey says, "I use two standard 9-5/8" supers for winter. I find that an eight, weighing 100 pounds or more, winters well without any additional feed come spring. One 80-100 pound colony will winter, but needs feed for spring build-up."

particularly true for younger queens. Italian bees, on the other hand, seem to need reversing no matter what size boxes you use.

Equipment

Orvel Bassett recommends that a beekeeper have a minimum of two deeps and four shallow supers for each eight-frame colony. He also uses a ventilated Killian-type bottom board. He has found as many as five pounds of

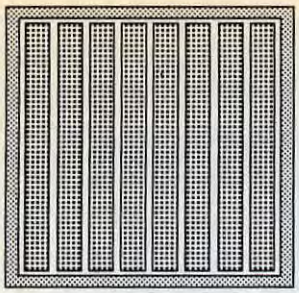
Vince Vaza and crew shaking nucs in the almonds near Manteca, CA, around 1986. Since this picture, this outfit has switched to double deep brood chambers. Tank on truck is full of corn syrup. Photo by Dunham.

Excluders

Ancel Goolsbey uses a queen excluder to hold the queen in the bottom box, calling the second story 'bedroom' space and starts supering at the third story level. This keeps everything within the range of queen pheromones.

Bassett does not use queen excluders, finding them unnecessary because he uses Carniolan stock. He prefers Carniolans because they do not brood up as fast as Italian package bee stock. In Oregon's long, wet spring, bees can starve out if they build up too soon. The Carniolans' more controlled brooding seems to make the use of an excluder unnecessary. With Carniolans, Bassett says he doesn't need to reverse the boxes of the brood chamber in the fall and only sometimes in the spring. As a general rule, a good Carniolan queen will move back down by herself. This is

Orvel Bassett's saddlebag feeder. Plywood on top is rain cover now, landing board later. Markings are queen codes.



young bees clustering on the boards. This helps make room for population build-up and prevents bee-beards from forming around the hive entrances.

Feeders

Most commercial eight-framers use a standard interior division board feeder. Ancel Goolsbey sometimes uses candy-boards placed under the lid. Lately, Orvel Bassett has been experimenting with something he calls "saddlebag feeders." Small boxes holding a division board feeder are nailed to the long sides of a super. Each has its own lid and bee-access holes to the inside of the box. The great virtue of this arrangement is that bees can be fed without removing the lid or punching holes in it. By opening only the small lid over the feeder, the bees can be fed on a rainy day without the slightest disturbance of the cluster. The extra wood that encloses the outside feeders also helps insulate the brood chamber. Bassett has found that the feeder spaces are also used to help store surplus population during the season of build-up, reducing the tendency to swarm because of lack of space.

Finding the Queen

Everyone, it seems, agrees that finding the queen is easier in smaller boxes. Fewer frames to sort through means fewer places for the queen to hide. Inspections for disease, stores, and brood patterns are also quicker and easier in eight-frame than in ten-frame equipment.

Extracting

David Braun says, "During the honey flow, the bees are more apt to plug down and draw out an eight-frame super. Having combs drawn out evenly and thickly means easier uncapping and less scratching in the extracting process."

Often, ten-frame supers are run with nine-frames to get thicker cappings, but this also generates lots of burr comb and gets lots of honey in the cappings wax. Orvel Bassett is of the opinion that, "If you keep straight combs, you should just get a thin layer of wax from uncapping eight frames out of an eight-frame super."

Not Perfect

The primary disadvantage of eight-frame equipment is that it is hard to find. Everyone who uses it these days makes their own. However, there are some suppliers that can special order this equipment.

If you live in an area where you are likely to get a honey crop in excess of 100 pounds every year, ten-frame equipment will work better than eights. Orvel Bassett reports seeing eight-frame supers stacked 11 high on colonies in the lowland fireweed country of western Washington when he was a young man on a commercial outfit, but just because it can be done doesn't mean it's a good idea.

In areas of high winds, ten-frame colonies will be more stable than narrower boxes. The larger boxes also work better in places that have extremely cold, long winters. Ten-frame boxes also work better than eights for package bee producers because they provide greater brood rearing area.

In David Braun's opinion, "Eight-frame equipment works better for a 'managing' beekeeper, while ten-frame works best for the let-alone technique. In general, the smaller the box, the more attention it requires."

Advantages for Commercial Operations

"The advantages to a commercial outfit in using eight-frame equipment are many — they are easier and faster to handle, easier to move, take less space on the truck, one size super for brood and honey makes greater uniformity (only one size box in the entire operation), they require less storage space, they pallet better, and they are easier to inspect, find the queen in, and etc." says Ancel Goolsbey.

Advantages for the Hobbyist

The chief advantage of eight-frame equipment for the hobbyist is the lighter weight and ease of manipulation. In areas of modest honey flows (under 100 pounds per colony) smaller hives are the most appropriate for the conditions. On the whole, bees are easier to keep in taller, narrower boxes and will do a better job of making honey, especially comb honey.Δ

Author's Request

If you have had experience with eight-frame equipment and would like to share your insights and opinions, please write to me in care of this magazine. Thanks to Orvel Bassett, Ancel Goolsbey, David Braun and Janie Olsen for their generous help in preparing this article.

The Queen is Dead!

LONG LIVE THE QUEEN

Masterminding the Successful Coup in Aggressive Colonies

ROGER MORSE

Everybody, it seems, wants a kinder and gentler something or other these days — and beekeepers are no different. And it seems that there are at least one or two colonies in every apiary that are neither kind, nor gentle. Some beekeepers actually like aggressive bees and think they are better producers, more disease resistant or have other valuable traits.

Requeening aggressive colonies with gentle stock is not only recommended, but conscientious, and public-protection, problem-minded beekeepers would not hesitate to do so. There is no question that aggressiveness in honey bees can be an inherited trait. Of course, large colonies are inclined to be relatively more aggressive simply because they have more bees; however, strong, easy to manage colonies are not only common, but should be the goal of every beekeeper.

It is a well established fact that a simple, straight forward queen selection program can do much to change the nature of the bees in an area. For years, bees have been selected for gentleness, disease resistance, honey production, low propolis collection, high pollen collection and a number of other traits. Certainly the more colonies owned or operated the easier it is to influence the nature of bees in the vicinity. Working closely with one's neighbors is often important to produce an area-wide result.

Half of the genetic material in a colony comes from 'his' side of the family. Destroying drone brood in a colony of aggressive bees might reduce the number of drones carrying aggressive genetic material. However, it is a time-consuming task but an option to consider. Adding combs with drone comb already present to 'good' colonies can have a positive effect in a selection program because it introduces a greater number of 'good' drones into the mating system. Adding drone foundation accomplishes the same result.

Probably the most difficult aspect of all of this is how to find the queen in an aggressive colony without being stung too much. Often, aggressive colonies have large populations and finding the queen is difficult, or even seems impossible. Generally one is inclined to use lots of smoke when working an overly aggressive colony. The down side of this is that it will usually cause the queen to leave the vicinity of the brood nest, and she may end up anywhere in the hive. Further, heavily smoked bees may gather in clusters in and outside the hive. If the queen is in one of these clusters she may be impossible to find.

"There is no data to support the 'Mean Bees are Better Bees' mentality."

The Coup

There are at least two simple methods for finding queens in an aggressive colony. Both require some time and effort, and common sense dictates that one undertake queen finding only on warm days when the bees are foraging. The more nectar and pollen available in the field the better, for more bees will be away from the hive.

Exile

If the aggressive colony has three, four or five stories, the first step is to determine where the brood nest is. Once found, the supers containing brood are separated from the rest and carried 50 to 75 feet away. Place them behind some bushes, but in an unshaded area. After this the older bees (including foragers *and* guards) will fly back to the original nest, for it is home they wish to protect, and not this new place.

Even bears learn this trick rapidly. When feeding, they may pick up a one- or two-super colony (or sometimes just a single super) and carry it some distance from the apiary before starting to feed.

When one wants to open and examine a colony during a demonstration, the same trick works quite well. Just pick up the colony and carry it some distance away. Any defensive bees present will return to the original site.

Once the brood supers, and hopefully the queen, have been moved, less smoke is needed and the search may proceed. Remember, smoke disorients bees, including the queen. In a normal, quiet colony, one usually searches only the brood combs for a queen, but when a colony is smoked heavily she may run and end up nearly anywhere in the hive.

Continued on Page 352

Queen is Dead . . . Cont. from Page 350

Imprisonment

A second method of finding a queen in an aggressive colony is to split the supers apart and place queen excluders above each one. This guarantees that the queen is confined to only one super. After three or four days all the eggs have hatched in the supers where she is *not* present. Examining frames for eggs is much easier than searching for the queen herself. When the super with the queen is set apart from the others with its own bottom and top, the older bees will, again, return to the original site. That day, or later, the search can begin in the now much smaller and easier to handle colony.

The original colony must not be allowed to requeen itself though, for the new queen will probably retain some of the undesirable qualities of her mother. The best method of requeening is to place a small colony, with a young and desirable queen, on top of the old unit, using a piece of newspaper to separate the two. The newspaper will be eaten away slowly by the bees, thus the introduction rate will be just right.

Be Brutal

It is always tempting to save a queen that heads a strong colony, even if it is aggressive, because she is obviously a good egg layer. However, improving stock quality requires killing the problem — and that is the queen.

