JAN '90

GLEANINGS IN BEE CULTURE

BEEKEEPER'S INSURANCE

DESERTS, DROUGHT AND THE DRYING OF AMERICA

GOOD NEIGHBOR WINNER

BEESWAX CREAMS

THE DECADE of the HONEY BEE

ROOT™ PUBLISHING

THE A. I. ROOT CO., Publishers
623 W. LIBERTY STREET
MEDINA, OHIO 44256

SUBSCRIPTION RATES: United States, one year, $13.95; two years, $26.50. **Newsstand Price: $1.95.** Other countries including Canada, Pan American countries and Spain (U.S. Currency only), $7.50 per year additional for postage. Remittance should be sent by post office money order, bank draft, express money order or check. Published monthly. Subscription stopped on expiration. Change of Address: Return completed form contained inside issue. Articles are solicited. Stamps should be enclosed to insure return of manuscript to author if not printed. *Opinions expressed by the writers in these columns are not necessarily those of the publishers.* Advertising rates and conditions sent on request. Advertisers' Reliability: The publishers cannot guarantee advertisements in this journal, but over the years few complaints have been received.

Phone No. (216) 725-6677

Columns

Departments

COVER...*Welcome to the Decade of the Honey Bee. Our cover shot this month shows Dr. James E. Tew holding a black camera and strap — covered with African honey bees. Though taken somewhere in south or central America, this image has been haunting U.S. beekeepers for over 30 years, but the wait will be over this spring.*

Come March, or May, it's our turn, and the whole world is going to watch, at least for a minute or two, to see how well we handle the beast.

*Lights, camera — **ACTION!***

JANUARY '90 CONTENTS

(ISSN 0017-114X) Vol. 118, No. 1
117 Years Continuous Publication by the Same Organization

Features

INNER · COVER

The Decade Of The Honey Bee

Are you familiar with the term *Future Shock*? In his 1970 book of the same title Alvin Toffler called it "... the shattering stress and disorientation we induce in individuals by subjecting them to too much change in too short a time."

Sound familiar?

The world's problems have hit us in fast-foreword and frankly, some haven't been able to adjust. Disorientation has taken its toll.

The stresses of change have been more than some can bear because the ability to adapt is not universal. But adaptation is measured in many ways, and perhaps those who left the fold were the wiser, while we who remain, like good captains, will go down with the ship gallantly.

Nevertheless, for those who remain the challenge to change has been unrelenting. And therein lies the basis of evolution. Simply stated, evolution is the process by which a living organism rises from a lower and simpler form to a higher and more complex state. The rewards for winning this game are survival and self satisfaction, but the ultimate goal is Perfection.

Changes will never stop in this business. Or more appropriately, we will never stop changing. Because the minute we do, the dinosaurs will get us, and then it's all over but bankruptcy court. So we change. And continue to change. Tracheal mites made, and will make more changes. Varroa mites are still changing us, and probably will for years to come. The economics of keeping bees, of making honey and selling equipment will never be entirely predictable. Nor, I'm afraid, will raising bees and queens. If these were easy there certainly would be more of us doing them.

I've observed that for those who stay there are really three driving forces that keep them there. The first is quite simple — I *don't know any thing else.* Which means that changing from beekeeping to something else is deemed impossible. So instead they change the way they keep bees. This is the *"The only way out is through"* principle.

The second reason is *a passionate love of bees and beekeeping.* I sometimes wonder if there is any logic here at all. Rather, I think a force as basic as life itself is in the driver's seat, and those people are only along for the ride. This is the *"I'll do anything I have to"* line of logic.

But it is the last reason I find interesting, and the one that is probably the most successful, no matter the line of work. It is, quite simply, *The desire to be the best there is, no matter what.*

Those who carry this banner are good at all aspects of their jobs. Or, and this is the real secret here, they are the best they can be, all things considered. This is the infinite search for the perfect product. Certainly a never ending quest, for which the only satisfaction is 'what I've done this time is better than what I did last time, and I already know how to make it better next time'.

It doesn't make much difference what you do — butcher, baker or beekeeper — this is the attitude that makes winners, and this is the attitude that will get beekeeping, and beekeepers through the Decade of the Honey Bee.

Tolerance

In the next several months you are going to be exposed to some of the most astonishing information ever encountered in an industry that routinely uses the words 'Naturally Pure' in front of their product. Honey will soon join the ranks of all those fine foods that have a (dare I say it?) Pesticide Tolerance.

When the EPA gives its blessing to the Nor-Am Chemical company to sell Amitraz strips to control tracheal and varroa mites, the Genie is out of the bottle, and it ain't never goin' back. That's because one of the rules of the game is, when you use it, you leave just a little bit behind. So like milk and peanut butter, tomatoes and apples, we'll be allowed a tiny bit of poison.

The trade-off, of course, is another weapon in the escalating war on mites — a war that many aren't winning. But already war crimes are rampant. It's a safe bet that everybody who reads this knows somebody who has played fast

Continued on Page 52

Reader Assistance

To subscribe, simply fill in the form below and enjoy the exciting features awaiting you this year — Insurance Regulations, Smoker How-To, Requeening Tips, Inspections, Feeding, Pesticide Protection, and Wintering. It's all here — every month!

190

☐ Please Renew ☐ New Subscription ☐ Send Sample

☐ **2 Years - $25.50** ☐ **1 Year - $13.95**

Foreign Postage — $7.50/year additional for Foreign and Canada. Also add $5.00 for check handling costs on all foreign checks. No extra charge for credit cards. Find my enclosed check, or charge to my Credit Card.

Name _____

Address _____

City _____ State _____ Zip _____

Please check one.

☐ Visa
☐ MasterCard
☐ Discover

Signature _____ Expiration Date

Send remittance and form to:
Gleanings in Bee Culture, Subscription Department, P. O. Box 706, Medina, Ohio 44258

ADDRESS CHANGE

If you are moving, please fill in the form below so we can process the change without undue delay. Also, if you have 2 addresses during the year (i.e., winters in Florida and summers in Connecticut), let us know which months you spend where and we can pre-program your address change so you will find us waiting when you move — No Delays, No Fuss!

FOR PERMANENT CHANGE:

Name: _____

Old Address: Street _____

City: _____ State _____ Zip _____

New Address: Street _____

City: _____ State _____ Zip _____

FOR TEMPORARY CHANGE:

Name: _____

Address No. 1: Street _____

City: _____ State _____ Zip _____

Circle Appropriate Months: J F M A M J J A S O N D

Address No. 2: Street _____

City: _____ State _____ Zip _____

Circle Appropriate Months: J F M A M J J A S O N D

Send to: The A. I. Root Co., Subscription Dept., P. O. Box 706, Medina, OH 44258

- *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.
- Circulation figures may be obtained by contacting the advertising department, the editor or the subscription department. Circulation is monitored continuously by Arthur Andersen and Co., an international accounting and auditing company.
- 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.

POSTMASTER: Send Form 3579 to:
623 W. Liberty St., P.O. Box 706, Medina, OH 44258-0706, (216) 725-6677 • FAX No.: (216) 725-5624

NEXT MONTH

We continue our coverage of insurance problems and requirements for beekeepers next month. This time we'll look at product liability, which should be a concern for anyone who sells a food product to the public. Don't miss this need-to-know next month.

Our Good Neighbor contest winners will have a place here too next month. All of our entrants did a good job; and they all have something to share. And, in all probability, we can all learn something from these winning Good Neighbors.

Varroa mites are still on everyone's mind, and many beekeepers worry about using chemicals in their colonies. Once a colony has a mite population present there are only a limited number of actions available. But 'preventing' an infestation is an activity we all need to practice. In a feature length article, a USDA specialist examines the ways that varroa is spread, and explains how to avoid these situations. Good news, and good advice — right here next month.

Plus, all the regulars — Mailbox, Honey Report, Inner Cover, Globe, Calendar, Richard Taylor, Roger Morse and all the rest. But especially next month, watch for the Bottom Board — and "You Really Know You're A Beekeeper When..."

All this — next month in *Gleanings*. □

MAILBOX

■ More Mail

The exchange between Richard Taylor and the Editor on censorship (page 606) prompts two cogent examples. The statement "...in the 1920's most beekeeping was done in nail kegs and goods boxes..." caused one reader to protest to the editor: "How did the above statement get by a well informed editor? Remember an editor is supposed to edit!" We were able to find additional sources to back up the one used in the article, but the reader remained unconvinced and would have preferred the offending reference deleted. For the fun of it I continued collecting additional references as they surfaced, and could bore you silly with the recital. The best is one I found in a publication by the protestor himself, and the most recent is a reference to "gums" by Steve Taber in *Gleanings* 1987, page 363.

A disturbing example is the request of an enthusiastic promoter of packing bees for winter that the editor not publish articles, or letters, from misguided beekeepers with opposing views. The request was honored, and readers were denied access for many years to the experiences of beekeepers using other methods with success.

"Letters to the Editor" are a valuable source of information and opinion.

Toge Johansson
East Berne, NY

Your *Gleanings* Mail Box section in the November issue is, as always, intriguing. What a pity that such writing talent cannot be expanded to fill 80% of *Gleanings* instead of the roughly 5%. In 50 years I have never tired of bees, beekeeping and exchanges with other beekeepers. Thank you for an alternative to technical reports which are often *taedium vitae* to most hobby beekeepers.

Please allow us to continue to communicate our enthusiasms through the medium of *Gleanings*. Keep open the opportunity to share our mutual interest in beekeeping and the wide spectrum of activities that many of us have developed in conjunction with this splendid hobby or sideline business.

Larry Goltz
Redding, CA

■ Curious Names

I was a bit amused about Mr. Roger Bossley's article (*Those Curious German Hives,* Nov. 89, p. 622). Efforts to find answers to his questions in England rather than in Germany should have had a low expectancy. Also, who ever "labeled" the hives, must have done so in a playful manner, at best, or disregarding or not even knowing the proper German language. As far as I know, a bee hive would never be called a "Bienenkorb" unless it would be housed in a straw skep. A hive like the ones pictured would always be a Bienenbeute, Bienenstock or maybe (for the uninitiated — an Bienenkasten, or even a Bienenwohnung! But there is NO doubt about a Bienenkorb... It's a basket.

The design of most German bee hives has been dictated by the fact that German beekeepers (Imker) like to have their bees close-by...in their back yard or, at best, located in a small yard at the edge of town. Room is at a premium and the hives are stacked close together, mostly in so-called Bee Houses. A friend of mine had such a Beehouse (Bienenhaus) with sixty colonies, three high.

I myself — after WWII had bees in Freudenstein hives (Foundation size 18 by 32 cm [7-1/16 by 12-9/16 inches]). The honey room was above the brood room and every frame had to be moved singly from the rear. I soon grew tired of that and designed and built one-story hives, about 3 feet long, which allowed the honey room to be behind the brood room, but either one being adjustable to the needs of the colony. They had a saddle roof and were placed at random in our back yard.

Hans Kuerschger
Cahokia, I

■ Clearly Unclear

I am a senior Mathematics major at Lafayette College in Easton PA. One of the great passions of my life is beekeeping, and I look forward to your great magazine's arrival each month with zeal.

I have only been beekeeping for one year and will surely not be able to contribute to your publication with specific regard to bees for many years to come. However, I do have a basic understanding of science and I would like to clear

Continued on Page 9

MAILBOX

Continued From Page 6

up some errors that appeared in the Genetic Engineering article by Steve Taber in the November issue. The second paragraph has a few small mistakes.

The DNA strand is not comprised of nucleic acids, it makes up a nucleic acid. Nor is it a protein molecule as Taber says. Also, the DNA molecule does not contain amino acids, it "codes" for them.

To set the record straight: Deoxyribonucleic acid, DNA, consists of two parallel strands of polynucleotides (many nucleotides stacked on top of one another and chemically bonded) twisted into a right hand helix. Nucleotides are organic molecules consisting of a sugar group, a phosphate group, and a ring structure called the "base" Though only four different nucleotides exist in DNA, many of each are repeatedly stacked on each other in various sequences and make up the quite long polynucleotide strands. Each three-nucleotide sequence in the polynucleotide strand then "codes" for, or names, a specific amino acid (or some other things not relevant to this discussion) which we know are the building blocks of proteins. For example, a polynucleotide segment 30 nucleotides long could code for a polypeptide (a chain of amino acids) consisting of 10 amino acids.

Once the polypeptides are actually produced (a complex process), they are twisted, bent, and or combined with other polypeptides to form what we call proteins. A segment of the polynucleotide strand that contains codes for a sequence of amino acids that form a protein used in the organism, is called a gene.

So, in each very long strand of DNA there can be many genes, each specifying a particular protein used in the body. The protein can be built because each of these genes contains the sequence of codes in the correct order for the many amino acids that make up the protein. And each code is a stack of three nucleotides whose unique sequence specifies a particular amino acid.

Genes can be cut out, cut out and

Continued on Next Page

MAILBOX

Continued from Page 9

replaced by different genes, or inserted into a long strand of DNA, by sophisticated techniques. For example, the gene that codes for human insulin can be inserted into bacterial DNA giving the bacteria the capability to produce human insulin! This is called genetic engineering.

For a more detailed explanation of these phenomena I refer you to Cummings, Michael R. *Human Heredity, Principles and Issues* West Publishing, St. Paul, MN. 1988.

Blair H. Rollin
Allentown, PA

■ Better Breeding

The Harbo syringe described by Cobey was first described in 1973, "A technique for handling stored semen of honey bees." Annals Ent. Soc. Amer. 67: 191-194. It is particularly useful in the Page-Laidlaw system of breeding where large quantities of semen are injected and the semen has to be mixed from each drone.

In addition to the Harbo collection method there are at least 3 other mass semen collection devices available. Each is suitable to collect 50 or more microliters of bee semen.

For me and for many others, the most useful aspect of collecting large quantities of honey bee semen is to be able to ship it to other bee inseminators to be used as a stock transfer technique.

Most bee genetic selection schemes are not suitable for mixed semen any more than is natural mating which provides the same result. In breeding for resistance to AFB, chalkbrood and the internal parasitic mite single drone matings are much preferred to reduce genetic variability. For intensive inbreeding to maintain 3 sex alleles and high viability in the breeding population I use two drones, as suggested by J. Woyke. On some occasions semen from one drone is inserted into two queens.

Steve Taber
Vacaville, CA

■ Searching...

We want to find, if possible, information regarding the following postulates:

1. Bee pollen gives the ingestor energy
2. Bee pollen raises the red blood count (hemoglobin)
3. Bee propolis is the strongest antibiotic found in nature
4. Royal jelly stimulates the sex glands of the Queen Bee as follows:
   a. After one maiden flight stays fertile for five, six, seven or whatever number years.
   b. Makes the Queen Bee capable of laying more than her body weight in eggs every day during season,
   c. Causes the Queen Bee to live, barring accidents five, or more years.

We thought you would be in the best position to tell us where we can find the proofs for the foregoing postulates.

Royden Brown
3627 East Indian School Rd
Suite 209
Phoenix, AZ 85018-5126

■ Careful!

Mr. Rybak's article *"Of Honey, Wax and Microwaves"* in the October issue is a timely and informative piece of instructional material for the amateur one or two hive beekeeper.

I would however, from a housekeeping safety viewpoint, always put the container with the crystalized honey you wish to liquefy or the container with the wax cappings or whatever you wish to melt, in another container, like a one or two quart microwave safe pot, just in case a leak develops for whatever reason. Honey is bad enough to clean-up but wax is even worse.

Bob Hanks
Mountain Home, AR

■ Sorry...

Being a philosopher, Dr. Taylor possibly appreciates the nice point of putting down (in the "Mailbox") the use of the "Mailbox" to put an individual down.

MAILBOX

Personally, I too like reading what the Old Timer has to say.

Ed Rittershausen
Polson, MT

■ Missed Myth?

I wish to comment on "Hefting Myth?" in the September 1989 issue.

I disagree with the implication that "hive-hefting is a myth" simply because nobody guessed the exact weight, while many were close. Your premises are all wrong!

The true purpose is to let the keeper of bees know how his hive stands in relation to another. For example, when I hefted my 20+ hives on September 17, I placed bricks on them corresponding to Light (one brick), Very Light (two), and Very Very Light (three) and promptly proceeded to feed all the VVL's immediately (actually the rating was equivalent to Light, Medium and Heavy), since from past experience, they would never make it through the Free State's mild winters.

Guessing the exact weight is a beekeeper's game, NOT a tool for determining feeding. The editor/(Austin Knox) should know better!

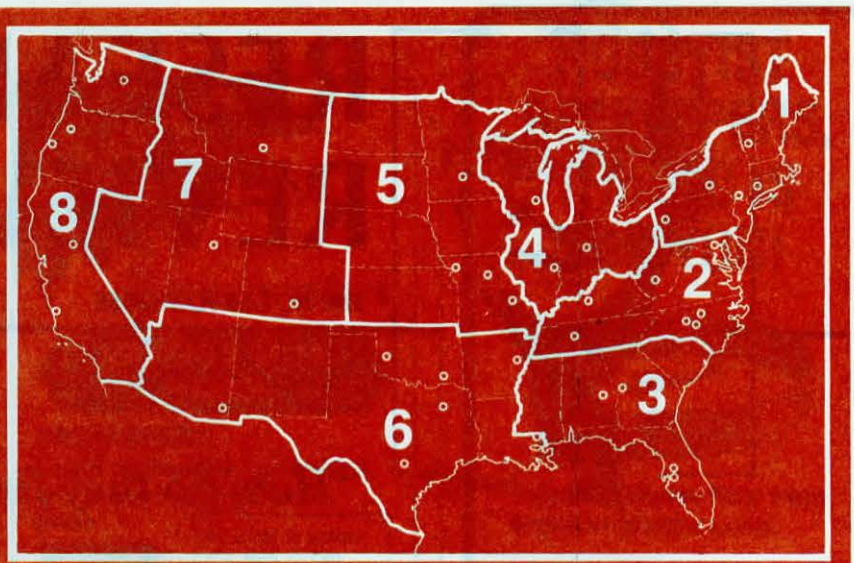
John Iannuzzi
Ellicott City, MD

Editor's Note: Your point is well taken, but you brought up to the main reason the article was published "...from past experience..." If a beekeeper has little or no past experience to draw on, the difference between very, very light and very light is difficult to tell. Knowing the exact weight is only a game when everyone knows the rules.

JANUARY Honey Report

January 1, 1990

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



	Reporting Regions								Summary		
	1	2	3	4	5	6	7	8	R	A	L
Sales of extracted, unprocessed honey to Packers, F.O.B. Producer.											
Containers Exchanged											
60 lbs. (per can) White	36.50	40.16	24.60	35.73	31.20	41.50	41.50	38.35	24.60-44.00	37.27	38.76
60 lbs. (per can) Amber	35.60	35.19	24.00	32.60	29.40	38.75	38.50	34.70	24.00-43.00	34.37	35.05
55 gal. drum/lb. White	.56	.35	.42	.62	.40	.54	.57	.57	.35-.62	.53	.49
55 gal. drum/lb. Amber	.55	.35	.39	.52	.48	.49	.53	.52	.32-.57	.48	.46
Case lots — Wholesale											
1 lb. jar (case of 24)	26.25	28.48	23.00	25.98	26.26	24.12	26.25	29.46	22.80-38.40	26.88	27.23
2 lb. jar (case of 12)	24.88	26.84	24.75	23.68	24.85	23.63	28.75	27.60	21.00-31.00	25.94	26.02
5 lb. jar (case of 6)	27.23	27.75	23.00	26.48	31.00	25.75	26.40	26.17	23.00-30.75	26.83	27.27
Retail Honey Prices											
12 lb.	..87	.97	.79	.89	.99	.93	.98	.92	.79-1.15	.94	.93
12 oz. Squeeze Bottle	1.40	1.41	1.19	1.29	1.21	1.22	1.27	1.43	1.09-1.89	1.31	1.43
1 lb.	1.61	1.67	1.49	1.45	1.44	1.57	1.55	1.38	1.29-1.99	1.55	1.58
2 lb.	2.42	2.91	2.71	2.46	2.51	2.57	2.81	2.99	1.99-3.75	2.70	2.76
2-1/2 lb.	3.05	3.83	3.29	3.29	3.05	3.25	3.83	2.25	2.25-4.50	3.32	3.62
3 lb.	4.00	4.50	3.49	3.29	3.56	3.75	3.73	3.53	3.29-5.36	3.82	3.82
4 lb.	5.00	5.28	4.78	5.01	4.90	4.50	4.85	—	4.50-5.65	4.90	4.20
5 lb.	5.50	5.95	5.49	6.12	6.15	5.25	5.80	6.10	5.25-6.75	5.80	6.11
1 lb. Creamed	2.00	1.15	1.35	1.59	1.60	1.60	1.77	1.75	1.15-2.00	1.64	1.66
1 lb. Comb	1.88	1.82	'3.00	2.50	2.50	1.95	2.77	3.38	1.25-4.50	2.33	2.08
Round Plastic Comb	2.00	2.20	2.00	1.85	1.78	1.80	1.85	1.75	1.75-2.20	1.90	2.05
Beeswax (Light)	1.10	1.03	1.05	1.15	1.33	.94	.97	2.25	.92-1.50	1.09	1.08
Beeswax (Dark)	1.00	.94	.95	1.00	1.08	.89	.88	1.10	.85-1.10	.97	.96
Pollination (Avg/Col)	32.50	—	—	27.50	19.00	20.00	27.00	27.00	9.00-32.50	25.50	25.40

MARKET SHARE

Seen an ad lately? They're showing up all over —
- Toilet stalls
- Parking meters
- Shopping carts
- Shopping bags
- Rented videos
- Airport monitors
- Fax machines
- Public phones
- 'Hold' tune on phone
- T-shirts
- Public T.V.
- Sunglasses
- Fortune cookies

Get the idea? Advertising, no matter how disgusting and inappropriate, sells product. Do you advertise?

Region 1

Price Index .95. Prices stable to dropping a bit in more rural areas. Urban prices, and sales steady to very strong. Northeast region typically strong in holiday sales for both bakery and consumer honey. Colonies wintering well generally, but mites in some areas will give spring headaches, and low production will mean feeding in other spots.

Region 2

Price Index 1.00. Sales increasing due to holidays, especially 'gift basket' sales, but prices holding steady to up only a little. Fall flows generally good to excellent, but some spots still need watching due to wet and unproductive summer. Tracheal mite infestations growing, and colony losses increasing.

Region 3

Price Index .78. Prices down and sales steady but not rapid. Warm weather, and poor production causing problems. Of course large scale producers are receiving 1-4 cents above buy back in some locations and for some types of honey due to shortages this fall. Citrus honey is nearly gold this year.

Region 4

Price Index .92. Prices and sales steady to increasing due to holiday sales and cooler weather. Urban areas especially showing increases in sales. Shortages also causing some increases.

Region 5

Price Index .91. Prices steady to increasing, and sales rising seasonally. But even the extreme shortages haven't given prices a big boost this season. Southern areas produced fairly well, and anticipate good wintering. Northern areas still on the dry-as-a-bone side. No solutions in sight.

Region 6

Price Index .96. Prices rising well for this time of year, and sales up too. Shortages over much of the area will keep prices up, and, with steady demand, sales should do well.

Region 7

Price Index .97. Prices increasing at even faster than expected seasonal rates. Sales strong, and looking to get stronger, which will help prices even more. Moisture improving a bit with recent snows, and bees already being moved west for pollination.

Region 8

Price Index .93. Prices strong, especially in the north, and sales steady to improving a bit. Some colony losses in the north beginning to worry owners there while more and more mites showing up in the south. Colony shortages for pollination becoming a real concern.

RESEARCH REVIEW

DR. ROGER A. MORSE

Cornell University • Ithaca, NY 14853

"How do they find their way, really?"