You can speed stock improvement in your apiary by raising your own queens, selected from gentle, productive mothers. But maintaining gentle stock, whether from your own or an outisde source, is not only wise, but will become mandatory as bees, and beekeeping, become the focus of negative media attention.Δ

Making Honey BEER

MARSHALL DUNHAM

Who put the BEE in BEER? Chances are that man's first alcoholic beverages were made from diluted, fermented honey. The first brewmaster was probably a honey hunter who learned to combine water, honeycomb and bee bread in a clay pot. The mead our Anglo-Saxon ancestors drank was just such a brew, perhaps with the addition of herbs for flavoring.

It is entirely possible that early man's taste for fermented honey exceeded his ability to find bee nests. No doubt ancient brewers began experimenting to find cheaper, more available substitutes for honey. Eventually, they discovered that barley, a hardy grain that could be grown nearly anywhere, could be sprouted to form a sugar-rich malt which could be fermented like honey.

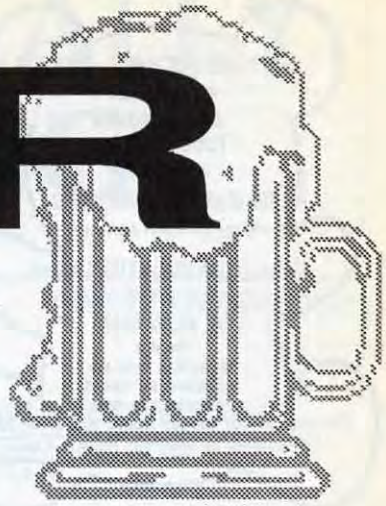
Modern brewers have rediscovered the value of honey in making beer. "When honey replaces malt sugar, you get a lighter, drier brew," says Fred Bowman, brewmaster and co-founder of the Portland Brewery in Portland, Oregon. "Honey gives smoothness and raises the alcohol content of beer."

Bowman started using honey in beer about three years ago when he obtained licenses to brew Grant's Imperial Stout and Grant's Winter Ale. Both recipes called for honey in addition to malted barley. The Winter Ale uses about 60 lbs. of honey in a 330 gallon batch to produce a brew that is 5-1/2% alcohol. The Stout is a dark, hearty drink that is about 7% alcohol.

Bowman started using California orange blossom honey in his brews but soon switched to Oregon Clover Honey produced by Kerr's Honey and Pollination of Amity, Oregon. He switched because he found the locally produced honey to be consistently high in quality and less expensive than the California product. "The best beer is brewed closest to where you live," the brewmaster explains, "and I think it is true of honey, too. No matter how good imported products are when they start the trip, by the time they get here, they've lost some of their freshness and flavor."

Brewing kettle where the mixture of honey, water and hops is boiled. Capacity is 387 gallons.

Bowman and his co-workers began toying with the idea of making a pure honey beer, with no malt at all in the recipe. Dave Kerr provided several flavors of honey for the test batches.



"We thought Buckwheat Honey Beer sounded pretty good," Fed says with a smile. "It looked good, and the first flavor was good, but it was difficult to drink very much of it." After a long development period and several pilot brews, they finally decided that Oregon Clover Honey produced the best results.

Each 330 gallon batch of Oregon Honey Beer uses 72 pounds of honey and makes a brew that is 3.5% alcohol. Two types of hops are used for flavor and aroma. The bittering hops are

Fred Bowman, brewmaster at Portland Brewery and creator of Oregon Honey Beer, by a stack of empty kegs.

added at the start of the cooking process and the aromatic hops are added at the end of the cooking.

"Our only problem with Oregon Honey Beer has been getting people to try it. Everyone expects it to be sweet, and nobody likes sweet beer. People are always surprised to discover it is actually a very dry, light brew," Fred says.

With brew runs of 330 gallons, the Portland Brewery is part of the new wave of microbreweries which have been appearing on the West and East Coasts of the United States. As brewmaster Bowman explains, "We are finally recovering from Prohibition. There used to be small breweries in every city and town. At the turn of the century, there were 16 breweries here in Portland."

ises. Customers can sit in the bar and watch the beer brewing on the other side of a glass wall. Because most of the brewery is open for inspection at all times, they maintain a very high standard of cleanliness and sanitation.

Unfortunately, there is nowhere that you can buy a bottle of Oregon Honey Beer. The Portland Brewery sells only draft beer, by the glass or by the keg. They have no space for filling, storing, or cleaning bottles.

After three years in business, the Portland Brewing Company has established a reputation for fine beer and they enjoy a growing demand for their excellent products. All of their brews are eminently potable. The Oregon Honey Beer is as light and bright as a summer day, a perfect hot weather

"The original Portland Brewery started in 1904, but it closed in 1916. The owner was a fellow named Blitz who survived by making malt extracts. After Prohibition, he got together with another brewer, Henry Weinhard, and they started Blitz-Weinhard."

After Prohibition, the great change in beer making was the invention of refrigeration and processes of pasteurization. Refrigeration made lager beer possible, and pasteurizing made shipping beer possible. Gradually a few giant breweries were able to dominate the markets.

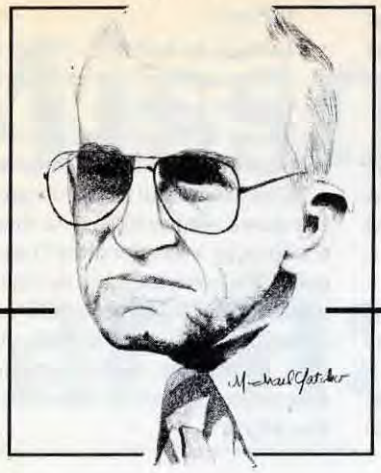
Today, smaller, local breweries are making a comeback. Little breweries are able to provide more varieties of fresher beer at more competitive prices.

Technically, the Portland Brewery is a "brew pub" where all the beer sold on the premises is brewed on the premthirst quencher. The Winter Ale is a spicy, flavorful drink that is ideal for the wet, grey days of the northwestern winter, while Grant's Imperial Stout is a hearty, full-bodied brew that can fortify a body for the stormiest, most Scottish weather.

Beekeepers who produce a consistently high quality honey crop should not overlook microbreweries as potential customers. If you hear of a microbrewery opening in your area, take them a taste of your finest honey and ask them if they have ever heard about Oregon Honey Beer.

If you are ever out in Oregon, be sure to drop by the Portland Brewing Company and sample their fine beverages, or ask for Oregon Honey Beer wherever draft beer is on tap.

Out here in the great northwest, we know who put the BEE in BEER.Δ



POLITICALLY SPEAKING

GLENN GIBSON

Minco, Oklahoma 73059

"Economics and Politics are not dirty words."

For more than a decade now, beekeeping industry problems seem to breed like rabbits. Annually, the convention resolutions are given a vague mandate "to do what you can". In simple terms, this means that later activity will be limited to funding, availability of manpower and time. In the past few years, price supports and honey promotion have dominated our discussions which left little time and effort for other problems. It is well and good for our leaders to establish priorities and use the tools that are available, but our limited successes tell us that we need to change our thinking and give attention to ways of improving our method of dealing with government agencies, sister organizations, and last, but not least, with our fellow beekeepers. It is my feeling that we could deal with these groups more effectively if we broadened our interest that would include the Social Sciences — mainly politics and economics.

I don't mean to imply that we have completely ignored these sciences in the past. On the contrary, our leaders who trek up and down the congressional halls are up to their ears in both disciplines. However, one can safely say that the "silent majority" gives little thought to either science at least relative to beekeeping. Glancing over the convention programs for any given period reveals a strong interest in the natural sciences — mainly Entomology. This is good, but will the answer to all entomological questions help us with excessive imports? Fuzzy economic reports? The entomological data is certainly essential, but bear in mind that economical and political savvy is also needed to explain our policy to busy congressmen and officials in the Administration.

Since most political speeches and decisions from government agencies are replete with political and economic thought, I find it difficult to divorce the two social disciplines. Modern economic thought had it's beginning with Adam Smith in his famous book "The Wealth of Nations" (1776). During the past 50 years, scholars have identified Italian philosopher, Niccolo Machiavelli (1469-1527), as the founder of modern political science. Most of our so-called free-trade policy is based on Smith's economic thinking. Machiavelli's maxims are rife throughout our political system. Since their ideas seem to prevail, it would be helpful for us to learn the background of our modern political economic thought. Usually the subjects are controversial because most social scientists have labels — liberal or conservative.

Economic Studies Needed

The need for economic research was brought forcibly to our attention in 1984-85 when we worked to save our honey price support program. Our justification for continuation was the pollination value of the honey bee, but very few in Congress or the Administration gave little more than lip service to our recommendations. We spent big bucks and weeks of time counteracting a volume of misinformation which generally pooh-poohed our justification. The negative campaign was climaxed with a "factual" study from the General Accounting Office. We scored a narrow victory and salvaged a fair support program, but the fuzzy information about honey bee pollination still flows from desk to desk in Washington.

I hope that most of my questions about honey bee pollination will be answered in the study at Cornell University. Subject project has been funded by Cornell University, ERS, USDA, and the National Honey Board. I am pleased to note that the ERS endorsement followed some heavy work from the American Honey Producer's lobbyists. The March 1989 issue of *Gleanings* contained an excellent report on the study. I am anxiously awaiting an opportunity to share the findings with members of Congress. At least the new data may take some sting from Conte's dumb poems and puns.

Now then, how can we expand our discussions to include political economic questions or problems that will ultimately arouse those beekeepers who make up the silent majority? It

might be best to start at state and local association meetings. This means that knowledgeable speakers will be needed. These can be found in nearby colleges.

Since these people have little knowledge of the bee business, I assume that special topics be considered carefully.

Suggested subjects for the Economist:

- The Impact of Our Free Trade Laws on our Small Honey Industry
- Importance of Honey Bee Pollinations to our State's Economy; to Wildlife
- Letters to and from Congress
- Congressional Committee Function
- Citizen Lobbying

Bear in mind that any Scientist's responsibility ends on completion and publication of the research project. It is the users responsibility to disseminate the data in ways that it will do the most good. We have failed to do this with the mountain of favorable information on honey bee pollination. It is my feeling that a broader understanding of the economic political sciences will show us the way.Δ

Missouri Farm:

A Rare Resource

DEBORAH PENNINGTON and KIM FLOTTUM

Ron Macher has agriculture in his blood.

"One day, Ronny comes home from high school and says 'Guess what I did?'," says his father. "I said, 'no telling — what?' Ronny says, 'I bought a cow'."

"We lived in a subdivision," the elder Macher continues, "so I asked him where he thought he was going to keep it. He ended up keeping it on a farm nearby, and every day he would ride his bike over there and take care of that cow, all through his senior year."

No doubt Macher's peers at his suburban St. Louis high school thought this was a little strange, along with the cowboy boots and the corn growing in the back yard (which hid some pigs for awhile, until one got into a neighbor's rose garden).

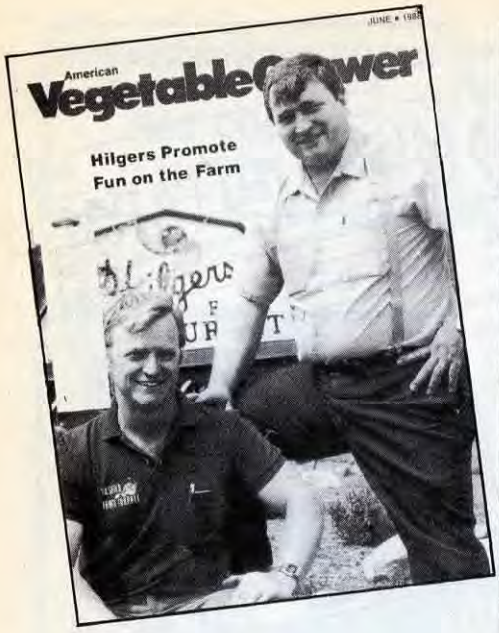
After getting a degree in animal husbandry at the University of Missouri-Columbia, Macher thought he had it made when a lady motorist called him a 'dumb farmer' for driving so slow. Cattle, hogs and sheep were the mainstay of his Clark, MO farm — until an injury forced him to lie on his back in bed for weeks on end, contemplating the future of his farm. He began looking for information on small farming and alternatives to traditional livestock and row crop enterprises. He could find very little.

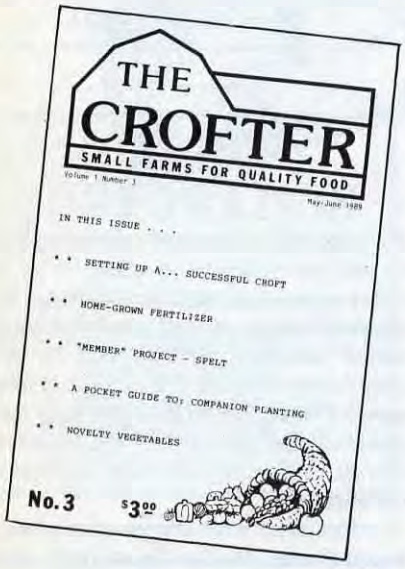
Surely he wasn't the only small farmer looking for this type of information. With this thought in mind, Macher decided to start a newsletter. He called it ***Missouri Farm*** and the first 6-page issue came out in March, 1984.

This year, ***Missouri Farm*** celebrates its fifth anniversary. It goes to subscribers in 49 states, and covers all aspects of small farming and alternatives, such as aquaculture, **beekeeping**, exotic and minor breeds of livestock, fruits and vegetables, herbs, forestry, horses, home-based business and direct marketing. Early issues were produced on the kitchen table, but as the magazine grew, Macher turned his large downstairs family room into an office for the magazine. Although the first issues were produced entirely by Macher, including most of the writing as well as editing and sales, today he relies on a small staff for editing, writing and design, as well as a large number of freelance writers. But he still keeps close tabs on the content of ***Missouri Farm***, reading everything that goes between the covers and occasionally writing a story or two in addition to his editorial.

But even with the success of ***Missouri Farm***, Macher knew there were still many small farmers in Missouri who needed information on agricultural alternatives. He was the driving force behind the formation of a new not-for-profit corporation called the 'Missouri Alternatives Center (MAC)'. Missouri residents can now call a toll-free number and get information on farming alternatives such as shiitake mushrooms, cashmere goats, ostriches, bees or herbs. ***Missouri Farm*** magazine, with Macher's extensive library and files on alternative and small farming, is one of the sponsors of MAC, along with Missouri Cooperative Extension, Missouri Department of Agriculture, Missouri Department of Conservation, University of Missouri College of Agriculture, and the USDA Federal/State Marketing Improvement Program.

"No one has a God-given right to farm," Macher says. "But everyone has the right to the opportunity, and that





includes the right to the best possible information. That's what the magazine, and MAC, are all about."Δ

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Missouri Farm is published six times per year, and subscriptions are $18. Write Missouri Farm, Rt. 1, Box 237, Clark, MO 65243.

It is only one of many Agriculture-oriented magazines available, however. Titles range from very low-key, low-tech, to glossy, full color, high-end styles.

This month I offer some thoughts on a few other magazines that regularly show up at the Ohio Estate. I'm a magazine junkie at heart, and spend much of my reading time buried in one or another. From far-left political tabloids to homegrown OHIO, I try them all, at least for awhile, and think you may, too.

The Crofter, published by the Croft Institute in Stanley, WI, is dedicated to the production and consumption of pure healthful food. 'Croft', an old English word meaning 'small tenant farm', also works as a link between the 'grow-your-own' food producer, and potential consumers. **The Crofter** offers both production and marketing information, and encompasses organic, bio-dynamic and other natural forms of production. Beekeeping definitely plays a role here. Digest size, 20-30 pages/issue. $3 for a sample, 6 issues/year, $18 subscription. A gem.

HortIdeas gives you exactly what the name implies. Eight to ten pages of ideas, lots of ideas. Gleaned from hundreds of popular and technical sources worldwide, there's something for anybody even remotely interested in the world of growing things. **HortIdeas** offers two unique differences: it simplifies what is often complex, scientific jargon into easy-to-understand, and use, information; and second, it offers editorial opinion at the end of each piece called the 'Trend'. This summarizes what the information will do, or how it affects you. Book reviews, variety picks and other helpful tidbits, including a twice per year index. Published monthly, Rt. 1, Box 302, Black Lick Rd., Gravel Switch, KY 40328. Annual sub $15.00/year.

But if it's truly gardening you're into, check out the next titles.

National Gardening is a well written, beautifully illustrated gardening magazine. Glossy paper, lots of color, lots of ads. Articles are basically how-to for the beginning to intermediate gardener, but they have so much more to offer. Recipes, seed swap, tips, a market place, excellent editorial and more. I'm always torn between first reading the mail, or looking at article titles — the cleverest I've ever come across. Example: Wonder Bred — about breeding beans. Published monthly, $18.00/year, NGA, 180 Flynn Ave., Burlington VT, 05401. My choice.

Still familiar is **Organic Gardening,** but if you haven't seen this in awhile, you're in for a surprise. Gone are the pulp paper, digest size days. Now, it's full size and glossy, with lots of color, lots of ads. Gone too is just a bit of the folksiness once so prominent, but not all of it. Sections include new products, building things, basic gardening, cooking, mailbox and regional notes. The change in size and paper has brought about other changes too. In a recent issue they had an article on whales, not unlike an article on tropical forest ecology in another magazine we all know — certainly more global in outlook, a refreshing, and needed change. Monthly, by Rodale Press, 33 East Minor Street, Emmaus, PA, 18098.

"You MUST know more than bees to be a good beekeeper."

As a rule, gardening magazines are getting fancier, more expensive and less personal. I think that's sad, because gardening, like beekeeping, tends to be a personal thing. The economics of magazine production has claimed another victim, I guess.

However, if you are interested in the more professional side of fruit or vegetable production, check out **Amer-**

"Some of these newsletters are exceptional in their coverage and information."

ican Fruit Grower and **American Vegetable Grower.** Both cater to the professional, and certainly give you an idea of what they are thinking. Both are concerned with the pesticide/food issue at the moment, but product reviews, grower profiles, expert columnists and even some basic how-to's are featured each month. Both are from Meister Publishing Co., 37841 Euclid Ave., Willoughby OH., 44094. Subscription $12/year, each.

Though not a gardening magazine, **Harrowsmith** definitely fits in this group somewhere, with an editorial focus on country life. But there's much more here than meets the eye. Undoubtedly the best written of all mentioned, they have features on shelter, gardening, country skills, the pantry and such a mixed bag of departments that your head will spin. All these, plus a couple of features each month ranging from urban/rural problems to the ecology of owls.

And if that's not enough, the publisher is a beekeeper! A great way to spend 2 or 3 nights steady, or 2 or 3 weeks of short takes. Published 6 times/year at $24/sub. Worth every penny. Write The Creamery, Charlotte, VT, 05445.

But most of us are interested in the world of bees, and there really isn't a lot to choose from other than the two main books available. But, don't despair! Many regional, state, and even smaller associations put out quarterly or more-often newsletters that have loads of plain old beekeeping.