Do all the mites called *Varroa jacobsoni* really belong to one species? The authors of the study cited below concluded that the varroa mites infesting bees in the U.S. came from South America. The varroa in South America are known to have come from Japan, while those in Europe ultimately came from that part of Russia east of China and from Sri Lanka. As a result some have asked if there might be two or more species worldwide. The authors examined a total of 462 varroa specimens from four European countries, three countries around the Mediterranean, eight countries in Asia as well as Brazil and two locations in the U.S. Thirteen morphological characteristics were measured. Mites infesting *Apis mellifera,* our honey bee, as well as *Apis cerana,* that is varroa's natural host, the Indian honey bee, were compared.

The data show that mites collected from the two honey bee species are significantly different, on average, in body length; however, there is considerable overlap. It is also possible to differentiate between varroa found in the Americas, and those found in Europe. However, the authors conclude that "there is no reason to suspect the occurrence of more than one cosmopolitan species." Some variation in the size of any animal is, afterall, to be expected.

Delfinado-Baker, M. and M. A. Houck. *Geographic variation in* Varroa jacobsoni: *application of multivariate morphometric techniques.* Apidologie 20: 345-358. 1989.

In 1972, Dr. Martin Lindauer of West Germany reported that the dance language of the honey bee is affected by the earth's magnetic field. He observed that the dances performed by scout bees could be altered by an external field around a comb where they were dancing; fluctuations in the field could explain certain misdirections that were sometimes given by scout bees. Lindauer also reported that bees from a swarm that had just moved into a cavity built comb in the same relationship to the earth's magnetic field as did the parent colony. At the same meeting where he made this report another lecturer stated that homing pigeons too used the earth's magnetic field in orientation. These back-to-back reports, together with knowledge that even bacteria are affected by magnetic fields, stimulated a great deal of interest and many questions, the chief one being "How do they do it?"

In 1978, James Gould and his associates at Princeton University wrote a paper entitled "Bees have magnetic remanence." They described "magnetic material in the front of the abdomen" and said it was magnetite, a form of iron. This appeared to be the answer to part of the question but the basic question of how it all worked was not answered and this, naturally, stimulated a number of researchers to enter the field. At about this same time other bits of evidence indicated that bees could associate the richness of a sugar solution with man-made eletrical fields of different strengths and select the richest food on the basis of the field. The earth's magnetic field might also aid bees, in the absence of other cues, to set their daily clocks.

Now from two laboratories in Belgium comes a more detailed report that indicates that the iron-containing granules found in bees' fat cells, as well as the lining in their midguts, are nothing more than deposits that come about as the bees get rid of surplus iron, probably from pollen, which is often iron rich. When bees were kept in cages and not allowed any pollen the structure of the granules was different, they contained little or no iron. These granules may contain other elements too; when honey bees were fed lead chloride, lead was found in the granules.

The Belgian authors state, "W cannot exclude the possibility that th iron-rich granules have a function related to the detection of earth magnetism" However, it is clear they do not think this is the case. In their conclusion they say they are pursuing the idea the granules may be where honey bees accumulate heavy metals that might otherwise be toxic to them and that they cannot get rid of in the normal fashion.

Insofar as I am concerned the data that honey bees use the earth's magnetic field look good, too much so for us to think that bees do not use this field. However, it also appears clear that the iron granules that have been found to date do not have to do with orientation but are merely artifacts as a result of other body processes. Thus, the question, "How do they do it?" remains unanswered and awaits more research. The papers cited above are listed below but anyone who pursues the subject will find that much more has been written on this fascinating subject.

Gould, J. L., J. L. Kirchvink and K. S. Deffeyes. *Bees have magnetic remanence.* Science 201: 1026-1028. 1978.

Lindauer, M. L. *Magnetic effect on dancing bees.* Symposium NASA SP-262. Animal orientation and navigation. U. S. Government Printing Office. pages 559-567. 1972.

Raes, H., W. Bohyn, P. H. De Rycke and F. Jacobs. *Membrane-bound iron-rich granules in fat cells and midgut cells of the adult honey bee.* Apidologie 20: 327-337. 1989.

A REAL Bee School

STEVE TABER of Honey Bee Genetics

P. O. Box 1672 • Vacaville, CA 95688

"Getting "B's" in this school is as good as getting "A's"!"

Yes, that's right, a high school just for beekeepers. But wait a minute, it's not in the USA but in Poland. The next question is, of course, why have a high school just for beekeeping? I don't know exactly, but I did ask a lot of questions. You must understand that I don't know the Polish language, and I don't know the Polish Government's attitudes toward education, and a lot of other things as well. But here is what I learned, and if you want to know more you can go see for yourself and ask your own questions.

The Polish government has established high schools that specialize in various technical aspects of agriculture, and one of these areas covers bees. This doesn't mean that the only thing the students who attend this school study is bees, because they have a varied curriculum preparing them for either college, agricultural administration or actual farming, in this case raising bees and producing honey.

Students come from all over Poland and most live in the dormitories, but about 10% commute from nearby farms where their families live.

The school, and the small village itself, is called, Pszczela Wola. Pszczela means bees and wola the world — literally Bee World. There are about 250 students, equally divided between boys and girls. They have evening classes for adults, and all students are Polish except for 2 of the night students who are Vietnamese. Students are 15 years old when they begin the course work and it takes 5 years to graduate.

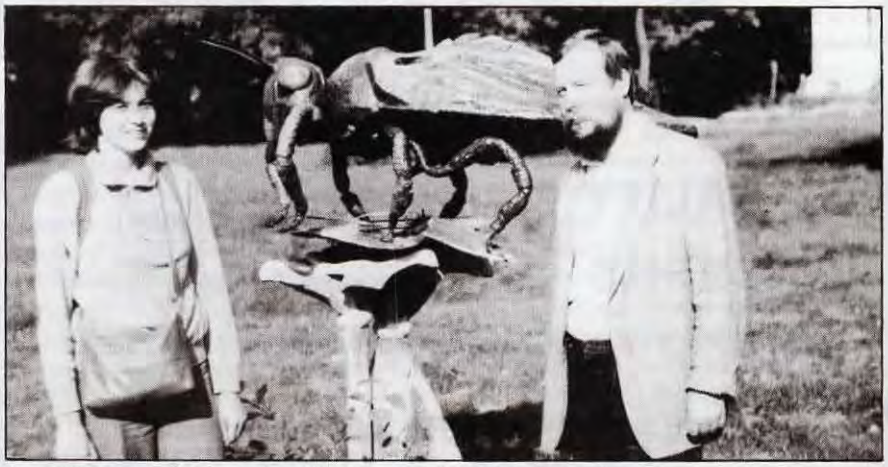
The school was founded in 1945 on the estate of a former wealthy landowner and has been continuously expanded since. Classroom and dormitory construction was in progress even when I visited during last summer.

The symbol of the High School I visited.

The most pressing questions I always have, about nearly anything, is why, or more exactly, WHY? What is the benefit of such a school, and who really gains from it.

I know that if I was 15 and had a chance to go to a school that taught beekeeping I would do anything I could to get there. I was 15 in 1939 and at that time I thought the world turned around bees and that they were the most important thing that existed. Then I found girls, married one and had children. I came back to my original notion that the world turns around bees — but there are some other considerations, too.

Bees do not live in a vacuum — they need flowers, water, sun and rain, soil, farmers, and a whole host of things associated with nature and agriculture. But when I was 15 you couldn't get me interested in thinking about soils and those other things. I wasn't interested in the fact that fertile soils were good and could grow more profitable farm crops than poor soils. And it certainly never occurred to me that good soils



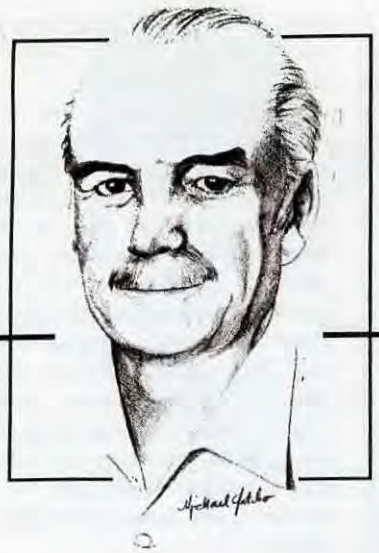
Two of the people I visited, standing by a sculpture of the honey bee — the focus of this high school.

would produce more honey than poor soils. Now, when I was 15, could you have convinced me that botany and plant identification skills were important? Hey, I was 15!

Fortunately, as I got older I matured a bit, and began to realize that bees, and beekeeping, are very, very complicated things. Bees fit in a complicated ecological niche, dependent on the soil, weather, the climate, and on farmers. Eventually I learned that bees have their own peculiar spot, which is actually part physics, mathematics, botany, biology, chemistry, and if you wish, human relations too, as we try to teach farmers and others about the importance of the little bugs we love.

All this was going through my head as I was shown around this school. I wondered how many of these interrelated factors were being presented to these youngsters. And I wondered how much of this peripheral information about bees and beekeeping could have been presented to me when I was 15, and how much of it I would have been able to use, and learn.

The headmaster was very hospitable and wanted to show me everything. We walked into several classes. In one students were examining magnified specimens to observe the differences between queens, drones and workers. When we opened the door and went in the class room the students rose from their seats and said "Good morning". As I looked at all those fresh young faces I really began to wonder about the whole philosophy of this bee thing that all of us are into. It seems to be universal, no matter where you live, the government you must live under, or how old you are. □



THE BEE SPECIALIST

ELBERT R. JAYCOX

6100 Shadow Hills Road • Las Cruces, NM 88001

"I have this crystal ball..."

Because we are entering the decade of the 90's this month, my friendly editor suggested that perhaps a column would be of interest about what to expect in beekeeping during the coming decade. He may have suggested this topic knowing that I am the most decadent of his columnists. He certainly didn't ask for it based on any previous success of mine in looking at the future of beekeeping.

I spoke on the subject at an Illinois beekeeping meeting in 1965 and again in New Mexico in 1981. The first try, twenty-five years ago, was not very accurate. In general, I was too optimistic and expected more changes sooner. I thought we might have electronic disease detectors and an electronic replacement for the smoker. We came close on the second item, but the one offered for sale was not effective in helping to manipulate colonies. I was wrong on many other items including better bulk honey containers, more cardboard equipment, and improved materials and techniques for feeding bees.

If you predict enough changes, you can always hit on a few. I guessed that we would have more soybean honey, more pollination, and more problems finding good locations for apiaries.

By 1981, my predictions were more conservative. Even those things we badly need have not come true, especially better, more consistent queens. There has been little change in extracting equipment and hive construction. As expected, plastic hives and frames have not made gains in replacing wood. It was relatively easy to predict that parasitic mites would reach the United States because they had moved inexorably to so many other countries in the world. It was easy also to predict that control or eradication of the mites would be unlikely we cannot even control American foulbrood properly when we have the means and the knowledge. We could also look to Germany and Mexico and see that the first detection of Varroa and tracheal mites was slow and the mites were out of hand before they were found. At the time, we were proud that 8000 mite samples were taken during a year-long survey by the U.S. Department of Agriculture, but that did not compare favorably with the 35,000 samples taken in six months just by the state of Bavaria in Germany.

My prediction of decreases in beekeeping research, extension, and regulation (inspection) was basically correct for the country as a whole. There are a few bright spots, however. We have seen attempts to slow the movement of mites by regulation, but none with realistic sampling to detect low infestations. Canadians are still killing colonies with tracheal mites yet only examining *four bees per colony* for certification in British Columbia. This is as unrealistic as the calculations by Congress of our federal budget and deficit.

Enough about the past. What can we expect during the nineties? I believe that honey marketing will continue to improve as consumer use of honey increases through the efforts of the National Honey Board. We still have a long way to go, but you can see the strong impact of a well-planned effort to convince the food industry and the buying public to use more honey. The approach has been broader than in the past, and bolstered by the idea that honey sales can be profitable, not just sweet and healthful as emphasized before.

In order to continue our marketing progress in the 1990's and beyond, beekeepers must offer their continuing support to keep the program in force and to share in supporting it. Equally important is a strong effort by all beekeepers to maintain the good image of honey in the eyes of the public. Those eyes are watching to see that honey is not contaminated by misused and illegal mite-control materials. This will be the greatest threat to the beekeeping industry in the decade. It is accentuated by the lack of approval of alternative materials for mite control and by our failure to move rapidly to implement an integrated control program for parasitic mites affecting bees. There are not enough people working at the state level to help in the effort, and the U.S. Department of Agriculture is not showing the leadership we need.

There is no lack of candidates for leadership or of ideas about how we will deal with the African bees when they cross our southern border, perhaps this year. We will poison them, exclude them, outbreed them, and trap them, if you believe the proposals that have been presented. Yet how can you have faith that we will exert any effect on the invasion when you look at the two previous debacles in handling the advent

of two other serious pests it he United States? The biggest effects fell on the beekeepers, putting many out of business and still damaging others by regulations and enforcement established on a false base — that you can detect mites and save money by taking small samples of bees for diagnosis.

We have equally fallacious ideas about how we will deal with African bees. They are fallacious because they are based on the idea that we will be able to spend large sums of money on control measures and regulatory action designed to maintain European honey bee stock in areas suitable for African bees. These include certifying and inspecting for European queens and killing hundreds of thousands of colonies. I can only offer a simple prediction: we will not find the sums needed and we will not prevent the widespread distribution of African bees and their hybrids in the U.S. It is also easy to predict that these things will come true in spite of many controversial and damaging programs (to beekeepers) instituted by state and federal organizations. They will be so busy trying to put the clamps on bees and beekeepers that we will get little help in a breeding program to give us productive strains with African blood and resistance to Varroa mites yet docile enough to keep beekeepers in the pollination business. All of us are greatly concerned about the actions that may be taken when the Africans arrive. Also, it is easy to put blame on regulatory agencies for programs that do not work. Yet, in most cases, it is the *beekeepers'* reactions, especially those of non-commercial operators, that are responsible for the laws and regulations put into force and then, later, withdrawn as unworkable.

Before you decide to support some of the schemes being proposed to keep your area, or all of the United States, free of African bees in the 90's, consider whether they are based on reality, including the heavy expenditure of funds for many years. If not, then throw your support instead to the programs of selection and breeding that we need. I firmly believe that when all the trauma is over, we will be better off than before with the addition of African blood to our stock. It may be premature, but a recent report from Mexico stated in November, 1989, that the African bees are responsible for an increase in honey production on the Yucatan Peninsula of Mexico.

The decade of the 1990's will not be without serious problems for the beekeeping industry in the United States. Overall, I believe it will be a rewarding period in which we will see some obstacles overcome after initial difficulty.□

Deserts, Droughts and the Drying of the American West

DIANA SAMMATARO

DESERT: A dry barren, sandy region, without inhabitants, and naturally incapable of supporting almost any plant or animal life.

Desertification is a change in the character of land to a more desertic condition, including impoverishment of ecosystems, reduced biological productivity and an acceleration and of soil deterioration.

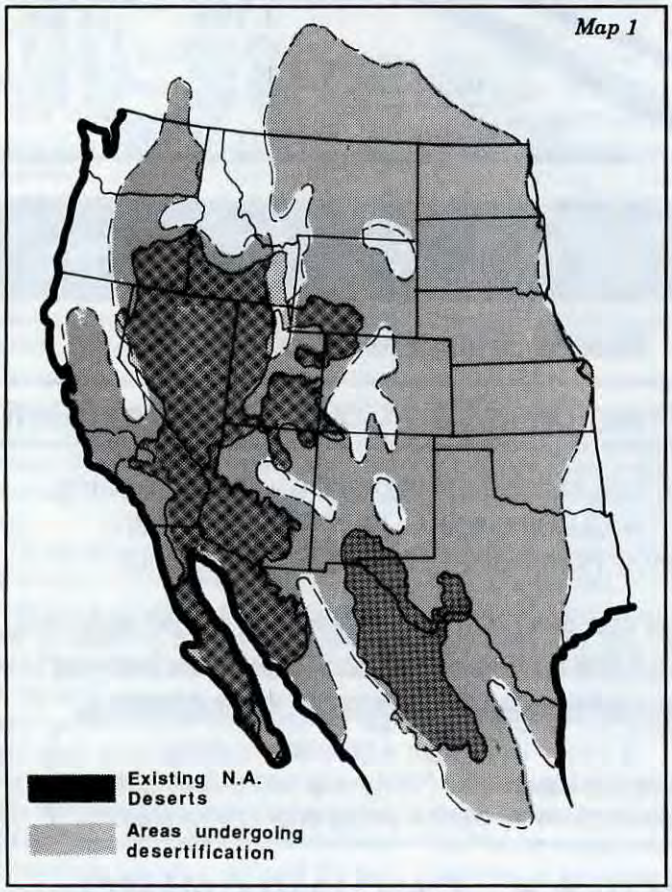
How can you tell if an area is in danger of becoming a desert? Here are some of the more obvious symptoms: unnaturally high soil erosion, declining ground water tables, salinization of

topsoil and water, and desolation of native vegetation[1].

While a location might have all five of these symptoms, any one indicates that the process has begun. These symptoms are of course exacerbated in times of drought where the problems are accelerated and easier to see. The long hot summer of 1988 is a good example. But this is not always the case.

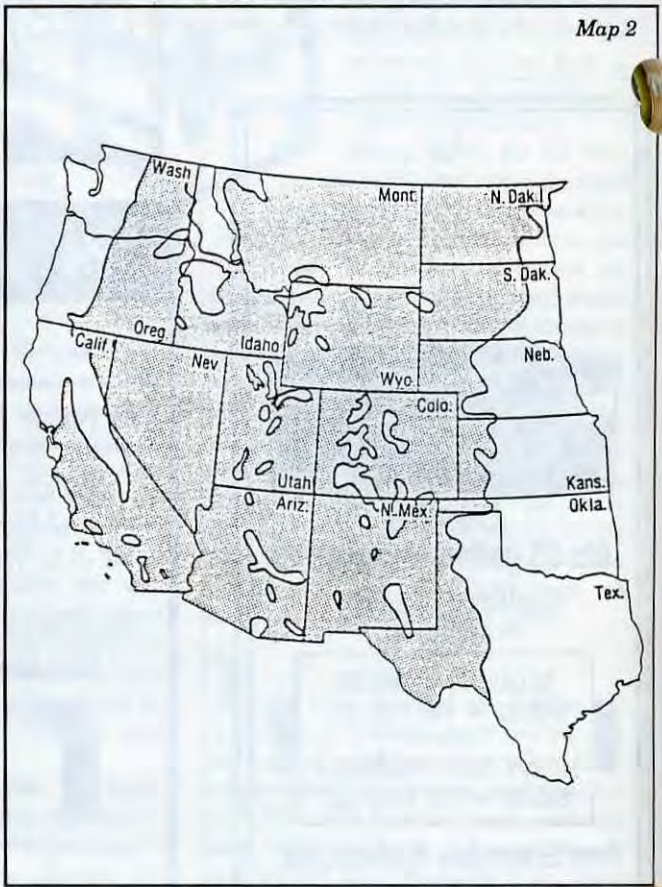
Mentioning the word desert brings images of cacti and sand dunes to mind, and we think of them as static environments, always there, never changing.

Map 1

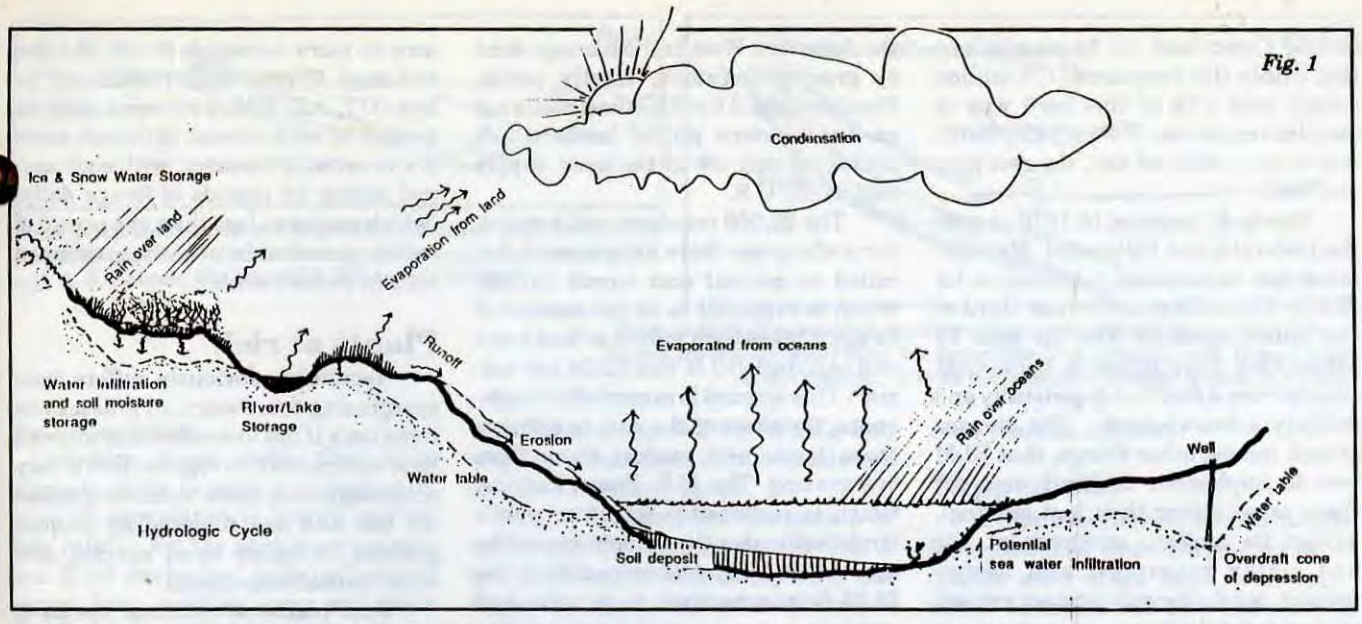


Arid and semi-arid regions of the Western States are under stress in dry years. Desert areas are expanding as those areas at risk are overgrazed and under watered. Redrawn from D. Sheridan "Desertification of the United States", 1981.

Map 2



Areas at risk are those which receive less than 20 inches of rainfall per year. Compare this map to the one on the left, showing areas undergoing desertification. Redrawn from D. Sheridan "Desertification of the United States", 1981.



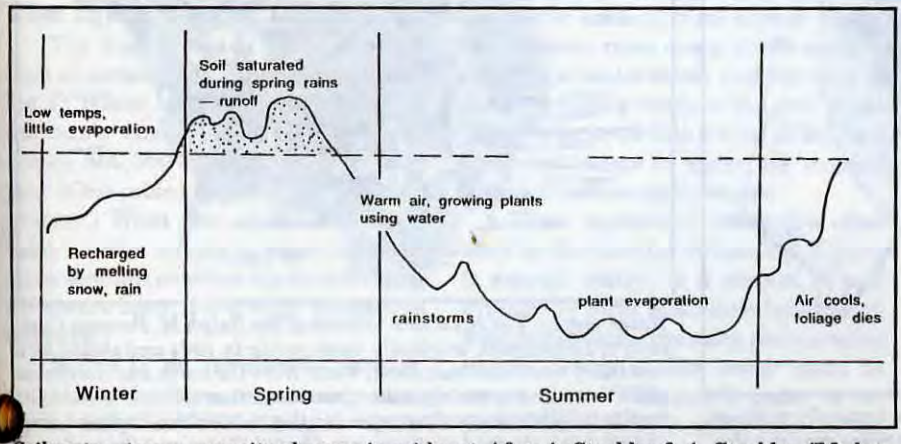
Water moves through the cycle first by being evaporated by the sun from oceans or over the land. Water vapor in the atmosphere condenses into clouds and eventually returns as rain or snow. Water is stored various ways — in lakes and oceans, as snow or in soil. Redrawn from "Physical Geography Today", R. Maller, et al. CRM Books, Del Mar, Co. 1974.

In fact, desert regions ARE changing. Not only are they increasing in size, but the natural desert areas are becoming more barren and lifeless. Remember Disney's "Living Desert?" This delicate environment is fast becoming the "Dead Desert" (see Map 1). And this is not a local problem but is happening on a global scale.

According to a 1981 report by the Council on Environmental Quality[1], about 225 million U.S. acres, an area close to the size of the original 13 colonies, are currently being desertified. This report showed that 36.8% of the U.S. land mass is undergoing severe desertification (see Map 1). Globally, the United Nations Environmental Programme reports that 15 million acres per year are becoming unreclaimable desert while another 50 million are put at risk.

Man's Water Mark

Since the first animals were penned and domesticated, man has changed the face of the earth. A good example is the destruction of the Asian Fertile Crescent. In ancient times these lands controlled by the Sumerian civilization, but are now Israel, Lebanon, Syria, Jordan and Iraq, and were the trading and agricultural centers of Asia. The fertile earth and abundant waters provided important food, lumber, trade goods and culture starting about 4000 B.C. Over the years, population and livestock numbers grew and needed even more food on which to feed. Soon, with the trees cut down to build ships and houses, the fragile land overgrazed and improper irrigation practices in place, much of the fertile crescent became, and still is a salty desert. The precedent was set and has not stopped since. Now, areas at risk are those which receive less than 20 inches of rainfall per year (see Map 2). Here at home, these areas include most of the Western United States.



Soil water storage capacity changes in midwest. After A. Strahler & A. Strahler, "Modern Physical Geography", J. Wiley Sons, NY 1978.

This Land Is Your Land

Much of this land, too dry for regular farming, is owned by the the Federal Government (659 million acres) and is called ***Public Lands***. The management of these lands, put aside for future recreational use and wildlife preserves, has been given to four agencies over the years. These are the U.S. Forest Service (1905), the National Park Service (1916), U.S. Fish and Wildlife Service (1940), and most recently the Bureau of Land Management (1946)(BLM).

The BLM, a descendant of the defunct Grazing Service and General Land Office, has been in charge of overseeing the ranchers who use our public lands as pasture for beef cattle, sheep and goats. But these fragile regions cannot support immense herds whose hooves and insatiable appetites not only damage or deplete the valuable grass cover, but also gouge into unstable stream banks, making them more subject to erosion. The two most troubled domains are the Navajo reservations and the federally owned rangeland.

In 1975, the BLM reported to the

Senate Committee on Appropriations that within this rangeland (170 million acres), only 17% of this land was in excellent condition. The majority (50%) was only considered fair, the rest poor and bad.

This led Congress, in 1976 to pass the Federal Land Policy and Management Act to serve as a guideline for BLM's 272 million acres (one third of our public domain). For the past 13 years, they have failed to implement this charter, a fact that is generally and publicly acknowledged. The charter stated, among other things, that BLM was to implement multiple uses for these areas (other than just grazing), protect its ecology, environment, air and water resources, and assign prompt regulations to protect critical environmental sites.

On the whole, they have failed to carry all this ruling because it takes money and BLM has been critically understaffed and funds have been woefully insufficient. While it manages one third more land than the U.S. Forest Service, it has only half of the Forest Service's budget!

The Big Beef

As already mentioned, the major factor contributing to desertification of the American West is the damage done by grazing livestock, mostly cattle. Consider this: 3.6 million beef cattle eat on our western public lands which makes up only 5% of the meat supply sold in the U.S.

The 23,000 ranchers and corporations who graze there have to pay a fee, called an *animal unit month* (AUM), which is supposed to be the amount of forage it takes each month to feed a cow and calf. In 1983 it was $1.54 per animal[7]. This amount is remarkably inadequate, far short of the cost to manage these lands and protect them from overgrazing. The U.S. Forest Service, which is responsible for other public lands, estimates the amount should be over $4.00 AUM. Compare this to the $8.85 fee ranchers pay to private land owners[8].

Most of the cattle are herded from place to place by one of America's favorite heros, the cowboy. It is ironic, and perhaps sad that this symbol of rugged independence is itself dependant on taxpayer's support. Both the land and water the cattle use are subsidized by us, but the cost may soon be too great as more of our land is turned to desert by these eating machines.

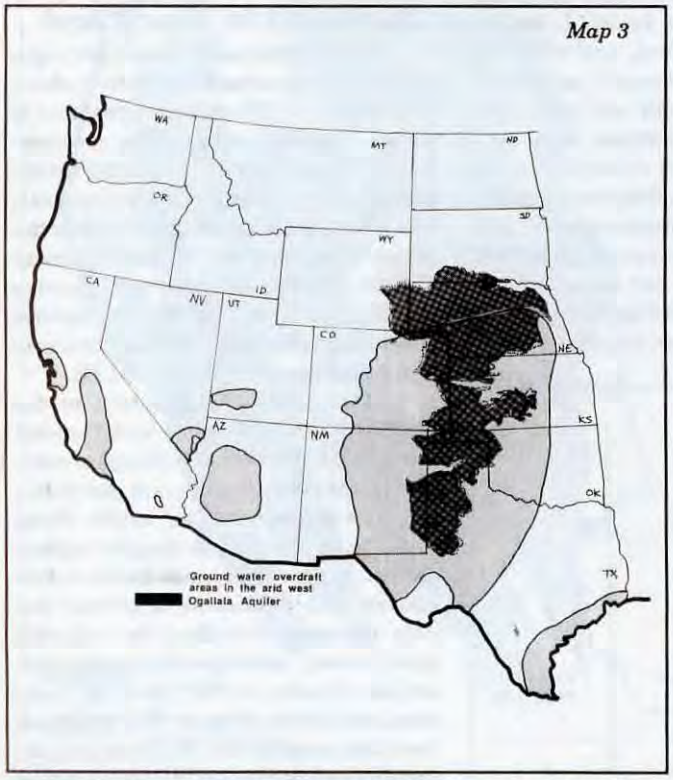
One animal needs about 20 acres of forage in arid lands, compared to one acre in more agreeable lands like the mid-west. If the average rainfall is 5" or less (UT, AZ, NM) 100 acres may be needed for each animal. Although grass is a renewable resource, with each animal eating 25 pounds of forage daily, (which produces less than one pound of meat), grasslands are often stripped bare in a short time.

Plants at risk

Vegetation obviously suffers from overgrazing too. Perennial grasses can come back if not overeaten and allowed time and rainfall to regrow. But if they are overgrazed, these valuable grasses die out and are replaced by annual grasses, invasive weed species and other undesirable forage.

Such plants do not cover the land, but grow only here and there, leaving the rest of the land unprotected. Leaf litter and other organic matter, common when grass cover is present, are vital to seed germination, moisture retention and protective mulch. They are easily swept away when the earth is bare.

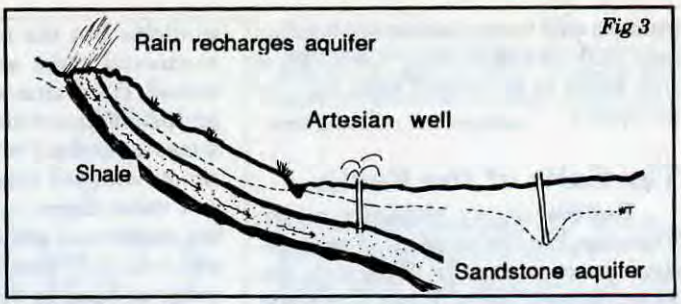
Once any ground is exposed it becomes subject to the first gust of wind or drop of water, which can move two to eight tons of topsoil away every year. Nature regenerates soil at a rate of only



Regions that are drawing out more water than is naturally replaced are called overdraft areas. Sooner or later, these areas may run dry, even from the ancient underground water reserves of the Ogallala. Redrawn from D. Sheridan "Desertification of the U.S." 1981.

Water supply: The NAWAPA scheme of the Ralph M. Parsons Company of Los Angeles, originally made public in 1964 and shown here in a later, more elaborate form. Water from the north and northwest of the continent — mainly water from Canadian sources — would be used to fulfill a variety of purposes in other parts of the continent, such as supplying the arid southwestern United States and the east coast of Mexico and "flushing out" the Great Lakes. Redrawn from D. Sheridan "Desertification of the U.S." 1981

Water percolates into the soil by gravity. The water table level, when examined in a closer view shows seasonal fluctuations. "Geomorphology" A. K. Lobeck, McGraw Hill, NY 1st ed. 1939.



Cross section shows which conditions (impervious shale layers containing a porous sandstone layer) favor the occurance of an artesian well. Drawn after A. N. Strahler, "The Earth Sciences", Harper & Row, NY 1963.

one ton annually.

Erosion is not pretty. Once land starts to erode in semi-arid regions, it loses its capabilities to absorb and retain rainfall for the next growing season. If left unchecked, wide gullies and gorges form, washing away still more arable land which starts to silt up streams and rivers. This process kills not only trout and other fish, but fouls the water used for lawns and our morning coffee. It even silts up dams that generate our electricity, so we have to build MORE dams to compensate.

To stabilize these lands grazing must cease for many years which allows rain to germinate dormant seeds. If soil erosion is already a problem, other drastic measures, such as regrading, mulching and seeding must be employed. Invader species, such as broom snakeweed, sagebrush, creosote bush, Russian thistle and rabbit brush must also be controlled if the more palatable grasses are desired.

However, any management practices which restrict grazing of these lands has and continues to meet strong resistance from ranchers and others who see their livelihood threatened. The irony is that the these measures must be taken if their livelihood is to survive!

The Hydrologic Cycle

The water cycle is one of nature's most chemically elegant creations (see Fig. 1). Water, as vapor is evaporated by the sun's energy, and is lifted into clouds, 500,000 cubic kilometers every year. (One cubic kilometer is 264 billion gallons[3].) What this all means is that today's water supply is essentially the same amount as when the first civilizations were born; it is a truly renewable resource.

Water is an invaluable requirement for agriculture, recreation, industry or daily household usage. Quite simply, without it, we would not survive. Water is needed for wildlife, fish and plants and it also dilutes toxins and acts as a purifying agent.

To understand the interaction of water and the earth, examine Fig. 2 which shows the various layers of soil and water. Rain infiltrates the upper belt and by gravity, percolates to the various ground water levels. Slow gentle rains mean much of the water will percolate into the ground, but two thirds of all rainwater falls too fast to be absorbed locally and runs off[3].

The line between the ground water level and the intermediate zone is called the water table, which fluctuates with rainfall, usage and the seasons. It is from the water table that our wells draw out clean and filtered water. Water flows underground by differences in pressure and sometimes end up in *aquifers* (Fig. 3), which are water bearing layers confined between an impermeable layer of rock. If the pressure gradient is high, water will spurt out of wells, called *artesian* wells.

Some aquifers were laid down over 30,000 years ago as the last glaciers receded. Now, however, they are being mined and pumped for irrigation which causes other problems.

Another water source found in semi-arid regions is beneath *alluvial fans* of valley entrances (Fig. 4). Fresh rainwater coming from higher mountain storms runs down these valleys, carrying a load of water and dirt with it. When it finally reaches the end of the valley it fans out into a mud slide. As it dries out, lenses of water are trapped between sedimentary layers.

These pockets of water are often used by farmers for irrigation. If there is enough water for a stream, it will eventually form a shallow lake which soon evaporates into salty plains called *playas*. Users of this water must be aware that if too much water is removed too rapidly it could exhaust the water pocket; it could take months or even years to recharge.

Tapped out

Irrigation of agricultural crops has been practiced since ancient times — almost since crops have been cultivated. In the Middle East and parts of North Africa, horizontal wells or *qanats* were cut into alluvial fans to supply water to downhill crops. These have been dated to 714 B.C. Today, agriculture accounts for 70% of ground water withdrawals. On a global scale, the U.S. ranks second in the world in millions of hectares irrigated; Asia is first[3].

While no one will argue that irrigated fields provide not only food for us (and our bees as well), there are important aspects which must be carefully observed to avoid problems.

First — water in arid and semi arid regions is plainly cherished. If too much is taken too fast the water table will draw down so it forms a dry cone (see Fig. 3). If drawn out faster than it can recharge, the water level can be substantially lowered. In coastal regions, where water is pumped out for agriculture and urban use, an overdraft of the water table allows sea water to intrude. This is already happening in Florida and parts of California.

If irrigated water comes from one of the ancient aquifers, such as the *Ogallala Aquifer* in the West, (see Fig. 5) it is unlikely it will ever be replenished. Remember, it took eons of time to form this aquifer. One fifth of our Western irrigated lands, from Nebraska to the Texas panhandle, use water from this ancient underground source[1]. Once withdrawn, and the Ogallala is over half dry in some southern states, it is gone forever. This short sighted use could be disastrous when, in the future such water may be needed.

But in some areas aquifers are overused not just for irrigation but for urban expansion. In Tucson, AZ, whose water comes solely from underground

sources, the water tables have fallen over 50M (164 feet!). Only about 35% of this water is recharged each year by rainwater.

The Salts of the Earth

Besides simply removing water, irrigation has the problem of salt. Ancient water is usually filled with dissolved mineral salts. When this water is used to irrigate fields two things can happen. First, the water table can be raised so it is closer to the surface, and the now wet mineral-rich arid soils release even more minerals. When the sun evaporates the water from these fields, the salts are left behind (see Fig. 6). Because the water table is now closer to the surface, as the water above evaporates, the water below is drawn up by capillary action and is thus subject to further evaporation and even increased salt deposition. Salty soil inhibits plant roots from absorbing moisture and oxygen. It is estimated that salt from improper irrigation practices sterilizes 3 million acres annually worldwide.

A second way salinization occurs is when irrigated lands are poorly drained. Standing brackish water becomes saltier with each passing sunny day. This is happening in many places in the world but is most evident in the U.S. in the San Joaquin Valley of California.

This productive valley encompasses 10 million acres in an arid land, with over 4.5 million under cultivation. In 1977 over $4 billion worth of farm products were produced there, more than in all but three states in the U.S. The major crops are cotton, grapes, tomatoes, barley, alfalfa, sugar beets, nut, fruit and citrus trees and livestock[1].

Where in this arid, Mediterranean type climate does it get water? Twenty percent comes from northern California stored in reservoirs and aqueducts, 40% from aquifers and 40% from streams. Over 97% of the cultivated area is irrigated.

In 1977 over 400,00 acres of this irrigated farmland were subject to brackish water and salinization. This translates to a 10% reduction in crop yields annually. Waterlogged fields need to be drained to carry away the salts. Underlying rock makes this difficult without a system of drains built by man. This problem has been studied for over 70 years and several solutions are available but the economic and environmental costs are still being discussed. Tile drains carry water off fields and into ditches where it is pumped into a master drain. From there, the water can be dumped into a natural sink, a salt water marsh or a salt lake where the water can evaporate, leaving the salt behind. Water desalination is the major problem in the San Joaquin Valley, one which is still waiting a reasonable solution.

But salt is not the only problem.

Deadly, Deadly Lakes

Five years ago the 1200 acre Kesterson National Wildlife Refuge, north of Los Baños, California, made the national news. Not because of its beauty, or its shallow lakes which are important wintering places and flyways for all kinds of ducks, geese, cranes and other waterfowl, but because of something gruesome. Concerned at the high rates of deformities and mortalities in the birds, biologists uncovered some disturbing information.

They found that the area was a dumping ground for agricultural water run off. This water contains not only salts, but various minerals, selenium, pesticides, heavy metals and other toxins washed downstream. This apparent wildlife haven was in reality a death trap to anything nesting there.

The National Wildlife Refuge System has over 90 million acres in the 49 States (many are important forage areas for bees as well). But the system really has "no system"[4]. Many of the refuges were last minute efforts and concessions with no real thought given to their ecological importance or adjacent land uses. It does little good to save a marsh area next to a city's sewage treatment plant.

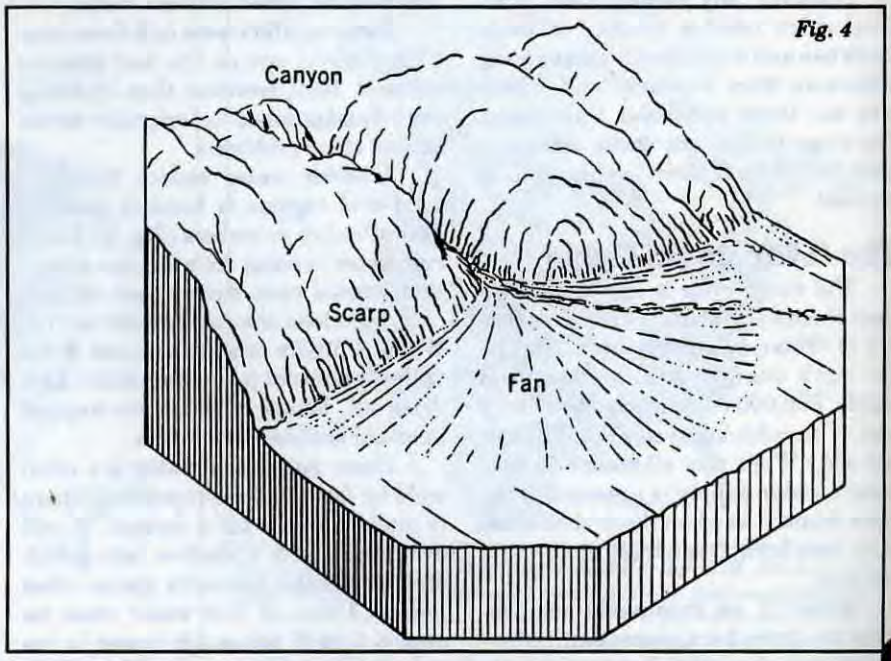
Only four years ago the Fish and Wildlife Service surveyed the refuges to find that more than 60 of them were subject to serious and potential contamination from neighboring urban areas (sewage and other pollution), cyanide from mining operations, gas and oil leaks, ground water contaminants leaching from buried garbage dumps and landfills, and agricultural chemical runoff.

Wetlands are important areas not only for wildlife, but for water purification and groundwater recharging. Already, California's Central Valley has lost over 90% of its natural wetlands. No wonder beekeepers there are having problems.

Disappearing Act

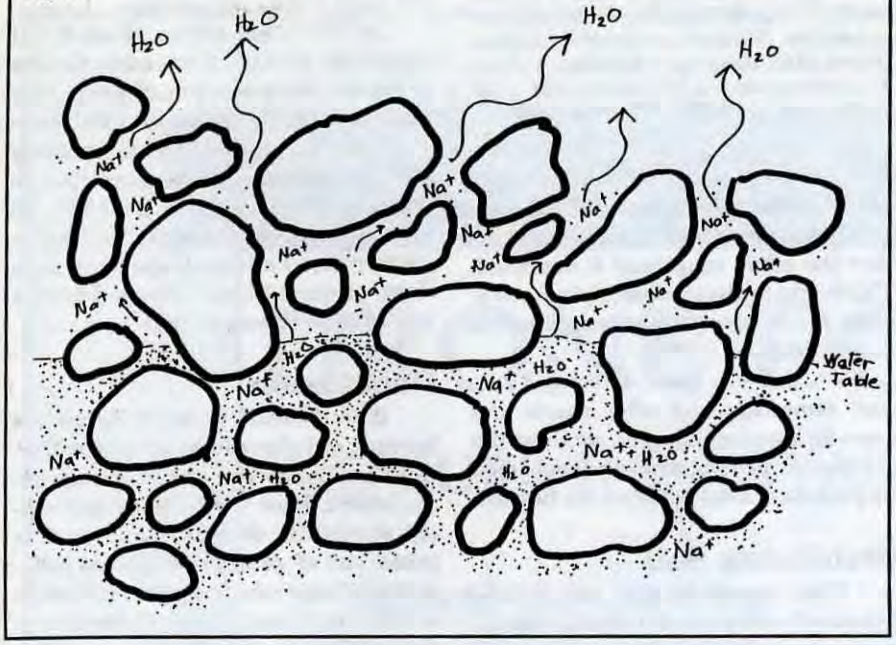
When water is withdrawn from the earth and is not replaced, actions take place that, if not checked cause other problems. As shown in Fig. 6, the space between soil particles in the earth are often filled water. When that water is taken away the soil particles lose their resilience and come closer together. If the water is not replaced the soil par-

Fig. 4



An alluvial fan in arid zones. Lenses of water are buried under layers of mud, which can be drawn off for irrigation. From A. N. Strahler, 1960, "Physical Geography", NY, John Wiley & Sons.

Fig. 5



As saline water evaporates from the surface, salt molecules are left behind in the soil. The remaining water is drawn to the surface by capillary action. As the water evaporates, the soil particles fall together.

ticles eventually compact and the ground will actually sink. If this occurs in the open where it doesn't harm anything, little damage is done. But what if it's under a street, a house or a hospital?

Sink holes, where underground limestone deposits are eroded by water and eventually collapse, are regular features of the Florida landscape. But in areas of groundwater overdraft, such as Mexico City, Galveston, TX, Beijing, China, and the San Joaquin Valley of California, the land has compacted and sunk from several inches to 20 or more feet. This subsidence of land surface damages buildings, streets, pipelines, and wells. Some residents in Mexico City now have to enter their homes through the second floor because the first floor no longer exists.

Compacted soil is difficult to reclaim. Not only does the ground sink, but a valuable storage area for water is destroyed or diminished. But it is not just water that man removes. The most dramatic example is in Long Beach, California area. Between 1928 and 1951 it dropped 27 feet because of the continual pumping of water, oil and gas, until city officials finally took drastic actions (see Fig. 7)

To stop the ground from sinking, Los Angeles is pumping specially treated water back into the ground. This has essentially stopped the subsidence now, and there has even been a rebound. In other areas, water tables are pumped lower to prevent seeping water to evaporate and form a salt layer. Such water is mixed with irrigated water. However, this can become fouled with salts and other contaminants.

There are several ways to artificially recharge water tables. Water is pumped into wells, shafts or other excavations or spread out in basins. In some areas water is collected and stored during the rainy season and pumped to a recharge area to restore water in an aquifer.

Waterlogged irrigated lands can be flushed of salts and drained to reclaim fertile soils. The Imperial Valley is a good example. Early in its history, when the Colorado River was diverted to the Salton Basin to irrigate fields (1900) salt became a problem. By 1919, 25% of the land was seriously affected. A series of open drains was cut to drain off the salty water and today much of the land is once again cultivated. However, the salt laden water has to go somewhere, and it ends in the Salton Sea, which is artificially salty and full of agrochemicals. Such residues must still be dealt with, however, or they will cause problems of their own.

There are plans to divert other water resources, especially Canada, to supply thirsty southern farmers. These are really being considered, though the political, economic and ethical ramifications still need more work. A 1964 plan (see Map 3) shows water irrigation water from Canada flowing to California, the southwest states, and to the Great Lakes to "flush out" contaminants. While this plan may be remote, during some drought years this or another plan may very well be implemented. Already the Metropolitan Water District in southern California estimates that it could fall short of meeting local water demands by the year 2000 and they are planning to import northern waters.