We have about 40 or so arrive each month, and while most are good, offering information on the particular group, some are exceptional. Here are a few of those.

Ever wonder what beekeeping in Alaska might be like? Join the Cook Inlet Beekeepers and find out; P.O. Box 140173, Anchorage, AK, 99514.

Missouri seems to be strong in beekeeping, too. The state group has an information packed quarterly with lots of stuff from all over. Almost a magazine, and only $4.50/year. Write P.O. Box 141, Lincoln MO 68338.

Maryland is a publishing madhouse, starting with the **Hive Tool,** a publication of the Central MO Beekeepers. Well written and researched, write 5314 Gwynn Oak Ave., Baltimore MD 21207. Published 10-12 times/year. $10.00. Not far away is the **Nectar Collector,** the bimonthly NL of Howard Co. Beekeepers. How-to's and when-to's every issue, and the most eclectic collection of somewhat related information I've ever seen. $5/yr, 3200 Pine Orchard Lane, Ellicott City MD, 21043.

Unencumbered with advertisers or association committees, **Better Beekeeping** definitely stands out in the field of newsletters. Published 6 times per year, $7.95/sub. Full of ideas, how-to's and great editorial. Editor/publisher Pat Radloff's reputation as not only an outstanding beekeeper, but also an excellent writer, are well known. P.O. Box 66, Westerville OH, 43081

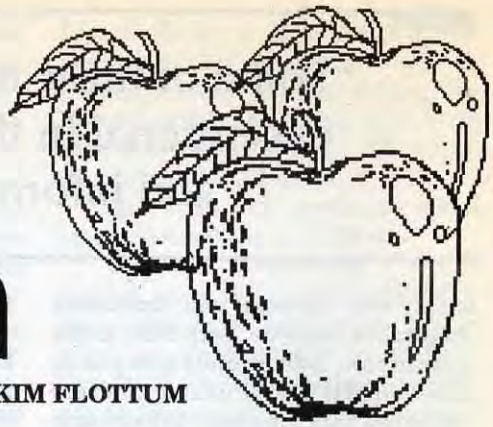
From Michigan comes another fine quarterly, full of lots of ideas, both local and outside sources. Another almost-magazine. $15/year. P.O. Box 139, Davisburg MI, 49109

Tennessee has the **BeeLine** published 6 times/year by the Beekeepers of TN. Many would consider this a political group, and not be far off. They do offer good tips and how-to's though, so don't rule them out. Definitely active both in-state and nationally. $10/year. Rt. 11, Box 7, Maryville TN, 37801.

The west coast has a winner too in the Oregon **Bee Line.** Published monthly by a professional writer as editor, the **Bee Line** offers tips, how-to's, honey plant information, and more. $15/year, 19919 Summit, St., Blodgett, OR 97326.

Of course there are more, far more than I have room for, and those that I've missed altogether. But the sampling offered here should keep you in bees and the things bees, and beekeepers, like until I can come up with something new. Enjoy.Δ

Organic Confusion



KIM FLOTTUM

The recent attention pesticides have received in the fruit industry, and even in beekeeping, have brought to focus some long standing questions about the value of 'organic' foods in mainstream corporate America. The massive media attention will cause some grocery stores, and even large chains to look closely at what they are buying, and what their customers want in produce selection. More often than not availability is more important to a consumer than the source of the product. This distinction will play a major role in sourcing produce or other farm produced commodities in the future. These include everything imaginable, from fish to wheat to honey.

Unfortunately, little data has been taken to measure consumer response to the availability of organically produced foods over the long run. Health food stores have, generally, a small but dedicated clientele, but pose little threat to major food chains for customers or product availability.

Historically, food scares have lasted as long as they deserve front page attention. When another crisis arrives the importance of health food in the American diet is once again relegated to the back page, if at all.

Another complication is that 'truly organic' food costs more. Increased costs are due to production costs (there is a fair amount of waste), supply costs, (it is difficult to economically purchase some, if not most of the items needed to produce organic food), and marketing costs (most outlets are far apart, and take small amounts of produce at one time because of demand and storage facility limitations).

Confusing this issue even more is the definition of the word 'organic'. To some it means simply no pesticides were used on the crop. To others it means nothing was added to the environment that wasn't produced 'naturally'. Both can be right, but consumers seldom ask the difference, or would know if told.

Occasionally, 'organic' honey is seen in health food or other outlets, and again, the definition is clouded. For some it means the bees that produced the honey were never exposed to in-hive pesticides or medications. But for others the term is far more strict. For these, 'organic' means the nectar producing plants were *never* exposed to pesticides or were stimulated with man made fertilizers. Likewise, the bees were not treated with chemicals in-hive. Further, the resulting honey was never exposed to heat or other unnatural methods during extraction or bottling. This definition, though accurate to a fault, would be difficult to prove. Unless, that is, the beekeeper had bees on the moon.

"What, exactly, is Organic Honey?"

The recent double whammy of Alar on apples and cyanide in grapes has, once again, brought the topic of organic food to the fore. The media, and we are no exception, have a 'hot' topic to discuss. But a recent story produced on Public Radio typifies the coverage 'organic' goods will once again receive — superficial and short.

This is because, as stated above, there is really little data to draw on when discussing the production, sale or demand for organic foods. Does the public really care about diet? Or, even if they do, do the big food suppliers of America want to make it available. If enough demand exists for any product, somebody, somewhere will provide it.

In a just-released interview with several major food-chain produce buyers, some of this information came out. Representatives from Ralphs Grocery Co., Grand Union, Jewel and others discussed several aspects of organic food in their stores. They all feel that the latest attention will indeed have some long term affects on demand. But, they feel, it will take from six months to a year and a half to really know if the demand is significant. They all are having problems with supply too. First, right now there is a big demand for the product. Second, there is a great deal of difficulty in determining a truly organic product and one that just says so. The consumer is the ultimate loser here, and the chains are worried about cheating, and being cheated. There are very few state level certification programs they can rely on, so must trust the grower.

Packaging, like all produce, varies with each chain, from bulk to individual. Most chains don't plan on changing their programs.

When we contacted several area healthfood stores, they had not noticed an increase in demand for what they considered organic honey, nor did they expect any. None of their customers had asked about problems in this product, yet.

Organic — a term that still needs a workable definition. But more importantly, all farm-grown products need to be thought of as at least healthy. Honey is no exception.Δ

SIFTINGS

CHARLES MRAZ

Box 127 • Middlebury, VT 05753-0127

"I've retired from commercial beekeeping, but my hobby *keeps me busy now!"*

A lot of honey has run through the extractors in the 60 years that I have been in commercial beekeeping. After 60 years, what is there left to write about? The same problems that Langstroth, A. I. Root, and Dr. C. C. Miller wrote about are still being discussed, over and over again. It seems each generation "discovers" something new that has been discussed many times over during the past 100 years.

However, beekeeping is changing, especially in the last several years. Agriculture is changing, too, especially here in the Northeast. We no longer see large plantings of clovers, used for hay and silage like we did not too many years ago. New pests are with us now—the two mites, Varroa and Acarine, and the Africanized bees, too. These new challenges will revitalize beekeeping, I believe. As we learn to cope with these problems we will learn new methods to become better beekeepers.

Now that I have "retired" from active commercial beekeeping, my hobby, Bee Venom Therapy, is taking more of my time. It is a "hobby" I have carried on for some 53 years. Finally, interest in this fascinating treatment for Rheumatic and Degenerative diseases seems to be increasing. Not only by arthritics themselves, but even by some members of the Medical profession.

The letter in the "Mailbox", in the March, 1989 *Gleanings* by Harvey Hartzler calls for an answer to his request for more information on bee venom for the treatment of arthritis and rheumatic diseases. Harvey is looking for a "source of bee venom for year 'round use", for treating his arthritis. I assume he is referring to a injectable bee venom, rather than using live bee stings. Pure bee venom is available, but it has not been licensed to be used for treating rheumatic diseases.

To obtain a license to use bee venom for this purpose would require thousands of dollars of IND studies, money that I do not have. This is no handicap, as I have been using live bees for treating arthritics every day of the year, winter and summer. I do not know why some beekeepers seem to think bees cannot be used in the winter. There is no difference in their venom, and it does no harm to the colony.

No matter where you live, you can take bees out of a hive all winter long. If the temperature is above freezing, simply place the open end of a glass jar over the upper entrance of a hive. Rubbing the jar on the hive will cause the bees to come out into the jar, which should contain some honey for food. With holes in the cover for air and cardboard in the jar for the bees to cluster on, they can live in it for a week or so if they do not run out of honey.

If the temperature gets below freezing, even to -20°F, you can still get bees just by taking off the inner cover. Bees under the cover and on top of the frames will be stiff with cold. Simply scoop some up with a teaspoon and knock them into the jar. It takes only a second or two. Cover the hive immediately and they hardly know they have been disturbed.

We are in the midst of reorganizing the Apitherapy Society which promotes the knowledge and use of bee venom therapy. We plan to have annual meetings, and send a news letter to our members. China, Korea and Japan already have Apitherapy Societies, actively promoting the use of bee venom therapy, so it looks like they may get ahead of us in this field, also.

This summer at the Annual EAS meeting in New Hampshire, we plan to have an Apitherapy Meeting on Saturday, the last day of the meeting. The exact time and place will be available shortly. We hope to see some of you in New Hampshire.Δ

INNER . . . Cont. from Page 316

Considering the number of factions that exist (wait ten minutes and another will pop up somewhere), why would anybody in their right mind want to lead this band of rascals?

Well, those who need things just take them, or at least make sure that they control them; legally of course, in the name of business, by purchase or pressure.