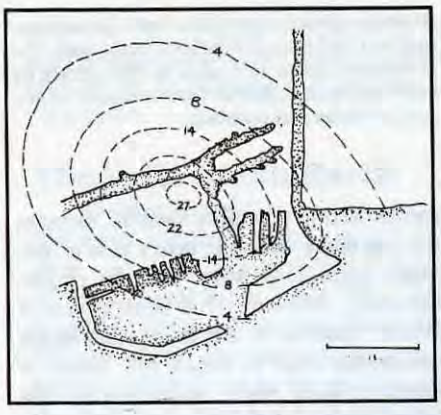
To Balance the Water Budget

Water is wasted daily throughout the world, but in some areas this waste water may one day be our drinking water. To begin balancing the water budget, water prices for irrigation should reflect its worth. A 1980 study in Mexico graphically illustrated that where water rates were increased with the amount of water used, efficiency and conservation rose 20% compared to places where water was charged at a flat rate. In other countries, including the U.S., water conservation is considered non-beneficial. Farmers and others are encouraged to use up their allotment even when they could economically reduce their water use. After all, if they have water left over, that could mean they get less the following year. (This is a common problem in Government regulated funds.)

By conserving water, Los Angeles and other cities in southern California could save millions of dollars and perhaps never have to implement other drastic measures. Not only by conserving, but by recycling and reusing waste water, cities and industries, from paper to chemical plants, can get more "mileage per gallon" Some industries are already doing this and more of them will continue to reuse water if pollution controls and water allotments become more stringent.

Range Regeneration

To save the rangeland discussed earlier, ranchers and herders alike must change their ways. Here, but especially Third World nomads must look to smaller herds on smaller parcels. Resting lands and controlled grazing may replace the open rangeland policy now practiced.



Land subsidence in Long Beach Harbor, CA from 1928-1962. Sinking of land is a direct result from withdrawals of water, oil and natural gas. Numbers are feet of subsidence. Drawn after "Geography: Location, Culture & Environment." J. F. Kolars and J. D. Nystuen. McGraw Hill, NY 1974.

In parts of West Africa, "fodder banks" were developed. When the rainy season starts, herds are crowded onto enclosed 2-4 hectare lots (5-10 sq. acres) where their hooves break the soil apart. Once seeded with legumes and fertilized by dung, these areas serve as banks where hay is periodically harvested to tie their stock over during the dry season.

If such areas were seeded with nectiferous crops, like alfalfa, clovers and the like, they cold be important honey sources as well.

Where open rangeland is used, instead of allowing the cattle free access, controlled grazing may have to be utilized. If left to themselves, cattle will concentrate on their favorite plant foods, overgraze these areas and disrupt the land's natural ecological succession. The animals must be moved off after a once-over burst of intensive grazing and followed by a few years of rest. This method allows the land to naturally regenerate.

Timing of grazing and rest intervals is actually more important than herd size. It should match the seasonal changes in productivity of the forage to ensure the animals graze plants at their most nutritious stages, then remove them so the grasses can regenerate.

Failing this, furrow drilling of barren land is being tried. This tries to imitate the hoof prints left by animals which create small pockets in the soil which trap snow, water, organic matter and seed. If no natural seed is available, it can be sown prior to drilling.

In some ranges, mesquite, acacia and other shrubs and trees, invade grasslands which were grazed off. Cattle can help scatter seeds of these plants, since they ingest the beans which pass unaltered through their digestive systems. Later they are deposited where they germinate and sprout. The problem here is that mesquite, while good for beekeepers, means that the cattle rangeland is degraded. This might not be necessarily bad but in some areas, mesquite invasion means desertification.

While these trees do control erosion somewhat and offer shade and cover for livestock, they do not cover the ground completely, and wind could pick up pockets of sand between the bushes.

Stabilizing Soil

When sandy or silty soil is subjected to blowing winds valuable topsoil is swept away and the whole watershed is affected. As mentioned previously, not only do soils wash away and silt up reservoirs, but wind blown loam causes dust storms and reduces crop yields. Replanting these watersheds is critical to keeping the soil in check and water available.

In the 18th Century, Scottish farmers used windbreaks, shelterbelts, or windrows to develop marginal lands and reduce windspeed significantly, depending on the height of the windbreak. Not only do windbreaks reduce wind velocity but they allow the wind to drop loads of soil, or in the winter snow, thus trapping a future water supply.

In the Western states, trees are used as windbreaks if rainwater is adequate. In drier areas, perennial grasses or annual covercrops left over winter can trap soil and water and substantially boost crop yields. Furrows and deep plowing can also help trap blowing soil if emergency dry weather measures are needed. Basically, any technique that creates a rough, heavy surface is preferred to one that is smooth and flat that the wind can blow across unimpeded.

In 1982 a soil survey showed that farmers in the U.S. were losing six tons of topsoil for every ton of grain they produced. This initiated the Food Security Act of 1985 which called for highly erodible cropland to be converted to grasslands or woodlots. By 1987, 23 million acres were enrolled in the program, with 17 million to go. Erosion on these protected lands dropped from a loss of 29 tons/acre to two[6].

Conclusion

It is difficult to wrap up such a barrage of information on desertification in a handy one or two paragraph statement. How it applies to beekeepers should be obvious. Land that is taken out of production due to overgrazing, improper irrigation activities or other man-made factors, hurts bees as well. Any rehabilitation project, whether reforestation, mining waste reclamation, or grassland restoration, may, and should include nectiferous plants. Further, those in charge should be made aware of those species that could benefit both bees and the reclamation project. If such plants were better pollinated, they would reproduce faster (more seed) and thus spread more and restore the lands faster.

There are lists of plants is such sources as **The Directory of Important World Honey Sources**, E. Crane, P. Walker, and R. Day. IBRA, London 1984 but it is up to you, individually, to find out if such a project is going on in your area, make the necessary contacts and make your recommendations known. It will benefit us all because it benefits our planet.

References Mentioned

1. *Desertification of the United States*, D. Sheridan, Council on Environmental Quality. Washington, DC 1981
2. *Managing Rangelands*. E. C. Wolf. in State of the World 1986. W.W. Norton, NY 1986.
3. *Managing Freshwater Supplies*. S. Postel. in State of the World 1985. W.W. Norton, NY 1985.
4. *The Public Lands* in Sierra. Sierra Club Magazine Sept/Oct 1989.
5. *Land Imprinting for Vegetative Restoration* R.M. Dixon in **Restoration and Management Notes** Vol. 6 No. 1. Summer 1988. University of Wisconsin Press, Madison, WI.
6. *Reclaiming the Future* . L.R. Brown, et al. in State of the World 1988. W.W. Norton, NY 1988.
7. *A Public Beef* D. Zaslowsky. in Harrowsmith Jan/Feb 1989.

COVERED!

A BEEKEEPER'S INSURANCE PRIMER

PAM MOORE

You've kept your hives in a remote location on your property. You work them at the proper times, supply convenient water and don't advertise to the neighborhood that you keep bees.

You have adequate homeowner coverage that includes most accidents that could occur on your property. Your agent even met your overly large dog and read the "beware of dog" sign on your fence.

You're feeling pretty smug about your protection and the behavior of your bees. You have been a good neighbor and think there is little to worry about.

You are holding the opinion of many beekeepers and are pretty average in your beliefs. The old "out of sight, out of mind" theory works for you so it should work for the non-beekeepers who live near you.

Until — a neighbor, perhaps a new neighbor, comes to you with the story, "My five year old daughter, who is extremely sensitive to bee stings, was stung today, and now is in the hospital. Mr. Jones tells me that you keep a number of bees on your property. If we had known that, we never would have moved into the neighborhood. Those things are dangerous. Who's going to pay the medical bills?"

You know who he wants to pay the medical bills, and maybe a little thrown in for mental aggravation. You are the only one in the neighborhood that keeps bees. What had been an enjoyable hobby suddenly becomes an accusing finger — pointing at you.

After calming down the aggrieved neighbor and assuring him that you have insurance, the next call is to your insurance agent.

"My neighbor said that one of my bees stung his daughter. Am I covered for bee stings?" you blurt out.

"One of your what?" asks the incredulous agent.

After repeating the question, it may occur to you, and will certainly occur to the agent, that no one mentioned bees when the policy was written.

Your agent certainly measured your home, asked about woodburning fireplaces, smoke detectors and listed the number of miles a fire department was from your house. All the regular things that have blank spaces on an insurance application.

There is no blank space for "Do you keep bees?" and so far, no one has given it much thought. You're thinking about it now, because it's your money on the line. And of course you're wondering why this question hasn't come up before.

Beekeepers haven't been excessively worried about their bees causing damage to people in the past, mostly because most beekeepers are responsible and try to be good neighbors.

"I just wouldn't have bees in town and definitely not on a property line," said beekeeper Virgil Koppes of Medina. Koppes even kept bees at Buckeye High School in Medina, Ohio, for one of his Future Farmers of America projects. Koppes was the vo-ag teacher.

"The bees at school were way to the rear of the property, past the athletic field. Most kids probably didn't even know they were there. Only FFA students and myself worked the bees and we were very careful. Insurance was never a consideration because we knew how to keep the bees away from the students," he concluded.

Dr. G.L. Bradford, DVM, Litchfield, Ohio, brings up another consideration by reporting that he has treated livestock for bee stings. "One time a horseback rider was stung. The rider survived O.K., but the horse died from bee stings." The beekeeper must think in terms of loss and dollars. What if the animal stung is a purebred or prize winning animal? The dollar damage goes up for nonproductive periods in the animal's life due to the sting.

Gordon Rudloff, Ohio State Bee Inspector, reports that in his many contacts with Ohio's 8,000 registered beekeepers, the subject of insurance has not come up. "Of course I am dealing with disease and inspection, but no one has mentioned a concern for it," he said.

John Grafton, past president of the Ohio State Beekeepers Association, echoed Rudloff's thoughts by reporting that he has not heard of insurance being a concern for beekeepers. "Ohio beekeepers are mostly hobbyists. We did hear of one homeowner in Ohio who was refused insurance," said Grafton.

Richard Minyo of Wooster, Ohio is the beekeeper who was refused insurance with a large, well known company. "I was interested in renter's insurance (Minyo rents farm property), and had the policy in my hand. I had even paid the first premium, when I was cancelled. The company's property inspector noticed my hives out by the

"There's always Lloyds of London... for unusual coverage."
BEV BERRY

barn and that was it," said Minyo.

He then began the search for another company, finally settling on an independent agent who insured him though a smaller company that covered farms and livestock. "My bees are considered livestock and I am very happy with my premiums and coverage. Since then, I have heard of a number of other smaller companies that will insure bees, especially for the hobby beekeeper, like me."

Getting back to you and your neighbor — it's little comfort to know that most beekeepers have been thinking the same way you have about being a good neighbor. But something went wrong and it had to be you. Your insurance agent isn't any happier than you that it was your bees. Now he has a monumental problem with little precedent to refer.

Depending on your insurance company, and the ability of your agent to explore possibilities, you may or may not be covered.

By interviewing a number of agents about beekeeping, it was discovered that "disclosure" is the key word agents used. It isn't enough to answer all the questions on the application. Just as the agent might ask about a biting dog in the household, you are probably not thinking, "stinging bees" because they have never been a problem. Disclose, disclose, disclose! Tell the agent about your bees, and about how carefully you take care of them.

All agents queried, both from companies where they were employees — to independent agencies, reported that they had never asked anyone if they kept bees, and they were not sure if a sting would be covered. All used the word "disclosure" to indicate that it is the responsibility of the homeowner to inform the agent about any claim-causing situation.

The agents who worked for large national companies were most unfamiliar with the process of insuring a beekeeper, but all were willing to delve further into the problem should someone come to them with this situation.

A first response to the question was, "How could you prove it was your own personal bee that stung someone. This isn't like a dog bite. Dogs are readily identifiable, bees are not. We would have to have our underwriters examine this to come up with a premium that would fit the claim, that is, if the company would even insure bees."

The closest comparison most agents could make was that of a biting dog, or using the term "attractive nuisance." Although beekeepers don't think in terms of their hives being attractive to the public, a non-beekeeper might be curious about what's going on with all that buzzing and wander into your yard — and get stung.

Independent agents were more

Continued on Next Page

LEGAL BRIEFS

Placement of bees is part of a good neighbor policy which will reduce exposure of bees to unauthorized passers by. Placement here deals with not where to put the hives on the beekeepers property, but if the beekeeper may place the hives on his property at all.

It is wise to first discover what kind of municipality the beekeeper has property within. Villages, towns and cities usually have a council of elected representatives. This council is subdivided into committees which deal with specific problems of the municipality. Beekeepers are most interested in the Safety committee and the Zoning committee or board.

Townships, which tend to be less regulated, are governed by trustees. The trustees are elected from the township and are responsible for the entire township. The clerk of a township (the person responsible for paperwork in the township) is an ideal source of information concerning zoning.

Some suburbs and rural residential villages and towns are coming up with bee ordinances which prohibit beekeeping. A visit to the zoning ordinance book would be the first order of business to make sure bees are allowed. Public health and welfare are considered when zoning ordinances are put into effect. Zoning deals with the regulation of building structures and land use.

Keep in mind that ordinances can be changed, and variances granted. A variance is permission to use land that is not in conformance with the zoning code because of undue hardship to the person requesting the variance.

One municipality considering a bee ordinance recently, is Parma, Ohio. The proposed ordinance would not just limit or regulate beekeeping, but would prohibit the keeping of bees and other stinging insects and labeled them a "public nuisance" The city is also enacting this ordinance to eliminate the situations which allow the gathering of "garbage" insects at fast food restaurants — which has little to do with honey bees.

State regulations may be absent in some cases, but it is wise to check with your State Department of Agriculture for additional information. Rhode Island has enacted an apiculture law which deals mostly with disease and inspection, but also gives thought to the "public and the economy of this state." It includes, "A public education program to emphasize the importance of a healthy beekeeping industry."

The law also deals with what may be a future worry for the beekeeper, "to minimize the negative impact on beekeepers while being effective in controlling Africanized bees and other pests."

Dewey M. Caron, University of Delaware, has developed a policy for the Eastern Apiculture Society, "Beekeepers and Their Neighbors." He addresses the problems that various states have had with legislation. He reports that, "The New Jersey Beekeepers Association, in union with seven local bee associations, had a fund of money to use for immediate defense against honey bee nuisance legislation." He also reports that, "A recent case involving a yellow jacket sting resulted in a large award to an individual from a restaurant."

In the same document, EAS reports that New Hampshire has a state law on nuisance liability exempting agricultural operations of one year or more duration from a nuisance suit.

Before putting up the hive, or even exploring insurance possibilities, the beekeeper should look into his own town hall to discover what others before him have had to say about bees. With ordinances restricting domestic animal ownership to two dogs or two cats, it is possible that some impositions have been placed on hives. It's not enough that the guy down the street has bees — maybe he didn't know how to check the local ordinances — or get them changed. □

flexible, possibly due to the large variety of companies they represent and the diversity of their clients. "If we couldn't find one of our regular companies who would cover it, there's always Lloyds of London. I have used them for unusual coverage, and I'm sure they could accommodate the beekeeper. The premium may be prohibitive, though," explained independent agent, Bev Berry, who runs her own agency in Lodi, Ohio.

Looking for an agent who deals in farm property, even though your hives may be in a semi-rural setting and you've never kept livestock, may be the answer. Because these agents are more accustomed to dealing with unusual requests (there are all kinds of farmers keeping a variety of living creatures able to do harm to people), he may be able to fit your particular need without gasping when you mention beekeeping.

One such agent, Terry Oberholtzer of Wadsworth, Ohio, agent for Nationwide Insurance, reports that he has beekeepers insured. Because Nationwide was founded by the Ohio Farm Bureau, it is a company that is comfortable with farming practices.

Before setting up your hives be certain you know all the local ordinances. Investing time and money only to have to move your hives again, is a terrible waste of time.

"We've never had a claim due to bees from our farmers who keep bees. It wasn't a question I asked, but I observed the hives when doing the property inspection and they were kept in such away as not to be a problem. If the insurance industry starts getting claims excessively from beekeepers, they will probably be excluded on the policy. It hasn't been a question, because it hasn't come up yet, but the insurance industry will react to any claims," said Oberholtzer.

The reason insurance companies may be a little reluctant to deal with

TERMS OF INSURANCE

Following is a list of terms which an insurance agent may use in asking about a beekeeping operation. Beekeepers should have a working knowledge of what is casually used by an agent when using legal terms to define the policy.

• **Attractive Nuisance** - An unusual condition, instrumentality, machine or other agency on premises which is dangerous to children of tender years but so interesting and luring to them as to attract them to the premises.

• **Attractive Nuisance Doctrine** The principle followed in many jurisdictions, (but with some diversity of opinion as to the requisite conditions for its application), that one who maintains or permits upon his premises a condition, instrumentality, machine, or other agency which is dangerous to children of tender years by reason of their inability to appreciate the peril therein, and which may reasonably be expected to attract children of tender years to the premises, is under duty to exercise reasonable care to protect them against the dangers of the attraction. The doctrine, within limitations, is for the benefit of the meddling, as well as of a trespassing child.

• **Liability** Legal responsibility, either civil or criminal. The condition of being bound in law and justice to pay an indebtedness or discharge some obligation. The state or condition of a person after he has breached his contract or violated any obligation resting upon him. A word of different meanings, the pertinent one to be gathered from the context in which it appears, construed in the light of surrounding circumstances. Sometimes synonymous with "debt." Within the meaning of a statue of limitations: - under one view, a contract obligation; under another view, responsibility, embracing tort liability as well as contract liability. As the word appears in a limitation on the creation of debt or liability of a state in excess of a prescribed amount; — a term having special reference to the warrant and legislative authority on which a state contract must rest, and on which alone a public debt must find its sanction in order to obligate the state.

• **Liability Created By Statue** A liability created by a statue which discloses an intention, express or implied, that from disregard of the statutory command, a liability for damages will arise which would not exist but for the statute. When the statute merely defines, in the interest of the general public, the degree of care which shall be exercised under certain specified circumstances, it does not "create" a new liability, but merely changes the standard which must be applied in an action to recover damages caused by lack of care.

• **Liability Insurance** - A policy or contract of insurance whereby the insurer agrees to protect the insured against liability arising from an act or omission of the insured which causes injury to the person or the property of a third person, the liability of the insurer attaching upon the determination that the insured is liable for such act or omission, not-withstanding the insured has not sustained a loss in payment, voluntary or involuntary, made to the third person.

• **Proof of Loss** - A statement in writing usually under oath, of a loss sustained by an insured, required by policy provision or statute to be submitted to the insured within the time prescribed by the policy or statute, stating the amount of the loss and the manner in which it occurred.

• **Property** - In a popular sense, a chattel or tract of land. Inclusive of both real estate and personality. Inclusive of both tangibles and intangibles; that which is corporeal and that which is incorporeal. Strictly, that dominion or indefinite rite of user, control, and disposition which one may lawfully exercise over particular things or objects. The right and interest which a man has in lands and chattels to the exclusion of others.

• **Reasonable Cause** For prosecution: the existence of a reasonable ground of presumption that the charge is or may be well founded. A reasonable amount of suspicion, supported by circumstances sufficiently strong to warrant a cautious man in believing that the accused in guilty.

• **Risk and Cause of Loss** - The coverage of an insurance policy. The peril or contingency against which the insured is protected such as fire, flood, sickness, etc. □

All definitions are taken from the Ballentine Law Dictionary, third edition, edited by William S.Anderson, 1969.

"We've never had a claim due to bees from our farmers who keep bees."
TERRY OBERHOLTZER

your beekeeping isn't because they don't eat honey. The industry has been plagued with problems of government intervention, excessive liability litigation and the desire for specialty groups to set up their own insurance. The doctors did it with medical malpractice when their needs were not being met by conventional companies.

Even when you are exceptionally careful, follow all the rules and don't abuse the system — you still may have trouble.

Pam Moore is a freelance writer from Medina, Ohio.

The claim of "lack of creativity" in meeting needs has long been aimed at the industry, along with a supposed drop in commitment by agents to their policy holders.

Because of this need not being met, beekeeping organizations have followed the way of doctors and established their own insurance programs. Although these programs are available to members only — it might be reason enough for non-joiners to consider membership.

The American Beekeeping Federation offers a variety of insurance selections: Basic Liability, Products Liability and Combined and basic products.

Because you're concerned about the little girl who got stung by a bee from your hive (maybe), Basic Liability is our target for now. Members may choose to pay an annual premium of $170 for $300,000 worth of coverage, $200 premium for $500,000 coverage, or $250 a year premium for $1,000,000 basic liability. This is for bodily injury and property damage liability combined and are for each occurrence.

Being creative in the insurance industry, Culbert Davis Company, an independent company in Sioux Falls, South Dakota, has also developed an insurance program for the American Honey Producers. Because Roger Starks keeps bees, and sells insurance, he saw the need for general liability and met it.

To quote their policy, "The General Liability coverage provides protection for premises and operations of your business including Products Liability for products you produce. We are offering a choice of General Liability limits of either $500,000 or $1,000,000 per occurrence with the same limit chosen as an annual aggregate. A $5,000 Medical Payments for others coverage is included to handle small incidental claims where you are not legally liable." Starks reminds beekeepers that the bees themselves and equipment away from the bee house are not covered.

The Professional Insurance Agent publication, "*Facts you need to know about choosing an insurance agent*" covers the problem of selection well:

> The Service you receive from an agent is as important as price and coverage. Before deciding on an insurance agent, find out up front what kind of service you can expect...

Being a good neighbor is the best method to avoid problems, but should those problems exist, insurance is essential. Selecting an insurance company, and an agent should be as important as selecting your bees.

To wrap up our story of you and your neighbor and his little girl and your bees — the insurance company (not a specialized bee policy as described above) paid the medical expenses. The company then continued your coverage, but excluded bees on the policy. □

HOME HARMONY

ANN HARMAN
6511 Griffith Road • Laytonsville, MD 20882

Two new salad dressing flavors have become popular lately. However, unlike "Original" which seemed to apply to many foods, these two are usually called either "House" or "Ranch" sound familiar?

For many years I thought that the term "House", as in "house salad dressing", meant a distinctive flavor created by the restaurant's chef. It was intended to be something quite special, unlike any other salad dressing. However, today most restaurants, whether plain or fancy, seem to have a "House" dressing. "House" has joined the ranks of French, Russian, Thousand Island and Bleu Cheese dressings and probably is the creation of nobody in particular and comes in gallon jugs, just like all the others.

It is quite fun to sample the "house" dressings. But what is more fun is to ask, "What does the house dressing taste like?" Try this question out on your waitress. I think I have discovered what "house dressing" tastes like from asking this question. "It tastes nice." I have not found "nice" as an ingredient in any salad dressing recipes, however.

The "House" dressings I have encountered are for a basic tossed salad and have ranged from an oil-vinegar combination to a creamy blend. The actual favors have ranged from tasteless to well-flavored with herbs of various kinds. Unfortunately the majority were bland and boring, contributing little to the salad. One particularly delicious one featured coarsely cracked pepper as the main flavor — not enough to be overwhelming but just enough to have a pleasant tang.

"Ranch" dressing is another story. I have yet to determine what "Ranch" is. A ranch produces images in mind of thousands of acres of western land, inhabited by cattle, sage brush and people in ten-gallon hats. That collection is not a flavor. Perhaps "Ranch" will stabilize into a consistent flavor, such as Thousand Island, which really has nothing to do with islands. I did notice a bottle on the grocery shelf labeled "Original Ranch" Perhaps sampling that will provide a clue to the ranch flavor.

Since "house dressing" still implies some individuality, you can create your very own salad dressing. As you experiment with different oils, vinegars and herbs, keep track of your measurements. When you achieve your very own "house dressing" you will then be able to duplicate the flavor consistently. Although you and your family may appreciate a variety of salad dressings, your guests may wish to have your "house dressing" every time you invite them for dinner.

The basis for salad dressing is: one part vinegar to 3 or 4 parts oil. Right here is where a distinctive flavor originates. A trip down supermarket aisles quickly shows you the great variety of vinegars and oils available today. In general a bland vinegar and oil will give you a greater choice of herbs, spices and peppers for flavoring.

White vinegar will give your dressing a sharp "bite", while cider vinegar is pleasantly smooth. Rice vinegar, my favorite for dressings, is smooth and mild. The various herbed vinegars are delicious but are best reserved for other uses or when you need a salad dressing in a hurry. White wine and red wine vinegars vary in their strength of flavor so select one of these with caution. Lemon juice can be substituted for vinegar but will contribute its own distinctive flavor.

Selecting an oil can be a difficult choice today. Saturated vs. unsaturated, cholesterol or not, calories or "lite"? Those are just part of the choices you need to make for a salad dressing. Some oils, although suitable for a cooking oil, do not make a pleasant salad oil. Other oils, such as walnut oil, may have desirable health properties but the expense is so great they can only be considered for special occasions. Olive oil is an excellent choice for a salad dressing, but care must be taken in its purchase. "Extra virgin" is top quality and does not have an overwhelming flavor of its own. Some of the cheaper olive oils have a distinctive flavor that may not appeal to many. Selection of a good salad dressing oil does require trial and error selection.

Honey can be used in any salad dressing, not just for a sweet dressing for fruits. A teaspoon of honey will enhance the flavor of an oil-vinegar dressing and add a subtle richness from the flavor of honey. Honey flavors blend well with lemon juice used in place of vinegar. Make honey one of the prime ingredients of your house dressing. Since local honeys vary so much in flavor and apparent sweetness, experiment until you find the ideal quantity.

Pepper can give the "zip" to a green salad dressing. The best tang and flavor is obtained from freshly ground pepper. With a pepper grinder you can control the size of pepper grain. Usually 1/4 to 1/2 teaspoon pepper gives good results. Try very coarsely ground pepper for a distinctive touch. White pepper is mild and is frequently used when you do not wish the black specks of regular pepper. Mustard, dry or prepared, can be used as an alternative to pepper. However, the mustards will contribute a very

definite flavor to the salad dressing. Try 1/2 to 1 teaspoon of dry mustard or 1 tablespoon Dijon-style prepared mustard.

Seeds celery seed, poppy seed, toasted sesame seed — are an often neglected addition to salad dressings. Select one for your house dressing and try one tablespoon. You may wish to feature the seed flavor by increasing the amount to about 2 tablespoons.

Grated Parmesan cheese can be added to a salad dressing or it can be sprinkled on top of the salad after tossing. A 1/4 cup would be a good amount for a trial.

Garlic is a popular salad dressing ingredient but everyone has a favorite way of adding the garlic. Fresh garlic should be the choice, not garlic powder or garlic salt. Some cooks will rub the salad bowl with a garlic clove, some steep the garlic in the dressing then remove it. A subtle touch of garlic can be done with garlic flavored croutons. Whichever way you wish to add garlic is fine as long as it enhances but does not dominate the salad dressing.

Now for the contents of the spice and herb rack. The best results come from a careful selection of spices or herbs, not from the addition of many different flavors. Certain herbs blend very well with certain vegetables. For example, basil, oregano and marjoram definitely complement tomatoes. Dill has a strong flavor and should be used with caution. It does not combine well with flavors of other herbs but is quite good with cucumbers. Some of the lesser-known herbs are well worth a try. Chervil, cilantro, summer savory and thyme are all very useful (separately, not in combination) in all types of green salads. The flavors are mild but very pleasant. Coriander, a fairly strong spice, makes a good addition to salad dressing.

Salads are frequently given toppings such as "bacon bits" and croutons, plain or flavored. Such flavors must be taken into account when blending a salad dressing. If you wish the special flavor of your salad dressing to be appreciated, the best choice of a topping may be either none or plain croutons.

Salad dressings are really very quickly made. Now that you have some suggestions for developing your very own "house dressing", start creating! When you have discovered your recipe, send it to me and we can all share your very own specialty. □

Food Chamber

At least one of the large spice companies is packaging spices and herbs in small containers. Both spices and herbs begin to lose flavor the minute they are ground or crumbled. Every time a jar is opened and the contents disturbed some flavor is lost. Although you will use up the contents of a small jar quicker, you will be using fresher and more flavorful herbs and spices. In the end, the small jar is a better buy, especially for infrequently used spices and herbs. If you grow your own, package them in small, well-sealed jars to preserve delicate flavors. Some herbs can be grown in pots in a sunny windowsill to give you fresh herbs the year around — a true luxury. □

THE DECADE OF THE HONEY BEE

KIM FLOTTUM

It's only one hundred fifty miles away, and the Africanized honey bee is moving North at full speed. Because of its slower than predicted movement caused by this past summer's drought, officials were speculating that the arrival of this nearly mythical beast would not occur until perhaps as late as 1991. The most recent finding indicates the bee is again moving and revised entry estimates range from as early as late February to mid-May, 1990.

The Decade of the honey bee has arrived, though it certainly won't be Mother Nature's most grand entrance. In all likelihood, this auspicious occasion will be marked by the routine capture of a small group of bees in a brown pulp pot somewhere in rural south Texas. However, when that first migration swarm is discovered, 33 years of waiting will be over.

The U.S. has not been twiddling its collective thumbs during the wait though. All during this insect's one way trip north, federal, state and university researchers have made massive efforts to discover what makes it tick. And although controversy has followed these efforts every step of the way, they have provided an arsenal of information — much has been learned about this soon-to-be resident.

Knowing that APHIS is only running interference and not an entire blockade (see Gotcha!, page 36), most southern states have begun preparations to deal with the changes in beekeeping, agriculture and all the other aspects of everyday life that *may* be affected when this insect arrives, and even before it gets here.

Since every indication has been that the southernmost tip of Texas will be the first *natural* point of entry, concerned groups in that state have prepared an extensive and detailed action plan to deal with anticipated problems (see THE TEXAS PLAN, page 37).

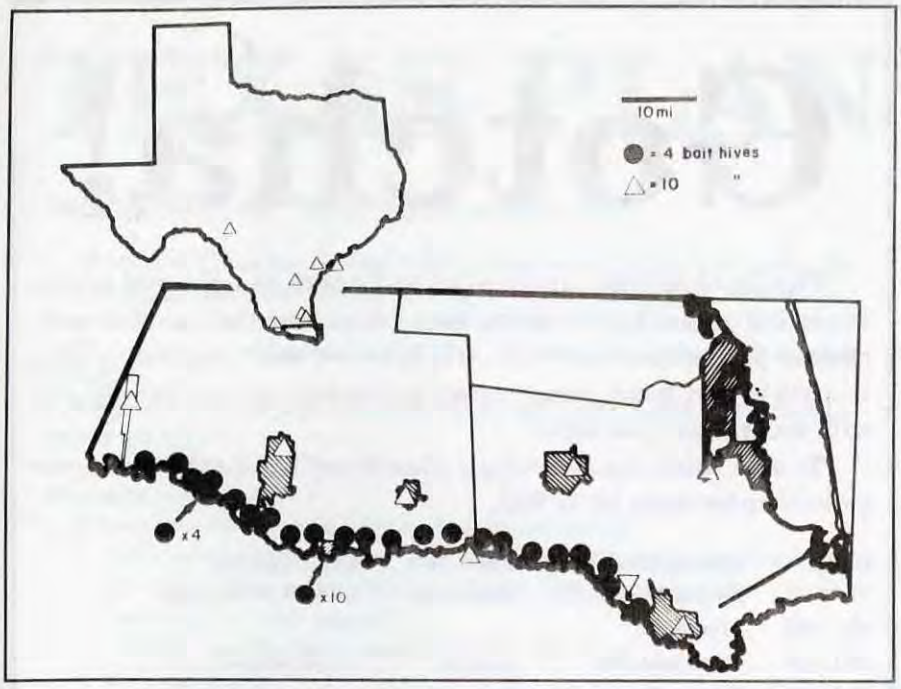
Texas has addressed many of the expected problems in their plan, and developed a budget to implement the steps needed. This sum came to nearly $700,000, but to date the Texas Legislature has been reluctant to part with that amount of money.

Considering that Texas produces between $5.3 to 7.6 million dollars worth of honey; $800 million dollars of added value to pollinated crops, plus considerable millions in queen and package production, tourism and public health, Texas beekeepers have been understandably perplexed at this reluctance.

Perhaps in anticipation of this di-

Figure 1. Distribution of the Africanized Honey Bee in the Americas

Distribution of the African Honey Bee in the Americas.



USDA-ARS Swarm Trap Locations. It will be in one of these spots that our 33 year wait will end.

lemma, or in spite of it, the Texas Beekeepers Association developed a Model Ordinance* that any municipality could adapt, and adopt. Nearly all inclusive in its coverage of problems and solutions, it will go a long way in helping local governments deal with the AHB, and beekeeping.

Meanwhile, the USDA contingent in Texas is involved in not only basic preparations, but some rather innovative work aimed at helping the huge queen and package producing industry.

The baseline work involves feral colony mapping and swarm monitoring. This information will be important when historical data are needed to measure changes due to the AHB.

"We've got a good collection of morphometric data, and seasonal swarm patterns," says Dr. Anita Collins, Research Leader at Weslaco. "Even with the dry weather we've had our data will be valuable later on."

Dr. Rick Hellmich has been working steadily with the Texas queen and package industry. His work has focussed on determining the number of drone producing colonies needed in an area to produce a known percentage of 'correct' matings.

"It's not foolproof, but it will be a very good tool to use," says Hellmich. "Using a plan similar to this, breeders will be able to control a very high percentage of their matings," he added.

But Texas won't be the only state to play host to this creature. Depending on your point of view, it may stay in the extreme south, or spread north as far as Wisconsin, or even Canada.

But regardless of how far north they move, the most probable eastern migration path will be from southern Texas, along the gulf coast into Louisiana, through the coastal areas of Alabama, Georgia and eventually occupying nearly all of Florida.

The western trek seems less clear. The dry areas of western Texas and New Mexico will probably slow the movement from southern Texas west. This delay coupled with the fact that the bee is still moving, albeit slowly, along the west coast of Mexico, complicates predictions of where, and when the bee will move into Arizona and California.

Since Texas will be first on the firing line, the second line states have been a little slower in developing plans of their own. Primarily they have waited because there is, presumably, anywhere from one to three years before the natural migration will reach even Louisiana after it moves into Texas.

But most of these states are using this time to not only develop plans that will fit their specific areas, but are watching the events in Texas and adjusting their plans accordingly.

Jimmy Dunkley, the Administrative Coordinator of Nursery and Apiary Programs in Louisiana said that his state has already begun work, patterning their plans after those of Texas and the USDA.

Louisiana has about 600 registered beekeepers, running around 40,000 colonies. Most of these are hobbyists, but there is still at least a $150,000/year package and queen industry in the state, plus sizeable pollination and honey producing businesses.

Bait hives are assembled by Mexican Department of Agriculture technicians near Ciudad Victoria in eastern Mexico. The hives provide nesting places for Africanized bees that will later be destroyed. Roubink Photo.

"We don't have a hard plan yet," said Dunkley, "but with the help of the USDA here in Baton Rouge, the State Beekeepers Association, LSU and my office we've already identified much of what we need to do.

"Our primary goal is to keep our plan flexible so we aren't locked into something that obviously won't work," he said.

"Later, we'll bring in Health and Human Services, Wildlife and Fish, Public Health and Municipal Groups for both education and exposure," he said.

"Then, by next spring we'll have our ports well monitored, an initial plan in place, and then wait and see," he concluded.

Mississippi already has their first draft finished, using the Texas plan as a model, says Dr. Clarence Collison, Chairman of the Entomology Dept. at MS State.

"We put together an advisory committee awhile back, had a meeting and put together this draft. Our committee has members from every area that will probably be affected," Collison said.

"Basically, we're focusing on the regulatory aspect, monitoring the spread of the bee if that becomes important, and upgrading our regulatory program," he added.

"After looking at this for awhile, talking to beekeepers both here and in other places, we're convinced our greatest problem will be a people problem, not a beekeeping problem. We figure we've got about two years before it comes to Mississippi, and during that time a lot will happen in terms of what we know about the bee," Collison concluded.

Conventional wisdom suggests that the bee will continue to migrate more eastward than north though by the time it gets even as far as Mississippi, two, and as many as four years may have passed. Predictions certainly become a bit more difficult.

However, although Alabama and Georgia may get company, visitation rights will only be granted in extreme southern areas, at least initially. But Florida will undoubtedly become a permanent host because of the vast subtropical and tropical habitats. But the fact that there is still 'some' time before the bee arrives lets them remain a bit more relaxed than the Texas planners.

Larry Cutts, Florida's Chief Apiary Inspector, said that because Florida

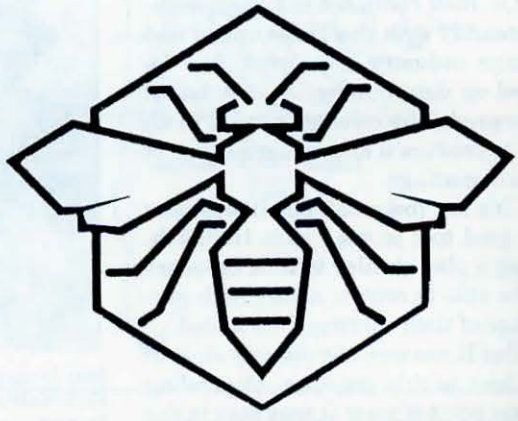
Gotcha!

The USDA APHIS is designed to handle pests as accidental entries at ports-of-entry. Their mission does not call for them to deal with natural pest migrations. They are, however, well prepared to stop swarms in port areas, using current technology and equipment, and with well trained personnel.

To date, this is the chronological list of confirmed AHB findings in ports-of-entry made by APHIS.

DATE	LOCATION	ORIGIN	COMMENTS
07-06-79	Corpus Christi, TX	Venezuela	on deck of oil tanker
06-12-82	Miami, FL	--	--
06-11-83	Pascagula, MS	Panama	on ship's mast
11-10-83	Corpus Christi, TX	Venezuela	on deck of oil tanker
07-02-84	Cleveland, OH	Brazil	in hold with sisal twine
02-01-85	Bakersfield, CA	--	oil company employee reports finding bees in support pipe.
06-06-85	Lost Hills, CA	Central Am.	first detection
11-85	Bakersfield, CA	--	eradication complete
07-09-86	W. Palm Beach, FL	Honduras	in container of 650 pails of honey
10-30-86	W. Palm Beach, FL	El Salvador	on container
04-08-87	Panama City, FL	Guatemala	in hold
03-08-88	New Orleans, LA	Guatemala	on container
05-06-88	Port Everglades, FL	Honduras or Guatemala	on ship, Varroa infested
09-26-88	Mobile, AL	--	on pier warehouse
10-31-88	Tampa, FL	Guatemala	on cable drum of ship's rigging
12-07-88	Stony Point, NY	Columbia	dead bees on radar antenna
03-11-89	Houston, TX	Guatemala	bridge deck of ship
04-24-89	Miami, FL	Surinam	on container
04-27-89	Charleston, SC	Panama	on container of ship that transited Panama
10-30-89	Brownsville, TX	--	on deck of ship

Source: J. Evans USDA APHIS,



TEXAS PLAN

Highlights of the Texas Management Plan:

The entire Texas Action Plan is far too long to publish in its entirety. For the complete plan, and the supporting data and background information, contact Dr. John Thomas, Rm. 411, SCSE Bldg. College Station, TX 77843-2475. Include a self-addressed 8-1/2 x 11" envelope with $1.00 postage attached.

Objective: Maintain communication and information exchange between groups.

Recommendations:

A. Education, Training and Public Recommendation
   1. Develop an African Honey Bee Reference Manual which serves as an information source for Extension Agents and other key personnel in state agencies
   2. Publish specific fact sheets, aimed at informing
      a. beekeepers
      b. crop & animal producers
      c. live stock operations
      d. municipal action groups (police, fire, medical, pest control)
      e. general public
   3. Media tutorials (videos, etc.)

B. Public Health, Centralizing available information on stings and

C. Regulatory and Quarantine *(This part of the TX plan requires the greatest amount of cooperation between the various groups, along with he USDA ARS group in Weslaco, and APHIS.)*
   1. Suspected findings
      •colony quarantined, sampled & ID'ed
      •feral colonies killed
   2. Confirmed finding
      •All colonies/apiaries within 2 miles quarantined and no colonies into or out of area until AHB colonies destroyed.
      •An expanded quarantine area covering all counties touching a 150 mile radius of a positive find. Movement is allowed into and within, but not out of the area.
   3. Survey and Eradication
      •all positive finds are killed
      •extensive sampling, and necessary eradication within the 150 mile radius area
   4. Develop cooperative agreements between APHIS, TX Dept of Ag. and TX Inspection Service to reduce duplication of services.
   5. Management, Colonies within the quarantined area will be requeened with marked queens at least once a year.

D. Bee Management Plan
   •requeen with marked queens once per year, as required
   •10% of all colonies managed for drone production
   •free movement of all colonies within any quarantine area to facilitate pollination and honey production
   •keep swarm traps near all apiaries and kill all feral colonies

E. Research
   •improve and quantify identification techniques
   •learn dispersal ecology: swarming patterns and trapping techniques
   •foraging efficiency
   •mating and genetic techniques

isn't in the hot seat they are concentrating their current efforts in the public awareness area.

"We're pretty certain that somebody else is going to deal with this pest before we have to," he said, "which will be a bit of a change for us," he added with a bit of relief.

"We are going to develop a plan that is realistic, that beekeepers can both live with and profit from," he said, "but right now, anything we develop would probably by obsolete by the time the bee got here."

Because of the delayed arrival, educational efforts are primarily directed at the general public. With the aid of the FL State Beekeepers, the African Honey Bee Task Force, the Honey Bee Technical Council and the FL Farm Bureau, a program similar to Mexico's is being planned.

"Their program seems to have eliminated many of the problems seen in other Central American countries, and has helped prevent some vandalism and increased the safety of the public," Cutts said. "They also stressed the benefits and value of honey bees in general, especially in food production," he added.

"We've also got a group of students from the University of FL school of Journalism working on a plan to get all this information into professional shape, and then get it published," Cutts said. "Getting good publicity isn't as easy as it may seem," he added.

The group is also going to the state legislature in February to ask for increased funding for the inspection program, and to step up the monitoring programs near the ports and in the western part of the state the two most likely spots for trouble to start.

"Our two main problems in Florida will be, first, the liability situation in this suit-happy country; and second, dealing with bees that are inhabiting house walls. We just don't have a good way to cope with that problem yet," Cutts said.

Estimates of African honey bee feral colony survival published in 1984 by Taylor and Spivak. Though these have been questioned, the trend is obvious, and the shaded areas will certainly be prime survival areas.

But because they feel they have some breathing room yet, there's hope one will be found before long.

Though J.B. Soule was the first to encourage westward movement ("Go west, young man") in his Indiana newspaper, he probably didn't mean to include the African honey bee. But west it will go — it's just a question of where and when it will start.

The bee may move through the dry parts of west Texas, but predictions are that it will be quite slow in doing so. It may also continue its northward march along Mexico's west coast.

In either case it will probably make house calls in both New Mexico and Arizona before it reaches the Golden State. But much of New Mexico is mountainous and has a distinct winter period. Further, it tends to be on the dry side year round, so it is likely that only those least elevated areas with irrigation will feel the initial effects.

Arizona, however, is another story. With significant agricultural areas, and large amounts of natural food supplies the state's beekeepers are expecting a large, and permanent contingent to take up residence.

Dee Lusby, President of the AZ Beekeepers Ass'n., says that the focus of their plan is to develop a program for long term biological control. Because they too feel there is some time to wait, their plans are still forming, but they do have an outline of objectives already in place. Also, they have laid some groundwork already by changing many of the state regulatory laws that govern beekeeping.

The management program includes keeping colonies in place, regular requeening, sound harvesting produces, municipal/beekeeper understandings, increasing numbers of colonies on public lands and working with state and federal researchers to improve the situation.

"Our goal is to protect Arizona's beekeeping industry, the beekeepers who work here, as well as the general public," said Lusby. "And, in fact, Arizona beekeepers have been preparing, for several years, to confront Africanization head on. We'll be as ready as possible when the time comes," she finished.

By the time this insect reaches Arizona, however, California's action plan will already be in its second stage.

"But we need to back up a bit, to explain how we got there," said Len Foote, Chief of The Control and Eradication Branch of the CA Dept. of Food and Agriculture, and the Secretary of California's African Honey Bee Task Force. Len is also the designated spokesperson for the group, and the state, since the Task Force report isn't actually a law yet. It is to be signed into action about Jan. first, but that is not a confirmed date.

"After the 'Lost Hills' incident back in '85 we got busy, and haven't really slowed down since. The first thing we did was get the Federal Action Plan that deals with incidental infestations updated to reduce the impact on the beekeeping industry, " he said.

"Since then, we've produced brochures for emergency medical centers, installed a series of swarm traps in all ports from San Francisco south and along the Mexican border, and now have our inspectors routinely submit samples from 'suspicious' hives for identification. These samples undergo FABIS techniques, and are also compared to the model CA Feral Bee, developed by Howell Daly," explained Foote.

"We expect the migration to arrive, unassisted that is, about 1994 in the southeast part of the state," said Foote. "We've already pretty well mapped out the probable paths it will follow — valleys, waterways and the like, and figure that the southern third of the state will eventually be inhabited because of the mild climate," he explained. "Of course, this is also the region that has the highest population," Foote added.

The California Action Plan is set up in three parts — Preparation, Encounter and Establish.

"The Preparation Phase is already in effect. It is the time period from today until it arrives. During this slot we're working primarily on the Public Information aspect," Foote explained.

"We liked what Mexico did in this area, and our program will be similar," he said. "They had their program in place two years before it arrived, stressing the importance of bees, telling about the invasion of the AHB, and basically, how the public could help.

"The value of a public education program was pretty well documented in Venezuela," Foote stressed, "where there were about 100 deaths per year due to this problem. After only one year's work, that number dropped to less than 20, and I understand it's even less now," he added.

To help in this effort, the Task Force is working with Hanna Barbara Cartoons to simplify the message. Walt Disney may join the project a bit later.

"When we figure the bee is about a year from our border, we start working on a joint program we've already worked out with AZ and NM," Len said. "Because we pretty much know how and where the bee will naturally migrate, it's relatively simple to set up trapping and monitoring stations in those areas, working with the two states.

"This is the second, or Encounter Phase of the plan, and we're still working on details to get it going, but the groundwork's already been laid," he said.

"The final phase — Establish — is not quite as clear cut, because that's when it becomes a local problem. We have, and are working on ordinances, school kids and the media," Len said, but by then, we hope all our earlier work will have paid off."

California has a rather unique situation in how they pay for the research part of their plan. Each colony is assessed a three cent fee, which is matched by the Almond industry. This is in turn matched by the state for a total of $100,000. The University of CA, Davis then matches that amount in the form of facilities and salary for a researcher. This $200,000 per year program, which is to last five years should have a significant impact on what can be learned, and done with, the African

honey bee in California.

The Federal Government is also playing a role in this planning game. APHIS, which is the action agency on the Federal AHB Task Force is currently reviewing an action plan submitted by the Task Force. When the review is complete, a formal plan will be ready to distribute. This plan is, as we understand, to be distributed to any state that wants it, and it is so organized and designed that nearly any state will benefit from at least some parts of it.

Dr. James E. Tew, USDA Extension for African Honey Bees is also active in several capacities. He serves as an unbiased information source for states wanting to know what direction the Federal Government is going, and also, for what other states are doing.

"Many of the people I deal with aren't beekeepers, but the programs they are associated with, Parks and Recreation, tourism and the like, need to know more about the bee, how it will affect them and where they can go for help locally," said Tew. "That's a good part of my job."