Who needs to control the beekeeping industry, with its rules, regulations, and regulators? Neither the honey sellers nor the supply people, certainly. Not even the growers of bees would qualify.

Those who need control are those that routinely need bees. Of course! The growers of fruits, vegetables and other flowers-that-need-bees crops.

That they need pollination is not the question — they need bees and beekeepers. Threaten that need and you threaten production, which gets them where it hurts — the bottom line.

No, they won't become beekeepers, even though by doing so they could eliminate at least some of their middleman costs. There's no future in their becoming pollinators because it is just too specialized a profession.

What they will do, though, is make sure there's a steady supply, even an abundance, of beekeepers and their bees. Further, they'll make sure that there are no road blocks to the future of the flower power brokers. They will make sure that no rules, regulations, taxes or other unnecessary headaches get in the way. Nothing must slow the flow of bees to field and flower.

But take this somewhat convoluted logic one step further. Who depends on the growers, the makers of food and fiber? Who has enough power to make sure that needy growers have bees, and all the other things required to remain solvent? One of the things definitely needed are the chemicals to produce cosmeticly perfect crops. The no-bugs, no-diseases, no-weeds and storage-forever formulas.

Without farms and farmers that use agriculture chemicals, where would these companies be? Why, their bottom line would be lower than the groundwater their products have been flowing to for all these years.

Yes, this is a simplistic approach to a not-very-simple problem. But just for a moment, can't you imagine Dow, Pennwalt, or some other international death dealer running things from behind the scenes — for their own satisfaction, and a better bottom line?

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There's an eight-acre field behind our home yard at the Estate. Last summer the renter planted it in sweet corn, but the drought kept most of it from germinating and he finally let it go to weeds. This spring the weeds came back, sort of. The atrazine residue kept most of them down, since the majority weren't resistant to the herbicide.

Three kinds did return, though. I think one is quackgrass. Another had tiny white flowers that our bees seemed never to notice — probably because fully two thirds of the area, maybe more, was a vivid, shimmering sea of sunlight yellow.

Literally glowing were huge, many stemmed, multi-blossomed, healthy, robust, vigorous, brilliant, perfect — Yellow Rockets.

There must have been millions, maybe billions the first week of May. And it seemed more were coming every day — popping and pushing through the crusty soil, eager to wildly yell 'yellow' to any and all who would look or listen.

Yellow Rocket, a distant cousin of cabbage and cauliflower, produces between 10 and twenty flower heads, each with five to seven flowers on average plants. During warm, sunny days, which May was reluctant to share this year, there would be two or three bees on every flower head, sometimes as many as 10 or 20 on a plant.

Yellow Rocket, even to a casual observer, is an incredible plant. A single specimen, standing sentry-like in the middle of a garden or flowerbed, is a rich and vibrant green, symmetrical to a fault, and crowned with the yellowest yellow flowers imaginable. Of course, casual observers will only notice these fine and stately features if they really take the time, but that is another matter.

A single plant, to man, beast or honey bee, is a wonder. But a field — an entire field — of yellow to the horizon, as far as a field could go, is truly heaven.

But today they are gone. Only ragged, chewed-on leaves and clinging, withered petals remain in that eight-acre field. Quackgrass grows taller and the small white-flowered plants, like the renter who never returned, are gone.

The ephemeral beauty of billions of blossoms is only a golden memory. I've never been sure if the name of this plant implies how fast they arrive, or how rapidly they depart — for both are rocket-like.

But though gone, they have left a mark — their place in the sun, if you will. For now there are billions and billions of ready-to-launch rockets patiently hidden in the soil, quietly marking time until spring returns.

But for me, the best part of the rocket is the contented humming in the hives that border that eight-acre field. Those billions and billions of blossoms have fed and nurtured thousands and thousands of my bees.

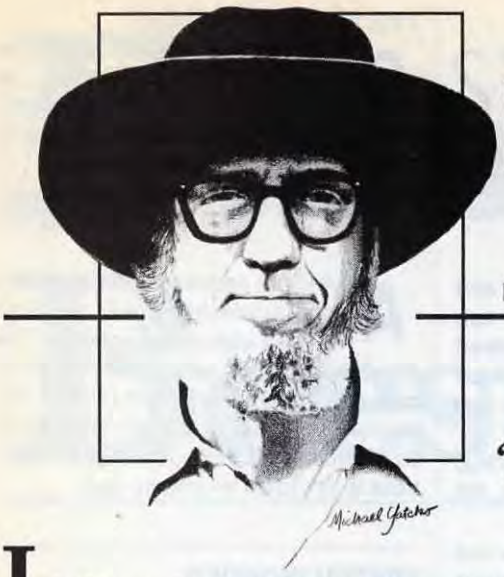
Sadly, none will live to see another rocket in their short, intense careers. They will labor, though, to continue the colony they are a part of, so the next generation can, in turn, experience the golden glory whose seeds now lie dormant in the crusty soil.

Kim Flottum

Have you received a reader survey from us lately? Many have, and more will soon. It is our occasional attempt to find out what you really think of this magazine.

If you received one, please take the few minutes it takes to fill out and return it to us. There is no cost to you, and the information you provide will be invaluable to us to make a better magazine for you.

So if you have one of those little forms laying around, waiting ever so patiently for your input, make it, and us happy, and send it back. It will make a better book for you to read. Thanks. KF



BEE TALK

RICHARD TAYLOR

9374 Route 89, Trumansburg, NY 14886

"For every problem there is a solution."

I find it very hard to adjust my state of mind to early spring. A few days ago I put my children in the car and went off to inspect my bluebird trail, but before I'd checked a dozen nesting boxes it began to snow, and my springtime mood went into swift decline. Yesterday a pair of bluebirds came around to inspect the nesting box outside my kitchen window, but then they went off and didn't come back. Maybe they saw our cat in the window. And now today it's cold again. When you read this, the dandelions and fruit bloom will have come and gone here, and the bees will be at their peak of industry. It is very hard to keep one's mood in harmony with all the ups and downs.

Perhaps I should say something about swarming, though it's hard to say anything new on that subject. It is what is likely to be uppermost in many beekeepers' minds in early June. Every beekeeper knows that swarming is caused by "congestion", but that doesn't really tell you much. People think it just means the beehive gets overcrowded. That is not quite right, but there is some truth to it. Many commercial beekeepers do nothing more to control swarming than just pile sticky supers on the hives. That actually seems to work pretty well, provided you use full-depth hive bodies for supers and you put them on with combs sticky from last year's honey crop. The bees go right up into the supers to clean them up, relieving the crowding below.

A few years ago, Mr. Edwin Scales, Ohio, told me that he puts two sticky supers on each hive when the pear trees bloom, and that he never sees any swarms. I don't know whether he was talking about full-depth supers or shallow supers. But they do have to be sticky.

That method of swarm control has the beauty of simplicity, but I did not find it totally effective back when I was producing extracted honey. Maybe it's because I was using shallow supers. And, of course, it is of no use to the comb honey beekeeper.

Bees don't like overcrowding, to be sure, but what really gets them thinking about swarming is a congested brood nest, that is, a brood nest that is so full of eggs, larvae and pupae that the queen has no place to lay eggs. You might think that she could just move on up to another super and start another brood nest, but that's not the way bees do things. They want their brood nest in one place, then they store pollen and honey above that. And the queen will almost never walk across a comb of honey to lay eggs above it, except, maybe a few drone eggs.

So what you have to do, especially if you are a comb honey beekeeper, is somehow break up the brood nest without (at the same time) demoralizing the bees. In other words, you split the colony in one way or another. This is to some extent accomplished by reversing the stories of a two-story colony every couple of weeks. But a more reliable (and certainly less disruptive) method is to remove two or three combs of brood from the center of the brood nest, replacing them with frames of empty comb or foundation. But then, of course, you've got to find something to do with those combs of brood. You can put nine such combs of brood and bees in a hive body, and you have got yourself a new colony of bees. Of course, if they don't have some queen cells on one of those combs then you have to give them a new queen, especially if you are not fond of the temperament of the original colony. Or you can, with the same result, put together eighteen such combs of brood and bees, making a two-story hive. Or you can make nucs. But I have described this many times, and probably shouldn't get going on it again.

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The temperature got up to eighty here on Easter Sunday. Of course, it didn't last long. We had quite a bit of snow a few days later. But on that Sunday I went around and saw my bees for the first time, gave each colony a bit of terra, and checked to see how they had come through. Well! I never saw my colonies so strong in the spring in my life! Except for two, which had only a handful of dead bees. This was not an ordinary winter kill, for there was lots

Continued on Page 365

QUESTIONS? ANSWERS!

Richard Taylor

FLAVOR FAILURE

Q. Early in June I supered a strong colony with a ten-frame shallow super of foundation and in about two weeks it was filled and capped wall to wall. But when I tasted the honey I knew that something was wrong. I live in the suburbs near farmland where the usual honey plants are common. What gave this honey its bad taste?

George B. Bean
Akron, OH

A. A jar of beautiful cut comb honey accompanied this question and it did indeed taste bad. I am convinced it is from privet, a very common ornamental shrub, especially in suburban areas where the writer lives. Privet has a nice fragrance when in bloom and I thought I detected a trace of this in the honey sample. This is one of the very few honey plants in our northern latitude which yields bad-tasting honey, and I suspect there is a large hedgerow of it within a mile of Mr. Bean's bees.

IS BLEACHING BETTER

Q. Is it possible to bleach small amounts of beeswax without special equipment? And where can bleached beeswax be purchased?