There is no doubt that the next few years will be interesting. The interest may come about because of the dramatic changes that will take place, or conversely, because of the very fact that the changes aren't at all dramatic.

That there will be some changes is not questioned — some businesses will fold, some will move, others will intensify while some will grow vertically or laterally. Beekeeping will not end though, nor will beekeepers. But who, and what remains in the year 2000 will not be the same.

All of the states mentioned, and even some that weren't, have plans to at first slow the expansion of the AHB and then to learn to manage what ever bee remains. If your state has a plan, we urge you to become familiar with it so it will succeed. But if your state does not yet have one, the sooner one is started the better — because the Decade of The Honey Bee has already begun. □

*For a complete copy of the Model Beekeeping Ordinance, contact Carole Booth, 712 Orr Lane, Allen, TX 75002. Include a SASE business size to expedite your request.

The Great Good Neighbor Contest

The concept behind sponsoring our Good Neighbor Contest was two-fold, and we're pleased that both aspects getting people to share their ideas, and finding solutions to unique problems — were met.

Every urban and suburban beekeeper, and even those that live in the country need to practice "Good Neighbor" beekeeping. But until recently there have been few explicit "How-To's" for beginners or even experienced beekeepers to turn to when looking for ideas or solutions to sticky problems.

Unfortunately, most problems caused by urban bees don't occur in the beehive's backyard. Rather, they happen at the neighbor's birdbath, or the sidewalk out front, or three or four blocks away in the form of a swarm hanging on a closeline pole.

Good Neighbor beekeeping then tends to favor controlling those activities bee engage in *other* than nectar and pollen collection. But the beekeeper's activities are also under constraint, because they too can cause problems when not carefully considered.

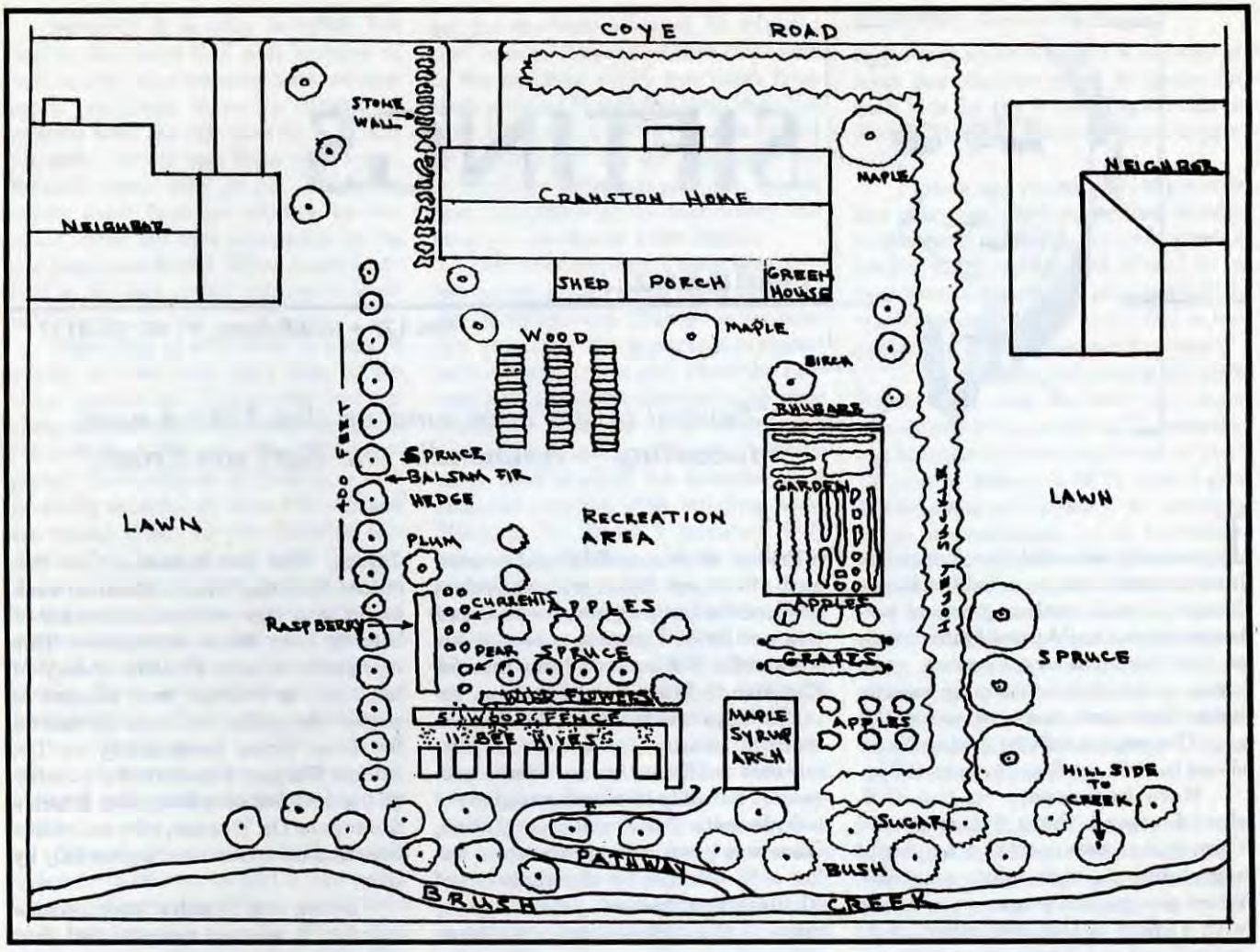
We didn't expect to be buried in entries because we asked a lot from each entrant — a story, photos and a drawing. But our reasoning was that those who took the time and made the effort would do so because they were actively practicing the art of being a Good Neighbor, and had good results because of their efforts. We were not disappointed.

In fact, the decision was far more difficult than anticipated, and the judges spent considerable head-scratching time deciding which of the entries was best.

Before we go any further, here are the criteria we used to judge the entries. We didn't expect professionals to enter this contest, so the drawings, photos and accompanying stories were

Cranston's hives are located behind a fence, facing a stream. The flight path is directed away from both his house and his neighbors. Any bees heading in those directions must go up and over the trees located directly behind the hives.

The hives are out of sight from the house and the street and the evergreens provide an excellent wind break.



not judged on those skills of the entrant. Rather, we wanted the drawings to show where the bees were located in relation to neighbors or other problem sources, and what precautions had been taken to avoid those problems.

The photos were to substantiate the drawings, and to show how well the ideas used by the entrants actually worked.

The stories were to support and explain the physical setting of the yard, and the entrants participation in the situation — good management techniques, public relations and the rest.

There was a final category that was far more subjective on our part. Essentially, it was an overall score, arrived at by instinct and experience on the part of the judge.

Choosing a winner was not easy because all of the entrants did excellent work, but sometimes even excellence must be ranked. So, based on a split decision by John Root, Dr. James Tew, Kim Flottum and Diana Sammataro, we present the winning story, photos and drawing above, submitted by Donald Cranston, Jamesville, NY.

I live with my wife Yvette and two children, Amy and Andrew in a semi-rural area 12 miles S.E. of Syracuse, NY near the village of Jamesville. I am employed with Niagra Mohawk Power Corp. as a System Forester where most of my work is associated with vegetation management on transmission right-of-ways.

Our property has 110 ft. frontage and is 400 ft. from the road back to the creek. There is a steep hillside going down to the creek and my beehives are located at the top of this incline. I have constructed a 5 ft. wooden fence along the front of the hives and there is a row of tall spruce along the front of this fence.

The children play in the back yard area and are seldom bothered by the bees. We also work a large 30 x 100' garden and often hear the bees and smell the new honey being processed, but are seldom bothered. The neighbors mow their lawns and do other yard work during the summer and they are not bothered, I know, as we have never received any complaints. The buffer area and fruit trees in front of the hives are very effective.

I go through the hives each spring and the strong ones I split up by taking 3 or 4 frames of bees and brood out, replacing these with empty frames and combining them with enough frames from other strong hives to make a new hive. I always let the bees develop their own queen. I combine some of the weaker hives or set them on top of good colonies with screening over cover hole for the extra warmth they will get. I also feed terramycin each spring and fall. I try do do my work with the bees during the summer months during the morning hours.

When I remove honey supers from a hive I take them directly to the house

Continued on Page 43

SIFTINGS

CHARLES MRAZ

Box 127 • Middlebury, VT 05753-0127

"Several things have come up that I think need discussing — Apimondia and Karl von Frisch"

I recently attended the Apimondia International Congress, held in Rio de Janeiro, Brazil, with a group of beekeepers from the PA area. Apimondia is an international organization, composed of National beekeeping associations. They meet every two years. The next Convention will be held in Yugoslavia in 1991, and in China in 1993.

More beekeepers in the U.S. should attend these International Conventions, because it is a wonderful opportunity to visit other countries. When you go with a tour, in company with a group of U.S. beekeepers costs are reduced and it is far more interesting. When you visit beekeepers in foreign countries, there is a common interest in bees and beekeeping that breaks down many barriers.

The Rio Convention was not very well organized, which actually made it more interesting. We had to provide our own transportation from the hotel to the convention center, a long way from the city and the hotels. Fortunately, taxis were reasonable and the best way to get around. And although Portuguese, the national language of Brazil, and Spanish are different I was able to converse easily with the taxi drivers using the Spanish I learned in Mexico. It really helped.

My primary interest in the Apimondia meetings is in the field of Apitherapy, the therapeutic application of various bee products. Most European and Asian countries are ahead of the Western World in this area, but both North and South America are beginning to show some interest.

As I said, the meeting was somewhat disorganized, and the Apitherapy program, which was scheduled for all of a Friday afternoon didn't get started until after 4 p.m. Because it was the last day, and the last program, the audience was not large. I gave a paper on our work at the Walter Reed Army Inst. for Research in Washington, D.C., on arthritic dogs treated with Bee Venom therapy. Because there were only 90 minutes available for our whole program, I had only 10 minutes to give my talk. In spite of the brief presentation, there was great interest shown in the use of Bee Venom for the treatment of Rheumatic Diseases. After I spoke many in the audience came to ask me where they could get more information on the subject. Unfortunately, very little has been published and little is available.

Yugoslavia is probably the most active country in the study of Apitherapy. I am sure at their convention it will have a prominent position. And, hopefully, by that time I will have my book available, which is based on my 55 years of experience with the subject.

•

We visited some local apiaries too, and went into the hives with no problem at all. I get more stings from my own bees in my back yard. From what I have seen, and from what I have been told by beekeepers from Brazil and other South American Countries, the Africanized bee will eventually *revive* beekeeping in South America, not destroy it.

•

In the December, 1989 issue of *Gleanings*, in an article by Elbert Jaycox, "The Bee Specialist", he discussed Karl von Frisch's classical work on the language and communication of bees by their dance movements. This discussion of von Frisch's theory of language to indicate new sources of nectar and pollen has been carried on for some time, particularly by Dr. Adrian Wenner. I have read a number of the articles attacking von Frisch's findings by Dr. Wenner, who maintains bees find new sources of nectar only by odor.

Before von Frisch's work became popular, it was an accepted fact that animals, and especially insects could not think and had no reasoning. When von Frisch observed that bees seemed to communicate by transmitting distance and direction to new sources of food, using gravity and the position of the sun, it was regarded by most scientists as Heresy. The criticisms went something like — "It is a known fact bees cannot think so obviously von Frisch is wrong."

However von Frisch persisted, and he spent nearly 50 years observing bees in a variety of locations while his many students did the leg work.

Von Frisch invited many of his critics to see, by observing directly, what he was talking about. Many of those that did visit von Frisch became his staunchest supporters.

From the articles I have read that were written by Wenner, he has done little, if any direct observation of the bees in his experiments. He seems to have avoided direct confrontation with the bees. (Is he perhaps afraid of getting stung?) He has not yet resented any evidence that I have seen, from direct observation of the bees in glass hives.

Actually, it is easy to refute his theory that bees find new sources of food only by odor, because bees use this same language when in clustered swarms after leaving their hive. While clustered, scouts look for a new home. Several scouts may go out, and later report their findings relative to distance, direction and suitability to the site they have found. When a new location is decided on off they go to their new home.

Have any of you tried to chase a swarm of bees after they take off for their new home? You do not have to chase them very far before you know all the bees know exactly where they are going. This method of finding a new home by swarms of bees was checked out many times by von Frisch's students. One such group read the language of a clustered swarm, and as soon as the bees determined where to go, the students jumped on their bicycles and rushed to the place indicated by the dance. They arrived even before the bees got there. The location happened to be a building of a Coffee House, where customers were enjoying an afternoon coffee and pastry outside on the patio.

The students thought it an odd place for a swarm to find a new home and were debating if they or the bees may have made a mistake. While they were arguing in front of the coffee house, the proprietor came out and wanted to know what they were doing because he did not want them to disturb his customers. The students made a lame excuse that they were working with bees.

In disgust the proprietor made remarks to his customers about those crazy students. But just then there was a roar in the air, and suddenly the patio, the customers and the side of the building were covered by a cloud of bees. The scouts had found a hole in the side of the building which was the entrance to their new home — in the partitions of the coffee house.

Naturally the customers all screamed and ran, leaving the patio empty except for the swarm of bees. The proprietor was sure the crazy students were responsible for his customers running away and he called the police and had them taken to jail. Both the proprietor and the students tried to explain to the judge what happened, but the more they tried, the more confused the story became. Finally they had to bring von Frisch to the court and get the students released. So how did that swarm of bees find that little hole in the building which was miles from their original home? Did they find that little hole in the coffee house building by smelling it? Or did they like the smell of the coffee and pastries. Trying to explain this with the odor theory will keep you awake for a few nights.

For over 30 years I have been collecting pure bee venom using the electric shock method. This gives the bees the "hot foot" The apparatus is placed in front of the hive and when the current is turned on the bees get an electric shock and viciously sting the collector to deposit the venom. The odor excites more bees to sting the collector so it becomes covered with stinging bees. However, in about 5 minutes, they seem to learn that a dirty trick was played on them. So after a bit, they begin to avoid the apparatus. Even though there may be 30,000 bees in a hive, not more than 2,000 bees will sting the collector before they finally wise up — then they'll sting the h___ out of me, instead. After this, the collector must be moved to another hive that hasn't been fooled yet. That's because once they've been fooled with the collector you cannot use it again for at least a month for only a very few bees will attack it. Only the new bees that have not yet learned about my dirty trick will attack the collector after the first time.

My sister was a teacher in England and the U.S. for nearly 50 years. In her day the teachers had a saying, "Those that can, do. Those that can't, teach." I am sure Wenner is a good teacher, but I am also sure if he tried to make a living by beekeeping, as I have done for 60 years, he would starve to death. Another good piece of advice is by the old sage who said, "Go learn the ways of the bees and be wise." I am sure if you learned from the bees, as von Frisch did, even you too might be wise. □

CONTEST...Cont. from Page 41

to prevent any robbing. I also leave at least one shallow super of honey on each hive for the winter. Again this is done during the morning hours if possible.

I take great precautions to prevent any situation which could lead to misunderstandings with my neighbors. I keep a diary, and record what I do to each hive and any other pertinent information about them which I feel is important in the management scheme.

I make a limited supply of comb honey each year as there are more people beginning to buy it. The remaining honey is extracted and sold in 1 to 5 lb. jars, or placed in 60 lb. tins. I give honey away as payment for services done, appreciation, good advertisement, holiday seasons and to show good friends that I appreciate them.

I remove swarms from backyards and try to talk to people I work with or meet about honey bees, their pollination services and the delicious honey which they produce. If a person wishes to get started in beekeeping, I try to assist where possible.

As we said, Mr. Cranston has done a great job of being a "Good Neighbor". His hive placement and subsequent screening provides a nearly perfect location for both bees and people.

But he has gone one step further, and that is to document his activities with his bees. This information, and the fact that good records are kept, would be invaluable if a dispute or question ever arose.

However, we must mention the practice of letting the bees requeen themselves. Although in the past this has apparently worked well, documentation of queen source will become more important as attention to beekeeping is increased.

We recommend that queens from reputable (this certainly includes local suppliers) breeders be obtained and marked. This eliminates any questions regarding parentage, and perhaps liability. □

Happy New Year!

QUESTIONS?

Keep Dry

Q. **How do you ventilate hives in winter without having less of heat?**

Robert G. Taylor
Ponchatoula, LA

It is moisture, rather than cold, that puts a stress on bees in winter. The best ventilation is achieved by enabling moist air to escape from the top of the hive, by leaving the inner cover opening only partially covered, for example. You thus get rid of moisture without creating a significant draft.

Is Bigger Better?

A. **I understand the cells of brood combs get smaller over the years, and should be replaced periodically. How often?**

Bill Hilker
Ithaca, NY

See "Bee Talk", this issue.

Moving Day

Q. **My seven colonies are on a bench above my house. I'm now 77 and it is hard carrying supers up and down thirty steps. I want to move the bees down to my yard. Can I do this in the winter when it is too cold for the bees to fly? Or will they just fly back up to the old location when spring comes?**

Emery Hedlund
Harrison, ID

A. A few bees may fly back to the old location, but they will be old bees, destined to perish soon anyway. The bees can be moved in winter, or early spring, and it is not necessary to pick a cold day. Bees are normally inactive at about 50°F.

Contamination?

Q. **Is there any danger in using equipment that has been infested with wax moths?**

Jack Russell
Charlotte, MI

A. No. Equipment is not left contaminated by wax moths, nor by mites.

Garden Quest

Q. **Where can I buy a linden tree seedling, a golden rain tree seedling and goldenrod seeds?**

William M. Farmer
Dublin, VA

A. Commercial sources for unusual seeds and seedlings are given in an article by Anne Westbrook Dominick in the September, '89 issue of *Gleanings*. It should be noted, however, that a single tree of whatever kind, or even several, will make very little difference to a honey crop. As for goldenrod, there are over a hundred varieties, not all of which yield nectar, and it is unlikely that many would flourish in any area where they are not already found. My own attempts over the years to establish new honey plants, by disseminating seeds, have consistently failed.

Smoooth!

Q. **How can you lubricate honey house equipment that comes in contact with honey?**

Andrew Lehtonen
Groton, NY

A. It is seldom necessary to grease or oil honey house equipment, but if you need to, then use small amounts of mineral oil, available from a drug store. Do not under any circumstances use even a minute amount of motor oil if it can come in contact with honey.

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

ANSWERS!

Richard Taylor

The Face of FEBRUARY

GWENDOLYN EISENMANN

It seemed there would be no winter. We usually have six weeks of winter, from the first of January to the middle of February, but it was already the first week in February and we hadn't had a really good freeze. The beehives were hefted to see if they had enough honey to take them through a few more weeks until blossoms started. The bees were active about the hives but didn't travel far.

It was February 4th when the ice storm came. Freezing rain sealed us in, and deep cold followed. Then a dusting of snow on top of the ice made roads and paths too treacherous to travel. But the lane and gravel road were always walkways, for exercise and discovery. Coveralls, boots, fur hat and mittens made me feel invulnerable, so I trekked two miles to a neighbor's. They had studded snow tires and were able to go "out" Somewhere out there was a world with mail delivery, and I took mail to be dropped at the post office five miles out.

Underground springs continuously seep through the gravel road surface in certain spots, and freeze in "skateways" as they run downhill. Covered with snowdust it is hard to tell where *not* to step in the road. Halfway home on my trek, I stepped where I shouldn't, and was down in a flash, with a wrist that broke while breaking my fall. Well padded and warm enough, it still seemed a *long* treacherous way home, holding a broken wrist against me with the other hand. But I made it and was so grateful to be home! A handy husband had splint, ace bandage and ice pack ready in no time.

But we did not have a way to drive out to a doctor, and the neighbor, the only one on five miles of road, would not be home until 10:30 p.m. However, hoping a probable fracture had no displacement, I arranged by phone to be picked up early in the morning, and relayed to a volunteer fireman with a 4-wheel drive vehicle. He managed a trip to a doctor and back home by noon, fracture confirmed by x-ray, splint in place.

So winter came, and the bees and I stayed in, not even humming for a few days. The face of February had turned dreary.

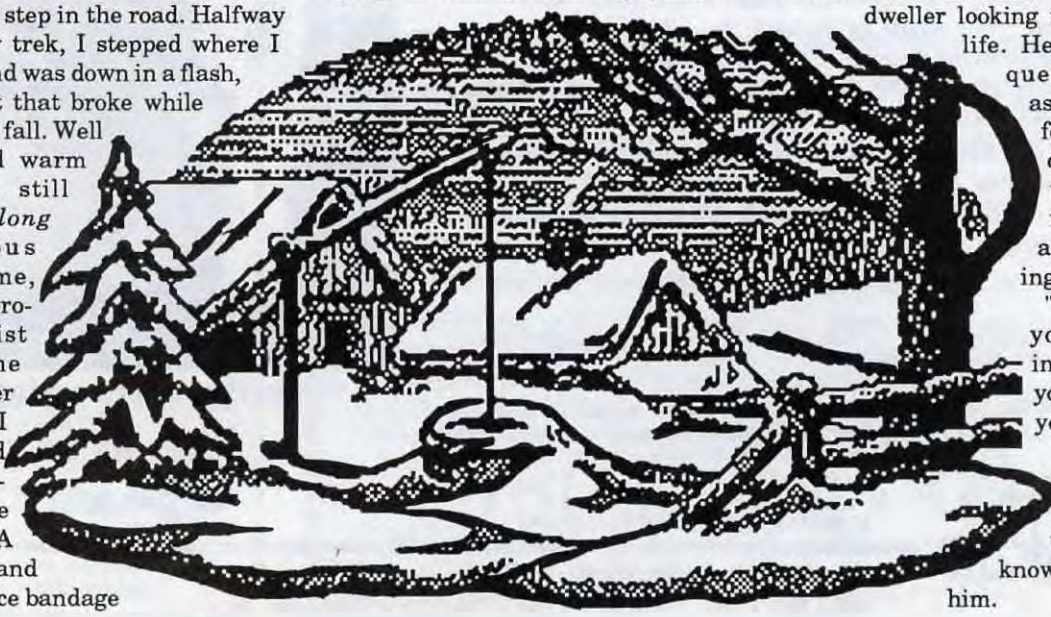
Then a phone call — a friend asked if she could bring a visitor from Dallas to meet us. "Of course! Come for rooster soup. We'll have a February-fest." Smarty, the old red rooster, long enough in the freezer so that his crow gave way to just an echo in the sound of simmering soup, had another day of glory beyond the chicken yard. ("Don't tell the kids, but we ate Smarty last night.")

The visitor from Dallas was a photographer with an artist's eye, and we were mirrored there. Our rustic kitchen with fireplace invites everyone to gather there, and the Dallas visitor, Jesse, was happily getting soup bowls and spoons from cupboards. (A one-handed cook is not too competent anyway.) Jesse didn't miss the hand-carved walnut hinges and handles on maple cupboard doors and drawers.

Treenware hangs on a rack over the kitchen island, all the spoons, scoops, spatulas, dippers and ladles made by my husband with hand tools, his hobby and specialty. Jesse found the soup ladle hanging there, made from a twisted sycamore branch, with a knobby handle for good grip. Jesse wanted to slice the bread, made from wheat berries I had ground just before baking that day. (The mill was made by a local Amishman, of cherry wood, with a little motor and grinding stones mounted over a cake pan receptacle that slides out. Jesse had to see that too.)

On the table we had candles made from our own beeswax, and honey to make ambrosia of the bread. Smarty was indeed glorified — at least for this visitor from Dallas, this big-city dweller looking for a simpler life. He was full of questions. He asked about our food, our gardening practices, about fruit trees and beekeeping.

"Well, what do you do about insect pests in your garden if you don't use insecticides?" He really wanted to know, so we told him.



EISENMANN...Cont. from Page 45

"First of all we build healthy soil with Biodynamic compost, and attract the good guys who keep the bad guys under control. Healthy soil makes healthy plants. Invariably insect pests attack plants already stressed by less than optimum conditions. Birds and beneficial insects like healthy gardens too, and are our best helpers. Come to think of it, we don't have many insect problems.

We also use Dipel® if necessary — a bacterial "wormicide" harmless to birds, bees, other insects — and people. And we use stinging nettle and equisetum sprays for resistance to disease and attack. The old 'gather and grind the villain, dilute and spray back on himself' method works too."

We explained Biodynamics as homeopathic treatment for the Earth, a dimension beyond "organic" Jesse ate it up. He ate an awful lot!

Warm food, firelight and candles had put a smile on February's face, and the smile grew to grins and laughter when we discovered after supper that Jesse was a story-teller. What a rare treat! I mean a *real* story-teller of folk tales from the south, with a Texas accent and a pleasing baritone voice. "Dry Frye loved fried chicken —". Only Jesse can tell it right.

The candles and fire burned low by the time our guests rose to leave. Jesse said, "It's been great. I didn't know there were people like you."

Like us? What did he mean by that? Perhaps just that February's face in firelight reveals a lot of dreams. □

How To Make

Beeswax Creams

GEARY WONG

Sitting by the fireplace on a blustery winter day, the beekeeper, having harvested and cleaned his or her beeswax, ponders the fate of all those beautiful cakes of lemon-yellow gold. Should one transform them into the proverbial candles, ornaments, and polishes? Maybe. There is one application of beeswax that perhaps few have considered: the use of beeswax as a basis for creams to soothe dry, chapped skin. The compounding of beeswax based creams is surprisingly simple, requiring only a number of basic ingredients, and a little care supplied by the gentle beekeeper.

One of the earliest known uses of beeswax in creams is credited to a famous Roman physician-pharmacist of the 1st century A.D. named Galen. His mixture, with improvements in proportions and methods of preparation, has survived in essence over the centuries. Galen's preparation, known as *Galen's cerate, Unguentum,* or *Ceratum refrigerans*, has a cooling effect due to the evaporation of water from the mixture on contact with the skin, and thus can be called a *cold cream*. Galen's original mixture probably consisted of beeswax, olive oil, and water. The mixture was not stable and had to be used when fresh; the parts tended to separate and the olive oil would become rancid. As recently as the 19th century, various cold creams were mixed in local drug stores for immediate use.

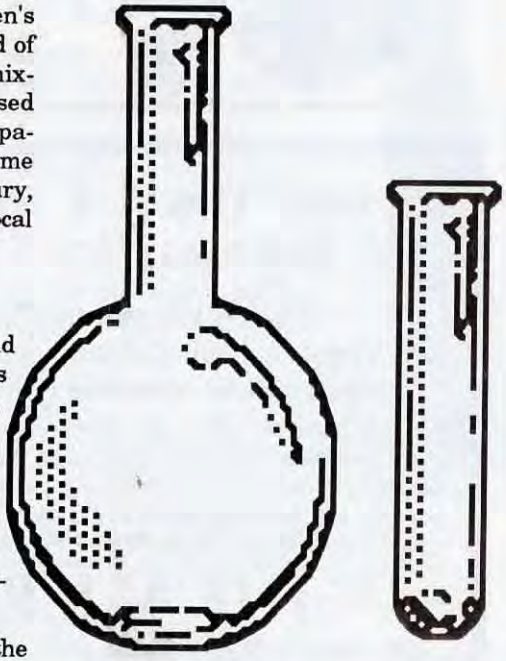
Cosmetics

Beeswax, though expensive, and despite the advent of synthetic waxes such as paraffin, is still much sought after in the cosmetic and pharmaceutical industries. Beeswax does not become rancid and is not irritating or sensitizing to the skin. It acts as a stiffening or firming agent (base) and is often used as an emollient.

A beekeeper should only use the wax obtained from cappings or that rendered from comb in which no brood rearing has occurred. These two sources yield a lemony yellow wax.

Two simple formulas for beeswax based creams are offered here. They may be used to produce basic creams of the *water-in-oil emulsion* type.

Recall the saying "oil and water don't mix" because when oil and water are introduced into the same container, even vigorous shaking yields a mixture that will separate, the oil forming a layer above the water. To prevent the oil and water from separating a third ingredient, known as an emulsifier, must be added. A typical emulsifying agent consists of a mixture of sodium tetraborate (borax) and beeswax (a source of cerotic acid). The combination of sodium tetraborate and cerotic acid forms sodium cerotate, which is a soap, one of the commonest emulsifiers.



Formulas

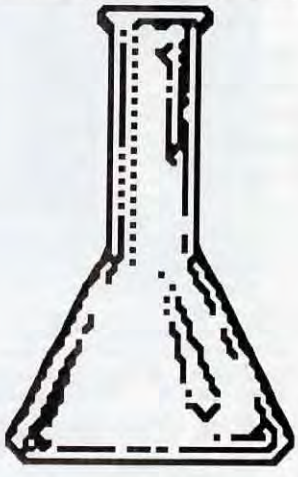
The following cold cream formula is from *The United States Pharmacopeia*, and *The National Formulary*.

Official Cold Cream

Cetyl Esters Wax (Synthetic spermaceti)	125 g
White Beeswax	120 g
Mineral Oil	560 g
Sodium Borate (Borax)	5 g
Distilled Water	190 ml
To make	1000 g

Break the cetyl esters wax and the white beeswax into small pieces and melt them in a steam bath. Add the mineral oil and continue heating until the temperature of the mixture reaches 158°F(70°C). Dissolve the sodium borate in the distilled water, warmed to 158°F(70°C), and gradually add the warm solution to the melted mixture, stirring rapidly and continuously until it has congealed. This cream is useful as an emollient or as a cleansing cream.

Preserve in tight containers.



The following is a formula, developed by Tony Jadczak, Maine Apiary Inspector, which is often used to produce a moisturizing cream.

Moisturizing Cream

Yellow Beeswax
(Stiffening Agent) ..... 5 oz.
Mineral Oil (Emollient)..... 16 oz.
Distilled Water (Vehicle) 1-1/3 cups
Borax ..... 2 tsp.

Break the yellow beeswax into small pieces. Melt them in a steam bath with the mineral oil, and continue heating until the mixture reaches 158°F(70°C). Dissolve the borax in the distilled water warmed to 158°F(70°C), and gradually add the warm solution to the melted mixture, stirring rapidly and continuously until it has congealed. Fill jars with the mixture when the temperature has decreased to at least 108°F(42°C).

A Parting Note

With a bit of experimentation, you can create many wonderful beeswax based creams using a variety of other available ingredients such as pollen, royal jelly, and, of course, honey. As always, be careful because some ingredients may cause allergic reactions in some people.

The beekeeper gazes at the cakes of beeswax and imagines... □

Ansel, Howard C. *Introduction to Pharmaceutical Dosage Forms.* Third Edition. Philadelphia: Lea & Febiger, 1981.

Balsam, M.S. and E. Sagarin. *Cosmetics, Science, and Technology.* Second Edition. Three Volumes. New York: John Wiley and Sons, 1972, 1972, 1974.

Berthold, Robert Jr. *Beeswax.* Gleanings in Bee Culture. 109: 298-300.

Coggshall, William L. and Morse, Roger A. *Beeswax.* Ithaca, New York: Wicwas Press, 1984.

Osol, Arthur, Ed. *Remington's Pharmaceutical Sciences.* Easton, Pennsylvania: Mack Publishing Company, 1980.

Sammataro, Diana. *Simply Wax.* Gleanings in Bee Culture, 117: 477-479.

United States Pharmacopeial Convention. *The United States Pharmacopeia, Twenty-first Revision and the National Formulary, Sixteenth Edition, Official from January 1, 1985.* Easton, Pennsylvania: Mack Publishing Company, 1984.

Salt of the Earth

ANN HARMAN

In a corner of the horse pasture stands an old stump. From this hang two large blocks of salt: one plain, just like your own table salt, the other with minerals, rather like your vitamin tablet. The rains wash a little of the salt down the stump and onto the ground. Since the stump is in a slightly swampy area, the ground around is usually damp.

The horse lick and chew the salt blocks whenever they feel the need. But the salt block stump is a gathering place for many other critters, day and night.

Salt and other minerals are in very short supply in nature. Plant-eating animals have the most difficult time finding a source since most plants contain extremely small quantities of necessary salt and minerals. Meat-eating animals fare a bit better since blood and bones do contain a rich supply. Did you ever wonder why you never find deer antlers lying around in the woods? Deer shed their antlers every year. But they do not lie on the ground very long before they are discovered by mice and other animals who chew the antlers up to obtain vital minerals.

The gray squirrels scamper down from the trees to spend a few minutes licking salt from the stump. The chipmunks dash over for their serving of salt. Butterflies congregate on the moist salt-rich earth. Footprints in the soft soil are evidence of the nocturnal animals.

Another consistent visitor is the honey bee. Hundreds of them will crawl around on the wet earth sucking up the salt-laden water. They are as busy and as dedicated as when collecting pollen or nectar. But that is no surprise, since salt and minerals are as important to the bees' well-being as the rest of their food sources.

Swimming pool owners traditionally have honey bee problems. However, consider the honey bee's perspective. Bees view the swimming pool as a source of both water and precious minerals. The minerals are, of course, the pool chemicals that are added to keep the water fresh and clean for swimming.

Perhaps we should add salt and minerals to our list of requirements for an ideal bee yard. Books state that a source of water is important. So is bee pasture. But water and flowers do not provide a balanced diet. Consider adding a small mineral salt block along with your bees' water supply. Then enjoy all the other visitors, too. □

BEE TALK

RICHARD TAYLOR

9374 Route 89, Trumansburg, NY 14886

"Some thoughts on the basics and why, if you're just starting, you shouldn't worry too much."

Beginning beekeepers often fret too much. I thought of this the other day when one wrote to express concern about his bees. He had taken advantage of a warm fall day to open the hive for a final check before winter. Among several things that seemed to him not quite right was the location of the winter stores. Most of the honey was up in the top of the hive, but the bees were all in the bottom, and between honey and bees was considerable empty comb. He was afraid the bees would not find their way up to the honey, and might starve.

This sort of thing happens a lot. New beekeepers, wanting to do everything right, worry about every apparent irregularity. They frequently become convinced that a colony is queenless, for instance. Or they worry that the bees will not be able to keep warm enough on bitter cold days. Or that the hive, out in the hot sun on a summer day, will get too hot — that sort of thing.

At the other extreme is a big commercial beekeeper who has a bee yard not far from me. He lives in another state. He comes around in the spring and piles full-depth supers on, then returns in the fall to haul them all home for extracting. So far as I can tell, that's about all the attention the bees get.

It is not my place to advise commercial beekeepers, but perhaps I can say something helpful to beginners. I can remember when I was one. That was a very long time ago. I would go out and "tend" my bees about once a week. This consisted essentially of opening the hives, taking out some brood combs and having a look. What for? I have no idea. I just assumed that was what a beekeeper was supposed to do. When, on a hot day late in summer, I saw bees clustered on the front of the hive, I thought they might be getting ready to swarm. Or maybe their combs were going to start melting. I thought that, come fall, they all had to be heavily wrapped and covered with a deep layer of leaves or straw, to keep them warm. And I frequently decided that this or that colony had gone queenless. In short, I thought they needed constant attention, and that, without vigilance on my part, all sorts of things could go wrong without warning.

Well, let's take the matter of queenlessness first of all. Many a beekeeper has spent time and money trying, over and over, to get a queenless colony requeened, only to discover in the end that it had a queen all the while. A colony of bees rarely becomes queenless, except, sometimes, as a result of the beekeeper's own meddlesomeness. So don't worry about that. If you find a colony that seems to show every sign of queenlessness — no eggs or brood, for instance — then give it a frame with young brood and eggs from another colony, and forget it. If they really do lack a queen, which chances are they do not, then they'll raise themselves one with no further help. And so it is with most of the other things that cause concern. Do what needs to be done, then let the bees take care of things their own way. It is not very likely, for instance, that bees are going to store honey in their hives, then fail to find it when winter comes and they need it.

I once knew of an elderly beekeeper and his wife who had, as far back as they could remember, taken every hive apart every spring and scrapped all the excess propolis off every frame. They called that spring cleaning. What was all that effort for? Nothing that I can think of. The bees simply put new propolis back on the frames.

Some beekeepers worry that their combs are getting too old. They have long since turned black, for instance, and it seems as though they ought to be replaced. Besides, we read that the longer a brood comb stays in the hive, the smaller the cells get, due to build-up of pupal cocoons or whatever, and therefore the developing bees, being cramped for room, will turn out smaller, and not good at getting honey. In England many beekeepers seem to make a fetish of replacing a certain number of combs each year, marking them somehow so they can tell just how many seasons a given comb has been in use. But again, one needs to ask, is it really worth all that effort, getting all those combs melted down and replacing them with foundation? I have never, in all my decades of beekeeping, replaced a comb merely because it was old. I'm sure some of those combs have been in the hives twenty years or more. I don't know whether, as a result, my bees are any smaller.

Maybe they are; I just never give it much thought. They all look to me to be of the proper size and, what is important — the "bottom line," as they say — is that I get very good crops of honey. I'm sure my bees are in no danger of dwindling to pygmies and leaving me without good crops.

I once visited an apiary, in England, of one of the most famous beekeepers in the world. It was early

spring and, looking into a few hives, I was astonished to find only a half dozen or so combs in each hive, the rest of the hive being empty! The missing combs were removed for the winter for inspection, repair and replacement. That struck me as about the worst management I had ever seen. The bees in those half empty hives were clearly under stress, very low on stores, and low in population. It was this beekeeper's system to bring his colonies through the winter as veritable nucs, then build them up with sugar syrup in the spring. Of course every one has his own way of doing things, but I am quite certain that I can do better than that, and save myself a lot of time and work, too.

Drone comb is another problem for some beekeepers. Drones gather no nectar. They are fat and lazy and consume lots of honey. Therefore, the thinking goes, we've got to keep drone populations to a minimum, by assiduously culling drone combs from our hives. Well, that's another thing I do not get too worked up about. Of course I try to get nice straight worker size combs to begin with, by putting the foundation I the way it should be, but still, I sometimes find an old comb that is maybe half drone comb. I almost always leave it alone. Maybe I'll get a few drops less honey from that hive, but on the other hand, maybe not. I suspect it doesn't make much difference one way or another.

There are certain tried and true basic management practices. My own system is pretty simple, but I adhere to it closely, and I just don't worry about the smaller things. That way I have time to enjoy the bees, instead of fretting about them, and I can use the time I save to deal with my good crops. □

Comments and questions are welcomed. Write to Richard Taylor, 9374 Rt. 89, Trumansburg, NY 14886, and enclose U.S. or Canadian stamped envelope for response.

INNER ... Continued from Page 4

and loose with a toxin in a beehive. So without thinking too hard, you already know that somewhere out there is an innocent looking barrel that is actually a camouflaged toxic waste dump — a disaster waiting to happen.

However, there are a significant number of beekeepers, who wish to remain beekeepers, that feel this is a small price to pay to maintain something as important as the pollination empires that exist — and must exist to feed America. The feeling is that if we chip away a perfect public reputation, one part per million at a time, no one will notice. Nor-Am has stated that if unapproved uses of their product continue, they'll pull their product. And though I applaud the altruistic motivations for this, we all know that they're protecting the economic basis of a much larger use agricultural money-maker. There is certainly no harm in that.

Though no rational beekeeper would ever condone the *illegal* use of any chemical in a beehive, I must admit there are no short-term alternatives to make mites dead other than the *legal* use of chemicals . . . a causalty of war I guess.

But after all, the only good mite is a dead mite, right?

Inside This Month...

We've covered topics in this issue traditionally not seen in a trade magazine as specific as *Gleanings*.

The 'Drying Of The American West' is, today, a critical problem for those who live there and depend on water for such fundamental uses as agriculture, industry, and morning coffee. But water transcends even these basics. Before 'progress' went west not much was happening out there—it was a well balanced ecosystem that thrived on little or no water.

But with civilization came an increased need for water, and slowly the landscape changed. There seemed to be an endless supply and life was good. But once again short sighted economics (and greed) got on that proverbial one way street.

The saddest aspect of this is that so many who were not responsible will suffer when the well goes dry. A totally artificial world exists on borrowed time, and water. The plants that shouldn't be there, the animals that live on the plants, and the people who take from both will be gone if stoic, and radical conservation programs aren't implemented — today.

Beekeeping will certainly be part of what gets left to dry up and blow away when the worst happens. So we thought it important to say something, because we thought you'd like to know.

Insurance is another matter altogether. We live in a society that considers lawsuits as common place as traffic tickets, and beekeeping is an activity that is capable of transmitting pain, venom and fear. Obviously, operating without some sort of protection would be suicidal, and stupid.

This story, and the one next month should alert you to the dangers of ignoring the world of liability, and to provide some information on how to protect yourself.

We urge you to seriously consider the potential problems you face as both a beekeeper and merchant. No matter the right or wrong of a honey bee-human interaction, only the attorneys will win, and you can't pay them in honey.

Finally, we're proud to announce the winner in our Good Neighbor contest. This article is only the first of many this year that will provide information on the basics of 'smart' beekeeping. We've looked at a whole list of critical issues facing nearly every aspect of this industry — from the megacolony operation to the five colony hobbyist.

Unfortunately, when bees and people cross paths compromise may not always be an option, but in many situations it will. And negotiations made from a positive position usually end more favorable than those from a defensive and inadequate stand.

Deserts, insurance and common sense beekeeping much to think about for beekeepers, and beekeeping.

Thanks, Becky

If you've ever had a question about your subscription, or your magazine didn't arrive and you want to know why, or you just wanted an extra copy to replace the one you lent out, you surely dealt with Becky Dull, our Subscription Manager.

For 14 years Becky has been handling these and many, many other problems. Over the years it was Becky who dealt with post office errors, or accounting department slip-ups, and even those folks who forgot to put their return address on the form when they ordered the magazine.

When she started, *Gleanings* was addressed by hand, using a one-at-a-time machine. The covers were printed in our shop and Larry Goltz was Editor.

But nothing lasts forever, and Becky has moved on. She hasn't left the Root Company, but has moved 'across the isle' as it were, and is now working in our expanding financial section.

"After 14 years it was time for a change", she said recently, "but I really miss the people I worked for — 'my readers' ", she added with a trace of a smile.

Becky has always been a calm port in what are often stormy waters, and never has an upset customer, the annual postal review or the weird requests from an obviously crazy Editor caused her to so much as bat an eye.

She has been a friend and a teacher, and though all of us at *Gleanings* will miss her, I will most of all. Thanks for everything Becky, we're better because you were here.

Kim Flottum

GLEANINGS GLOBE

JANUARY, 1990 ALL THE NEWS THAT FITS

EAS CHANGES LEADERS

At the summer EAS Board of Directors meeting Bob Cole announced his desire to step down from his position as Chairman of the Board. He selected a search committee to pick a successor, and at the fall meeting Dr. Dewey Caron, Professor of Entomology at the University of Delaware was chosen as successor.

Bob Cole, from Blowing Rock, NC, has served as Chairman four years, in addition to being the NC Rep. He has brought stability and leadership during a transitional period for EAS.

Dr. Caron brings a wealth of EAS experience to his new position. He attended his first meeting in 1967 and has only missed a couple of the annual meetings since then. During the 70's he served as MD representative, and remained active on the Board during the 1980's after moving to DE.

Dewey Caron will take over EAS at the summer meeting in Maryland, during the last week of July.

He served as President in 1986 when the annual meeting was in DE, and has remained on the board as past president since then.

This past year Dr. Caron authored the EAS Good Neighbor Policy, published to provide assistance and guidance to both beekeepers and municipalities when the need arises.

"Bob Cole was the perfect person to guide EAS through the past three years," said Dr. Caron.

"He has had the patience and wisdom that we needed to overcome the several obstacles we've encountered. I'm very glad he will remain on the Board because I will need his guidance," he added.

Dr. Caron will officially take charge at this summer's annual meeting in MD, to be held the last week of July.

EAS MEETS IN JULY IN '90

The Annual EAS Seminar will be held in the all air conditioned facilities of Salisbury State University in Salisbury, MD, located only 30 minutes from the Coast.

This year's meeting will start with the short popular 2-1/2 day course on July 30. The main meeting starts Aug. 1, and runs for 2-1/2 days. A change this year is that there will be no Saturday events. The meeting will officially close after the banquet on Friday night.

Gene Killion will be the keynote speaker, and hobbyist designed workshops are planned. For more information contact Ann Harmon, President at 6511 Griffith Rd., Laytonsville, MD 20882.

Cornell Grad

VISSCHER MOVES TO RIVERSIDE

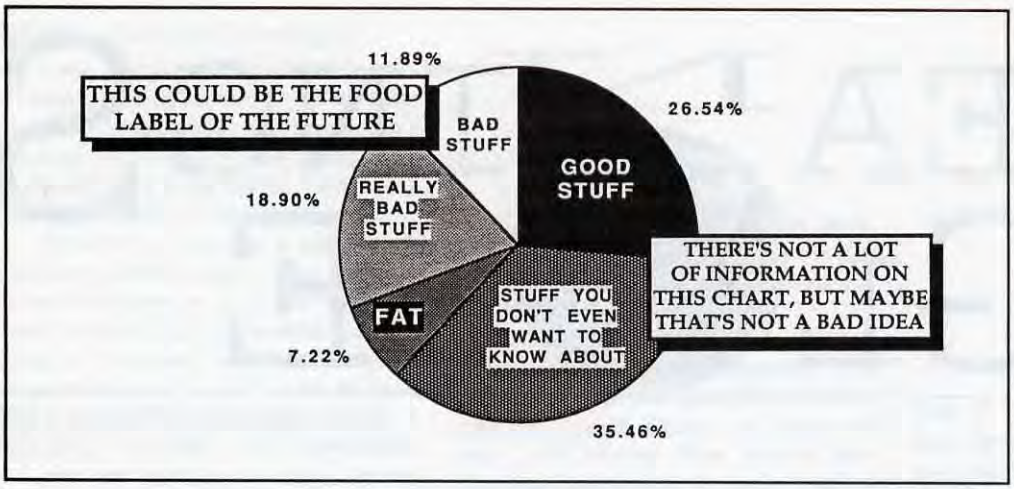
Riverside — Kirk Visscher, an expert in the biology and behavior of honey bees, has joined the entomology faculty at the University of California, Riverside.

Visscher's research will focus on pesticide toxicity to honey bees, comparative biology of Africanized and European bees, and honey bee social behavior. He is also interested in pollination research. California agriculture depends on honey bees to pollinate 42 different crops valued at $1.5 billion.

Africanized honey bees are expected to enter the United States in 1990. Successful management of Africanized bees will be necessary to maintain agricultural productivity. Visscher will evaluate their impact in a variety of Southern California environments to develop management strategies.

Visscher was a postdoctoral scientist at Cornell before joining the Entomology Department at UCR on Oct. 1. He received his Ph.D. at Cornell in entomology/ecology and behavioral biology.

Visscher is interested in developing new courses on the biology of social insects and apiculture at UCR. His recent publications have appeared in *Behavioral Ecology and Sociobiology, Ecology, Animal Behavior*, the *Journal of Apicultural Research*, and *American Bee Journal*.



How'd you like a bar graph for your breakfast bar? A pie chart for your whipped cream?

The Food and Drug Administration is taking comments on food labeling through Jan 5. Issues being addressed include:

•The readability of nutrition information. Bar graphs or pie charts could replace the current lists. Those lists are usually in small print, and give metric measurements and percentages of recommended daily allowances, which are not always readable or understandable to everyone.