Joy Adams
Trumansburg, NY

A. Beeswax which has not been discolored by contact with metals, or admixed with propolis or other impurities, can be bleached to some extent by melting, then allowing to harden in thin sheets, cutting these into ribbons and exposing them to bright sunlight. This may take several weeks. The process is helped somewhat by acidulating the water in which the wax is melted. Beeswax should never be melted except in the presence of water. One-pound cylinders of bleached beeswax can be purchased from The A. I. Root Co. for $7.50, plus postage.

MOVE OVER MIGRATORY

Q. I'm making my own hives, and I want to know whether I can use migratory covers instead of telescoping ones. If so, do I need inner covers too? If not, then how do I feed the bees when they need it?

Keith Hall
Alton, KS

A. Precise measurements are not necessary so far as covers are concerned. A piece of plywood held in place with a rock is good enough, so long as it does not warp. Inner covers can be used, or not, as one pleases. For feeding bees sugar syrup, you need only to have a hole in the cover, over which a plastic pail or gallon jug with holes in the lid can be inverted, and which can be covered the rest of the time. The bees don't care what kind of cover the hive has, so long as it is reasonably tight and does not leak.

A KNOCK OUT

Q. Does nitrous oxide, or "laughing gas", have any permanent effect on bees? I have read that it knocks them out for about ten minutes, after which they recover. That is about all the time I need for removing bees from a house or a tree.

John Turner
Marianna, AR

A. Nitrous oxide can be purchased cheaply from agricultural outlets, as amonium nitrate, as it is used as fertilizer. If a spoonful or so is mixed with smoker fuel the resulting smoke does have this effect, and the bees do revive after several minutes. Used only once or twice on a colony I do not believe it would have any significant lasting effect, but I certainly would not recommend using it routinely, as it is an obvious abuse. It also makes the bees very cross.

THE QUEEN IS DEAD

Q. Rather than spending the time and effort to start a nuc, in order to requeen a colony, why not just kill the old queen and let the bees requeen themselves?

Marshall T. Slotterbach
Sellersville, PA

A. It is not necessary to make up a nuc in order to requeen, although it does assure acceptance. The disadvantages of letting the bees requeen themselves are (1) it sets the colony behind, and (2) a queen hastily raised as a consequence of sudden queenlessness is apt to be an inferior one.

WINTER WONDER

Q. If you winter colonies in 1-1/2 story hives, should you then reduce them to a single story when you put comb honey supers on?

G. Hartke
Middletown, CT

A. No. It is important, however, that there should be lots of honey in the hive in the fall so that it is heavy with stores, and still some honey in the top in the spring.

BAGGING BEES

Q. I am looking for a "bee sucker", instead of a bee blower; that is, a device that sucks the bees into a hose and then into a bag without harming them. Where are they sold?

John Turner
Marianna, AR

A. Such a device is available and is advertised from time to time in this magazine, also the *Speedy Bee* and elsewhere, but when I saw it demonstrated I could not agree that it was harmless to the bees. It seemed to me very rough on them, indeed.

Questions are welcomed. Address Dr. Richard Taylor, 9374 Route 89, Trumansburg, NY 14886, enclosing a stamped envelope.

Funny Beesness

ROGER WELSCH

Things have been pretty quiet down at Primrose Farm and up town at the Liars Hall of Fame. Everything is blooming again and the bees are gathering in so much nectar they are carrying auxiliary tanks under each wing.

Do any of you have the problem I have at Primrose Farm? We should have called the place "Prickly Pear Farm" because of all the cactus here. But the biggest problem has been with our bees. We have discovered that bees that gather most of their nectar from cactus flowers grow stingers at both ends. Anyone else had this problem?

An anonymous reader complains that I am making far too much of bees, that other insects are of interest, too. He says he has always been interested in the insect world, even when he was just a little tad in school. He recalls one occasion when his teacher was explaining that the whole world is divided into three kingdoms — animal, vegetable, and mineral. Insects, he reminds me, belong to the animal kingdom, so when the teacher asked the class, "What animal has the smallest appetite?" he popped up and said, "The moth."

The puzzled teacher asked, "Now, why is that?" He says he can remember responding, "Because the moth eats only holes."

He specialized, he writes, in anatomy. His teacher once called up his mother and said, "I must talk with you about your son. I caught him cheating twice on science exams. First we were studying plant structure and I caught him with a pocket full of leaves. Then we took up minerals and he came in with a shoe full of gravel. Tomorrow we are studying anatomy and I intend to expel him if I catch him with a nudist under his coat."

This correspondent says that one day the teacher asked the class what the highest form of animal life is and he thought he'd be funny and answer, "The giraffe." The teacher said, "Okay, smarty pants, why is it that the giraffe has such a long neck?"

He says he thought about it a minute and then answered, "Because its head is so far away from its body!"

All of which led to the teacher's last desperate effort to regain control — thereby providing the reason I am quoting all this nonsense in a column about bees! — when she asked, "What is it that a bee gets in a flower?" He answered, "Her head and maybe a little of her shoulders, but that's about all."

A contributor wrote to complain that he never got the promised book when I used his story in this column. I am often slow in getting the Rewards for Virtue (as I prefer to call them) into the mail but I always get around to it sooner or later. If I have used your story and you haven't gotten the promised book, drop me another line.

If you would like a copy of *The Liars Corner*, send me your favorite bee joke, story, anecdote, bumper sticker, or smart remark and if I use your material, sooner or later I'll send you a book.

What's more, your story will be entered into the contest for the National Liars Hall of Fame's Pinocchio Awards and you might get national recognition — or even show up in the *National Enquirer*, which is exactly what happened with the prize winning stories for 1988! From *Gleanings* to the *Enquirer*. Sounds like another tall tale.

That's Roger Welsch, Primrose Farm, Dannebrog NE 68831-0160.Δ

BEE TALK . . . Cont. from Page 363

of honey in those two hives. Now I'm beginning to suspect tracheal mites. A year ago I thought tracheal mites were not going to be any significant problem. That's what Roger Morse thought, too, and his opinions are worth a lot more than mine.

But now I'm having second thoughts, and so is he. On the other hand, it will be a simple matter to revive those dead colonies. I'll just swap empty combs from those colonies with combs of brood and bees from the brood nests of some of my strong colonies, in my regular swarm-control procedure described above, and I will have accomplished two things in one step. Mites do not contaminate the combs or the hive; they cannot live apart from the bees themselves. So, if my other colonies came through good and strong, as they did, then it is not going to matter much if the mites killed off two.

Sometimes, when I am confronted with some problem that seems sort of depressing, I say to myself . . . that for every problem, there is a solution, and in fact, there almost always is.Δ

Questions and comments are welcomed. Please use Trumansburg address and enclose a stamped envelope for a response.

GLEANINGS GLOBE

JUNE, 1989 ALL THE NEWS THAT FITS

From the Editor

GLOBE LAUNCHED

MEDINA, OH - Welcome to **Gleanings Globe**, the news and events section of our magazine. During the last three years, the face, format and content of *Bee Culture* has changed, and, I hope, will continue to do so.

One of the changes has been the news gathering ability of our staff. We have slowly improved and expanded our information each month. This is due to the increasing need our industry has of being aware of the surrounding environment that affects us.

This world encompasses far more than flowers and trees and the outdoor things we do, though. It includes the politics of bees and beekeeping — whether you are an active participant, casual observer or ignore it completely — Washington affects what you do. Remember the recent revoked rules.

It includes the happenings of the industry too. The award winners, the regional and national meeting news (all events are published in the B. Culture Calendar), which gives feature to speakers and such where space is prominent.

But certainly there's more. There's the continually needed updates and findings on the African honey bee, the tracheal and varroa mites, ASCS prices, and the rest of the federal foolishness that occurs each month.

Don't forget the National Honey Board! These folks are always active, and are effervescent in their news releases, which we'll pass along with equal fervor.

Then too, there's the peripheral news that, though not directly affecting us, may play a role in our daily doings. These are the pieces you see about Extension, about changes in pesticide rulings, discoveries and inventions and updates and the like. Generally, these are things that are good to know because they give depth and meaning to the rest of our lives.

Then there are the 'almost articles' we offer. Honey plant tidbits, free trade with Canada news items, USDA production figures and the like. These can be very important if you need the information, and you probably won't find it elsewhere.

Finally, there's information on industry personalities. Beekeepers usually keep to themselves, but on occasion we get a story or two. And, it seems, when prominent people pass on, there should be a final note.

We hope you enjoy the **Globe**, are able to use some of the information each month, and even pass it along to friends or family. We'd like to know what you think of the **Globe** so drop us a line if you'd like.

KF

Sutton's Gold

Federation Honey Show A Winner

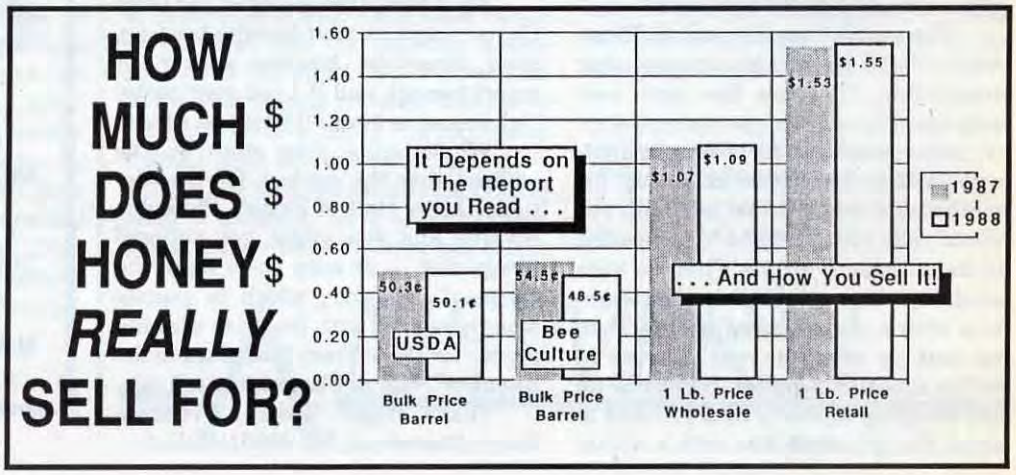
The 1989 American Honey Show saw 39 beekeepers entering 86 examples of their honey and wax production, the most participation the show has had in several years. It is a regular event at the annual convention of the American Beekeeping Federation, held this year in Indianapolis.

The Best of Show entry was chunk comb honey produced by Rick Sutton of Richmond, KY. Sold at auction during the Federation's annual banquet, the four-jar entry brought $121.00 for the benefit of the American Honey Queen Program.

In spirited bidding, the first place molded beeswax entry — a duck molded by Rich Fleming of West Chester, PA — sold for $410.00. The sales of honey and beeswax from the show totaled $2,186.61 for the American Honey Queen Program.

Rick Sutton displays the rewards of hard work and dedication.

For information on the 1990 American Honey Show to be held in Las Vegas, contact the American Beekeeping Federation, P.O. Box 1038, Jesup, GA 31545.



Not In 35 Years

EAS CANCELLED

DURHAM NH - Bob Cole, Chairman of the Board of Directors of The Eastern Apicultural Society announced May 9 that the Annual Conference, to be held July 10 - 15, 1989 will be cancelled for this year. Further, the conference will not be rescheduled or relocated.

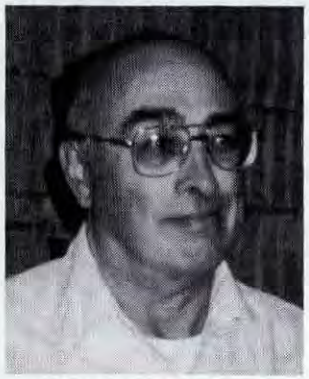
Cole stated the unresolvable contract problems between the University of New Hampshire at Durham, scheduled location of the conference, and the EAS Conference Committee finally led to the cancellation.

University officials could not be reached by press time for comment, but last minute negotiations indicated they were unwilling to change their position. That unwavering stance appears to be the crux of the problem. But confusion between University and EAS officials also exists as to when the contract in question was made available to the EAS Conference and Finance Committees for study.

Allen Cordeman, Finance Committee member, stated his committee did not have adequate opportunity to study the strict rules and requirements outlined in the contract before early May. Had they done so, it is probable negotiations would have ended sooner, and alternative plans for the 1989 conference made.

The specific problems stem from requirements by the University for a 30 day advance registration list, with provisions for very few changes after that. Historically, EAS meetings tend to have last minute registration rushes. The Conference Committee could not guarantee exact participant numbers 30 days in advance. And, if registration fell short, EAS would lose its advance payment. If, on the other hand, they gave a projection and more registrants showed up at the last minute the University would not make room for more than a 10% increase over the original projection.

Bob Cole summed up the



Bob Cole, EAS Board Chairman, announces meeting cancellation.

situation, "The University seems inflexible in their negotiations, and we must meet the needs of our members. If we are unable to do that, we have no choice at this late date but to cancel the conference."

The 1990 EAS Conference is scheduled for the usual time during August, and will be held in Maryland.

Network Available

BROCKPORT, NY — An electronic communication network is now available for bee researchers who have access to BITNET, (or EARN in Europe). Worldwide in scope, the bulletin board has current information on bees, (both solitary and social), sociobiology, behavior, ecology, genetics, taxonomy, pollination and other facts. Also, meeting announcements and communications are possible.

To subscribe, send message via BITNET to:
Type: LISTSERV@ALBNYVM1
Then: SUB BEE-L (your full name)
To signoff
Type: LISTSERV@ALBNYVM1
Then: SIGNOFF BEE-L
To Send message: Type: BEE-L@ALBNYVM1
Then: Message

For more information, contact E.E. Southwick, Dept. Biology, State University of NY, College at Brockport, NY 14420.

Honey Board Highlights

Exports, Logo Headline Meetings

NASHVILLE, TN — Over 85 honey producers, packers and importers attended the National Honey Board's first U. S. honey export sales seminar, March 30-31, 1989.

The seminar included reports on market research studies conducted in Japan, Saudi Arabia and West Germany as well as presentations on honey testing, transportation and collection.

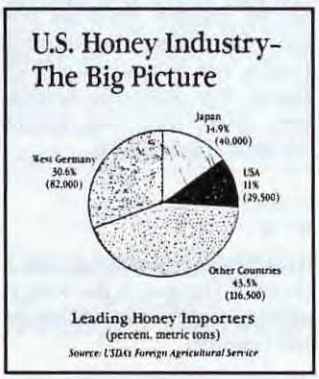
The seminar provided the "nuts and bolts" information that future exporters will need," said Dan Hall, executive director of the National Honey Board.

The National Honey Board recently received a Targeted Export Assistance grant of $500,000 from the USDA's Foreign Agricultural Service. The seminar included a review of the

Tetsuya Takashiima explains Japanese Market

Board's plans to promote premium U. S. honeys in targeted foreign markets.

Summary reports and videotapes of the seminar are available from the National Honey Board. For information, contact Tina Tindall, National Honey Board, 421 21st Avenue, #203, Longmont, CO 80501. (303) 776-2337.



More is Better

Honey Board Sticky With Logo Use

The honeybear service mark will be used on manufactured food products which meet National Honey Board standards for honey usage. Products using the word "honey" on the label should have honey as the primary sweetener. When a product's sweetener is at least 51% honey, or the product meets Board standards, the manufacturer may use the Honey Board's distinctive honeybear mark. To use the symbol, manufacturers must submit product formulation information to the Honey Board's food technology center and sign a service mark use agreement. (Any unauthorized use is strictly prohibited by the National Honey Board.) Watch for products marked with the lovable bear to appear in your supermarket.

Moves, Logo & Meetings

AFRICAN UPDATE

Dr. Collins

WESLACO, TX — With the recent assignment of Dr. Anita Collins to the Honey Bee Research Unit, Weslaco, Texas, as Research Leader, expertise in the biology and management of Africanized honey bees has been substantially increased at that facility. Since the Weslaco laboratory also has ongoing research projects in Mexico and is reasonably close to the activities of the Africanized Honey Bee Cooperative Program, the Agricultural Research Service intends to reassign the responsibility for providing technical guidance to the Cooperative Program from the Honey Bee Breeding, Genetics and Physiology Research Laboratory, Baton Rouge to the Honey Bee Research Unit, Weslaco, Texas.

Because of this change, the Weslaco lab will be moving to temporary quarters within a few months. The close proximity of residential neighborhoods makes the current facilities inadequate. The new location is on the USDA/Texas A&M Research Station where conditions are better for research requiring live bees. Dr. Collins the Research Leader, can be reached at ARS Honey Bee Research Laboratory, 509 West 4th Street, Weslaco, Texas 78596.

ONWARD . . .

The most northward AHB detection continues to be Nautla, Veracruz in Operational Unit 2 (State of Veracruz). The northern most boundary in Operational Unit 1 (State of Oaxaca) is the boundary between the States of Oaxaca and Guerrero.

LOGO DEVELOPED

The USDA Interagency Technical Working Group on Africanized Honey Bees has developed a logo to be used in conjunction with the various Africanized honey bee publications sponsored by the USDA. Use of the logo alone (without the language) may be used by USDA agencies, Plant Boards and other official government entities which have responsibilities in the Africanized Honey Bee area. If the language that refers to the Technical Working Group is to be used by any other agency, clearance must be obtained from the Technical Working Group.

USDA Interagency Technical Working Group on the Africanized Honey Bee

Extension Workshop Planned

The second Africanized Honey Bee Extension Service Workshop is being planned for August 22-23, 1989, at The Ohio State University, Wooster, Ohio. This year's theme will be "Africanized Honey Bees — Addressing the Public". Currently, plans are being made to cooperate with the USDA Information Service in presenting news interviews and addressing public concerns. Due to equipment requirements, enrollment will be restricted. More information will be posted in future issues of "Apiculture Awareness".

ISBA DIGS DEEP

Donation Cited

The Illinois State Beekeepers Association has donated beekeeping equipment to beekeepers in Mexico to help cope with the Africanized Honey Bee. On the recommendation of Gene Killion, who obtained the idea from Dr. Shimanuki while working in Mexico last year, the association donated 20 hive tools, bee veils, smokers, and hive bodies including frames. The deep supers will be used to transfer bee colonies from rustic hives into the modern equipment.

The equipment was sent to Dr. Anita Collins, Research Leader at the Weslaco, Texas Bee Lab, to be forwarded to distribution authorities in Mexico. Transferring colonies from rustic hives to modern equipment will enable the beekeepers to maintain European queens in these colonies.

* * * *

Trap pollen this year. Add income, experience and free food for next season to your list of Can-Do Skills!

* * * *

San Francisco In '89

WAS To Meet

Group Grows Every Year

The Western Apicultural Society will hold their Annual Convention August 7-10, with an incredible list of speakers on tap. These include Howell Daly, Eric Erickson, Robbin Thorp, Norm Gary, Christine Peng, Eric Mussen, Rob Page, Sue Cobey, Mike Burgett, and many more. Topics covered during the meeting include — education, African honey bees, beekeeping in urban environments, keeping bees in China, mites, swarming, mite resistance and more.