Bar graphs or pie charts would be easier to read and understand, but they'd probably give less information than the lists.

•Health claims. Foods touted as "no cholesterol" may be high in saturated fat, which is just as unhealthy as cholesterol. "Lite" foods may be lower in calories than others, but still contain excessive calories.

Also, there are no federal guidelines as to what words like 'natural' or 'organic' mean. People want more information on labels to make them as truthful and informative as they can be.

•Nutrition information on all foods. Right now, only foods that make some sort of health claim must have nutrition information on the label. Manufacturers may use labeling voluntarily on other foods.

Very often, decisions at the FDA are based on volume of mail, If people feel strongly enough to write, that counts for a lot.

Anyone who wants to comment should write ***before Jan. 5*** to: Dockets Management Branch (HFA-305) Food and Drug Administration, Room 4-62, 5600 Fishers Lane, Rockville, MD 20857.

EAS Annual Meeting Program Event

HAMBLETON AWARD NOMINATIONS

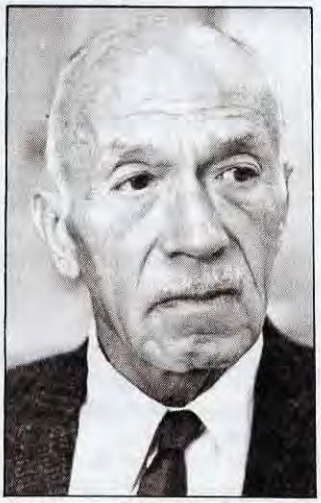
The James I. Hambleton memorial award was established by the Eastern Apicultural Society of North America to recognize research excellence in apiculture. The E.A.S. Student Apiculture award was established to recognize students studying apiculture at the undergraduate or graduate level in a recognized college or university in the United States or Canada. The awards for 1990 will be presented at the annual meeting of the society.

Nominations are now being accepted for both awards. This is an excellent opportunity for the beekeeping industry to recognize the research excellence of its members. Undoubtedly many deserving researchers are bypassed for this recognition for lack of a sponsor.

Each award nomination must include a biographical sketch of the nominee, a list of his/her publications, specific identification of the research work on which the nomination is based and an evaluation and appraisal of the accomplishments of the nominee, especially of work in the last five-year period for Hambleton award nominees (or a shorter period for Student nominees).

Judgment of nominees will be made on the basis of demonstrated excellence in Apiculture (teaching, research, extension and beekeeping), letters or recommendations (at least 2 required) and other supporting information supplied by the nominee and the person who submitted the nomination.

Nominations and supporting information should be submitted to the Hambleton Awards Committee: c/o Eric H. Erickson, Carl Hayden Bee Research Center, 2000 E. Allen Road, Tucson, Arizona 85719. The deadline for submission is February 1, 1990.



James Hambleton, a researcher and USDA Administrator. 1963 Photo.

Urban Expansion Steals from Country Markets

Farm Markets Need New Rules

Zoning Often A Problem

Columbus, Ohio Country and city cousins don't see everything eye-to-eye. And that's causing some difficulty for roadside markets located near urban centers.

"Urban encroachment" is what Fred Grimm calls it. Grimm is a retired Ohio Cooperative Extension Service agent in Oak Harbor. He advises roadside markets in northwestern Ohio and is helping plan the National Direct Marketing Conference and the Ohio Roadside Marketing Conference, Jan. 11-14 in Toledo.

It's a two-edged sword for the roadside market, Grimm says. On one hand, urban expansion means more potential customers. But the rules and regulations that usually follow those new neighbors also make it harder for markets to do business.

And while some markets close rather than deal with new regulations, Grimm says it's still possible to thrive in an urban setting.

"Our big successful operations are close to urban centers and they put on special events that draw thousands of those people out to the market," he says. "These people are dealing with urban expansion just like any other business would. They find out what they have to do and try to negotiate for the best situation."

But that doesn't mean roadside markets need no regulations. Grimm says safety and sanitation guidelines are critical to maintaining the quality of markets. And guidelines such as zoning codes can help separate the market from too-close contact with expanding communities. The key is for direct marketers to have a say in making he rules so that they are reasonable, he says.

Another Pesticide Under Scrutiny

EBDC's TO BE PULLED?

Low fungicide residues found in Ohio State University-produced tomatoes and tomato juice suggest that EBDCs, the world's most widely-used fungicides, may not pose as much of a threat as the U.S. Environmental Protection Agency and some activists think.

EBDC use was severely limited by the EPA Dec. 4 while it continues gathering data on the fungicide and its breakdown product, ethylenethiourea, or ETU. The EPA used statistical estimates based on laboratory animal data to limit the fungicide's use. But the EPA admits that the risks from EBDCs may be lower than those estimates indicate.

Limited studies have found small amounts of ETU in some processed foods made with fruits or vegetables sprayed with EBDC. The EPA considers ETU carcinogenic.

"The highest EBDC residue on unwashed tomatoes, which came from tomatoes sprayed the greatest amount, was 0.98 parts per million," says Robert Precheur, horticulture professor and member of the Ohio State team studying tomato fungicide residues. "That's about one-quarter of the EPA's 4 parts per million tolerance level for EBDC."

The highest ETU residue found in he study's tomato juice, produced in 1988 at a small food processing plant at Ohio State, was less than 0.02 parts per million, Precheur says. Such an amount has been considered insignificant as a threat to human health, he says. Data from Ohio State's 1989 tests won't be available until later.

The EPA has set no tolerance levels for ETU, but it says that concentrated tomato products, such as paste and sauce, are likely have higher ETU levels. However, the EPA has little proof to back the claim. Ohio State researchers have not made paste or sauce in their study, but say ETU levels in their juice indicate little chance of dangerous levels in other tomato products.

"In some cases, under more moderate spray schedules, we found no ETUs in the juice," Precheur says. "The EPA says more concentrated products would have more ETUs, but no matter how many times you multiply zero, you still get zero."

The EPA tolerance levels protect the consumer, Precheur says. They're set at about 100 times less than the amount of residue that the EPA considers a health threat.

"We're talking about carcinogens, and tolerance levels can be thrown out the window because the EPA may consider no level of residue safe for human consumption," says Al Heier, EPA public information officer in Washington, D.C. "Information from a market basket survey, available next summer, will tell us the actual residues in food. That's what we need to make a final determination on EBDC." Under the survey, thousands of raw and processed foods from store shelves nationwide are being tested for EBDCs and ETUs. The survey is being conducted by EBDC manufacturers.

"Determining risk from pesticides is very complex," Precheur says. "Raw data will form just one part of the decision-making process. But our data come from field studies. At this point, EPA figures on residues in raw fruits, vegetables, and in processed foods are assumptions based on mathematical models. There's worry that those models may have no basis in reality."

The Ohio State study began two years ago after a National Academy of Science report attributed nearly 60 percent of daily dietary cancer risk to fungicides. That risk was also determined through statistical models, which estimated that one-quarter of the fungicide risk came from tomatoes and tomato products.

Reach Out

EDITORS RESPOND

Editors of beekeeping trade publications are being sought for the development of a comprehensive list being compiled by two regional beekeeping organizations.

The Southern States Beekeepers Federation and the Eastern Apicultural Society of North America, Inc., are seeking the names and addresses of all current editors of state and local beekeeping publications. The resulting data will be coordinated for use by these organizations for press information.

"Association editors reach many more beekeepers that we cannot reach as regional organizations" says Carole Booth of Allen, Texas, who represents the SSBF in this project. "We are seeking the name of every editor of all bee trade publications in North America, including Mexico and Canada", Booth explained.

Editors are asked to send their name, address and phone number to either Carole Booth, 2820 Orr Lane, Allen, TX 75002, or Dr. Larry Connor, EAS Journal, P.O. Box 817, Cheshire, CT 06410.

HONEY BOARD NEWS

The National Honey Board will hold its annual Domestic Sales and Export Sales Seminars, March 1-2, in New Orleans.

The Domestic Sales Seminar, March 1, will include presentations on consumer, foodservice and industrial market research as well as the National Honey Board's plans for 1990. The Export Sales Seminar, March 2, will include reports on the honey markets in Japan, Saudi Arabia and West Germany and procedures for export.

"Selling is based on good information about your product and your consumers. These seminars provide just that," said Dan Hall, executive director of the National Honey Board.

For a registration packet with hotel and airline information, call Tina Tindall at the National Honey Board office (303) 776-2337 or facsimile (303) 776-1177.

•

The Original Oatmeal Baking Company, a division of DCB, Inc., will now include the National Honey Board's honey bear registered service mark on the packaging of its seven varieties of breads and on its FiberLife brand breads.

"We use honey because we are committed to high quality and healthy ingredients," said Sara Gay of DCB, Inc.

Honey is the primary sweetener in the Original Oatmeal Baking Company and FiberLife breads. "We like the taste of honey in the breads and honey's goodness," said Gay.

Health and good taste are the foundation of DCB, Inc., established by Olympic athletes Doug Burke and Candy Costie. Doug was a member of the U.S. water polo team, which won the silver medal. Candy, with her partner, Tracie Ruiz, won the gold medal in synchronized swimming.

Today, Original Oatmeal Baking Company breads are produced in seven bakeries across the country; approximately 600,000 loaves of bread are produced each month. The FiberLife breads are distributed only on the West Coast at this time.

To use the National Honey Board's honey bear logo, manufacturers must submit product formulation information to the Honey Board's food technology center and sign a service mark use agreement.

Beekeeping Gains Again

ALASKA GIVES GRANT

A Fairbanks beekeeper was awarded a two year, $82,700 grant in October by the Alaska Science and Technology Foundation (ASTF) to expand the beekeeping industry in the State of Alaska. Using his six years of beekeeping experience with his 25 hives, Stephen Petersen, working in conjunction with the University of Alaska Cooperative Extension Service (CES), will develop a Master Beekeeping program, write a hands-on manual targeted to Alaskan conditions, construct an overwintering building, and establish several economic models for the rural development of the apiculture industry. Although beekeeping has been practiced in Alaska since the turn of the century there is little readily available information for Alaskans.

"This two year program is designed to bring Alaskan oriented beekeeping information to the villages as well as the individual who may want to augment income by increasing the number of colonies kept.", explained Petersen. "I feel the potential is there, the market is ready and available, and all we need to do is fill the information gap."

Petersen's project is designed to fill this need by presenting the necessary information for the novice or more experienced beekeeper to successfully keep bees in Alaska. The hands on manual, to be published by the University of Alaska CES, will be a practical guide to Alaskan management of the honey bee colony. It will include the nectar and pollen plants important to northern beekeepers, plans for home construction of beekeeping equipment, management of multi-colony operations, and the marketing of the products of the colony.

The Master Beekeeper program will serve the industry on a State-wide basis by the recognition and training of beekeepers so that they may pass on their expertise not only to novice beekeepers but to the community at large. Community service points will be earned toward a Master's certificate by participation in public programs such as speaking to school age children, participation in local beekeeping associations, retrieval of swarms from unwanted locations, and answering questions about various aspects of beekeeping. Training of the Master Beekeeper will focus on disease recognition and control (the State currently has no funding for apiary inspections), application of Canadian overwintering techniques to Alaskan beekeeping, and teaching others about beekeeping, especially in the widely scattered rural villages.

In addition to construction of an overwintering building with room for 50 colonies, Petersen will establish economic models in the communities of Delta Junction and Nenana. There is a strong interest in these communities in the subsistence lifestyle and the need for economic stability. A cottage industry like beekeeping, with its low capital cost and short time requirements, will fulfill many of these interests. By getting the beekeepers of a rural area to cooperate in the extraction, bottling and marketing of local honey the economic base of these communities and the apicultural effort in the State will expand.

"As a result of my efforts I would like to see an increase in the number of beekeepers in Alaska (currently they number 600-700) and a subsequent increase in honey production and marketing," Petersen commented, "Alaska's vast acreage of wildflowers can be utilized in a benign way and we can put Alaska on the map of honey production.

"The ultimate goal is to develop income sources that are not dependant on the oil industry", Petersen said, "and that's a goal worth working for."

AG NOTES OF NOTE

Farm Bill

Expect budget and environmental issues to overshadow the farm economy in the 1990 farm bill. But that doesn't necessarily mean there will be major changes in the current law, says Carl Zulauf, agricultural economist at Ohio State University.

Zulauf says the budget could force changes in the farm bill. A major, on-going concern with the 1985 farm bill is that it cost too much — farm programs will cost the U.S. government an estimated $9-13 billion per year in 1990 and 1991. That's down from the $26 billion spent in fiscal year 1986, but still well above the $3.4 billion average spent in fiscal years 1980 and 1981.

Recent political changes in Eastern Europe may lead to budget cuts in defense spending, but to help reach the federal deficit level specified by the Gramm-Rudman-Hollings legislation, cuts in federal farm spending are likely, Zulauf says. A slowing economy could force more budget reductions and further curtail spending on farm price and income support programs. Agriculture should start thinking about trade-offs, he says.

"Given the expected budget constraints, it will be almost impossible to fund any new farm programs. The question is: Whose farm program benefits are going to be reduced to pay for updating ASCS yields or more support for soybean growers? Obviously, such a question involves difficult trade-offs," Zulauf says.

Even maintaining current farm program levels could call for some creativity. Zulauf expects government spending to be tied to other issues. And that could mean an unusual coalition between farm and environmental groups, he says. Tying more government payments to specific conservation practices may be a way to keep the flow of government money to support farm income. It will also answer the growing demands of environmental groups.

But so far, Zulauf doesn't see any unity between groups on the issue. Without a common front by both environmental and farm lobbies, he has little hope that plans to even maintain current levels of farm program spending will be worked out.

"What you've got is people questioning expenditures in agriculture," Zulauf says. "You've also got new agenda items like the environment that are going to have to be paid for. And with the budget situation, we're going to see funding for new agenda items primarily through reallocation of existing dollars, not from new dollars."

Accidents Happen

Agriculture has the highest accidental work death rate of all major United States industries. Decisions have to be made, the resulting actions have to be taken quickly. Are you prepared to handle an emergency on your farm? These procedures are described in a new farm safety booklet called "First on the Scene" Developed by the Northeast Regional Agricultural Engineering Service in cooperation with UConn's Extension System, this publication is designed to help educate the untrained individual in assessing the accident situation, stabilizing the scene and reporting the emergency in the most efficient manner possible. "First on the Scene" should be read by all members of the farming family and employees as well. The 50-page bulletin "First on the Scene" (NRAES-12) costs $3.50 including postage and handling. Order from Department of Natural Resources Management and Engineering, UConn, 1376 Storrs Road, Storrs, CT 06269-4087. Make check payable to UConn.

Year Book Available

"How to Achieve Your Farm Business Goals," the 1989 Yearbook of Agriculture, is now available. "I've learned from personal experience as a farmer that seemingly small farm management steps can make a big difference in profits," says Secretary of Agriculture Clayton Yeutter, "and that's one of the reasons U.S. farming is so competitive internationally." Members of Congress have limited free copies for public distribution; the book costs $10 from government bookstores.

Gleanings Article Was The Key

ATI RECEIVES BEEKEEPING AID

The Ohio State University Agricultural Technical Institute (OSU/ATI), Wooster, announced the establishment of a beekeeping scholarship endowment to assist students majoring in beekeeping. Scholarship money is available to qualified students beginning with this quarter, according to the OSU/ATI Financial Aid Office. The endowment is sponsored by Mr. and Mrs. Marshall McDonald of Palo Alto, California.

McDonald, a mechanical engineer with Teledyne Microwave Electronics Corp., read about Dr. James Tew, associate professor at OSU/ATI, in a beekeeping journal and contacted the college offering financial support through a scholarship.

Dr. Tew teaches beekeeping at ATI.

"I read an article James Tew wrote in *Gleanings in Bee Culture* and I was immediately impressed," McDonald said. "Jim wrote on the technical and vocational level of beekeeping and I was delighted that a major institution would approach beekeeping as a vocation and decided to help promote the program through a scholarship."

McDonald has been a hobby beekeeper since 1957 when he read a notice on a company bulletin board.

"The person was selling some hives at a phenomenal price. I made a mental note but did not contact him. Soon after, I was in the company cafeteria and I heard someone say 'if I could just get rid of those damn bees!' I struck a real bargain," he aid.

McDonald's family participates in his hobby. Both his wife, Agatha and daughter, Maija, can handle a swarm. Their older son, Anwyl, worked with an outfit specializing in queens for a period of time.

McDonald and Dr. Tew met for the first time at a Western Apiculture Conference held in Tacoma, Washington, in 1988 and have spoken on a number of occasions since that time.

Dr. Tew has been the coordinator for Apiculture Programs at OSU/ATI since 1978. He is also the state beekeeping specialist for the Ohio Cooperative Extension Service and national program leader in Apiculture for the USDA Extension Service. Tew serves on the USDA interagency working group in Washington, D.C. on Africanized honey bees and bee mites and the USDA Animal, Plant and Health Inspection Service technical working group in Mexico.

OSU/ATI, The Ohio State University's technical college, offers the only two-year beekeeping program in the world. The college's 5,000 square feet facility features modern equipment for handling honey, wax and pollen. Laboratory facilities provide equipment for diagnosing bee diseases, instrumentally inseminating queens, identifying pollen sources and grading honey. The college's 280 bee colonies and 100 plus queen mating colonies offer practical training in all aspects of beekeeping.

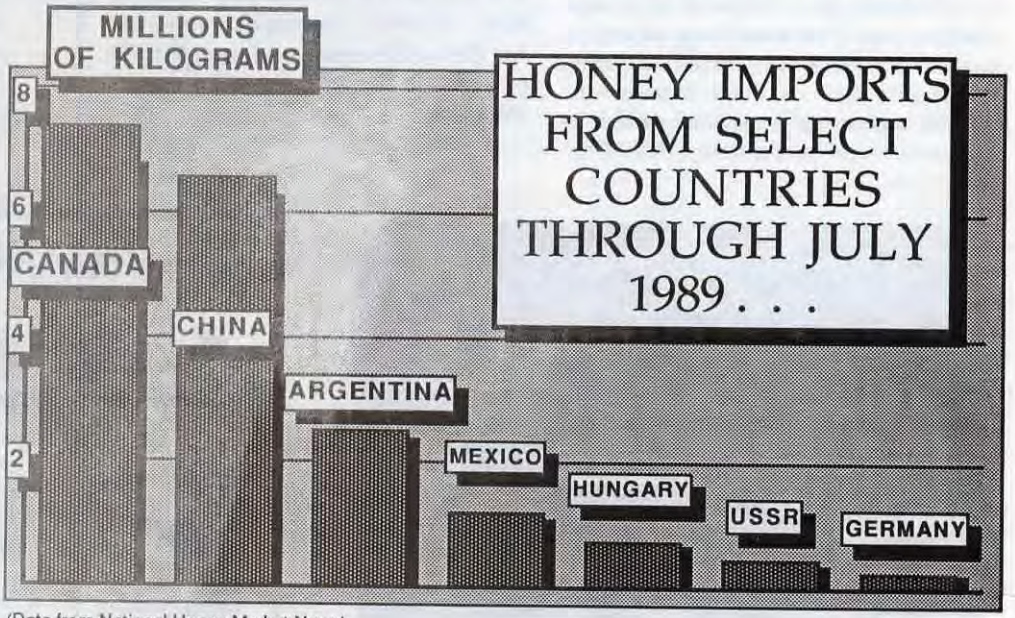
OSU/ATI has offered nine international beekeeping conferences which have been attended by more than 250 participants from about 40 countries. For developing countries, beekeeping frequently represents an untapped natural resource. It is a source of food and income easily developed at low cost in even the most remote regions. An additional benefit of a developed beekeeping industry is improved pollination of cultivated crops. Increased yields through improved pollination has significant economic importance.

OSU/ATI offers the Associate in Applied Science degree from The Ohio State University. There are 20 technical programs to choose from in Agricultural Businesses, Horticultural Industries, Engineering Technologies, and Animal Industries.

Students complete half their credits in writing, speaking, mathematics, science, social science, and business. OSU/ATI's technical courses emphasize theory and hands-on education and require an industry internship. The college's placement rate is noteworthy with 95.6% of the graduates finding employment within 120 days of graduation.

A local beekeeping organization, Tri-County Beekeepers, also funds a scholarship for beekeeping students at ATI, and was the first to do so. The two funding sources will be a great help for beekeeping students at ATI.

THE U. S. HONEY IMPORT PICTURE



(Data from National Honey Market News)

Display Index

In Defense Of Keeping Bees

HOWARD SCOTT

Keeping bees is a strange experience. I don't mean this in a negative light, but it's unrelated to anything else I do, and it's completely foreign to my peers. It strikes me that this uniqueness is the prime reason many who have started a hive, quit; and many who think about doing it never begin.

It's understandable. From childhood we are taught that insects are annoying. The thought of a bug crawling on one's skin sends shivers up most people's spines, and the notion of an individual intentionally keeping a whole colony of stinging insects seems, on the surface, daft. At least this is the conventional view.

During the seven years I've kept bees, I've heard nearly nearly every kind, and unkind comment imaginable — "Why on earth do you have a beehive?", "What a weird hobby!", "I've never met anybody who actually keeps bees!", "Don't you just hate when they crawl all over you!", "How much can it pay?"

I guess one of the most important reasons I keep bees is because their world is so different from mine. When I go into a hive, with the clamorous buzzing, the thuds of bodies against my veil, the heat, the cloying smell of insect sweat and honey, I am transported to a nether world of exotic bazaars, of dangerous journeys and mystical encounters. Working above them, it's as if I am God.

But does keeping bees interfere with nature that varied, multifarious and ingenious mother? Actually, she handles my interruption with aplomb. When I try to guess what is going on in the hive, as often as not the bees show me to be incorrect. And when I feel in control they do the totally unexpected

A beekeeper soon learns that nature isn't ordered around. Rather, a keeper of bees must go with the flow, to fit into the fold. In fact, when beekeepers and bees agree it's high bounty for everybody. The bees create an abundance of honey stores and give the keeper the surplus. And, serendipitous, as a result of the extra effort they pollinate a much larger area. In truth, this synergistic interference shows nature at her abundant best.

Through all this beekeepers learn to be active bystanders. That's about the right stance for man in nature. For although we act and even partake; at best we're just onlookers. That's the great and humbling thing about keeping bees — it shows man where we are in the scheme of things — just another critter.

When people question the efficiency of beekeeping, my usual response goes, "Is the purpose of life just to do things as efficiently as possible?" In truth it would be easier to purchase honey at the store, but I'd lose much. I wouldn't have an appreciation for the combined efforts of man and insect that went into making the food. I'd miss out on all the miraculous events — the nuptial flight of the queen, the hunt for pollen, the factory-efficient processing, the capping after curing and the amazing harvest — that made the bounty possible. I wouldn't understand how much luck was involved — how the forces of weather, climate and fertility had to mesh just so, and how important a role timing played.

One has a choice; accept what's on the surface, or dig beneath it. The digger reaps the reward of knowledge and appreciation. My honey tastes special. It's aroma has a dense sweetness, and it has a full, rich, blossomy bite with an aftertaste of golden pears. No supermarket buyer could discern such subtleness of flavor.

Often I bring honey to my disparaging friends. It's marked with my label, Dancing Hill Honey, which is the name of our property. The jar has heft. Bubbles rise from the golden depth, and seen through the light the mass has a luminescent quality. In all the years of giving I've never heard a word of protest.

Above all, I often think of the mysteries — the bees' total submission to the hive, the so-important mili-inch space, the ready-made purity of the food, the Kamikaze sting, the pilgrimage swarm to find a new home. These are the things that make me wonder about life.

And this is why I keep bees. □

BOTTOM·BOARD