There will also be workshops available, covering topics including processing beeswax, making candles, section comb honey, marketing, AI, observation hives, mead, queen rearing and still more.

There are field trips to orchard farms, museums, gardens, and the San Francisco Zoo planned, plus social get-togethers each evening!

Accommodations are in modern dorm facilities, with cafeteria style meals available. The whole of San Francisco is also available for touring, shopping or just experiencing. For a complete registration package, including forms, costs and travel information, contact Stan Williams, Dept. of Biology, San Francisco State University, San Francisco, CA 94132, (415) 338-1695.

TAX TIP

A special one-time refund for excise taxes paid on diesel fuel from April to December 31, 1988 is available for qualified farmers, including beekeepers. The refund *must* be claimed by June 30, 1989. To qualify, both seller and buyer must be registered with IRS under code 4101. Use form 843.

Say You Saw It In 'The Globe'

Bees & trees, Too

Extension Hits 75

COLUMBUS, OH — "The Cooperative Extension Service has been investing in the future of this country since 1914," says Bobby D. Moser, director of Ohio State University's Ohio Cooperative Extension Service. "The Smith-Lever Act directed us to take knowledge to the general public and that's what we're doing."

On May 8th the Cooperative Extension Service celebrated the 75th anniversary of the signing of the Smith-Lever Act. This 1914 federal legislation created the outreach arm of land-grant universities in all states. Extension's expertise is in agriculture, home economics, youth development, community development and natural resources. But those areas are broadly defined, Moser says.

"Congressmen Smith and Lever never dreamed that the Extension Service they proposed would one day give advice on exotic crops or run inner-city nutrition programs," Moser says. "Who would have thought that 4-H would grow from one club in Clark County, OH, to the world's largest youth organization? And how many county agents in the early 1900's would have even considered sponsoring programs to help bring new businesses into communities? Our expertise is much broader today."

But that doesn't mean Extension ignores what it used to do. Farmers still get basic advice on crop and livestock production. Homemakers still find out how to process home-grown fruits and vegetables nutritionally. And there are more 4-H clubs today that ever.

"Even though we've modernized and are constantly reaching out to new audiences, this is still the Cooperative Extension Service," Moser says. "The way we reach our new audiences is the same way we reached out to farmers in the 1920's — one-on-one with expert information."

Threaten Homeowners

CARPENTER BEES

Often Mistaken for Honey Bees

The carpenter bees are coming — in fact, they are probably already where you're at. Carpenter bees overwinter as adults in their old nest tunnels in wood. But when they emerge in the spring — April or May — they fly erratically around people's heads, causing fear. They are very often mistaken and misidentified as just 'bees'.

Carpenter bees — *xylocopa virginica* — were first sighted in southern California in 1926 and again in Los Angeles in 1955. They look like bumble bees but rarely sting. Unlike bumble bees, they are destructive.

They attack all kinds of dried, seasoned wood, particularly softwoods such as cedar, redwood, pine, and fir. They bore holes into wood trim near eaves and gables of homes, fence posts, and weathered wood, leaving yellow sawdust on the ground. Nail holes, exposed saw cuts and unpainted woods are attractive nesting sites.

To reduce attack on outdoor wooden furniture, homeowners should keep all exposed wooden surfaces well painted.

Beekeepers are often asked what to do about these 'bees'. Suggestions include removing damaged wood, and replacing with chemically treated wood. Locate holes in wood trims, gables and outside furniture during the daytime, and spray insecticide directly into them in the evening when the bees are less active. Holes should be sprayed carefully and left open two to three days, or even until autumn, before sealing with caulking compound or wood putty.

Although no insecticides are labeled for homeowners to use specifically on carpenter bees, boric acid (Perma-Dust 240), propoxur (Baygon PT 250), diazinon (Diazinon PT 260), or chlorpyrifos (Dursban PT 270) are effective in reducing attack on wooden material.

As always, read and follow label directions carefully, and to the letter.

Canada Connection

Trade News

The U. S. - Canadian free-trade agreement became effective Jan.1, 1989. But all the impacts on agricultural trade won't be seen for several years, says Dennis Henderson, agricultural economist at Ohio State University. Annual agricultural trade between the two countries has been $4 billion to $4.5 billion the past several years.

Canada is running about a $400-million surplus even though the balance favored the United States early on. The new agreement phases out quotas, tariffs, subsidies and most other trade restrictions within 10 years. Consequently, bilateral trade should increase, but it's not clear who benefits most.

American grape and wine producers are likely to get the earliest gains. U. S. poultry, eggs, many fresh fruits and vegetables, and some processed products will follow. Grain and livestock are more uncertain, but Canada may have an early advantage on wheat flour, barley, oats and perhaps swine. The U. S. will still be favored on honey, but that will change, in all probability, with the next U. S. Farm Bill.

Support Arrives

MANITOBA, CANADA — Manitoba Agriculture Minister Glen Findlay has announced a C$750,000 support program for the Canadian province's beekeepers.

The plan provides beekeepers with immediate payments of $10 a colony — after the first 100 colonies — for every colony in production as of July 1, 1988.

Findlay said a committee will be established to review the industry and to develop short and long term strategies for its assistance. The government will also contribute C$9,000 to the national honey marketing plan.

He said the support program is needed because beekeepers have been hit for the past three years by declining markets caused primarily by U.S. subsidized honey and by above normal production on the prairies.

Seven Things to Think About

Numbers to Use

- **35.6% of municipal wastestreams in 1986** was composed of paper and paperboard. Other major categories are yard wastes (20.1%), food (8.9%), glass (8.4%) and plastics (7.3%).
- **24 million tons of paper** products were recovered from the 1987 solid waste streams in the U. S. This total represents an increase of 33% from 1980.
- **2,031,000 metric tons** of scrap aluminum was consumed by American industry in 1987.
- **27 recycled glass processors were in** operation in the U. S. in 1988. By the end of 1990, Anchor Glass estimates there will be more than 50 processors of recycled glass in operation.
- **74 kinds of pesticides** have been detected in groundwater in 38 states, according to the EPA. Most of the residues resulted from "normal" agricultural use, and, EPA says, most of the concentrations are well below health advisory concentrations
- **27,900,000 tons of plastic were produced** in the U. S. in 1987. An increase of 9.7% over 1986.
- **$2.5 million is the** material cost to make enough compost to grow 25 million pounds of mushrooms.

Obituary

D. C. 'BILL' CRAFT, age 66, a long time Florida beekeeper, died Wednesday, March 23, 1989, at the Perry Health Facility after an extended illness. Mr. Craft was employed with Davis Brothers Electricians thru Buckeye Cellulose Corporation as a Master Electrician. He quit as an electrician to go into beekeeping full time, serving as President of the Big Bend District and Florida State Beekeepers Associations. He served on the Board of Directors of the Florida State Beekeepers Association, the American Honey Producers and the Taylor County Farm Bureau. He also served on the Honey Advisory committee of Florida Farm Bureau from inception and was chairman of the Legislative Committee of the Florida State Beekeepers Association for many year. He was a longtime member of the Tupelo District Beekeepers Association, the Georgia Beekeepers Association, the Kentucky Beekeepers association and the American Beekeeping Federation. Mr. Craft received the Hubbard Award for Florida Beekeeper of the Year in 1975. He was a member of the Perry Masonic Lodge, Perry Shrine Club and Marzuq Temple. Mr. Craft was also a member of the Florida Fire Chiefs Association and the Florida State Fireman's Association. He helped organize the Taylor County Beaches Volunteer Fire Department. He was a veteran and a member of the Blue Creek Baptist Church.

Tried One Lately?

Scale Hives Boon to Beekeepers

NEW MILFORD, CT — Austin Knox has developed a sophisticated and easily used hive scale for hobbyists and commercial beekeepers alike. When asked why a beekeeper would use one of these scales, he replied, "Any scale will do certain things for a beekeeper, some just do them better than others."

10 REASONS TO USE SCALE

- Reduces internal inspections
- Reduces colony disruptions
- Gives accurate information on stores
- Prevents possible queen injury
- Gives clues to swarming preparations
- Precisely times honey flow initiation
- Indicates end of honey flow
- Enables harvest of speciality honeys
- Gives comparisons of different colonies, locations, queens, equipment
- Ends 'weight guessing' in fall

Even one scale will indicate what's happening in an area.

New, but Better?

Safe Chemicals

Benign chemical substitutes may soon be making significant inroads into the huge agricultural market. Of the 560 million pounds of herbicides and fungicides used by American farmers annually, 375 million pounds are probably or possibly carcinogenic, according to the EPA.

A recent study by the Natural Resources Defense Council concludes that the nation's children are literally being poisoned by our excessively contaminated food system.

Du Pont has spent the last 10 years and "hundreds of millions of dollars" developing a family of sulfomylureas to serve as substitutes for environmentally damaging herbicides.

According to spokesman Dr. John Thorne, it takes only one thimbleful of the new substitute to remove weeds from one acre of crops, compared to pounds of the old herbicides. They don't damage crops, the environment or humans, and after five years of toxicity testing Du Pont maintains that some of the sulfornylureas are safer than table salt.

Several of the "high tech herbicides" are already on the market, and about a dozen should be available to farmers by the end of 1989, said Thorne. If, as Thorne indicates, the herbicides are capable of "displacing most other herbicides to some extent", the potential market is large.

Display Index